Tuesday, August 27, 2024, 6:00 PM One DesCombes Drive Broomfield, CO 80020

#### 1: Meeting Commencement

- 1A. Pledge of Allegiance
- 1B. Review and Approval of Agenda

#### 2: Petitions and Communications

#### 2A. Proclamation Declaring September 2024 as Workforce Development Month

To promote skills, education attainment, and local innovation in Broomfield

2B. Proclamation Declaring August 31, 2024 as International Overdose Awareness Day

#### 3: Councilmember Reports

#### 4: Public Comment

#### 5: Reports

- 5A. Performance and Internal Audit Semi-Annual Update
- 5B. Event Center Demolition Approach

Review and request for direction related to Event Center demolition/deconstruction options.

#### **6: Consent Items**

#### 6A. Approval of Minutes

Approval of minutes from August 13 Regular Council Meeting

- 6B. Board of Equalization Approval of Abatement Petition Administrative Denials
  - Resolution 2024-106-BOE A resolution approving three administrative denials on abatement petitions
- 6C. Board of Equalization Approval of Corrected Mutual Agreement for Abatement
  - Resolution NO. 2024-112-BOE BOE Approval of a correction to a previously approved mutual Agreement for an abatement over \$10,000
- 6D. Proposed Resolution approving an Amended and Restated Intergovernmental Agreement Concerning the Boulder-Broomfield Regional HOME Consortium
  - Resolution 2024-124
- 6E. Proposed Resolution approving an IGA with RTD for Election Services
  - Resolution No. 2024-125 authorizing an IGA for Election Services between the City and County of Broomfield and the Regional Transportation District (RTD)

#### 7: Action Items

- 7A. Rezoning GDC City and County and Police Buildings Ordinance 1st Reading
  - Ordinance No. 2249 GDC & Police Buildings Rezoning
- 7B. Proposed Resolution Approval of the Raptor Plan
  - Resolution Number 2024-101 Approving the 2024 Raptor Management Plan
- 7C. Proposed Resolution Withdrawal from the Rocky Flats Stewardship Council
  - Proposed Resolution No. 2024-119 Issuing a Notice of Intent to Withdrawal from the Rocky Flats Stewardship Council

#### 8: Mayor and Councilmember Requests for Future Action

### 9: Adjournment

The City and County of Broomfield operates without regard to race, color, national origin, ethnicity, citizenship, immigration status, gender, age, sex, sexual orientation, gender identity, gender expression, marital status, source of income, military status, or disability in all programs and activities.

Individuals with disabilities requiring accommodation or persons needing a language interpreter must submit such a request to the City Clerk no later than noon on Thursday prior to the scheduled Council meeting to allow adequate time to make arrangements. Please call 303.438.6332 or TDD 303.465.5411 or write cityclerk@broomfield.org to make your request.

During the meeting, individuals can click the "CC" button on Live Council meeting video feeds to view closed captioning. Auxiliary hearing aid equipment can be requested on the night of the meeting with our AV team located at the back of the Council Chambers.

COLORA

Date Posted: 2024-08-21T23:00:58.670Z



# **City of Broomfield**

## **City Council Regular Meeting**

#### Proclamation Declaring September 2024 as Workforce Development Month

To promote skills, education attainment, and local innovation in Broomfield

Meeting	Agenda Group						
Tuesday, August 27, 2024, 6:00 PM	Petitions and Communications	Item: 2B					
Presented By							
Dan Casey							
Commun	nity Goals						
✓ Financial Sustainability and Resilience							

#### Overview

#### View Correspondence

The world of work continues to evolve rapidly, and the development of Broomfield's current and future workforce is and will continue to be critical to Broomfield's economy and prosperity. Emerging technology, automation, artificial intelligence, globalization, and the shift to sustainable energy have and will continue to change how and where we work.

It is critical to promote skills and education attainment so Broomfielders are ready for the jobs of today and tomorrow, to support employer leadership to remain relevant to evolving industry needs, and to advance local innovation. This proclamation declares September 2024 as Workforce Development Month.

#### **Attachments**

Workforce Development Month Proclamation Memo 2024.pdf Workforce Development Month 2024 Proclamation.pdf Memo for Proclamation Declaring September 2024 as Workforce Development Month Prepared By: Celia Hardin

# **Summary**

#### View Correspondence

The world of work continues to evolve rapidly, and the development of Broomfield's current and future workforce is and will continue to be critical to Broomfield's economy and prosperity. Emerging technology, automation, artificial intelligence, globalization, and the shift to sustainable energy have and will continue to change how and where we work.

It is critical to promote skills and education attainment so Broomfielders are ready for the jobs of today and tomorrow, to support employer leadership to remain relevant to evolving industry needs, and to advance local innovation.

Education, work-based learning, and other upskilling and reskilling pathways are key to preparing Broomfielders for the future of work. We must ensure that all Broomfielders have access to opportunities for high quality life-long education that is connected to in-demand and growing career paths.

Broomfield's employers continue to need support to recruit and retain talent, create quality jobs and ensure businesses are able to fully operate and optimize operations. They too can benefit by partnering with their local Workforce Center, to help them grow their talent pipeline and strengthen industries, expand apprenticeship programs, and propel Broomfield's economic vitality through job creation.

The Broomfield Workforce Center of the City and County of Broomfield provides a wide variety of no cost workforce programs to support individuals on their path to employment and help businesses find the talent they need. Every one of Broomfield's dedicated workforce development professionals, in partnership with many organizations throughout the Broomfield community, work tirelessly to deliver workforce solutions for businesses and individuals to meet the employment challenges of tomorrow.

This proclamation declares September 2024 as Workforce Development Month. To further outreach to the residents and businesses of Broomfield, and to recognize the efforts of workforce professionals who are dedicated to creating employment opportunities that benefit individuals, employers, and a thriving community, the Broomfield Workforce Center has planned several events to take place during the month of September to include job seeker and employer workshops, and a Metro Area Career Fair in collaboration with other workforce centers across the Denver metro area.

#### **Boards and Commissions Prior Actions and Recommendations**

N/A

# **Proposed Actions / Recommendations**

If approved, sign the Proclamation.

#### **Alternatives**

N/A



# PROCLAMATION DECLARING SEPTEMBER, 2024 AS WORKFORCE DEVELOPMENT MONTH

- WHEREAS, the world of work continues to evolve rapidly, and the development of Broomfield's current and future workforce is and will continue to be critical to Broomfield's economy and prosperity. Emerging technology, automation, artificial intelligence, globalization, and the shift to sustainable energy have and will continue to change how and where we work; and
- WHEREAS, it is critical to promote skills and education attainment so Broomfielders are ready for the jobs of today and tomorrow; to support employer leadership to remain relevant to evolving industry needs; and to advance local innovation; and
- WHEREAS, education, work-based learning, and other upskilling and reskilling pathways are key to preparing Broomfielders for the future of work. We must ensure that all Broomfielders have access to opportunities for high quality life-long education that is connected to in-demand and growing career paths; and
- WHEREAS, Broomfield's employers continue to need support to recruit and retain talent, create quality jobs and ensure businesses are able to fully operate and optimize operations; they too can benefit by partnering with their local Workforce Center, to help them grow their talent pipeline and strengthen industries, expand apprenticeship programs, and propel Broomfield's economic vitality through job creation; and
- WHEREAS, the Broomfield Workforce Center of the City and County of Broomfield provides a wide variety of no cost workforce programs to support individuals on their path to employment and help businesses find the talent they need; and that every one of Broomfield's dedicated workforce development professionals, in partnership with many organizations throughout the Broomfield community, work tirelessly to deliver workforce solutions for businesses and individuals to meet the employment challenges of tomorrow.

I invite all citizens in the community to use this month to recognize the contributions of workforce professionals and participate in events and initiatives that support job seekers and employers in the Broomfield community.

NOW, THEREFORE, I, Guyleen Castriotta, Mayor of the City and County of Broomfield, do hereby declare and proclaim September, 2024 as:

#### WORKFORCE DEVELOPMENT MONTH IN BROOMFIELD

In witness whereof, I hereunto set my hand and official seal on this the 27th day of August 2024.

Guyleen Castriotta Mayor



# **City of Broomfield**

## **City Council Regular Meeting**

#### Proclamation Declaring August 31, 2024 as International Overdose Awareness Day

Meeting	Agenda Group
Tuesday, August 27, 2024, 6:00 PM	Petitions and Communications Item: 2C
Presented By	
Jason Vahling	
Commu	nity Goals

#### Overview

#### View Correspondence

The City and County of Broomfield is making significant progress on its efforts to reduce stigma around mental health and substance use, increasing access to mental health and substance use services and increasing community connectedness. However, there is still substantial work to fulfill in its <u>Behavioral Health Improvement Plan</u>. Broomfield Public Health and Environment, Library, the Police Department, Human Services, the Municipal Courts and other key stakeholders continue to identify strategies that lessen the impact of substance use on our community. Including the mental health co-responder program (B-Core), the Communities that Care Coalition aimed at youth and the newly formed Opioids Regional Council.

#### **Attachments**

2024 International Overdose Awareness Day Council Memo (1).pdf 2024 International Overdose Awareness Day Proclamation.pdf

# **Summary**

#### View Correspondence

The City and County of Broomfield is making significant progress on its efforts to reduce stigma around mental health and substance use, increasing access to mental health and substance use services and increasing community connectedness. However, there is still substantial work to fulfill in its <u>Behavioral Health Improvement Plan</u>.

Broomfield is part of the coalition that reached a settlement from a federal lawsuit against manufacturers and distributors of prescription opioids. The Colorado Attorney General and local government attorneys and leaders have secured over \$740 million, Broomfield is receiving over \$3 million over 18 years. Broomfield has convened an Opioids Regional Council for the past three years, which is developing a <u>local framework and workplan</u> for the distribution of Broomfield's allocation.

#### Background Information:

- In 2023, 1,865 Coloradans died of drug overdoses- a 3.7% increase from 2022 (Colorado Vital Records). Fentanyl, a synthetic opioid, is the substance that makes up the majority of all overdose deaths (Colorado Vital Records). Overdose deaths continue to remain near record highs (Colorado Vital Records). Among Broomfield residents, in 2023, there were 10 overdose deaths, 3 of which involved an opioid- a decrease in overdose deaths from 2022 (14 drug overdose deaths, with 11 due to an opioid) (Colorado Vital Records). Broomfield had the second lowest rate of drug overdose deaths in the metro area in 2022 at 15.3 per 100,000 people, compared to a high of 46.2 in Denver.
- The majority of overdoses have occurred in individuals between the ages of 25 and 44 years old in Broomfield, which is consistent with deaths across the state.
- There were 139 hospital encounters (emergency department visits plus hospital admissions) due to overdose in Broomfield in 2023 (<u>Colorado Vital Records</u>). From 2022 to 2023, hospital encounters increased for the state (15,428 to 15,553) but Broomfield saw a decrease (153 to 139) (<u>Colorado Vital Records</u>).
- In 2023, 6.5% of high school students in Broomfield and Boulder Counties reported using prescription pain medications without a doctor's prescription. This is a decrease from 2021 data (11.9%%) (<u>Colorado Vital Records</u>).

Current programming aimed at overdose and substance misuse prevention in Broomfield includes:

- o In the last year, Broomfield has given out 1,295 boxes of Narcan across our distribution efforts including at the Library, Municipal Courts, and by Public Health through screening clients in the clinic, at trainings, and community events. Access to Narcan continues to be a proven strategy for overdose prevention and Broomfield will continue to make Narcan available to community members.
- o Broomfield Police Department (PD) issues Narcan to all of its police officers for emergency use in overdose situations, and officers have deployed Narcan 7 times in 2023 and 3 times in 2024 to date. PD has seen a reduction in Narcan deployments in the last couple of years. PD also continues to enhance the mental health co-responder program (B-Core) that pairs law enforcement and mental health clinicians to respond to mental health-related calls for police service which often coexists with substance abuse. Additionally, PD-Detention Center has partnered with Corr Health to enhance its jail-based mental health and addiction services within the Detention Center. This includes 99 inmates completing the Medical Assistance Treatment (MAT) program from March-June 2024. There were 28 inmates continued and 71 started on the MAT program from March-June 2024, of which 78 received discharge/release services from March-June 2024 since Colorado Legislative efforts began in 2022. The facility is now an authorized "Narcan bulk fund" site, making Narcan available to all released inmates who meet criteria and/or request this life saving medicine.
- Public Health and Environment leads the <u>Communities That Care</u> (CTC) coalition, which aims to influence
  underlying factors that contribute to or protect against youth substance abuse. The coalition has three key
  strategies: create safe spaces for youth; increase funding and access to school-based extracurricular
  activities; and advocate for enhanced school quality through funding and supporting social emotional learning.
- Public Health and Environment is running two localized communications campaigns geared towards education and awareness around opioid use. The Connect Effect campaign highlights youth making healthy choices, and Lift the Label is an opioid and Narcan stigma reduction campaign. Both campaigns are running this summer

- and based off of the performance of previous years' campaigns, they are expected to perform well on social media (last year, Broomfield's Lift the Label campaign saw over 1.7 million impressions).
- o To honor International Overdose Awareness Day 2024, Broomfield will be hosting a memorial service event to honor those we have lost in our community to overdose. Join us on the morning of Friday August 30th at 9am we will gather at the lake outside of the Broomfield Library to recognize those lost to overdose in our community. Listen to stories of those impacted by overdose and walk the loop around the lake to honor those who have passed. Narcan will be available to take with you and refreshments will be provided. Learn more at the Broomfield Opioid Overdose Prevention webpage.

### **Boards and Commissions Prior Actions and Recommendations**

N/A

**Proposed Actions / Recommendations** 

N/A

**Alternatives** 

N/A



# PROCLAMATION DECLARING AUGUST 31, 2024 AS INTERNATIONAL OVERDOSE AWARENESS DAY IN THE CITY AND COUNTY OF BROOMFIELD, **COLORADO**

WHEREAS,	protecting the health and safety of residents is Broomfield's highest responsibility; and
WHEREAS,	when elected officials, law enforcement, and local government work together with residents, there is a collaborative effort in keeping everyone safe; and
WHEREAS,	numerous public health organizations and the Colorado Department of Public Health and Environment have identified overdose prevention as a major public health issue; and
WHEREAS,	in 2023, there were 1,865 deaths due to drug overdose in Colorado, with 10 of these deaths were in Broomfield; and
WHEREAS,	there were 139 hospital encounters due to overdose in Broomfield in 2023; and
WHEREAS,	in 2023, 6.5% of high school students in Broomfield and Boulder Counties reported using prescription pain medications without a doctor's prescription; and
WHEREAS,	Broomfield Public Health and Environment, Library, the Police Department, Human Services, the Municipal Courts and other key stakeholders continue to identify strategies that lessen the impact of substance use on our community. Including the mental health co-responder program (B-Core), the Communities that Care Coalition aimed at youth and the newly formed Opioids Regional Council.

NOW, THEREFORE, I, Guyleen Castriotta, Mayor of the City and County of Broomfield, do hereby declare and proclaim August 31, 2024 as:

### INTERNATIONAL OVERDOSE AWARENESS DAY IN BROOMFIELD

In witness whereof, I hereunto set my hand and official seal on this the 27th day of August 2024.

Guyleen Castriotta	
Mayor	



# **City of Broomfield**

# **City Council Regular Meeting**

#### **Performance and Internal Audit Semi-Annual Update**

Meeting	Agenda Group
Tuesday, August 27, 2024, 6:00 PM	Reports Item: 5A
Presented By	
Bernie Block	
Commur	nity Goals

#### Overview

View Correspondence

The Performance and Internal Audit (PIA) Department seeks questions / comments from City Council regarding the activities described in the accompanying City Council memo, which provides an overview of PIA activities since the last City Council update in August 2023. These activities generally include a combination of performance audits, special projects/reviews, business process improvement projects, consultation, audit follow-ups, professional development, and other assignments.

#### **Attachments**

<u>City Council Memo for 8-27-2024 PIA Semi-Annual Update.pdf</u>
<u>Attachment 2 - PIA Status Updates.pdf</u>
<u>Attachment 1 - 2024 Annual PIA Project Plan as of 7-29-2024.pdf</u>

# **Summary**

#### View Correspondence

The **Performance and Internal Audit (PIA)** Department seeks questions / comments from City Council regarding the activities described below. City Council previously requested semi-annual updates on PIA activities. In December 2023, an annual organizational risk assessment was completed, then based in part on the assessment, the potential future audit projects list was updated and priority ranked. The resulting **2024** *Annual Project Plan* (Attachment 1), which reflects the scope and objectives of projects, has been updated based on new information and the changing needs of the organization. Since the last City Council update in February 2024, work has been conducted on the activities described below.

**Performance Audits** provide assurance or conclusions based on an evaluation of sufficient, appropriate evidence against stated criteria, such as specific requirements, measures, or defined business practices. These audits are performed in accordance with Generally Accepted Government Auditing Standards (GAGAS) and generally focus on program effectiveness and results, internal controls, compliance, and prospective analysis. The **PIA Status Updates Listing (Attachment 2)** provides a summary of all performance audit findings, recommendations, and the status for issued audits with open and recently implemented items. Performance Audits completed or in progress since the last update include the Americans with Disabilities Act (issued April 2024), 2024 Revenue Payment Processing (report review in-progress), and Fleet Services (planning in-progress).

**Special Projects/Reviews** are unscheduled, narrowly focused reviews on a specific topic requested by the City and County Manager's Office. Due to the limited, narrow focus of these activities, the projects are not conducted in accordance with GAGAS. No Special Reviews have been conducted since the last update.

**Business Process Improvement (BPI)** projects focus on operational efficiencies by working directly with process owners to eliminate waste and improve workflows throughout the City and County of Broomfield (CCOB). The structure of BPI projects vary depending on the goals and objectives of each project. BPI projects completed or in progress since the last update include the Library, Arts, History, and CSU-Extension Agreements (completed March 2024).

**Consultation** is provided to management and staff on various internal control and process improvement related topics. This includes participation in meetings related to the forthcoming Enterprise Resource Planning (ERP) procurement/implementation, grant administration, and external audit. Most other consulting activities are informal and do not involve an issued report.

**Professional Development** activities include assisting the Diversity, Equity, and Organizational Development Development Department with the development and delivery of process improvement and change management training materials for the CCOB Innovation Ecosystem program. Innovator training sessions have been delivered (June and July of 2024) and additional sessions will be offered in the fall of 2024.

**Other activities** include: participation on the Strategic Planning Committee, audit follow-ups, and maintenance of the CCOB Employee Fraud Hotline.

### **Financial Considerations**

# **Prior Council or Other Entity Actions**

The last PIA update was provided on February 27, 2024.

# **Boards and Commissions Prior Actions and Recommendations**

N/A

# **Proposed Actions / Recommendations**

The PIA Department seeks questions / comments from City Council regarding the activities described above.

# **Alternatives**

N/A

Performand	e and Int												
Audit & Special Reviews Issue Date	Dept / Division	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report					
	<b>Note</b> - This is a summarized version of the audit findings and recommendations.  Please refer to the detailed audit report if the context of certain findings and the rationale for the related recommendations are not be readily apparent.												
					y of Broomfield, CD = Community Development, CIP = Capit		ment Progran	n, CMO = City Manager's Office, EM = Emergency Manager					
	FM = Fleet	Maintenance, HH	S = H	ealth & Human Services, HR = Human Resources	, IT = InfoR&Sation Technology, OST - Open Space & Trails,	PD = Poli	ce Departmen	t, PW = Public Works, R&S = Risk & Safety, PRSS = Parks					
CCOB Risk Mgmt Process 3/31/2013	CCAO / R&S	Reconciling CCOB Fixed Assets Listing to CIRSA Application	4	an annual basis to the CCOB Fixed Asset Listing b. Replacement costs on CIRSA application are not substantiated	a. Conduct a more comprehensive annual reconciliation of CIRSA application asset data     b. Develop methodology that supports the reasonableness of replacement cost values on CIRSA application	Medium	12/2026 12/2025 12/2022 12/2020 12/2019 12/2018 6/2014	Major CCOB assets have been reconciled to the CIRSA application and adjustments made accordingly. However, a sustainable, repeatable process that includes all CCOB assets is still being developed. While Finance maintains an asset listing for financial reporting purposes, it does not reflect all organizational assets (e.g. assets with a cost less than the capitalization threshold) or the estimated replacement costs. An asset management system would help ensure all relevant factors are considered. Management is aware of this issue and plans to fully address it when the asset management system is implemented (see recommendation #7 in Capital Improvement Program Audit issued 8/21/2013 for additional details).					
CCOB Risk Mgmt Process 3/31/2013	CCAO / R&S	Insurance Alternatives Due Diligence	7	purchased from CIRSA) has not been competitively priced in recent years, nor has a	Obtain competitive quotes on property and liability insurance. Prepare a comprehensive analysis of a self-insurance option for property and liability insurance and in-house risk management staffing.	Low	12/2026 12/2025 12/2022 12/2020 6/2019 12/2018 Original TBD	Risk & Safety has explored other insurance alternatives by obtaining competive insurance quotes from different insurance companies. In some instances new insurance policies (e.g. cybersecurity) were obtained in lieu of CIRSA coverage. Self-insurance alternatives have also been explored, which could result in future self-insured alternatives (e.g. workers compensation). However, other factors, such as law enforcement liability and hail, make self-insurance less attractive at this time for casulty and property insurance. Finally, the CCOB would relinquish its equity position with CIRSA if other options are pursued. Thus, CIRSA still provides the most cost effective alternatives for casulty and property insurance at this time. Since competitive quotes continue to occur, and self-insurance alternatives have been seriously evaluated, this item has been addressed for audit purposes.					
CCOB Risk Mgmt Process 3/31/2013	All Depts.	Proper Risk Notification	8	are not tracked and the Police Department	Track notification forms in use to ensure current and periodically review. The Police Department should have a notification form signed by users from other agencies.	Low	12/2024, 6/2024, 10/2023, 4/2023, 9/2022, 12/2021, 4/2021, 1/2021, 6/2020, 9/2018, 6/2018, 1/2017 Original TBD	A CCAO Attorney will be assisting Risk & Safety with the collection and review of waivers / consent forms currently in use. A Google Drive folder has been created where these documents will be stored. A revision date will also be added to the documents so that future reviews can be scheduled. A few more months are necessary to complete this item.					

Performanc	e and Int	ernal Audit Sta	atus l	Jpdate				
Audit & Special Reviews Issue Date	Dept / Division	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
Capital Improvement Program (CIP) 8/21/2013	Finance, PW	CIP Policies / Procedures Related to Capital Asset Data	1	Organizational guidelines related to capital asset tracking and reporting need to be developed.	Finance and Public Works Departments should work together to enhance the organizational policies and procedures governing capital asset inventory records.	Medium	12/2026 12/2025 12/2022 6/2022 12/2020 6/2019 12/2018 6/2014	A cross-functional group of CCOB employees will be evaluating asset tracking and CIP administration processes (see Recommendation 3 below for additional details). The content from the project will be used to help identify the required CIP policies and procedures, which will then be documented and communicated throughout the CCOB. This will be done in conjunction with the Asset Management System project, which is currently scheduled to be conducted in approximately 2026 (see Recommendation 2 below for additional details).
Capital Improvement Program (CIP) 8/21/2013	All Depts.	Use of Technology in the Capital Planning and Asset Management Process	2	purposes, is a convoluted process involving various forms and systems that are used to track and report on capital assets. The information is often duplicative amongst the various forms and systems and information that resides in several locations must be periodically reconciled. This is a time-consuming and error prone process. In other cases, the assets are simply not effectively tracked and managed.	CCOB management should consider implementing an integrated capital asset management system that can be used consistently by the various functions throughout the organization for tasks such as tracking asset additions and deletions, financial reporting (i.e. asset balances, depreciation, accumulated depreciation, etc.), budget planning (CIP and operational), asset maintenance scheduling and tracking, and asset inventories. At a minimum, the Finance, Public Works, and Information Technology Departments should be included in this exercise.	Medium	12/2026 12/2025 12/2022 6/2022 12/2020 6/2019 12/2018 6/2014	Management agrees that an Asset Management System would be beneficial to the CCOB. A cross-functional project will take place in conjunction with system identification and implementation process (see Recommendation 3 below for additional details). However, this project has been deferred to 2026 for finanical reasons. A comprehensive assessment of organizational asset management needs will take place prior to procuring an information system (see Recommendation 3 below for additional details).
Capital Improvement Program (CIP) 8/21/2013	All Depts.	Future Business Process Improvement Project (BPI)	3	There was insufficient time (and it was beyond the audit scope) to thoroughly identify, discuss and implement strategies for improving the overall CIP process. More time should be dedicated by management to improve the efficiencies and effectiveness of the CIP process.	Management should consider conducting a BPI project focused on the CIP process. The BPI project would involve a cross-functional group of stakeholders who would work together during a concentrated period of time to identify and implement opportunities for improving the CIP process.	Medium	12/2026 12/2025 12/2022 6/2022 12/2020 6/2019 12/2018 6/2014	When the organization is prepared to move forward on Asset Management System project an evaluation involving representation from various departments throughout the CCOB will be conducted.
Capital Improvement Program (CIP) 8/21/2013	Finance	Report of Capital Facilities	7	A standard report that communicates the existence and condition of existing capital assets does not exist. Currently, the information needed to prepare a detailed capital asset report is not readily available because the information is either maintained in different systems, or it is not currently tracked.	The Finance Department, cooperating with other Departments that maintain asset information, should prepare a comprehensive Report on Capital Facilities at least every one to three years.  Note – this recommendation is partially dependent on the first two recommendations since consistent capital asset data from reliable identified sources is a prerequisite.	Low	12/2026 12/2025 12/2022 6/2022 12/2020 6/2019 12/2018 6/2014	An asset management system (see recommendation #2 above) would greatly facilitate the preparation of a comprehensive report on capital facilities. Thus, the report will be prepared after a system has been implemented and sufficiently populated.

Performance	Performance and Internal Audit Status Update							
Audit & Special Reviews Issue Date	Dept /	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
		Grant Billing and	1	· · ·	The Finance Department should:	_		A Grants Policy is currently being developed by the Finance, in
Grants Billing and Cash Receipts 03/15/2016	Finance - Acctg & Budget	Grant Billing and FINS Reconciliation Process	1	CCOB policies and procedures related to grant financial administration are limited, and grants are administered in a decentralized manner by the departmental administrators with varying accounting backgrounds. As a result, inconsistent grant accounting practices exist. There are also several examples of expense tracking methods (generally Excel spreadsheets) within the organization that are used for grant financial reporting purposes, opposed to using the official accounting records from FINS.	The Finance Department should:  a. Follow-through with its plans to address the FINS shortcomings (i.e. timeliness and comprehensiveness of grant payroll and purchasing card data), which are a factor causing departments to maintain supplemental, inefficient, and sometimes inaccurate accounting records.  b. Develop a standard operating procedure (SOP) that requires cost-reimbursable grant billings to be based on a FINS financial report. Providing examples of how typical billings should be prepared will help ensure consistency and departmental compliance.  c. Develop an SOP that requires departmental grant administrators to evaluate both the programmatic and financial position of the grant at least two months prior to grant termination.  d. Develop an SOP requiring departmental grant administrators to document a final FINS reconciliation within 60 days of the grant termination. For most fully-expended, cost reimbursable grants this should include: 1) award amount equals revenue; 2) revenue equals cash receipts; 3) expenses equal revenue (adjusted for cost-sharing requirements); and 4) the fulfillment of cost-sharing	Medium	a. TBD - currently dependent on BORIS enhancement  c. Implemented  b & d 10/2024 6/2024 12/2022 5/2022 3/2021 6/2020 4/2019 11/2018 8/2018 12/2017 6/2017	A Grants Policy is currently being developed by the Finance, in which many of these audit recommendations will be addressed. A Policy Committee that includes representatives from the Grants Users Group, the Finance Department, and PIA will be reviewing the draft Grants Policy in the summer/fall of 2024. The goal is to have the final policy issued later in 2024.  In addition to the Grants Policy, several practice aids have been updated and developed by the CCOB Grants Administrator, which are available on an updated CCOB intranet Grants webpage. This includes a Closeout Checklist that covers tasks and considerations that should be addressed during the grant wind-down and post termination closeout phases.
					requirements.		10/0004	
Grants Billing and Cash Receipts 03/15/2016	Finance - Acctg & Budget	Accounts Receivable	2	The majority of CCOB departments are only booking grant revenue when payments are received, opposed to accruing revenue and establishing an accounts receivable balance.	The Finance Department should establish an SOP that requires all departments to recognize grant revenue, and to establish an accounts receivable balance, whenever there is a billing to an external grantor. All grant billings should be routed through the Finance Department so that the billings can be reviewed and accounts receivable balances can be established.	Medium	10/2024 6/2024, 12/2022, 5/2022, 3/2021, 6/2020, 4/2019, 11/2018, 8/2018, 12/2017	This item will be addressed via the new Grants Policy, which is currently in draft form. See item #1 above for more details.
Grants Billing and Cash Receipts 03/15/2016	Finance - Acctg & Budget	Cost Sharing	4	All grant project expenses are charged to the same account and grant code, regardless of whether the expense is reimbursable grant item, designated cost share, or simply extra project related expenses.	a. Finance should establish an SOP for recording grant sharing expenses that will allow cost reimbursable expenses to be distinguished from cost share expenses within FINS.      b. Departments should first charge expenses to the cost reimbursable grant code, and then charge the remaining project expenses to a distinguishable cost share grant code (assuming there are no grant restrictions to the contrary).	Medium	a & b 6/2024 12/2022 5/2022 3/2021 6/2020 4/2019 11/2018 8/2018	This item will be addressed via the new Grants Policy, which is currently in draft form. See item #1 above for more details.

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Audit & Special Reviews Issue Date Police Dept	Dept / Division Police	<b>Topic</b> Time Reporting	# 1	Finding The PD has not established time based performance standards for routine daily tasks.	Recommendation  The PD should develop a listing of all data elements needed to effectively track hours associated with standard time, regular	Priority Ranking Medium	Revised & Original Estimated Complete Date(s) TBD - currently	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report The Police Department is tracking basic hours in the BORIS payroll system at this time. However, the project reporting
Overtime 5/23/2016				Standards for fourtile daily tasks.	overtime (OT) and Extra Duty Assignment (EDA) OT. Where practical, performance standards should also be developed and associated with routine, standard processes. The PD should also attempt to incorporate this enhanced staffing/timekeeping data into the budgeting process.		dependent on BORIS enhancement or replacement 6/2018 3/2018 5/2017	process in BORIS is cumbersome and time-consuming so it is not practical at this time to enter programatic data (including OT & EDA) when reporting time. Once enhancements to to BORIS project time reporting are available, or the replacement of the BORIS system occurs, the PD will refocus on the process of identifying additional programmatic activities that warrant tracking.
Tax Collection, Recording, & Allocation Procedures 4/9/2018	Comm Dev Economic Dev Finance/ Acctg	Incentive, Developer, and Service Expansion Fee Agreements	4	There are opportunities to more effectively administer incentive, developer, and Service Expansion Fee agreements.	a. Establish a standard electronic filing structure with agreed upon naming conventions and attempt to eliminate duplicate documentation.  b. Document standard operating procedures for administration tasks that apply to all agreements and supplement with more specific instructions for tasks that are unique to each agreement. A shared Google calendar should also be considered so that administration activities are apparent to the City Manager's Office, Economic Development, Finance, Community Development and other departments that have a role in administration activities.  c. Continue to enhance the shared spreadsheet to include most of the information that is needed for administration and research purposes.	Low	a, b & c 9/2024 6/2024 9/2023 3/2023 8/2022 3/2022 10/2021 1/2020 6/2019 12/2018	A new Financial Analyst position has been approved in the 2024 budget. The job description is currently being drafted and the position will soon be advertised. This position will be responsible for tracking the status of action items included in incentive, developer, and similar agreements. This will item will remain open until the position is filled and SOPs are in place so that continuity in the administration of these agreements can be maintained.
NWPSIS 03/18/2019	All	Project Cost	6	Current project cost reporting does not provide a comprehensive overview of total project costs.	IT projects should remain on the Information Technology CIP Status Report until all implementation issues have been resolved and a final financial summary has been provided. All costs related to a systems implementation should be tracked with a designated project code.	Low	dependent on BORIS enhancement/	A more standardized process for project reporting that encompasses all cost elements (e.g. payroll) still needs to be developed. Until the BORIS payroll system or a replacement system offers an efficient and effective method for allocating personnel-related costs, this item will remain open.
Procurement 10/17/2019	Finance	Practices Related to Federal Funding		There are opportunities to improve the effectiveness of the Grant Users Group.	There should be a renewed effort to make the Grant Users Group more effective and to enforce internal standard operating procedures for grants.	High	Implemented 6/2024 10/2023 3/2023 8/2022 9/2021 9/2020	The Grants Users Group has been reconvened. Tow meetings have been held and a schedule for future group meetings has been established.
Procurement 10/17/2019	Finance	Procurement Practices Related to Federal Funding	01-05	Currently, it is difficult for the Purchasing Division to know when procurements are related to a federally funded project.	A federally designated project code should be assigned to all federal grant related accounts, as well as any matching expenditures required by the grant, and it should be provided during the procurement process.	High	Implemented 6/2024 10/2023 3/2023 5/2022 9/2022 12/2020	A Project Code SOP has been developed that establishes a standard process for assigning project codes. This new structure includes data elements that allow for more efficient identification of federal projects, which will allow for more effective management reporting.

Performance	Performance and Internal Audit Status Update									
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Procurement 10/17/2019	CCAO & Finance/ Purchasing	Reviews of Agreements, Bonds and Certificates of Insurance	3	Procurement Manual does not explicitly address the following: a) Risk Administrators involvement in the procurement process, b) who and how bond and insurance sureties should be rated and verified, c) guidance does not explicitly require COI prior to the start of work, d) standard procedure needed to ensure updated bonds and COI are received when change orders or amended agreement with a monetary impact are processed, and e) criteria for when bonds are required and what bonds are necessary.	The Procurement Manual guidelines should be updated to address: a) when it is necessary to involve the Risk Administrator in the insurance and bonding review, b) how bonding sureties are to be verified and who is responsible, c) COI is required prior to the performance of any work, d) procedure to ensure updated bonds and COI are received when change orders or amended agreements with a monetary impact are processed, and e) criteria for when bonds are required and the type of bonds needed.	Medium	9/2024 6/2024 10/2023 6/2023 9/2022 7/2021 10/2020	Item a - A new Risk and Safety Manager was recently hired and assigned to City & County Attorney's Office (CCAO). The CCAO is developing a list of topics/situations when the the Risk Manager should be involved. This listing will then be shared with the relevant business units to ensure these items are covered in necessary SOPs.		
Procurement 10/17/2019	Finance	Cash Equivalents	4	Cash equivalents, such as gift cards or movie ticket vouchers, are susceptible to fraud and misappropriation. The current CCOB policy does not require an accounting of who received these gifts if taxes are not involved.	Finance Department should consider a reporting process for all cash equivalents, such as gift cards and gift certificates, regardless of the monetary value.	Medium	9/2024, 6/2024, 10/2023, 3/2023, 8/2022, 5/2022, 7/2021, 1/2020, 12/2019	Finance has been evaluating different reporting formats / methodologies for cash equivalents reporting but additional time is necessary to refine the method before it is communicated to CCOB staff.		
Procurement 10/17/2019	All Depts.	Travel, Training and Meals	07-01	Supporting documentation was sufficient in the majority of the transactions reviewed, but this was only after the Finance Department had to follow up with the employees to provide the required information in may cases. This demonstrates insufficient understanding of the documentation requirements by many employees and the need for additional training.	To ensure all requirements are being satisfied: a) the Finance Department should continue to be involved in the review and approval of travel, training, and meals, b) a conference/training agenda should be provided with the Travel, Training, and Incidental Expense Report Form, and c) the travel guidelines should be updated to clarify that local travel (i.e. within a 50 mile radius) does not qualify for a meal reimbursement unless approved by the CMO.	Medium	9/2024, 6/2024, 10/2023, 3/2023, 8/2022, 5/2022, 3/2021, 3/2020	All travel training and food items are audited 100% on the pcard transaction. The travel and training policy is still being updated.		
Cash Receipts 03/06/2020	Finance, Cultural Affairs, PRSS	BRex	3e	When discussing the basic debits and credits of transactions with the staff it was apparent there was a lack of understanding related to certain BRex financial transactions.	Finance should work with the Auditorium and Rec Svcs staff to document how financial transactions are processed in BRex. This should cover the timing of revenue recognition and how accounts receivable balances are maintained. This documentation can also be used as a training tool when employee turnover occurs.	Low	Closed 9/2024 10/2023 3/2023 8/2022 4/2021 4/2020	While a detailed financial accounting SOP related BRex financial accounting and reconciling procedures has not been documented, other process documentation such as the daily journal entry support package and user desk manuals have been developed. Also, the reconciling issues that existed after system implementation have been resolved.		
Cash Receipts 03/06/2020	Finance	Cash Receipts/ Cash Handling Policy and Deposit Package Preparation	4a	A current Cash Receipts/Cash Handling Policy document could not be located in the Policies and Procedures Accounting section of the BEACH, which could result in varying practices throughout the CCOB and lead to confusion. Also, there are currently inconsistencies in how business units prepare deposit packages and pass supporting documents along to Finance depending on the personnel involved in the process.	The CCOB Cash Receipts/Cash Handling Guidelines should be adequately documented and accessible to employees via the BEACH (CCOB intranet). These guidelines should address how supporting records for deposits and journal entries should be consistently prepared and submitted.	Low	9/2024, 6/2024 10/2023 3/2023 8/2022 3/2021 12/2020	A draft Revenue Payment Processing / Cash Receipts Policy is currently in the review phase.		
Cash Receipts 03/06/2020	Finance, PRSS	Memorial Escrow Account	10b	Some of these unused balances in the CCOB Memorial Escrow account have been outstanding for several years. Tracking these outstanding balances also requires additional effort. There have been minimal changes to how the program is administered since its inception.	PW and Finance should consider changing how the Memorial Escrow account is administered going forward. For example, rather than establishing an escrow balance, an agreement to provide specific services for an agreed upon fee could be established. This would remove the requirements associated with the administration of an escrow account. For existing balances in the trust account there should be a confirmation from the donor the excess fund can be retained or the residual balances should be refunded.	Low	12/2025 10/2023 3/2023 9/2022 3/2022 3/2021 6/2020	Parks Services has decided the Memorial Account will eventually be transitioned to a revenue account. Park Services will coordinate with its budget representative to create a revenue account to accommodate the memorial tree and bench program moving forward. Most likely the timing for this transition will be during the budget request process for the 2026 Operating Budget.		

Performance and Internal Audit Status Update								
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Body-Worn Camera Program 8/24/2021	PD	Evidence.com Data	2-02b	No process to identify instances when BWC video footage should exist but it is missing.	Consider developing a report that compares the Computer Aided Dispatch system data that reflects an officer assigned to a call for service to the Evidence.com BWC video data to ensure BWC videos are present for the case. Exceptions should be researched and documented accordingly.	Medium	8/2024 10/2023 3/2023 9/2022 6/2022	Rather than internally developing a CAD report, the PD Property and Evidence Unit will explore the use of an additional analytics Performance module offered by the BWC vendor that could assist with various types of BWC reporting. The Performace software module will be included in the new vendor contract.
Body-Worn Camera Program 8/24/2021	PD	Retention Period and Inventory Control	3	of storing these records indefinitely will eventually	The BPD needs to establish a documented process for disposing of BWC footage in accordance with retention schedule guidelines. If BWC footage is to be treated as property/evidence, then it should be disposed of in conjunction with other case-related property/evidence. The Digital Technician should work with the Property/Evidence Unit staff to ensure this process is consistently applied. A process also needs to be established for disposing of BWC footage tied to misdemeanor and felony cases when there is no other property/evidence associated with the case.	Medium	Implemented 8/2024 10/2023 3/2023 12/1/2022	The retention duration for the categories in Evidence.com has been updated. Depending on how an officer categorizes a video, the video will automatically delete once it has passed the assigned retention duration. Property & Evidence destruction authorizations are also being cross referenced.
Court Services Cash Receipts Special Review 8/24/21	Court Services	Segregation of Duties	1	Court Services Department lacks segregation of duties in the cash receipts process. As a result of incompatible duties, system reports used to record cash receipts activity could be modified to reflect less cash and revenue during the deposit preparation process.	Due to the limited size of the Court Services business unit, it is not practical to sufficiently segregate duties with existing personnel so it is necessary to expand the involvement of staff to include Finance personnel. A Finance employee should directly access the BCAP system and generate the documentation needed for journal entry and reconciliation purposes.	Low	10/2024 6/2024 10/2023 6/2023 9/2022 3/1/2022	Finance is evaluating how to structure an internal control that will allow for a periodic, high-level reconiliation of BCAP and City Suites revenue data.
Court Services Cash Receipts Special Review 8/24/21	Court Services	Exception Reporting	2	supervisor or someone familiar with the business	Court Services should have a designated reviewer independent of the cash handling function who is responsible for monitoring departmental cash receipts exception activity (i.e. adjustments, etc.). Documentation supporting the exception should be reviewed to ensure adjustments were for a valid business purpose. Due to the small staff size of the business unit, a Finance employee should be included in the monthly or quarterly process. Documentation of the review process should be retained for audit purposes. Until an exceptions report is available, Finance should periodically review the daily deposit activity for voids, refunds, deletes, reversals, etc. to ensure the rationale is sufficiently documented and is appropriate.	Low	10/2024 6/2024 12/2023 6/2023 9/2022 3/2022	Similar to item 1 above, Finance will be exploring how to best structure the reviews of the exception reporting to ensure the proper segregation of duties exist.
Court Services Cash Receipts Special Review 8/24/21	Court Services	BCAP User/Training Manuals	3		The Court Services Director and other members of the system implementation team should continue to work with the vendor until the user/training manuals for the BCAP system are developed and received.	Low	Implemented 6/2024 10/2023 6/2023 9/2022 3/2022	Court Services has developed detailed SOPs that allow for sufficient training and cross-coverage of duties.  The BCAP software was developed by a small vendor and the CCOB was an early adopter. As a result, the documentation that usually accompanies a software program is still being developed. Progress has been made by the vendor. Since Court Services is dependent on the vendor to complete this task, and sufficient SOPs have been developed, this item has been completed.

Performand	Performance and Internal Audit Status Update							
Audit & Special Reviews Issue Date	Dept /	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
DHS/DPHE Operations Division 4/21/2022	DHS/ DPHE Ops Div Finance	Health Space System Use For License and Inspection Activity	3c	Several challenges involving the use of the Health Space system were identified: 1) reporting is lacking sufficient detail for journal entry and reconciling purposes, 2) incorrect revenue/accounts payable entries and insufficient account reconciliations resulting in overdue amounts owed to a state agency, 3) inaccurate account information for many business owners, 4) duplicated transaction activity, 5) some 2022 license fees billed/received in 2021 should have been recorded to deferred revenue, and 6) insufficient segregation of duties between billing/invoicing and cash receipts.	Prior to implementing any future third-party systems that will involve financial transactions the Finance Department, working in conjunction with the primary users of the business unit, should dedicate sufficient time to the scoping process prior to implementation. These activities should involve the following tasks: 1) identify appropriate system administrators; 2) document in sufficient detail the various types of transactions that could be processed in the system, along with the accounting entries that should occur with each transaction; 3) test each type of transaction that could be processed to verify the system records the transaction in the expected manner; 4) ensure system generated reports used to compile the journal entry loaded into the CCOB financial system to reflect the financial transactions in sufficient detail; 5) document a detailed SOP for users that includes the information described above, along with detailed instructions for using the system in a consistent manner; and 6) schedule user training workshops prior to the "go live" date so that all users have an opportunity to work in the test environment prior to implementation.	High	9/2024 12/2023 6/1/2023	Finance will be developing a template that can be used by departments to document the basic financial operational tasks related to third-party systems that are used to process financial data.
DHS/DPHE Operations Division 4/21/2022	DHS/ DPHE Ops Div	DPHE Grant Reimbursement Process	6a	effectively utilize electronic data to automate and standardize the expense compilation process for	The Operations Division should:  a. Use the newly developed grant reporting compilation tool and continue to make enhancements to it as required. The workbook should contain all information relevant to the grant: Grantor ID #, CCOB Project Code, Grant/Reporting Period, Grantor Contact information, CCOB staff contact information, etc. It should also be shared (view-only) with relevant staff so timely grant financial information is readily available for any employee that needs it.		Closed 6/2024 10/2023 6/2023 8/1/2022	While the DHS/DPHE Operations Division has decided not to use the original grant reporting tool, it has developed a new workbook that has allowed for improvements to the grant reporting process. This workbook still contains many hard coded fields and does not take full advantage of electronic data. However, staff feel that it is working well and are not interested in making further changes at this time. Thus, this item is being closed out.

Performance and Internal Audit Status Update								
Audit & Special Reviews Issue Date	Dept / Division	Торіс	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
Financial Internal Controls 10/04/2022	HR	Employee Master File, Payroll Processing, and Payroll Review and Approval	1A	reviewing/approving payroll.	Where practical, Human Resources should separate the EMF modifications duties and user system permissions from: employee hiring and termination decisions, payroll system module access, payroll processing duties, creation and distribution of payroll checks, and the investigation of rejected payroll deposits. Where practical, Human Resources should also modify assigned duties and user system permissions so that an employee is not able to both initiate and approve a change to the EMF.  Also, a system report of changes to the EMF should also be generated for review. A supervisory-level employee, other than the employee initiating the change, and who ideally does not have ability to modify HRIS, should then review this report and match the changes to approved Personnel Action Forms and other relevant documentation.  SOPs should be developed that explain the purpose, procedures,	High	TBD  Partially Implemented 3/1/2023	HR has separated the <u>assigned</u> EMFmodification duties as suggested. However, in the event that someone is out of the office, HR may not be able to ensure this in all cases but it is the exception rather than the rule. While the <u>assigned</u> duties are segregated in most instances, staff size limitations prevent the <u>system control permissions</u> from being permanently segregated. As a result, the need for a report reflecting all changes to the EMF still exists. HR has explored a reporting option with the contracted vendor that provides HRIS reporting solutions. Unfortunately, neither HR nor the vendor have been able to generate a report that captures these changes. Considering the current listing of HR reporting needs and the limited available budget, this item will continue to remain open for the foreseeable future. This item will also remain open in order to highlight this on-going HRIS deficiency.  While Finance acknowledges these are important internal
Financial Internal Controls 10/04/2022	Finance	Internal Control Reports for Purchase Requisitions, Invoices, and Journal Entries	2A		soPs should be developed that explain the purpose, procedures, and frequency of the purchase requisition, invoice payment, and journal entry internal control reports.	High	10/2023 6/2023	while Finance acknowledges these are important internal controls, the production and monitoring of these reports in the current environment are inefficient due to the limitations of the City Suites financial system. Also, the Finance Department feels the preparation work for the upcoming Enterprise Resource Planning (ERP) procurement and implementation is currently a greater priority. It is anticipated that the new ERP will include reporting that will make the on-going management of these recommended internal controls more practical to produce and monitor.  While PIA acknowledges the need to focus personnel resources on the upcoming ERP at this time, the need for these internal controls remains important. Thus, this recommendation will remain open until the internal controls are established (with the proper segregation of duties for the preparation and review of the reports) in the new ERP internal control environment.
Financial Internal Controls 10/04/2022	Finance	Internal Control Reports for Purchase Requisitions, Invoices, and Journal Entries	2B	working effectively.	The report reviewer, who should not be involved in the purchasing or accounts payable processes, should type their initials and date into the report in order to demonstrate the review was actually performed.	Medium	12/2025 10/2023 6/2023	See 2A above.
Financial Internal Controls 10/04/2022	Finance	Internal Control Reports for Purchase Requisitions, Invoices, and Journal Entries	2C	An invoice report reflected two transactions that had the same Created By and Approver but this exception was not flagged and researched.	Any discrepancies noted on the reports should include documentation of the corrective action taken to resolve the matter.	Low	12/2025 Ongoing	See 2A above.

Performance and Internal Audit Status Update								
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Financial Internal Controls 10/04/2022	Finance	Internal Control Reports for Purchase Requisitions, Invoices, and Journal Entries	2D	purpose for the purchase requisition. While it can be assumed that Budget personnel are verifying the supervisory approval exists before approving the purchase requisition, there is no documentation or SOP to confirm this is occurring.	If possible, the purchase requisition and invoice payment reports should be updated to reflect the departmental supervisory approver, as opposed to Finance Department personnel. If this is not possible, the internal control report SOP should clearly state the role of the Budget staff when performing approvals, which should include ensuring the transactions have separate departmental initiators and approvers.	Low	12/2025 10/2023 3/2023	See 2A above.
Financial Internal Controls 10/04/2022	Finance	Internal Control Reports for Purchase Requisitions, Invoices, and Journal Entries	2E	Finance has not been able to develop a sufficient control report for journal entries that reflects who initiated and who approved the transactions. Instead, a manual log is maintained that reflects who initiated and who approved the journal entries. However, journal numbers are assigned sequentially to all types of transactions in the financial system, not only journal entries. As a result, it's not possible to determine if journal entries are missing from the manual listing.	The Finance department should continue to work on a system generated report that reflects the journal entry initiator and approver. In the meantime, the manual journal entry listing should be updated to ensure all journal entries that have been posted in the financial system are also included in the control log.	Low	12/2025 and Ongoing	See 2A above.
Financial Internal Controls 10/04/2022	Finance	Internal Control Reports for Purchase Requisitions, Invoices, and Journal Entries	2F	The invoice payments internal control report, which has close to one-thousand transactions per month, is manually reviewed. This increases the likelihood of missing an exception.	Finance should use a formula to compare the Created By and Approved fields in the invoice control report in order to improve the efficiency and accuracy of the report review process.	Low	12/2025 10/2023 3/2023	See 2A above.
Financial Internal Controls 10/04/2022	Finance	Vendor Master File Maintenance	4B	what information is to be verified on the Secretary of State website and what documentation should be added to the VMF. As a result, vendor verification procedures could be insufficiently and inconsistently performed.	Enhance the Vendor Clean-Up SOP to more explicitly state what is to be confirmed on the Secretary of the State website and what information is to be added to the VMF. For example, the business should be in good standing and the registered agents/Owner(s) should not be a CCOB employee.	Medium	9/2024 6/2024 10/2023 3/2023	Due to other departmental priorities, additional time is required to evaluate these business practices.
Financial Internal Controls 10/04/2022	Finance	Vendor Master File Maintenance	4C	The Finance Department has an SOP that indicates annual maintenance activities (e.g. inactivating vendors that have not been used in three years) should be performed on the VMF but these activities have not been performed for a few years.	Conduct annual VMF maintenance activities in accordance with the established Vendor Clean-Up SOP. Documentation of this procedure should be retained in order to demonstrate the internal control is being performed.	Medium	12/2024	VMF clean-up activities will be taking place in the months ahead, prior to migrating the VMF into the new ERP.
Financial Internal Controls 10/04/2022	Finance	Vendor Master File Maintenance	4D	Changes to the VMF should also be monitored but there is currently no internal control that detects unauthorized changes.	Work with the financial system vendor to obtain an internal control report that reflects changes to the VMF. At a minimum, this report should reflect all new vendors, as well as vendors that have been reactivated. In the meantime, all new vendors (note - vendor numbers are assigned sequentially) should be reviewed by a staff member who is independent of the purchasing and accounts payable functions to ensure there is an approved New Vendor Request Form on file. Documentation of this review should be retained to demonstrate the internal control is being performed.	Medium	12/2025 3/1/2024	Considering the upcoming migration to a new ERP (see 2A above), efforts to improve the current financial system are not a priority. However, staff acknowledges the important of this internal control and anticipates it will be available in the new ERP. This item will remain open until this internal control is established and properly maintained in the new ERP internal control environment.

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Audit & Special Reviews Issue Date	Dept / Division	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
Financial Internal Controls 10/04/2022	HR	Reconciliation of Payments to Benefits Vendors	5	The reconciliation of payments made to benefits vendors to the corresponding payroll withholdings were previously a few months in arrears due to employee turnover.	The Human Resources Department should ensure the Vendor Benefits Payments reconciliation is prepared and reviewed within thirty days of month end.	Medium	9/2024 6/2024 Ongoing	A new reconciliation process has been developed and cross-training efforts have occurred. Additional time is necessary to document the SOP to ensure consistency of the process.
Financial Internal Controls 10/04/2022	Finance	Maintenance of Internal Control Infrastructure and Assigned Duties	6	The majority of the CCOB business cycle internal controls were documented in the CCOB Internal Control Framework tool. However, there have been no efforts on the part of Finance to update the document in recent years.	The Finance Department should periodically (annually at a minimum) update the Financial Internal Control workbook, or a similar tool designed by the Finance Department, to ensure internal controls are working effectively and there are no conflicting duties. A copy of a blank Segregation of Duties Matrix workbook has also been provided to the Finance Department. The Matrix, or a similarly designed tool, should be used to evaluate staffing changes and ensure the assignments are appropriate. Documentation of these maintenance efforts should be retained for audit purposes.	Medium	12/2025 Ongoing	Finance anticipates using the Financial Internal Control workbook, or a similar tool designed by the Finance Department, when assigning staffing roles in the new ERP. A schedule for mainating the internal control will be established at that point in time. This item will remain open until this internal control is established and properly maintained in the new ERP internal control environment.
Financial Internal Controls 10/04/2022	Finance	City Suites User Maintenance	8	There is an established SOP for removing City Suites user access when an employee terminates employment with the CCOB but it has not been consistently performed in a timely manner due to employee turnover.	The Finance Department should remove all terminated employees with City Suites user roles and improve the system users SOP to ensure all terminated employees are inactivated in the financial system on a timely basis.	Low	Closed 6/2024 9/2023	Considering the upcoming new ERP, which will replace the existing City Suites system, clean-up efforts in City Suites are expected to be minimal. However, user roles will be evaluated during the ERP implementation.
Financial Internal Controls 10/04/2022	HR	Human Resources Information System (i.e. BORIS) Deficiencies	9В	Being able to track who made changes within the system and when these changes occurred is a common feature in most modern HRIS and financial systems. However, most auditing capabilities within	While this system audit reports feature may not be currently practical due to the system performance issues related to the audit feature activity logging, Human Resources staff should revisit the use of these internal control reports after the upcoming system update (Aug 2022).	Low	Ongoing	The HRIS system continues to lack the capability of producing a standardized report that illustrates the employee level changes made for the purposes of payroll. Resource constraints have prohibited current staff from working with our third party vendor to produce a report to meet this requirement. The inability to effectively track changes in the HRIS also impacts the Employee Master File interal controls, as noted in 1A above. This item will remain open until a sufficient control report is available.
Financial Internal Controls 10/04/2022	HR	Human Resources Information System (i.e. BORIS) Deficiencies	9C	HRIS workflows are a common method for ensuring the proper segregation of duties for various tasks (e.g. wage rate change approvals). However, many of the system workflows that are possible in the HRIS have been turned off because these have historically caused processing delays. This has resulted in time consuming workarounds outside of the HRIS that potentially lack the proper segregation of duties.	Human Resources should revisit the use of workflow options within the HRIS. If it is possible to electronically route and archive information within the HRIS, opposed to an external workaround, it should ultimately save time and improve the related internal controls. Before rolling out organization-wide workflow changes, pilot testing any potential changes with a smaller group of employees or single department is recommended.	Low	Closed 6/2024 6/1/2023	The utilization of workflows within the HRIS is a desirable option but available resources are limited. Considering other operational priorities, as well as potential future HRIS upgrades or replacement (after the ERP implementation), resources will not be allocated to this item in the foreseeable future. Since this is an operational efficiency issue and not an internal control concern, this items is being closed.

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Financial Internal Controls 10/04/2022	HR	Human Resources Information System (i.e. BORIS) Deficiencies	9D	The HRIS user interface for time allocations is impractical to use. As a result, time allocations by project are generally not entered directly into the HRIS timesheets. Instead, duplicative timesheets are used for grant and management reporting purposes. Also, the HRIS is not capable of effectively allocating payroll costs so payroll costing data reflected in City Suites is generally insufficient and inaccurate for grant and management reporting purposes.	The Finance and Human Resources Departments should continue to work with the HRIS vendor to identify an efficient and effective method for entering actual time worked into the HRIS timesheets. This data should then be used to allocate payroll costs based on actual hours. This will reduce workarounds and facilitate preparation of the Schedule of Federal Awards.  In the event the HRIS is upgraded or replaced at some point in the future, the ability to effectively and efficiently allocate hours worked by task or project, as well as the associated costs, should be a must have feature in any alternative that is considered.	Low	Unknown	The CCOB is focused on the implementation of a new ERP system the next couple of years, which limits the resources available for HRIS enhancements. Thus, limited progress is expected in this area for the foreseeable future. This item will remain open until the issues are eventually addressed.
Emergency Management 7/26/2023	EM	EOP and Capabilities Plan	01-01	The CCOB Emergency Operations Plan (EOP) and supporting documentation were dated and convoluted. There were several opportunities to improve and streamline the program documentation. OEM staff and PIA worked together	The new EOP and Capabilities Plan are still in draft form and require some enhancements. For example, the cybersecurity capability section should provide a general overview of response activities in order to provide the public with assurance that this risk has been sufficiently considered.	High	10/2024 6/2024 12/2023	A draft of the EOP has been completed and the draft Capabilities Plan is approx 90% complete. Once both drafts are complete, feedback from relevant stakeholders will be solicted. It is anticipated the plans will be shred with Council in the fall of 2024 for their feedback and eventual approval.
Emergency Management 7/26/2023	EM	EOP and Capabilities Plan	01-02	on some improvements but additional work in this area is still necessary.	The EOP and Capabilities Plan also need to be shared with relevant stakeholders so they are familiar with the plans, and so that their feedback can be used to make further improvements to the content. These plans will then need to be reviewed by the Colorado DHSEM, which is scheduled to occur in late 2023 according to the CCOB EM 2023 Work Plan. Finally, the plans need to be formally approved by Broomfield City Council and then posted to the CCOB webpage so that the plans are accessible by CCOB staff and residents.	High	10/2024 6/2024 10/2023	See item 01-01 above.
Emergency Management 7/26/2023	EM	Long-Term OEM Work Plan & Budget	2	A long-term (e.g. 5-years) work plan and budget do not currently exist for the Office of Emergency Management (OEM) so it is unclear when various plans are due for an update.	A 5-year OEM work plan and budget should be developed that includes a maintenance schedule with targeted revision dates for the significant Emergency Management Plans and assessments. The schedule should also reflect the effective date of the current plan, the targeted revision date, and the designated approver for each plan. Since some of these efforts may require consulting services, an estimated OEM budget would also be useful for financial planning purposes. For the remainder of 2023, it is recommended that OEM focus on the completion of the new EOP and supporting Capabilities Plan approvals, as well as the completion of the Local Integrated Preparedness Plan, so that training on these new materials can be conducted in 2024.	High	10/2024 6/2024 3/2024	The Multi-Year Integrated Preparedness Plan (5yr) has recently been updated and submitted to the State. Once it has been approved, a corresponding multi-year budget will be established.
Emergency Management 7/26/2023	EM	Central Resource Listing	3	A central listing of agreements that can be used for emergency response and recovery purposes does not currently exist	OEM should work with the CCOB Risk Administrator to develop a comprehensive listing of the types of services that would be useful during an emergency. The Risk Administrator should then work with CCOB staff to populate and maintain the listing so that it is readily available to OEM staff and other impacted CCOB departments. Finally, this listing should be updated on a periodic basis (e.g. quarterly) so that the list is ready for use when needed.	Medium	Closed 6/2024 03/2024 then on-going	Communication with Incident Support Team members continues to improve. Emergency Management was involved with the the debris removal and hazardous materials agreements. Emergency clauses continue to be added to vendor agreements that could potentially be used in the event of an emergency. Management believes these continuing efforts will be more effective than creating a separate listing that need to be maintained. Thus, this item has been closed.

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Audit & Special Reviews Issue Date	Dept / Division	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
Emergency Management 7/26/2023	Economic Vitality	Local Business Outreach	5	The CCOB does not license all businesses so a central list of all businesses in the CCOB does not exist. This complicates efforts to communicate with local businesses during an emergency. The Economic Vitality Department is working on a project to develop a more comprehensive listing that will improve the quality and of the contact information and also allow it to be maintained so the information is current.	The Economic Vitality Department should follow through with its plans to Develop a formal, comprehensive business outreach program that includes a list of all businesses operating in the CCOB and essential contact information.	Low	9/2024 6/2024 4/2024	Additional time is necessary to develop and maintain a methodology that allows for effective and efficient business outreach.
Emergency Management 7/26/2023	All	Time Reporting/ Payroll System Challenges	6	project codes and employee training on the subject was minimal prior to the pandemic. As a result, employee efforts to allocate their time were time-consuming and inconsistent. New procedures were introduced during the early phases of the emergency, but the instructions should have been communicated more clearly and frequently. The	The CCOB should explore enhancements to the current payroll system timesheet module. If the current payroll system is unable to accommodate the task-related project codes in an efficient and effective manner, then a third-party timesheet module should be explored. (It should be noted this item is currently on hold until the replacement of the CCOB Innoprise Financials system with an Enterprise Resource Planning (ERP) financial module occurs (tentatively 2026). Then, a Human Resources Information System (including payroll) will be identified that is compatible with the new ERP.)	Low for OEM (beyond its control) but High for CCOB	Unknown	The CCOB is focused on the implementation of a new ERP system the next couple of years, which limits the resources available for HRIS enhancements. Thus, limited progress is expected in this area for the foreseeable future. This item will remain open until the issues are eventually addressed.
2023 PD Property & Evidence (11/29/2023)	IT & PD	Public Safety Technology Team	1	World Public Safety Information System (NWPSIS) for its operational processing of information. One of the purposes of this group is to bring issues to the attention of CCOB IT support personnel in order to resolve issues so that the system is used to its full potential. The Property & Evidence (PE) Unit has not had representation on the PSTT in recent years due to employee turnover. As a result, the	The CCOB PD should revisit and formalize its continuous improvement practices for the administration and maintenance of the NWPSIS. A senior-level manager with working knowledge of the system should be assigned responsibility for the oversight of the entire NWPSIS. This NWPSIS leader should also serve as a liaison with the IT Department to ensure the necessary resources are being allocated to the NWPSIS so that outstanding issues are addressed in a timely manner.  There should be an established process for ensuring representation on the PSTT for all of the NWPSIS modules used by the PD business units. A subject matter expert for the PE Unit should attend the monthly PSTT meetings.	High	11/2024	The structure of the PSTT is currently being reevaluated to help ensure this working group has the proper representation (i.e. SMEs), the frequency of the meetings are appropriate (e.g. monthly, bi-monthly, etc.), and the purpose of the meetings are clear (i.e. topics to be covered). This item will remain open until a formal, repeatable process has been established for continuous improvement practices.

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Audit & Special Reviews Issue Date	Dept / Division	Topic	#	Finding	Recommendation	Priority Ranking		August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
2023 PD Property & Evidence (11/29/2023)	A. PD/ Property & Evidence (PE) B. PD/PE	NWPSIS User Training and Documented Resources	2	System training allows users to use the system to its full potential. However, none of the current PE Unit employees have received comprehensive vendor training on how to most effectively use the NWPSIS LERMS PE module. When employees are not sufficiently trained on how to use a software application, variations in practice and inefficiencies will generally occur, which can impact the reliability of the data in the system. Also, PE Directives, standard operating procedures (SOPs),	A. A renewed focus on user training for PE Unit on the NWPSIS LERMS module is warranted. Module specific training should be provided every time an employee is reassigned to a position that requires familiarity with a new module.  B. The PD should consider having an experienced Analyst from Tyler Technologies, the NWPSIS vendor/developer, observe how PD staff is using PE features in the NWPSIS LERMS module in order to identify techniques that could help improve operating efficiencies.	High for all items	A. 09/2024 B. 06/2024 09/2024	A & B. A Tyler Technologies representative was on site in February 2024, but there was insufficient time to address the challenges of the P/E Unit. Additional time will be schedule in 2024 to continue training and troube-shooting efforts.
	C. PD/PE			User's Manual, and Desk Procedures require updating.	C. The PE Unit should update the PE Directives, SOPs, User's Manual, and Desk Procedures to reflect current practices to help ensure consistency in practice, as well as effective onboarding and cross-training.		C. 09/2024	C. A updated draft of the PE Directives & SOPs has been prepared buy additional time is necessary for PD leadership review and approval of these guidelines.
	D. PD				D. The PD should make NWPSIS self-Study resources, summaries of system upgrade enhancements, and internally developed resources easily accessible by PD Unit employees.		D. 09/2024	D. Work has started on this item but additional time is necessary.
	E. PD				E. The PD should continue to develop in-house expertise on the NWPSIS by using a "train the trainer" mode, which involves the identification of specific employees who have a strong technical understanding of the subject matter.		E. 09/2024	E. The development of in-house expertise will be addressed via the SMEs and their back-ups (see item A above for details). Additional time is necessary to sufficiently address this item.
2023 PD Property & Evidence (11/29/2023)	B. PD/PE	Property and Evidence Dispositions	3	B. Since December 2020, physical PE inventory has increased by 9,100 items. As of June 2023, there were 31,443 physical items in PE inventory. Increasing PE inventory will eventually cause space limitations and additional work on the part of PE staff.	B. The PE Unit should continue its current focus on the PE disposition process. This should be an operational priority until the backlog of PE inventory items that are eligible for disposition has been addressed. If necessary, temporary labor should be considered to assist the PE Unit with these efforts.	High	B. 11/2024	B. While there have been a few months where PE dispositions were greater than PE intake, additional time is necessary to fully address the disposition backlog.
	D. PD/PE & Records			D. The PE Unit does not currently have a reliable report that identifies PE that is eligible for disposition due to outdated statutory tables. This causes more items to be handled than necessary when processing dispositions.	D.The PE Unit should work with the Records Unit to update the statutory tables that are used to auto-populate the retention period for new PE items. PE items in NWPSIS/LERMS with no retention period need to be manually updated with the proper information. Once the data fields are accurate, a more reliable disposition report should be available.	Medium	D. 09/2024 07/2024	D. Additional time is necessary to address this item.

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Audit & Special Reviews Issue Date	Dept / Division	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
Reviews		Topic  NWPSIS LERMS  Deficiencies	# 4	There are several NWPSIS LERMS issues currently impacting the efficiency of PE Unit operating practices:  A. When an Officer places an item in an evidence bin the LERMS module records a date/time stamp but the same date/time stamp is also used when the PE Technician subsequently moves the item to the next location  B. 50 PE items (as of July 2023) appear on the "Property - Missing Chain of Custody Report (COC)" and the COC screen in LERMS for these items is also blank - COC history exists in the "Field Level Auditing Viewer" but it is not user-friendly and complicates reporting	Recommendation  The PE Unit and IT support staff should meet regularly to address the NWPSIS deficiencies or adopt an acceptable workaround solution for the following:  A. An accurate date/time stamp is recorded each time PE is moved to a different location (including the initial intake process)  B. Determine the root-cause for why items are showing up on the "Property - Missing Chain of Custody Report" and the COC screen information is missing so that this error can be corrected moving forward  C. Identify a more efficient solution for documenting and retaining case notes for PE items  D. A correct Inventory Not Present Report should be available  E. Ability to check out or transfer multiple items or cases  F. Ability to batch transfer a case when moving location  G. Accurate inventory when using the scanners that shows when items have been destroyed or checked out  H. Ability to efficiently capture electronic signatures for COC		Complete	
				not automatically attach to the case so a manual workaround process is currently being used  I. A NWPSIS test environment for all modules does not currently exist due to hardware limitations	purposes that are automatically attached to the case  I. A test environment should exist for all NWPSIS modules		I. 11/2024	
					J. Reporting solutions that reflect 1) how an item was disposed (e.g. Returned to Owner) and 2) COC showing every change of location for an inventory item		J. 11/2024	

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Audit & Special Reviews Issue Date	Dept / Division PD/PE	<b>Topic</b> Property and	<b>#</b>	Finding The location of PE items should be accurately	Recommendation  The PE Unit should continue its effort of reorganizing the PE	Priority Ranking Low	Revised & Original Estimated Complete Date(s) Implemented	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report Siginicant progress has been made with the re-organization of
Property & Evidence (11/29/2023)		Evidence Inventory		efficiently retrieved when needed. While the sample PE inventory conducted by PIA resulted in no missing items, some items required additional searching before it was located. Also, the Main PE room shelving has old numbers on it, which created some confusion during the testing process.	storage locations so that a specific, accurate location is reflected in LERMS for all inventory items. Also, the old numbering on the PE storage shelves should be removed.		3/1/2024	the PE storage locations. While there is still some room for improvment, there will always be on-going efforts to more effectively organize the PE storage locations. The old numbering on the PE shelves have been removed.
2023 PD Property & Evidence (11/29/2023)	IT & PD/PE	LERMS Module	6	PD Records Division also uses the LERMS module and most PD staff have already had some level of user training. However, inefficiencies also create an extra time and cost burden on PE Unit staff	The PE Unit staff should continue to work with the designated CCOB IT technical support staff to resolve the challenges described in this report. If the system deficiencies are not able to be sufficiently resolved, it may be necessary for the PD (in consultation with the IT Department) to consider other alternatives to the NWPSIS LERMS module for managing the PE Unit data activities. Any proposal to move to a different software application should include a thorough cost/benefit analysis related to the proposed change.	Low	11/2024	PD and IT staff have agreed to continue working on the NWPSIS LERMS module challenges, while at the same time further exploring options for a 3rd party software solution for managing PE. This will involve interviewing / benchmarking the PE business units of other law enforcement agencies to better understand the benefits and deficiencies of alternative systems.
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Transaction Processing	1A	Approval Groups - The City Suites Financial System (CSFS) has a shortcoming in the PCard approval workflow where the transaction can only be routed to a single approval group and only one individual from that group can approve the transaction. As a result, broad approval groups have been established, which sometimes have insufficient segregation of duties. Examples include PCardholder who is also in their approval group, subordinate approving transactions, and approver redirecting the approval to the PCardholder.	The Finance Department should reevaluate the PCard approval structures to ensure the proper segregation of duties. Having the approval structures updated prior to the implementation of the new financial system (approx late 2025) will also allow for a more efficient and effective implementation of the approval workflows.  Also, ensure the upcoming request for proposal for the new financial system has "must have" criteria that allows for multiple approval workflows for all types of purchases, as well as reporting that shows who initiated and who approved a purchasing transaction. This should decrease the need for overly broad approval groups.	High	9/2025	Finance will continue to evaluate existing structures / procedures and document processes over the next year with the Government Finance Officers Association. Multiple items will be addressed including approval tiers prior to transitioning to a new ERP system. Capabilities are limited in the current system. Improving this will be part of the ERP selection process.
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Transaction Processing	1B	Data Accuracy/Completeness - During testing procedures transactions with incorrect or missing User Identification Numbers. Also, naming conventions for the PCardholder name field are not consistent. Best-practice is for the financial system data to be complete and appear in a standard format.		Medium	Implemented 6/1/2024	SOPs have been established that cover standard naming conventions. The user ID (i.e. employee number) is now being consistently applied in the user set-up process.
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Transaction Processing	1C	Federal Purchases - Per CCOB Procurement Manual, P-Cards should not be used for purchases covered by federal funds. This control helps ensure that federally suspended or debarred entities are not used. However, a few PCard transactions applied to federal funding were identified.	The Finance Department should evaluate PCard transaction data using the project code to ensure that no federal purchases have been made using the PCard and identified exceptions should be corrected. Alternatively, Finance could implement an control that checks for federally suspended/debarred entities, while also allowing the PCard to be used.	Medium	12/2024	Additional time is requried to address this item.

Performanc	Performance and Internal Audit Status Update							
Audit & Special Reviews Issue Date	Dept / Division	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Transaction Processing	1D	Receipts/Business Purpose - The Procurement Manual and PCard Policies the Procedures Handbook require PCardholders to provide a detailed receipt/invoice and to document the business purpose of the transaction in sufficient detail so that appropriateness of the purchase is apparent to the Approver. For most transactions tested, this was sufficiently provided. However, exceptions were also noted.	The Finance Department should periodically (e.g. annually) remind PCardholders about the receipt and business purpose requirements for PCard purchases. In addition to the what, when, and where criteria, the documentation should also reflect who utilized the product or service purchased. PCardholders who continually provide insufficient PCard documentation should have their PCards revoked.	High	11/2024	Training content is currently being developed, which will cover this topic. In addition to planned in-person training, on-demand training related to PCards will be made available on the Cornerstone training platform. Additional time is required to fully address this item.
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Transaction Processing	1E	purchase is separated into two or more transactions in order to avoid the PCardholder's single purchase limit. CCOB policy prohibits this practice.  Transaction testing identified several transactions that appeared to be split transactions.	The Finance Department should more effectively monitor PCard activity for split transactions. When violations are noted, remind the PCardholder that split transactions are not allowed and that a temporary single purchase limit exception is required. If necessary, work with the departments to identify a more appropriate single purchase limit for the PCardholder. Revoke PCard from PCardholders who continually violate the no split transactions policy.	High	11/2024 6/1/2024	Training content is currently being developed, which will cover this topic. In addition to planned in-person training, on-demand training related to PCards will be made available on the Cornerstone training platform. Additional time is required to fully address this item.
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Transaction Processing	1F	are often delays with PCard transactions posting to the general ledger due to untimely coding and supporting documentation from PCardholders. Also, Finance batch processes PCard transactions so a single delayed PCard transaction causes the entire batch to be delayed. This causes staff frustration because it can delay other business processes, such as timely grant reporting.	The Finance Department should be more aggressive on the enforcement of the PCard processing timeline. PCardholders who repeatedly cause processing delays should have their PCards revoked. Also, Finance should consider using a temporary clearing account for the transactions that are pending approval past the established deadline so that the entire batch is not delayed.	Medium	12/2024	A clearing account has been established but additional time is necessary to establish how this process will be addressed.
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Account Administration	2A	Terminated Employees - There were several active PCards still assigned to employees who had terminated employment. An employee termination email from Human Resources should prompt procurement staff to terminate the PCard with WF, but if the email is overlooked there is no other established process to ensure the terminated employee card is deactivated. Leaving old and outdated PCard accounts active for an indefinite period of time increases the risk that unauthorized	The Finance Department should develop a standard operating procedure that periodically (at a minimum quarterly) confirms that all active PCards are assigned to only active CCOB employees and City Council Members. When an employee terminates employment with the CCOB, the assigned PCard should be terminated within a reasonable period of time (e.g. 30 days). Also, continue the practice of setting the single purchase spending limit on PCards for terminated employees to \$1 as of the employee's last day of service so that pending transactions can be processed, while also preventing any future purchases.	High	Implemented 6/1/2024	A weekly Human Resources email is received by the Finance Department that informs relevant employees about employee terminations. A tracking schedule has been established that helps ensure required tasks have been completed.

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Audit & Special Reviews Issue Date	Dept / Division	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Account Administration	2B	efficient/effective method for making purchases, but there are costs and risks associated with the PCard Program administration. Thus, PCards should only be issued to active employees who have a valid business purpose. During the audit period (1/2022 - 8/2023), there were 56 PCards used three	PCards should only be issued to employees who have a valid business need for the PCard. The Finance Department should consider establishing some criteria for issuing PCards that includes the intended frequency of use. Finance should also periodically evaluate (e.g. annually) the frequency of PCard use to determine whether all issued PCards are necessary since the risk of unauthorized usage increases when more cards are outstanding.	High	12/2024	User data is being evaluated to determine frequency of use. Discussions are occurring on how to most effectively address this issue but additional time is requried.
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Account Administration	2C	Missing Documentation) appear to capture the necessary information for administrative business purposes. However, testing procedures identified missing forms in the filing system (eventually found in archived emails). There was also no standard naming convention for the electronic files stored in the Google Drive folders, which made it more	The Finance Department should consider converting the manual PCard forms to an electronic format that can more efficiently collect and store the required PCard information. The intake forms should include "mandatory fields" that require a response before it can be submitted, which should reduce the follow-up inquiries on the part of the Finance PCard Administrator when the forms are not comprehensively completed. This would also eliminate the manual routing of documents, as well as the additional administrative effort of scanning/filing copies of the forms in the Finance Google Drive folders.	Low	10/2024 6/1/2024	Finance has been experiementing with the use of an online form for PCard purposes. Additional time is required to ensure the new process has been tested and communicated with CCOB staff.
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Account Administration	2D	spreadsheets are updated with information from the PCard Request and Change Forms. It would appear that the Finance Workflow Authorizations workbook has replaced the need to also maintain the Active Cardholder List.	The Finance Department should consider discontinuing the ongoing maintenance of the Active Cardholder List workbook if it is no longer needed in order to reduce the staff time necessary to update this outdated resource.	Low	6/1/2024	The outdated spreadsheet is no longer being maintained.
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Account Administration	2E	Department has separated the PCard administrative tasks (e.g. card set-up, deactivation, etc.) from the PCard transaction monitoring/auditing between the Purchasing Division and the Accounting Division.	Finance staff administering PCard activity should periodically (e.g. semi-annually) share their noted challenges and suggestions for improving the PCard Program. This continuous improvement effort should expand the resources available to staff and keep everyone informed of the PCard issues that need to be addressed.	Medium	Implemented 6/1/2024	Procurement/PCard and Accounting staff are now meeting on a quarterly basis to identify and implement opportunities to make the overall PCard process more effective and efficient.

Performance and Internal Audit Status Update								
Audit & Special Reviews Issue Date	Dept /	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
2023 Purchasing Card (12/29/2023)	Finance / Procurement	Gift Cards	3	CCOB policies/procedures do not address how gift cards/certificates purchased for individuals who are not CCOB employees should be handled. The methods used for tracking gift card purchases with PCards vary by business unit. When an "inventory" of gift cards are maintained, the reconciliation/tracking procedures are generally not sufficient. This results in a greater risk of theft or misappropriation. Excessive use of these cash equivalents without a comprehensive and transparent tracking system may be viewed negatively even if the use/gesture is warranted.	Purchased cash equivalents should have records that provide the information necessary to support the expense and to ensure distribution of these items were used for the intended business purpose. The Finance Department should enhance procurement policies to address how gift cards/certificates purchased for non-employees should be tracked, reconciled, and documented. Consider providing a standard template that includes the typical quantitative and quantitative elements of a rolling inventory for gift cards stored for future use.  While Finance is responsible for providing the policy/procedure, it is the responsibility of the CCOB departments to be compliant with these CCOB guidelines. Periodically, a manager who is independent from the gift card/certificate handling process, should review the tracking log and ensure the ending balance of gift cards/certificates on hand agree to the tracking log. Finally, staff should be encouraged to use mechanisms other than cash equivalents to reduce the risk of misappropriation or negative public perception.		12/2024	Additional time is requried to address this item.
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Training Resources	4A	While the slide deck for the in-person PCard Training presentation appears to be comprehensive and a good source of information, it has not been delivered during the last few years due to the pandemic and employee turnover. This is a missed opportunity to educate/remind employees about the PCard guidelines.	The Finance Department should periodically schedule in-person PCard training for new employees and for existing employees looking for a refresher. Alternatively, a recorded presentation could be made available on the Purchasing Cards BEACH (intranet) web page.	Medium	11/2024 6/1/2024	Training content is currently being developed, which will cover this topic. In addition to planned in-person training, on-demand training related to PCards will be made available on the Cornerstone training platform. Additional time is required to fully address this item.
2023 Purchasing Card (12/29/2023)	Finance / Procurement	PCard Training Resources	4B	Currently, there are no PCard training documents available on the BEACH (CCOB intranet) Purchasing Cards web page. When working with the PCard test that must be taken by PCard applicants prior to the PCard being issued, it is necessary to contact the	The Finance Department should consider adding the mandatory PCard test to the recently implemented Cornerstone Learning Management System. Also, detailed instructions should be included on the Purchasing Card BEACH web page that directs the PCard applicant to complete the PCard test and submit proof of passing along with the original PCard Request Form/Application. This should reduce the unnecessary correspondence that is occurring related to the PCard test.	Low	11/2024	Training content is currently being developed, which will cover this topic. In addition to planned in-person training, on-demand training related to PCards will be made available on the Cornerstone training platform. Additional time is required to fully address this item.
2024 ADA (4/9/2024)	CCAO / R&S	ADA Tracking Internal Workbook - Owner	1A	There is currently no owner of the CCOB ADA Internal Tracking workbook or a formal process in place to maintain this workbook.	The Risk and Safety Manager should take ownership of the ADA Internal Tracking workbook. CCOB departments should be responsible for designating an individual who will be responsible for updating those portions of the ADA Tracking Workbook applicable to the department. The ADA Coordinator should work with the designated departmental ADA contact to review and update the workbook on an annual basis.	High	4/2025	Additional time is necessary for the new the Risk & Safety Manager, who is also currently the CCOB ADA Coordinator, to coordinate with departments/divisions to fully address the ADA audit recommendations. Also, new statutory requirements related to digital accessibility are adding to the ADA-related workload. Thus, the CCOB is currently evaluating alternatives to more effectively address ADA matters moving foward. (Note - the Risk & Safety Manager is now owner of ADA Tracking workbook).

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Audit & Special Reviews Issue Date	Dept / Division	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
2024 ADA (4/9/2024)	PW/ Facilities & Streets, and CCAO/R&S	Buildings & Parking Lots	1B1	There were a few locations that still require the 2010 ADA Standards checklists to be completed.	The 2016 ADA Standards Checklists, based on the 2010 ADA Standards for Accessible Design, should be fully completed for all publicly accessible facilities and parking lots.	Medium	4/2025	See item 1A above.
2024 ADA (4/9/2024)	PRSS, CCAO/R&S	Specific Use Checklists	1B2	There are a few additional resources available on ADA.gov that have not been used but could be beneficial in the self-assessment process.	When applicable, the following checklists should be used when the department is conducting self-assessments: Play Areas; Swimming Pools, Wading Pools & Spas; and Fishing Piers & Platforms.	Medium	4/2025	These additional checklists have been added to the ADA folder. However, the timing of when these will be used will depend on other ADA efforts. See item 1A above for additional details.
2024 ADA (4/9/2024)	OST, CCAO/R&S	Trails	1B3	The self-evaluation process for open space and trails can be more challenging since there are no specific ADA.gov checklists available for this category. As a result, staff have pieced together evaluation criteria from different resources but the source of the guidance has not been documented in the ADA Tracking workbook. It is also difficult to determine whether the listing comprehensively captures all CCOB Open Spaces and Trails.	The trails documentation in the ADA Tracking workbook should be enhanced so that it is clear which trails have been evaluated and which trails still need to be evaluated. The trails worksheet should also include the trails evaluation criteria, findings, and any necessary actions. As discussed in item 1B5 below, partnering with the GIS Division would improve the efficiency and effectiveness of this process.	Medium	4/2025	Considering the current workload for Open Space & Trails, and recent employee turnover, additional time will be necessary to address this item.
2024 ADA (4/9/2024)	Comm Dev / CIP, CCAO/R&S	Curbs and School Crossings	1B4	The Capital Improvement Projects (CIP) Division maintains an inventory of curbs/school crossings where ADA improvements are necessary. However, this inventory is not included in the central ADA Tracking workbook.	The Curbs and School Crossings inventory maintained by the CIP Division should be included in the ADA Tracking workbook so that all organizational ADA efforts are documented in a single, comprehensive location. Updates should be made to this consolidated and shared workbook.	Medium	Implemented 4/1/2025	The curbs and school crossings inventory has been included as a tab in the ADA Tracking workbook.
2024 ADA (4/9/2024)	OST, PRSS, PW, CCAO/R&S	Technology to Conduct ADA Self-Assessment	1B5	The self-assessment of many outdoor spaces can be time-consuming due to the dispersed locations throughout the City/County. There are more effective and efficient methods to perform self-assessments of these outdoor areas when compared to the manual methods previously used. A more comprehensive self-assessment would also help ensure all publicly accessible outdoor spaces have been evaluated.	CCOB departments/divisions responsible for maintaining outdoor spaces should consider partnering with the GIS Divisions to identify more efficient and effective data collection and mapping methods for conducting ADA self-assessments.	Medium	4/2025	Additional time is necessary to address this item. See items 1A and 1B3 above for additional details.
2024 ADA (4/9/2024)	CCAO/R&S	ADA Committee/ Divisional Administrators	1C	The current combined ADA workgroup is large. The items in the ADA Tracking workbook are not currently prioritized and in most cases there are no cost estimates. As a result, the plan/timeline for addressing these items is unclear and there are no established budgets.	The ADA Coordinator should establish an appropriately sized ADA Committee that meets on a periodic basis (e.g. semi-annually) to discuss ADA related matters. The ADA Committee should then work together to prioritize the items in the ADA Tracking workbook, identify solutions for the issues identified, establish cost estimates (periodically adjusted for inflation), and establish work plans to address the solutions within their respective business units.	Medium	12/2024	See item 1A above.

Performance	erformance and Internal Audit Status Update							
Audit & Special Reviews Issue Date	Dept / Division	Topic	#	Finding	Recommendation	Priority Ranking	Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
2024 ADA (4/9/2024)	CCAO/R&S, Com- munications	Managing and Standardizing Complaints	1D	Online ADA Complaint Form available on Broomfield.org is not consistently used. There are inconsistencies in how CCOB ADA efforts are addressed, tracked, documented, and archived. Standard operating procedures (SOPs) for CCOB ADA activities have not been established. The documentation trail is sometimes dispersed and the details are not archived in a central location.	The Online ADA Complaint Form should be used every time a complaint is received so that a record is established in the linked workbook that is maintained by the ADA Coordinator. Staff should direct the public to complete the form to initiate the research/response process. If staff receive the information via phone or in person, then the staff member should complete the Online Complaint Form.  A standard template or checklist for documenting responses to ADA complaints should be developed so that cases are consistently handled. This SOP should require the CCOB ADA Coordinator to be involved in all ADA inquiries/complaints. The SOP should also specify where the documentation is to be archived and the naming convention for the files. Finally, the ownership of the ADA files should be transferred to the CAO since the designated CCOB ADA Coordinator is assigned to that department.	Medium	4/2025	An ADA and Accessibility webpage has been added to Broomfield.org. This page includes a link to the online ADA and Accessibility Grievance and Request Form, which is now used as a central tracking mechanism for ADA and Accessibility related matters.  Additional time is necessary to develop the documentation template and SOPs for handling ADA-related matters.
2024 ADA (4/9/2024)	CCAO/R&S	CCOB Title VI Policy and Plan	2A	1. When describing who should be considered in relation to discriminatory practices, creed and ancestry are not included, which is not consistent with the definition in the 2022 Colorado Code § 24-34-601 (Discrimination in Places of Public Accommodation).  2. The Finance Director is still listed as the Title VI Coordinator, opposed to the Risk and Safety Manager.  3. The hyperlink to the Operational Snow and Ice Control Plan appears to be broken.  4. The Data Collection and Analysis section should be periodically updated (last updated in Nov 2015).  5. The document does not reflect an effective date.	CCOB Title VI Policy and Plan updates:  1. When describing who should be considered in relation to discriminatory practices, include creed and ancestry in order to be consistent with the definition in the 2022 Colorado Code § 24-34-601 (Discrimination in Places of Public Accommodation).  2. Update the Title VI Coordinator contact information to reflect the Risk and Safety Manager throughout the document rather than the Finance Director.  3. Update the hyperlink to the Operational Snow and Ice Control Plan.  4. Periodically update the Data Collection and Analysis section to reflect efforts and statistics that are more current. Use to highlight ADA Program efforts.  5. The Title VI Policy and Plan should reflect an effective date and any subsequent revision dates.	Low	10/2024 8/1/2024	Title VI Policy and Plan updates have been started but additional time is necessary to complete these tasks.
2024 ADA (4/9/2024)	CCAO/R&S, CMO	ADA Coordinator Designation	2C		The City and County Manager should issue an updated memo designating the new Risk and Safety Manager as the CCOB ADA Coordinator, along with the necessary contact information (i.e. name, office address, and telephone number).	Low	10/2024 8/1/2024	Additional time is necessary to address this item.

Performance and Internal Audit Status Update								
Audit & Special Reviews Issue Date	Dept /	Topic	#	Finding	Prio Recommendation Ran		Revised & Original Estimated Complete Date(s)	August 2024 Audit Status Update or Management Responses in Recently Issued Audit Report
2024 ADA (4/9/2024)	Human Services / Operations	CCOB DHS Grievance and Complaint Policy	2D	The CCOB Department of Human Services (DHS) Grievance and Complaint Policy designates the Operations Manager of the HHS Department to serve as the department's ADA and Section 504 Coordinator, but there is currently no requirement to also make the CCOB ADA Coordinator aware of any formal ADA complaints.	The CCOB DHS Grievance and Complaint Policy should be updated to ensure the HHS Operations Manager makes the CCOB Risk and Safety Manager, the CCOB ADA Coordinator, aware of any formal ADA complaints that are received.	Low	4/2025	Additional time is necessary to address this item.
2024 ADA (4/9/2024)	CCAO/R&S	ADA Coordinator	3A	The CCOB has designated the Risk and Safety Manager as the CCOB ADA Coordinator.	The CCOB Risk and Safety Manager, who is also the designated CCOB ADA Coordinator and the primary point of contact for ADA related matters, should periodically (e.g. biennial) attend training focused on ADA matters.	High	Implemented	The Risk & Safety Manager has been to two CIRSA ADA trainings and a training with Rocky Mountain ADA. Participation in future trainings will occur as needed.
2024 ADA (4/9/2024)	CCAO/R&S	ADA Training - Public Facing	3В	Since CCOB staff who interact with the public have varying levels of experience when dealing with situations that are ADA in nature, there is potential compliance risk if the matter is not appropriately handled.	the public should be trained on how to identify potential ADA related matters. Since ADA cases will vary in nature, and the expertise of programmatic staff will also vary, CCOB employees who encounter ADA Title II (Public Services) related issues should involve the Risk and Safety Manager in ADA matters as a quality control measure.	High	10/2024 4/1/2025	Additional time is necessary to develop/deliver ADA training content to staff.
2024 ADA (4/9/2024)	HR, CCAO	ADA Training - Employment	4	Since CCOB supervision staff have varying levels of experience when dealing with situations that are ADA in nature in the employment setting, there is potential compliance risk if the matter is not appropriately handled.	CCOB supervisory staff should be trained on how to address and handle ADA related matters, specifically requests for accommodations from employees. Since ADA employment cases will vary in nature, and the expertise of supervisory staff will also vary, CCOB employees who encounter ADA Title I (Employment) related issues should involve Human Resources as a quality control measure. When cases involve novel or more complicated legal issues or potentially subject CCOB to increased liability and risk, Human Resources should involve attorneys from the City & County Attorney's Office.	High	10/2024 4/1/2025	Additional time is necessary to develop/deliver ADA training content to staff and to update SOPs.
Cyber Security Audits	IT	Confidential IT Security Audit Findings and Recommendations	N/A	Cyber Security Audits - Due to the high risk nature of IT assets, the CCOB periodically conducts audits using the services of consultants with expertise in cyber security. Since many of the findings are essentially a roadmap to CCOB vulnerabilities, the details of the findings and recommendations are not included in this report. In order to provide an update on the progress being made to mitigate these risks, a high-level summary of status by risk category has been provided. Rankings were provided by consultants. Ranking criteria differs by firm and from internal performance audits.  Summary of Management Approach for Addressing Cyber Security Risks - The CCOB security strategy is cyclical approach consisting of four stages. Prevent, Detect, Respond, and Recover. By implementing tools and policies to prevent security risks we reduce the threat landscape within the CCOB. CCOB also employs tools and services to detect potential security events as they occur. These detection tools allow IT staff to quickly respond to, and mitigate potential security events. Once an event has been mitigated, we can start to recover from the event. In recovery, CCOB data and services are restored. After recovery is complete, security events are reviewed and documented, and processes are improved based on the lessons learned.				

# City and County of Broomfield Cyber Security Quarterly Status Update

Center for Internet Security (CIS) Top 18 Controls Implementation - Group 1 (IG1) and <u>select</u> National Institute of Standards and Technology (NIST) Cyber Security Framework (CSF) Standards

	Status As Of	Status As Of	Status As Of	Status As Of
Safegaurd Implementation Status	June 2023	Jan 2024	April 2024	<b>July 2024</b>
Not Implemented	11	10	9	8
Partially Implemented	26	24	25	24
Subtotal	37	34	34	32
Fully Implemented	33	36	36	38
Total Controls	70	70	70	70

**Safegaurd Remediation Priority** 

High	10	10	10	10
Medium	16	15	15	14
Low	11	9	9	8
Controls Not Fully Implemented	37	34	34	32
N/A (Fully Implemented)	33	36	36	38
Total Controls	70	70	70	70

CCOB Vulnerability Reporting	Medium	High	Critical	Total	% Change
Vulnerabilities as of: 5-2-2024	5,690	16,795	6,176	28,661	-
Increase (new)	2,073	8,116	1,896	12,085	42.17%
Decrease (addressed)	(2,169)	(7,673)	(2,600)	(12,442)	-43.33%
Vulnerabilities as of: 5-8-2024	5,594	17,238	5,472	28,304	-1.25%
Increase (new)	1,285	5,418	1,453	8,156	28.82%
Decrease (addressed)	(1,442)	(5,611)	(1,221)	(8,274)	-29.19%
Vulnerabilities as of: 5-15-2024	5,437	17,045	5,704	28,186	-0.42%
Increase (new)	1,405	6,170	1,338	8,913	31.62%
Decrease (addressed)	(1,386)	(6,281)	(1,531)	(9,198)	-32.63%
Vulnerabilities as of: 5-22-2024	5,456	16,934	5,511	27,901	-1.01%
Increase (new)	1,533	6,900	1,487	9,920	35.55%
Decrease (addressed)	(1,436)	(6,194)	(1,530)	(9,160)	-32.76%
Vulnerabilities as of: 5-29-2024	5,553	17,640	5,468	28,661	0272391670
Increase (new)	1,302	5,873	1,372	8,547	29.82%
Decrease (addressed)	(1,298)	(5,506)	(1,114)	(7,918)	-27.62%
Vulnerabilities as of: 6-5-2024	5,557	18,007	5,726	29,290	2.19%
Increase (new)	1,184	4,911	1,071	7,166	24.47%
Decrease (addressed)	(1,208)	(5,378)	(1,316)	(7,902)	-26.96%
Vulnerabilities as of: 6-12-2024	5,533	17,540	5,481	28,554	-2.51%
Increase (new)	906	3,439	629	4,974	17.42%
Decrease (addressed)	(1,305)	(5,528)	(1,166)	(7,999)	-27.98%
Vulnerabilities as of: 6-26-2024	5,134	15,451	4,944	25,529	-10.59%
Increase (new)	2,148	9,099	1,807	13,054	51.13%
Decrease (addressed)	(1,618)	(6,243)	(1,257)	(9,118)	-35.63%
Vulnerabilities as of: 7-17-2024	5,664	18,307	5,494	29,465	15.42%

Increase / Decrease - A vulnerability scan is a snapshot as of a point in time for the devices that were connected to the network at the time the scan is performed. The IT Department has scheduled the vulnerability scans to take place during working hours each week in an effort to capture the results from as many devices as possible. However, if a device is not connected to the network at that time of the vulnerability scan it will not be included in the results. As a result, the vulnerability increase/decrease numbers may be somewhat inflated.

07/29/24	PROJECT DESCRIPTION	DEPT/ DIV	SCOPE / OBJECTIVES	STATUS			
Audits and Audit-Related Activities	Performance Auc		Performance Audits provide assurance or conclusions based on an evaluation of sufficient, appropriate evidence agains criteria, such as specific requirements, measures, or defined business practices. Performed in accordance with Genera Accepted Government Auditing Standards (GAGAS) and generally focus on program effectiveness/results, internal conticompliance, and prospective analysis.				
	ADA Audit	CCAO	The scope will cover the American with Disabilities Act (ADA). The objectives are to: 1) research federal/state ADA regulations, 2) evaluate CCOB policies, procedures, and other supporting records related to ADA compliance, and 3) determine whether actions are necessary to help ensure compliance with the ADA regulations. (Note - HB 21-1110 accessibility to government information technology is not in scope since there is currently a separate CCOB project team focused on this topic.)	Issued April 202			
	Revenue Payment Processing	ALL	The project scope includes the handling of all payment types throughout the CCOB in relation to the revenue process (i.e. payments for goods and/or services) from the point-of-sale (i.e. received from customer) until the payment is deposited into the bank. The objectives are to 1) identify all areas within the CCOB that handle payments , 2) determine whether documented policies and procedures related to payment processing currently exist, and 3) assess associated internal controls to determine the sufficiency of existing policies and procedures. Note - project formerly listed as Cash Receipts/Handling Procedures but updated since it encompasses all payment types.	Draft Repo			
	Clerk Recorder Licensing Software		The post-system implementation review of the Clerk & Recorder Office licensing software (OpenGov) was included in the scope of the Revenue Payment Processing Audit so a separate audit was not necessary. The 200 hours previously budgeted have been transferred to the Fleet Services Audit (see below).				
	Fleet Services PW/ Fleet Svc		The audit scope will cover Fleet Services activities currently in place at the CCOB. The audit objectives are to: 1) determine whether current policies, procedures and guidelines related to Fleet Services provide sufficient guidance for staff and an adequate internal control environment, 2) evaluate CCOB organizational practices related to Fleet Services operations to determine if there are opportunities for improvement, and 3) evaluate the accuracy of fleet management expense coding practices.	In-Progres			
	Audit Follow-Ups	Various	Follow-up on the implementation status of past audit recommendations and assist departments where possible.	On-Going			
	Other Audit N/A Related Tasks		Annual Risk Assessment (feedback from CCOB executive management and research of government/audit related topics).  Maintain Potential Audits Projects Listing and develop Annual Project Plan with input from the CMO/CAO. Council  Meeting memo prep & attendance for Semi-Annual PIA Updates. PIA Policies/Procedures maintenance.				
۲	Special Reviews		Narrowly focused projects on a specific topic requested by CMO. Reviews are not conducted in accordance with GAGAS.				
δ	TBD	TBD	TBD				
nd Other	Business Process Improvement Pro		Business Process Improvement (BPI) projects focus on operational efficiencies by working directly with process owners to eliminate waste and improve workflows. This also involves working with staff to more effectively use electronic data in order to reduce processing times and improve the accuracy of reporting.				
nent, a	LAHE Agreements	LAHE	The project scope covers Library agreements for programs. The objectives are to 1) assist a cross-funcgtional team with the development of standarized procedures for processing Library program agreements.	Complete			
i ke	Enterprise Funds	Various	Participate in cross-functional discussions involving an analysis of Enterprise Funds structure and rates.	Complete			
ss Impro ervices	Vulnerability Reporting	IT	Develop and maintain high-level management reporting for vulnerability threats.	On-Going			
Sei	TBD	TBD	Placeholder for other BPI project requests throughout the year.	TBD			
Special Reviews, Business Process Improvement, and Other Non- Audit Services	Other Non-Audit Svcs		Other continuous process improvement & performance activities.				
	Innovation	All	Professional Development/Performance Excellence - Assisting the DEOD with the development and delivery of process improvement and change management training materials for the CCOR Innovation Ecosystem (IE) program	On-Going			
	Ecosystem Grants	Finance	improvement and change management training materials for the CCOB Innovation Ecosystem (IE) program.  Provide assistance to the Finance Department as it evaluates Grant policies, procedures, and SOPs and implements new				
	Administration		business practices that make grant administration for effective and efficient.	In-Progres			
	CCOB Fees	All	The project scope covers all CCOB fees. The objectives are to 1) assist a cross-funcgtional team with developing a central repository for the fees and 2) establishing a schedule for maintain and updating fees on routine basis.	On-Hold			
I Re	Strategic Planning	N/A	Paticipation on the Strategic Planning Committee.	In-Progress			
cia	ERP	All	Serve as a subject matter expert on the Enterprise Resource Planning (ERP) project.	In-Progres			
Spe	Consultation All		Management consultation on topics such as organizational processes, internal controls, and external audit.	On-Going			
	Consactation	All		On Conig			



### **City of Broomfield**

### **City Council Regular Meeting**

#### **Event Center Demolition Approach**

Review and request for direction related to Event Center demolition/deconstruction options.

Meeting	Agenda Group	
Tuesday, August 27, 2024, 6:00 PM	Reports	Item: 5B
Presented By		
Katie Allen		
Community Goals		

#### Overview

View Correspondence

Following a formal Request for Qualifications and Request for Proposals solicitation for the demolition of the Broomfield Event Center, staff selected Colorado Cleanup Corporation (CCC) for the project. CCC has 34 years of experience with site work and building demolition in the metro area and recently completed the Boulder Community Hospital exterior deconstruction project.

#### **Attachments**

**Event Center Demo Alternatives.pdf** 

### **Summary**

### View Correspondence

This memorandum serves as an update regarding the Broomfield Event Center and requests direction from City Council and the Broomfield Urban Renewal Authority (BURA) board regarding next steps related to the type of demolition/deconstruction of the facility. During the report presentation staff will also provide an update regarding the anticipated release of a request for proposals on the future redevelopment of the site.

Following a formal Request for Qualifications and Request for Proposals solicitation for the demolition of the Broomfield Event Center, staff selected Colorado Cleanup Corporation (CCC) for the project. CCC has 34 years of experience with site work and building demolition in the metro area and recently completed the Boulder Community Hospital exterior deconstruction project. The Broomfield Event Center project team is currently in the "preconstruction" stage, which means that the contractor is beginning the hazardous material assessment that is required for a demolition permit and working with their structural engineer to establish the approach to safely demolish and/or deconstruct the building.

#### "Green" Demolition vs. Deconstruction

CCC has developed three alternatives regarding demolition of the Broomfield Event Center: green demolition, deconstruction, and a hybrid demolition/ deconstruction model. In all three scenarios, electrical and mechanical equipment and other fixtures, furniture, and equipment will be repurposed (sold/auctioned) before demolition, and masonry, concrete, and asphalt will be recycled.

The diversion rate for all three scenarios is the <u>same</u> and is expected to be approximately **90**%. This is because the structural steel will be either reused or recycled in all scenarios and not landfilled.

The primary difference between demolition and deconstruction is the preservation of the steel framing in the lower level and long-span steel trusses over the arena for potential reuse in another building or project. Preservation of the long-span steel trusses adds significant time and labor costs to the project due to the complexity and access challenges. It would require that the roof be removed to expose the trusses and would require highly skilled ironworkers. Deconstruction of the long-span trusses may require re-shoring of the structure during deconstruction. Approximately, 2,900 tons of steel, which is 98% of the overall steel and 10 percent of the overall project by weight would be removed for reuse.

A hybrid option was evaluated that would deconstruct approximately 100 tons of steel in the lower-level areas but not in the long-span locations. This equates to 3.4% of the overall steel in the structure and 0.34% of the overall project by weight.

A user or users for any of the salvaged steel must be identified in advance of the project. Broomfield would need to clean, catalog, protect, and store the steel somewhere offsite to allow for redevelopment of the parcel. By doing so, we would lose the scrap revenue from steel recycling. It is unlikely that Broomfield would be able to sell or donate the steel at a future time.

The following table provides an overview and outcomes for the conventional demolition and recycling option, the full deconstruction option, and the hybrid option.

	Green Demolition	Deconstruction	Hybrid
Overview	CCC would demolish the event center with high-reach excavators, shears, and processors.  Demolition would be completed in a top-down method with equipment that will be able to reach the top of the structure.  Electrical equipment and various other items would be repurposed prior to demolition.  Concrete and asphalt would be recycled.	CCC would expose the steel supports and deconstruct the entire structure including the long-span trusses over the arena.  This method would include very complex steel deconstruction for the long-span trusses and would require highly skilled ironworkers with extensive experience in long-span trusses and or arena experience. Long-span trusses may require reshoring during deconstruction.  Electrical equipment and various other items would be repurposed prior to demolition.  Concrete and asphalt would be recycled.	CCC would deconstruct the steel framing in all the lower-level areas but not in the long-span locations.  CCC would demolish and recycle the steel framing from the long-span trusses.  This would be a less complex method than the full deconstruction option and would not require the same level of skill and experience, and may not require ironworkers.  Electrical equipment and various other items would be repurposed prior to demolition.  Concrete and asphalt would be recycled.
Diversion rate	An estimated diversion rate of 90% by weight of the structure.	An estimated diversion rate of 90% by weight of the structure.	An estimated diversion rate of 90% by weight of the structure.
Steel saved for potential reuse	0%	2,900 tons	100 tons
Cost (ROM)	\$3,325,000	\$7,035,000	\$3,765,000
Schedule	6 months	12 months	7-8 months
Other	Lowest cost, shortest schedule	Project team would need to know ahead of time where the steel would go. Coordination of schedules with multiple projects and owners could be difficult.  Additional cost due to time and labor as well as the loss of scrap revenue (if steel is donated).	100 tons of steel (0.34% of total project by weight) could be repurposed for future development.

### Boulder Community Hospital Comparison

The City of Boulder recently deconstructed Boulder Community Hospital. The project achieved an overall 93.5% diversion rate by weight (43.7% of the interior and 98.5% of the exterior building).

Interior materials, including fixtures, furnishings, and equipment were auctioned, which is proposed for the Broomfield Event Center.

The total weight of the exterior materials was 56,765,500 lbs. 96% of the exterior materials or 54,473,420 lbs were concrete, asphalt, and building masonry, which were crushed and recycled on-site. Metals, including structural steel, accounted for 4% of the total weight or 2,286,800 lbs. Of this, 14% (161 tons or 322,000 lbs) of the structural steel was deconstructed for reuse at a later date. Specific beams from the hospital are being used for their Fire Station 3 project. Other salvaged steel pieces remain cataloged on-site for future use. Boulder is selling the steel for \$1 per transaction for non-City projects.

A summary of the Boulder Community Hospital deconstruction project can be found here.

Boulder's objectives were to maximize the diversion rate and reuse as much of the building structure as possible. The structural elements salvaged for reuse were structural steel beams. When meeting with Boulder staff, they emphasized that cost was not a primary concern in comparison to the reuse opportunities.

#### **Staff Recommendations**

The diversion rate for all three options is estimated to be approximately 90%. Steel could be deconstructed for reuse, however we have not identified projects or users for the steel.

Due to the complexity of deconstructing the long-span trusses over the arena, the cost for "full deconstruction" is estimated to be 216% greater than conventional demolition and recycling and the schedule would be extended by 6 months, extending the impact to area residents and business owners. The total estimated percentage by weight of the steel that could be deconstructed is estimated to be 10% of the overall project.

The hybrid option as proposed is only 13% more expensive than conventional demolition and recycling, but Broomfield would still need to catalog, protect, and store the steel from the lower-level framing. The total estimated percentage by weight of this steel in this scenario is 0.34% of the overall project.

The percentage by weight of the building structure that could potentially be reused is very small. Full deconstruction would add \$3.7M to the cost to allow for the reuse versus the recycling of 10% of the building materials by weight. The hybrid option would add \$440,000 to the cost to allow for the reuse versus recycling of 0.34% of the building materials.

Since cost is a significant factor for the Broomfield Event Center project, and there are no identified users for the steel, staff recommends the "green" demolition with recycling.

### **Financial Considerations**

As shown in the sources and uses of funds summary below, the project can be completed within the budgeted amount.

Sources and Uses of Funds	Amount
CIP Fund 24T0029 (20-70130-55600) Event Center Deconstruction and Demolition	5,315,630
Colorado Cleanup Preconstruction Services	-\$169,858,50
Demolition - Estimated Cost	-\$3,325,000
Contingency (10%)	-\$332,500
Projected Balance	1,658,130

### **Prior Council or Other Entity Actions**

The Broomfield Urban Renewal Authority approved Resolution No. <u>2023-45-UR</u> terminating the operator agreement with PEAK Entertainment, LLC.

### **Boards and Commissions Prior Actions and Recommendations**

N/A

### **Request for Direction**

Three alternatives are presented for BURA's Board and Council's consideration: demotion, deconstruction, hybrid. Staff is seeking direction from Council and the BURA Board as to which alternative to pursue for the Guaranteed Maximum Price proposal for the vendor. Staff recommends green demolition with recycling.



### City of Broomfield

### **City Council Regular Meeting**

### **Approval of Minutes**

Approval of minutes from August 13 Regular Council Meeting

Meeting	Agenda Group	
Tuesday, August 27, 2024, 6:00 PM	Consent Items Item: 6A	
Community Goals		

### Summary

Approval of Minutes for Regular Council Meeting of MONTH DAY, YEAR.

### **Attachments**

Minutes from August 13.pdf

8/21/24, 4:57 PM AgendaLink

### **Minutes for the City Council Regular Meeting**

One DesCombes Drive, Broomfield, CO 80020

August 13, 2024, 6:07 PM - August 13, 2024, 10:22 PM

Recess 8:00-8:10 p.m.

**Roll Call:** (The following members were in attendance)

- **Guyleen Castriotta,** Mayor
- Laurie Anderson. Ward 4
- Todd Cohen, Ward 5
- Paloma Delgadillo, Ward 2
- **Heidi Henkel,** Ward 5
- Bruce Leslie. Ward 4
- Jean Lim, Ward 3
- James Marsh-Holschen, Ward 1
- Kenny Van Nguyen, Ward 1
- **Deven Shaff,** Mayor Pro Tem, Ward 3
- Austin Ward, Ward 2

#### **Also Present:**

- Jennifer Hoffman, City and County Manager
- Anna Bertanzetti, Interim Deputy City and County Manager
- Nancy Rodgers, City and County Attorney
- Patrick F. Thibault, Clerk and Recorder Administrator

### 1. Meeting Commencement

- 1A. Pledge of Allegiance- 6:07 PM
- 1B. Review and Approval of Agenda 6:08 PM
- 2. Petitions and Communications
- 3. Councilmember Reports
- 4. Public Comment
- 5. Reports

8/21/24, 4:57 PM AgendaLink

5A. 2023 Audit and Review of the Annual Comprehensive Financial Report- 6:35 PM

### 6. Consent Items

- 6A. Approval of Minutes- 6:47 PM
- 6B. Proposed Resolution Approving an Agreement for Traffic Signal Pole Replacement 6:47 PM
- 6C. Proposed Resolution Mile High Water License Purchase Two Tap Requests 6:47 PM
- 6D. Proposed Resolutions US 287/120th Sidepath Infill Construction Agreement 6:47 PM
- 6E. Proposed Resolution Northmoor Park Playground Construction Agreement 6:47 PM
- 6F. Proposed Resolution HyperFiber Master License Agreement 6:47 PM
- 6G. Proposed Resolution Intrepid Fiber Master License Agreement 6:47 PM
- **6H. Executive Session Request for Legal Advice Regarding Business Development** 6:47 PM Motion to approve the staff reports contained in Consent Items 6a through 6h, made by Councilmember Ward and seconded by Councilmember Nguyen. Motion passes 10-0.

#### 7. Action Items

### 7A. Public Hearing Charter Ballot Question Ordinances - 2nd Reading - 6:59 PM

Motion to approve Ordinance 2243 on second and final reading, and order published in full, made by Councilmember Marsh-Holschen and seconded by Councilmember Henkel. Motion passes 6-4. Mayor Pro-Tem Shaff, and Councilmembers Lim, Anderson, and Leslie vote No.

Motion to approve Ordinance 2244 on second and final reading, and order published in full, made by Councilmember Ward and seconded by Councilmember Nguyen. Motion passes 10-0.

Motion to approve Ordinance 2245 on second and final reading, and order published in full, made by Councilmember Ward and seconded by Councilmember Henkel. Motion passes 10-0.

Motion to approve Ordinance 2246 on second and final reading, and order published in full, made by Councilmember Marsh-Holschen and seconded by Councilmember Ward. Motion passes 10-0.

Motion to approve Ordinance 2247 on second and final reading, and order published in full, made

8/21/24, 4:57 PM AgendaLink

by Mayor Pro Tem Shaff and seconded by Councilmember Lim. Motion passes 10-0.

Motion to approve Ordinance 2248 on second and final reading, and order published in full, made by Councilmember Ward and seconded by Councilmember Henkel. Motion passes 10-0.

## 7B. Proposed Resolution Potential Ballot Question Regarding the 17th Judicial District DA Term Limits- 7:43 PM

Motion to approve Resolution 2024-75 and order it published in full, made by Councilmember Nguyen and seconded by Councilmember Ward. Motion passes 9-1. Councilmember Leslie votes No.

### 7C. Contracted Waste Hauling Ordinance- First Reading- 7:52 PM

Motion to approve Ordinance 2242 on first reading and order published in full, and that a public hearing and second reading of the Ordinance be held on September 10, 2024, made by Councilmember Cohen and seconded by Councilmember Leslie. Motion passes 10-0.

## 7D. Proposed Resolutions regarding Nonprofits Grant Program and Possible Distribution of Additional Funds from Property Tax and Grant Refunds- 9:51 PM

Motion to approve Resolution 2024-100 made by Councilmember Nguyen and seconded by Councilmember Ward. Motion passes 9-0. Councilmember Henkel abstains.

Motion to approve Resolution 2024-107 made by Councilmember Ward and seconded by Councilmember Delgadillo. Motion passes 9-0. Councilmember Henkel abstains.

Motion to approve Resolution 2024-108 made by Councilmember Lim and seconded by Councilmember Henkel. Motion passes 10-0.

### 8. Mayor and Councilmember Requests for Future Action

8A. Councilmember Marsh-Holschen Request for Future Action Regarding RV/Long Term Street Parking- 10:22 PM

### 9. Adjournment

### **City of Broomfield**



### **City Council Regular Meeting**

### **Board of Equalization Approval of Abatement Petition Administrative Denials**

Meeting	Agenda Group
Tuesday, August 27, 2024, 6:00 PM	Consent Items Item: 6B
Presented By	
Crystal Clemens, City Clerk	
Community Goals	

### Overview

This matter requests that City Council, sitting as the Board of Equalization, approve the administrative denials on three abatement petitions. The property owners and tax agents are willing to take an "administrative denial" because they still have an opportunity to appeal the decision to the State Board of Assessment appeals at the next level.

### **Attachments**

<u>BOE Memo - Action on Abatement Petitions - Admin Denials - 8-27-24.pdf</u> <u>Resolution 2024-106-BOE - Action on Abatement Petitions - Admin Denials.pdf</u> Memo for Action on Abatement Petitions
Prepared By: Cathy Pai, Recording and Licensing Specialist
Kourtney Hartmann, Senior City and County Attorney

### **Summary**

#### **View Correspondence**

Staff is requesting that Council, sitting as the Board of Equalization, approve actions on several abatement petitions.

The taxpayers identified below have filed abatement petitions alleging that their property has been overvalued or that their tax levy is illegal. Council appointed hearing officers with experience in property valuations and abatements are available for a hearing on the valuations, but in all cases the property owner or tax agent declined to participate in the hearing (also known as an "administrative denial") and elected to forgo the hearing process understanding that the petition would be denied since no evidence was presented supporting the property owner's position. The property owners and tax agents are willing to take an "administrative denial" because they still have an opportunity to appeal the decision to the State Board of Assessment appeals at the next level.

An administrative denial was requested in the following petitions:

a. Petitioner Schedule No.: PAK SOON H R8868679

b. Petitioner Schedule No.: PAK SOON H R1118945

c. Petitioner Schedule No.: <u>BALL CORPORATION (LESSEE) R2200355</u>

Abatements can be received at any time throughout the year, but the deadline for filing is the first working day in January within two years of the date the taxes were levied. As a result, Broomfield tends to see most abatements filed in late December to early January each year. Pursuant to C.R.S. §39-1-113(1.7), every abatement or refund petition shall be acted upon within six months of the date of filing of the petition.

The Assessor's Office will continue to work with the petitioners as these items are appealed to the State Board of Assessment Appeals, but a formal action of the County Board of Equalization is required before the appeal to the next level may be granted.

### **Financial Considerations**

While there is a financial implication to Broomfield with the adjustment of property valuations, the valuation of property is handled at the individual property level. Since administrative denials were requested in all of the petitions, no further evaluation was made.

### **Prior Council or Other Entity Actions**

On February 13, 2024, Council approved <u>Ordinance 2225</u> transferring the Board of Equalization (BOE) duties from a separate resident board to Council.

On May 28, 2024, Council approved <u>Resolution No. 2024-41-BOE</u> confirming the appointment of existing hearing officers, appointing a new hearing officer and two new arbitrators.

### Boards and Commissions Prior Actions and Recommendations

N/A

### **Proposed Actions / Recommendations**

Staff recommends Council approve the administrative denial of the above referenced abatement petitions. To do so, the appropriate motion is...

That Resolution 2024-106-BOE be adopted.

### **Alternatives**

Do not adopt Resolution 2024-106-BOE. This is not advised and will result in Broomfield not meeting its statutory deadlines for these petitions.

The City and County Attorney's Office recommends that Council adopt the administrative denials as a final action of the Board of Equalization. The taxpayers will be notified of the decision and will have an opportunity to appeal this decision.

### **RESOLUTION NO. 2024-106-BOE**

A Resolution Denying certain Abatement Petitions

#### Recitals.

Whereas, City Council sits as the Broomfield Board of Equalization; and

Whereas, pursuant to C.R.S. §39-1-113 and 39-10-114, City Council appointed independent referees, or hearing officers, experienced in property valuation to conduct hearings on behalf of Broomfield's board of equalization and submit final recommendations to Council for approval; and

Whereas, the petitioners identified below have submitted petitions for abatements or refunds for taxes alleging taxes have been levied erroneously or illegally, whether due to erroneous valuation for assessment, irregularity in levying, clerical error, or overvaluation and the petitioners have submitted evidence of the proposed value for the subject property;

Whereas, all petitioners identified below elected to forgo a formal hearing with a hearing officer with the understanding that a decision of denial of the petition would be entered by the County Board of Equalization (i.e. an "Administrative Denial").

Now, therefore, be it resolved by the City Council of the City and County of Broomfield, Colorado sitting as the Board of Equalization:

### Section 1.

Council hereby denies the petitions listed in Exhibit A, all of which were Administrative Denials.

### Section 2.

This resolution is effective on the date of approval by Council.		
Approved on August 27, 2024	Board of Equalization	
Attest:	Mayor	
Office of the City and County Clerk	Approved as to form:	ккн
	City and County Attorney	

### Exhibit A

## Resolution 2024-106-BOE Administrative Denials

Petitioner Schedule No.: <u>PAK SOON H R8868679</u>
 Petitioner Schedule No.: <u>PAK SOON H R1118945</u>

3. Petitioner Schedule No.: BALL CORPORATION (LESSEE) R2200355

### **City of Broomfield**



### **City Council Regular Meeting**

### **Board of Equalization Approval of Corrected Mutual Agreement for Abatement**

Meeting	Agenda Group	
Tuesday, August 27, 2024, 6:00 PM	Consent Items Item: 6C	
Community Goals		

### **Overview**

This matter recommends that City Council, sitting as the Board of Equalization, approve a correction to a previously approved mutual agreement for an abatement over \$10,000.

### **Attachments**

<u>BOE Memo - Approval of Corrected Mutual Agreement for Abatement over \$10,000 - 8-27-24.pdf</u> <u>Resolution 2024-112-BOE - Approval of Corrected Mutual Agreement on Abatement.pdf</u>

### **Summary**

### View Correspondence

This matter comes before City Council, sitting as the Board of Equalization, to approve a corrected mutual agreement for abatement/refund of property taxes.

<u>Background</u>: The taxpayer identified below filed an abatement petition alleging that their property has been overvalued or that their tax levy is levied erroneously. The Assessor recommended approval of the mutual agreement resolving the petition. The abatement appeal exceeded \$10,000, therefore City Council and Colorado Property Tax Administrator approval are both required by Colorado law.

Hotel or motel properties may be considered mixed-use property and receive a residential assessment rate on a portion of their total property value if they can present historical evidence of "extended stay" room rental usage from leases or rentals for thirty (30) consecutive days or longer or from room usage documentation for the previous calendar year. Procedures regarding the mixed-use classification of hotel or motels can be found in Assessors' Reference Library (ARL) Volume 3, Chapter 7 - Special Issues in Valuation under the topic "Classification Of Hotels And Motels As Mixed-Use Properties". Every reassessment cycle, the Assessor's Office will work with hotels and motels that have extended stays to identify the proper percentage to split the assessment rates in accordance with the guidance in the ARL. In 2022, largely due to the Marshall Fire, several hotels in the area saw an increase in the mixed-use property that was given a residential assessment rate. It is anticipated as rebuilding is complete, these percentages will return to lower levels.

<u>The Original Agreement</u>: On July 9, 2024, City Council approved the mutual agreement for Denver BF Property LLC in the amount of \$46,367.02. As required by statute, the mutual agreement was sent to the Property Tax Administrator for approval. The Property Tax Administrator notified the Assessor's Office that there was a miscalculation on the property's total mixed-use assessed value. The Property Tax Administrator correctly identified that the parties had incorrectly used the previous years' mixed-use classification percentages rather than the percentages agreed upon, thus a small adjustment to the calculations was needed.

<u>Corrected Agreement</u>: After review, the new corrected abatement amount was \$45,519.44, instead of \$46,367.02, which resulted in a lower tax refund of \$847.58. The petitioner's tax agent is in agreement with the revised calculations. The Assessor department is adding a review process to assure a miscalculation will not happen in the future, only approximately 4 of the 11 hotel properties use the mixed-use property valuation method.

<u>Resolution 2012-112-BOE</u>: Staff is requesting that Council, sitting as the Board of Equalization, approve a corrected mutual agreement for abatement/refund of property taxes recommended by the Assessor and agreed upon between the Assessor and the petitioner.

### **Financial Considerations**

Petitioner
DENVER BF PROPERTY LLC R1144339

Revised Taxes Abated/Refunded \$45,519.44

Rationale: Adjusted to the 2022 stipulated value so both tax years (2021 and 2022) have the same value.

### **Prior Council or Board Of Equalization Actions**

On February 13, 2024, Council approved <u>Ordinance 2225</u> transferring the Board of Equalization (BOE) duties from a separate resident board to Council.

On July 9, 2024, Council approved <u>Resolution 2024-89-BOE</u> approving the mutual agreement for Denver BF Property LLC in the amount of \$46,367.02.

### **Boards and Commissions Prior Actions and Recommendations**

N/A

### **Proposed Actions / Recommendations**

If Council desires to approve the corrected mutual agreement, whose terms are agreed upon by the Assessor and the property owner and the Property Tax Administrator, the appropriate motion is...

That Resolution 2024-112-BOE be adopted.

### **Alternatives**

Council could deny the abatements and reject the correct mutual agreement, in which case the petitioner is likely to file for further appeals to the State Board of Assessment Appeals. Staff recommends approval as all parties have acknowledged the calculation error and have agreed to the corrected values.

### **RESOLUTION NO. 2024-112-BOE**

A resolution approving a Corrected Mutual Agreement on Abatement over \$10,000

#### Recitals.

Whereas, City Council sits as the Broomfield Board of Equalization; and

Whereas, pursuant to C.R.S. §39-1-113 and 39-10-114, City Council considered the recommendations of the Assessor relating to the petitions for abatement or refund as submitted by the taxpayers identified below and approved a mutual agreement on July 9, 2024;

Whereas, abatement appeal that exceeds \$10,000, are also approved by the Colorado Property Tax Administrator as required by Colorado law;

Whereas, the Property Tax Administrator during their review of the below referenced mutual agreement on the abatement noticed a calculation error by the parties and City Council desires to approve the corrected value.

Now, therefore, be it resolved by the City Council of the City and County of Broomfield, Colorado sitting as the Board of Equalization:

### Section 1.

The findings and corrected mutual agreement between the petitioners and Assessor for Petitioner Schedule No.: Denver BF Property LLC R1144339, is hereby modified to the tax amount of \$45,519.44 as approved by the Property Tax Administrator, and the Treasurer is directed to abate the taxes pro rata for all levies applicable to such property, or, in the case of a refund, refund of taxes pro rata by all jurisdictions receiving payment thereof in accordance with state law.

### Section 2.

This resolution is effective on the date of approval by the City Council of the City and County of Broomfield.

Page 1

Approved on August 27, 2024

Board of Equalization	
•	

Attest:		
Office of the City and County Clerk		
	Approved as to form:	ккн

### **City of Broomfield**



### **City Council Regular Meeting**

## Proposed Resolution approving an Amended and Restated Intergovernmental Agreement Concerning the Boulder-Broomfield Regional HOME Consortium

Meeting	Agenda Group	
Tuesday, August 27, 2024, 6:00 PM	Consent Items Item: 6D	
Presented By		
Jeff Romine, Economist & Director		
Community Goals		
☑ Thriving Diverse Safe and Welcoming Community		

### Overview

View Correspondence

Proposed Resolution 2024-124 is for the approval of an Amended and Restated Intergovernmental Agreement (IGA) that allows Broomfield to continue to receive HOME funds from the U.S. Department of Housing and Urban Development (HUD) through an agreement with the Boulder-Broomfield Regional HOME Consortium, to be used to increase housing options to benefit low- and moderate-income households. Absent this Amended and Restated IGA, Broomfield would not receive annual HOME funding.

### **Attachments**

Memo.pdf
Resolution No. 2024-124.pdf
2024 Amended & Restated HOME Consortium IGA\_final.pdf

Amended and Restated IGA Concerning the Boulder-Broomfield Regional HOME Consortium Prepared By: Viviane Del Pizzo

### Summary

### View Correspondence

Amendment and Restatement of the Boulder-Broomfield Regional HOME Consortium.

The proposed amended and restated Intergovernmental Agreement (IGA) allows Broomfield to continue to receive HOME funds from the U.S. Department of Housing and Urban Development (HUD) through an agreement with the Boulder-Broomfield Regional HOME Consortium, to be used to increase housing options to benefit low- and moderate-income households. Absent this amended and restated IGA, Broomfield would not receive annual HOME funding.

The City of Boulder is an entitlement community for the HOME program. Boulder chose to use its entitlement status to initiate the formation of the Boulder/Broomfield County HOME Consortium and include the non-entitlement communities of Boulder County, Longmont, and Broomfield. This Consortium benefits each jurisdiction by providing that the entities do not have to compete for the funds, additional funds for their low-income housing and community development needs are provided and it also provides a foundation for a strong regional partnership.

The intention of the Consortium is to provide the majority of the annual HOME fund allocation to support a single project where possible. The HOME Consortium IGA was initially approved in 2006. Most recently, the cities of Boulder, Longmont, Lafayette and Louisville, the towns of Lyons, Superior, Jamestown, Nederland, Ward and Erie, Broomfield, and Boulder County entered into a new HOME Consortium Intergovernmental Agreement on May 13, 2019. The City of Boulder remains the lead agency. Resolution 2024-124 would approve an amendment and restatement to the 2019 IGA to incorporate regulatory requirements and guidance provided by HUD

The consortium members participate in a multi-year rotation cycle. This is intended to be comparable to the HOME Consortium shares set forth in the HUD HOME Consortium Builder or other HUD estimating tool. The estimated annual funding will be adjusted according to actual funding allocated by HUD. Funds will rotate to different Consortium Members each year with the exception of the City of Boulder which will receive allocations for two consecutive years.

Broomfield has used the allocation of HOME funds to operate the Tenant-Based Rental Assistance (TBRA) program, a two-year self-sufficiency program for families run by the Department of Human Services. For that reason, Broomfield opted to receive an annual allocation to run the TBRA program instead of the multi-year rotation of funds. Broomfield receives roughly 13% of the annual allocation on a yearly basis.

### **Financial Considerations**

As shown in the sources and uses of funds summary below, the Tenant-Based rental Assistance program can be completed with the annual allocation amount.

Sources and Uses of Funds	Amount
HUD HOME - Consortium 13% allocation to Broomfield - approximate amount, as these allocations are determined annually by HUD	\$110,000
	\$ 110,000

Sources and Uses of Funds	Amount
HOME TBRA Program	\$110,000
Projected Balance	\$ 0

### **Prior Council or Other Entity Actions**

On June 13, 2006, Council adopted <u>Resolution No. 2006-97</u>, approving a HOME Consortium IGA between Boulder County, the cities of Boulder and Longmont and the City and County of Broomfield.

On July 24, 2007, Council adopted Resolution No. 2007-122, approving an amendment to the original IGA.

On June 12, 2012, Council approved <u>Resolution No. 2012-116</u>, approving a second amendment to the original IGA.

On March 12, 2019, Council approved <u>Resolution No. 2019-62</u>, Approving a new Intergovernmental Agreement Between the Participating Governments of the Boulder County/Broomfield County HOME Consortium

### Boards and Commissions Prior Actions and Recommendations

N/A

### **Proposed Actions / Recommendations**

If Council desires to approve and authorize submission of the proposed Amended and Restated Intergovernmental Agreement Concerning the Boulder-Broomfield Regional HOME Consortium.

That Resolution 2024-124 be adopted.

### **Alternatives**

Do not approve the proposed Amended and Restated IGA. If this occurs, the City and County of Broomfield will not be authorized to continue to participate in the HOME Consortium.

### RESOLUTION NO. 2024-124

A resolution authorizing the Amended and Restated Boulder-Broomfield Regional HOME Consortium Intergovernmental Agreement

### Recitals.

Whereas, the United States Government, through the National Affordable Housing Act of 1990, has established the HOME Investment Partnerships Act Program ("HOME" or "HOME Program"); and

Whereas, through the U.S. Department of Housing and Urban Development ("HUD"), the City of Boulder, the City of Longmont, Boulder County, and the City and County of Broomfield (the "Parties") have formed a HOME Consortium to administer the HOME program as a Participating Jurisdiction, and the City of Boulder is authorized and designated as the Lead Entity of the HOME Consortium; and

Whereas, the Parties entered into a HOME Consortium Intergovernmental Agreement ("Intergovernmental Agreement") dated May 13, 2019, to bring additional funds to the region for the purpose of expansion and rehabilitation of the supply of decent, safe, sanitary, and affordable housing and to strengthen partnerships among all levels of government and the private sector; and

Whereas, the Parties agree to execute an Amended and Restated Boulder-Broomfield Regional HOME Intergovernmental Agreement to incorporate regulatory requirements and guidance provided by HUD and replace the Intergovernmental Agreement; and

Whereas, the Parties agree to cooperate to undertake or to assist in undertaking housing assistance activities for the HOME Program; and

Whereas, participation in the HOME Consortium will enhance cooperation between jurisdictions and will maximize the use of resources available to local governments to affect the housing-related problems of lower-income people.

Now, therefore, be it resolved by the City Council of the City and County of Broomfield, Colorado:

### Section 1.

The Amended and Restated Intergovernmental Agreement by and between the City and County of Broomfield, Boulder County and the Cities of Boulder and Longmont concerning the Boulder-Broomfield Regional HOME Consortium is hereby approved.

### Section 2.

The Mayor or Mayor Pro Tem is authorized to sign and the City and County Clerk is authorized to attest the Amended and Restated Intergovernmental Agreement in form approved by the City and County Attorney.

### Section 3.

This resolution is effective upon the approval by the City Council.

Approved on August 27, 2024.		
	The City and County of Broomfield, Colorado	
	<del></del>	
	Mayor	
Attest:		
Office of the City and County Clerk	<del>_</del>	
	Approved as to form:	
	NCR	
	City and County Attorney	

# AMENDED AND RESTATED BOULDER-BROOMFIELD REGIONAL HOME CONSORTIUM INTERGOVERNMENTAL AGREEMENT

THIS AMENDED & RESTATED AGREEMENT ("Agreement") is made and entered into this \_\_\_\_\_day of September, 2024 by and between the City and County of Broomfield, Boulder County, the City of Longmont, (each a "Consortium Member", or collectively, the "Consortium Members") and the City of Boulder, a Colorado home rule city, (the "Lead Entity"), to form a Consortium for the purpose of participating in the HOME Investment Partnerships Program (HOME) of the U.S. Department of Housing and Urban Development (HUD)

#### RECITALS

WHEREAS, the United States Government, through the National Affordable Housing Act of 1990, has established the HOME Investment Partnerships Act Program ("HOME" or "HOME Program") and has designated the Boulder-Broomfield Regional HOME Consortium as a Participating Jurisdiction to administer such federal funds, subject to certain conditions, for the purpose of expansion and rehabilitation of the supply of decent, safe, sanitary, and affordable housing, and to strengthen partnerships among all levels of government and the private sector; and

WHEREAS, Section 216 (2) of the Act, 42 U.S.C. 12746, provides that a consortium of geographically contiguous or overlapping geographical areas within which separate legal governmental subdivisions operate can be considered to be a single unit of general local government for the purposes of receiving an allocation and participating in the HOME Program and a determination has been made by the United States Department of Housing and Urban Development that the Lead Entity and Consortium Members are geographically contiguous or overlapping geographical areas within which separate legal governmental subdivisions operate and are eligible to participate in the HOME Program; and

WHEREAS, the Lead Entity and Consortium Members recognize the need to address the regional issues of increasing the supply of permanent affordable housing for lower income households, and develop affordable and supportive housing opportunities for lower- income persons and families and the homeless in Boulder and Broomfield Counties and have determined that it will be mutually beneficial and in the public interest to enter into an intergovernmental agreement regarding regional participation in the HOME Program; and

WHEREAS, the Lead Entity desires to enter into an intergovernmental agreement with the Consortium Members to participate in a Consortium for the purpose of implementing a regional HOME Program authorized by the Act to enhance cooperation between jurisdictions and to maximize the use of resources available to local governments to affect the housing-related problems of lower-income people; and

**WHEREAS**, the Lead Entity has elected to administer such federal funds for itself and the Consortium Members through its Department of Housing and Human Services; and

WHEREAS, the City of Boulder, the City of Longmont, the City and County of Broomfield, and Boulder County originally entered into a HOME Consortium Intergovernmental Agreement dated June 27, 2006, to bring additional funds to the region for the purpose of expansion and rehabilitation of the supply of decent, safe, sanitary, and affordable housing and to strengthen partnerships among all levels of government and the private sector; and

**WHEREAS**, the City of Boulder, the City of Longmont, the City and County of Broomfield, and Boulder County most recently entered into a HOME Consortium Intergovernmental Agreement dated May 13, 2019; and

**WHEREAS**, the City of Boulder, the City of Longmont, the City and County of Broomfield, and Boulder County agree to enter into an Amended and Restated Intergovernmental Agreement to amend and restate the HOME Consortium Intergovernmental Agreement executed May 13, 2019, to incorporate regulatory requirements and guidance provided by HUD.

WHEREAS, participation in the HOME Consortium enhances cooperation between jurisdictions and maximizes the use of resources available to local governments to affect the housing-related problems of lower-income people; and

**WHEREAS**, the Lead Entity and Consortium Members are authorized to enter into cooperative agreements pursuant to the Colorado Constitution, Article XIV § 18, and § 29-1-203, C.R.S.

**WHEREAS**, the Lead Entity and Consortium Members desire to enter into this Amended and Restated Intergovernmental Agreement to continue the HOME Consortium.

**NOW THEREFORE**, in consideration of the mutual covenants and promises contained in this Agreement, the parties mutually agree to the following terms and conditions.

### I. **DEFINITIONS**

For the purpose of this Agreement, the terms defined in this section have the meanings given to them:

"Act" means Title II of the Cranston-Gonzalez National Affordable Housing Act of 1990, as amended, 42 U.S.C. 12701 et seq.

"Consolidated Plan" is a HUD required document. It serves as a planning document for the Consortium and a funding application under the Community Planning and Development formula grant programs Community Development Block Grant ("CDBG"), and HOME Investment Partnerships Program (HOME).

"Consortium" means the Consortium Members and Lead Entity acting pursuant to this Amendment.

"Consortium Members" means the City of Longmont, the City and County of Broomfield, and Boulder County and the City of Boulder (Lead Entity).

"HUD" means the United States Department of Housing and Urban Development.

"IDIS" means the Integrated Disbursement Information System.

"Lead Entity" means the one-member unit of general local government designated to act in a representative capacity for itself and the Consortium Members for the purposes of implementing the HOME regulations. The Lead Entity shall assume overall responsibility for ensuring that the Consortium's HOME Program is carried out in compliance with the requirements of 24 CFR part 92.101, including requirements concerning a Consolidated Plan. The Lead Entity for the Consortium is the City of Boulder.

"Regulations" means the rules and regulations promulgated pursuant to the Act, including but not limited to 24 CFR Parts 91 and 92, as amended.

### II. PURPOSE

The purpose of this Agreement is to form a consortium of units of general local government under the Act. The consortium of units will be known and referred to as the Boulder-Broomfield Regional HOME Consortium (the "Consortium").

#### III. AGREEMENT

A. Term. The term of this Agreement commences October 1, 2024, and ends on September 30, 2027. This Agreement shall remain in effect during the period necessary to complete all eligible activities funded during Federal Fiscal year 2025, 2026, and 2027. These three federal fiscal years comprise the Consortium's qualification period, and the Consortium members are prohibited from withdrawing from the Agreement during this period. Pursuant to 24 CFR 92.101(e), no member of the Consortium may withdraw from this Agreement while this Agreement remains in effect.

The Lead Entity is authorized to amend the Agreement, to add new members, or to incorporate automatic renewal provisions, or for other reasons approved by HUD on behalf of the Consortium. The Lead Entity is authorized to execute future amendments to the Agreements on behalf of all Consortium Members.

This Agreement shall automatically be renewed for the Consortium's participation in successive qualification periods of three Federal fiscal years each. No later than the date specified by HUD"s consortia designation notice or HOME consortia web page, the Lead Entity shall notify each Consortium Member in writing of its right to decide not to participate in the Consortium for the next qualification period and the Lead Entity shall send a copy of each notification to the HUD Field Office. If a Consortium Member decides not to participate in the Consortium for the next qualification period, the Consortium Member shall notify the Lead Entity, and the Lead Entity shall notify the HUD Field Office, before the beginning of the new qualification period.

Before the beginning of each new qualification period, the Lead Entity shall submit to the HUD Field Office a statement of whether or not any amendments have been made to this Agreement, a copy of each amendment to this Agreement, and, if the Consortium"s membership has changed, the state certification required under 24 C.F.R. § 92.101(a)(2)(i). The Consortium shall adopt any amendments to this Agreement that are necessary to meet HUD requirements for consortium agreements in successive qualification periods. The automatic renewal of the Agreement will be void if: the Lead Entity fails to notify a Consortium Member or the HUD field office as required under this automatic renewal provision; a new Consortium member is added for the first year of a new qualification period; or the Lead Entity fails to submit a copy of each amendment to this Agreement as required under this automatic renewal provision.

The Lead Entity shall provide a minimum of 30 days advance written notice to each Consortium Member of the program requirements to be in effect for subsequent Federal fiscal years or qualifying periods. Notice shall be sent by the Lead Entity to the following:

Director Boulder County Housing Division P.O. Box 471 Boulder, CO 80306

Housing and Community Investment Manager Civic Center Complex 350 Kimbark Street Longmont, CO 80501

Housing Program Manager City and County of Broomfield City Manager's Office One Descombes Drive Broomfield, CO 80020

**B.** Termination. This Agreement shall terminate if: (1) any one of the Consortium Members or the Lead Entity provides written notice of their decision not to participate in a subsequent three-year qualification period, or (2) the Lead Entity fails to adopt, and submit to HUD an amendment to this Agreement that incorporates all changes necessary to meet "Cooperation Agreement Requirements" as prescribed by HUD in the Consortia Qualification Notice that is applicable to any subsequent qualification period beyond the original three-year term. The Lead Entity shall, by the date specified in HUD"s Consortia Qualification Notice for the next qualification period, notify the Consortium Members in writing of their right not to participate in the Consortium. All Consortium Members that are members of the Consortium will be on the same program year (January 1 to December 31) for the Community Development Block Grant (CDBG), and HOME Investment Partnerships (HOME)grant programs. Notices to the Consortium Members shall be sent to the addresses above in Section III A. Notices to the Lead Entity shall be sent to: Deputy Director of Housing, City of Boulder Housing and Human Services, PO Box 791, Boulder, CO, 80306. In the event this Agreement is terminated its provisions must remain in effect until the

HOME funds from each of the Federal Fiscal Years of the qualification period are expended on eligible activities or returned to HUD.

- **C. Termination Notices**. Termination notices, if any, shall be sent by any non-renewing Consortium Member to the Lead Entity.
- **D.** Execution. This Agreement shall be executed by the appropriate officers of each Consortium Member and the Lead Entity pursuant to authority granted them by their respective governing bodies, and a copy of the authorizing action and executed Agreement shall be filed promptly at the offices of the Lead Entity.
- **E.** Lead Entity. Subject to the provisions of this Agreement, the Lead Entity is authorized to act in a representative capacity for all of the Consortium Members for the purpose of the Act, and the Lead Entity assumes overall responsibility for ensuring that the Consortium's HOME Program is carried out in compliance with the Act including requirements concerning a Consolidated Plan.
- **F.** Consolidated Plan. The Lead Entity and Consortium Members shall cooperate in the implementation of the HOME Program and shall cooperate in the preparation of the Consolidated Plan by providing funds proportionately to the annual funding percentage break down in Section III G of this Agreement for the development of the Consolidated Plan, by providing input to the Consolidated Plan, and by holding any required public meetings during the preparation of the Consolidated Plan. Each Consortium Member must fully approve each Consolidated Plan for such Consolidated Plan to be considered to be approved and ready for submission to HUD.
- G. Allocating HOME Program Funding. The intention of the Consortium is to provide the majority of the annual HOME fund allocation to support a single project where possible. This annual allocation does not include the funds required to be set aside to support Community Housing Development Organization ("CHDO") development activities (15 percent), the program administration portion (10 percent), or Broomfield's annual allocation (13 percent). Funds will rotate to different Consortium Members each year with the exception of the City of Boulder which will receive allocations for two consecutive years. The proposed multi-year rotation cycle is intended to be comparable to the HOME Consortium shares set forth in the HUD HOME Consortium Builder or other HUD estimating tool. The estimated annual funding will be adjusted according to actual funding allocated by HUD.

Funds will generally rotate according to the following schedule:

Consortium Members & Lead Entity	Year 1 and 5	Year 2 and 6	Year 3	Year 4
City of Boulder (Lead Entity)			X	X
City of Longmont	X			
Boulder County		X		
City and County of Broomfield*	X	X	X	X
CHDO	X	X	X	X

<sup>\*</sup>Broomfield is electing to maintain its annual allocation to support its ongoing Tenant Based Rental Assistance (TBRA) program.

Funding priority will be guided by the agreed upon schedule. Each Consortium Member is in line to receive an allocation.

There is an exception to having a fixed position in the fund rotation if a Consortium Member elects to receive an annual program allocation. While this election excludes the Consortium Member from a fixed position in the rotation, it does not eliminate the possibility of this Consortium Member being considered for the allocation when another project is not identified.

Provided that the goal of the annual rotation is to maximize the use of HOME funds, the intention is for the annual rotation to support one project. The identification of an eligible project will be determined by the Consortium Member scheduled to receive the funds. In the case where the Consortium Member is unable to identify a singular viable and eligible project within 12 months of execution of the HOME Agreement and has not committed all of its allocated HOME funds for a program year on the Integrated Disbursement Information System ("IDIS"), each Consortium Member will identify eligible HOME projects within their own jurisdictions that will be reviewed by the Consortium Member with the funds disbursed using a competitive process. This funding scenario includes the caveat that the Consortium Member(s) to which the funds are allocated can assure that it can commit the HOME funds on IDIS prior to the recapture of the HOME funds by HUD and can meet the matching requirements. If the other Consortium Members are not able to disburse the funds to previously funded projects, the funds shall be disbursed through a competitive process to the Consortium Members and Lead Entity for HOME eligible projects. Any funds in the United States Treasury Account, established by HUD for the Consortium HOME funds, that are not committed within 24 months of the last day of the month in which HUD notifies the Lead Entity of HUD's execution of the HOME Investment Partnerships Agreement will be recaptured by HUD.

It is the intent of the Consortium Members to meet the CHDO requirements jointly in the distribution of funds. Annually, the CHDO set aside allocation will be distributed based on the location of a CHOO-eligible project. Priority will be given to a CHOO project located in the Consortium Member receiving the primary allocation in each year. If that Participating Jurisdiction cannot identify a CHDO-eligible project within their geographic boundary(ies) that will meet the HOME requirements (timeliness, set aside, etc.), it will be the responsibility of all Consortium Members to seek non-profit agencies that are eligible to receive CHDO funds.

Potential HOME projects will be presented, reviewed, prioritized and selected jointly by the Consortium Members. Following approval by the Consortium Members, if a governing body exists in the jurisdiction receiving the HOME funding, the project(s) will be presented to the governing body for local approval. The City of Longmont Housing and Community Investment staff receives funding recommendations from two advisory groups with their City Council approving projects. The Broomfield County Commissioners approve projects located in the City and County of Broomfield. Projects located within the City of Boulder and unincorporated Boulder County will be reviewed and recommended by the City Manager- appointed Technical Review Group (as Boulder County has assigned this authority to Boulder). Following local approval where applicable, as the Lead Entity assigned the fiduciary responsibility of the HOME Consortium, the City of Boulder City Manager will approve all HOME funding allocations.

**H. Matching Funds**. Each Consortium Member and the Lead Entity shall be responsible for providing matching funds required by federal regulations for any HOME funds allocated and accepted for use by that local government. As required by law, Consortium Members and Lead Entity allocations are subject to annual federal appropriations of HOME funds. No matching funds will be required from a Consortium Member that chooses not to participate for a particular program year.

All use of matching funds by Consortium Members must be reported to the Lead Entity, in a format to be determined by the Lead Entity, by the end of each Federal fiscal year of this Agreement.

I. Distribution of HOME Funds. Each Consortium Member will be responsible for deciding how to distribute its portion of HOME funds among eligible activities within its jurisdiction, subject to the HOME Program requirements for a 15 percent set aside of funds for CHDO activities. It is the intent of the Consortium Members to meet the CHDO requirements jointly in the distribution of funds. In addition, each jurisdiction may choose to allocate some or all of its portion of HOME funds for one or more projects outside its jurisdiction, but within the HOME Consortium boundaries, if the project is regional in scope and the jurisdiction determines that the project(s) benefits its residents.

If a Consortium Member has not committed all of its allocated HOME funds for a program year on the IDIS within 12 months of the last day of the month in which HUD notifies the Lead Entity of HUD"s execution of the HOME Investment Partnerships Agreement containing the funds, the Lead Entity shall first allow the Consortium Member to reallocate the funds to another project in its region. If that is not possible, the Lead Entity shall then attempt to reallocate the HOME funds to projects already approved for funding by the other Consortium Members, either through a pro-rata share to the Consortium Members based on their normal funding allocation schedule set forth in Section IIIG or for one or more distinct projects as nominated and approved by the Consortium members. Any of these funding scenarios are with the caveat that the Consortium Member to which the funds are allocated can assure that it can commit the HOME funds on IDIS prior to the recapture of the HOME funds by HUD and can meet the matching requirements. If the Consortium Members are not able to disburse the funds to previously funded projects, the funds shall be disbursed through a competitive process to the Consortium Members and Lead Entity for HOME eligible projects. Any funds in the United States Treasury Account, established by HUD for the Consortium HOME funds, that are not committed within 24 months of the last day of the month in which HUD notifies the Lead Entity of HUD's execution of the HOME Investment Partnerships Agreement will be recaptured by HUD.

J. Administrative Set Aside. As reflected below, each Consortium Member will be entitled to a percentage of the allowable HOME administrative set aside reflective of the HUD defined HOME Consortium Share, adjusted annually by HUD. The Consortium Members agree to provide a portion of their administrative fee to the Lead Entity. All administrative fees given to the Lead Entity shall be used to pay a portion of the administrative expenses of the entire HOME Consortium. Furthermore, each Consortium Member agrees to provide an additional portion of their administrative fee to the Government receiving the primary allocation each year.

Consortium Members	HOME Consortium Share	% of HOME Admin set aside	% of Admin Set Aside allocated to the Lead Entity
City of Boulder	Determined Annually by HUD	Determined Annually	n/a
City of Longmont	Determined Annually by HUD	Determined Annually	15%
Boulder County	Determined Annually by HUD	Determined Annually	100%
City and County of Broomfield	Determined Annually by HUD	Determined Annually	100%
CHDO	15%	Operating Only	-
Consortium Member receiving the annual primary allocation	_	10% of project costs	-

- K. Affirmatively Furthering Fair Housing. The Consortium Members certify that they will affirmatively further fair housing with all distributed HOME Consortium funds under this Agreement in compliance with 24 CFR 92.350. Each Consortium Member will be responsible for compliance with HUD regulations and, if applicable, for its own preparation and submission to HUD of the Impediments to Fair Housing Plan. The parties agree that the Lead Entity is prohibited from funding activities in or in support of a Participating Jurisdiction that does not affirmatively further fair housing within its jurisdiction or that impedes the Lead Entity's actions to comply with the Consortium's fair housing certification. The Consortium Members acknowledge that noncompliance by the Consortium Members may constitute noncompliance by the Lead Entity which may provide cause for funding sanctions or remedial actions by HUD.
- L. Citizen Participation. The Consortium Members certify that they will, with the Lead Entity, develop and adhere to a Citizen Participation Plan, concerning the use of HOME funds and low-income housing needs.
- M. Program Income. Program Income as defined at 24 CFR 92.2 generated by a Consortium Member will be held by each Consortium Member in a separate account specific to the HOME Program. Program Income received by a Consortium Member shall be retained by that Consortium Member for additional eligible activities. Program income must be disbursed before that Consortium Member requests funds from the Consortium. Appropriate documentation of the receipt and use of program income will be provided to the Lead Entity in a format to be determined by the Lead Entity.

#### IV. LEAD ENTITY RESPONSIBILITIES

**A.** Legal Liability and Responsibilities. The parties recognize and understand that the Lead Entity will be the governmental entity required to execute all grant agreements received from HUD pursuant to the Lead Entity's request for HOME funds. The Lead Entity will be legally liable and have full responsibility for the execution of the HOME Program. The Lead Entity will be

responsible for the Consortium's annual Action Plan or Five-Year Consolidated Plan with an annual Action Plan component, when required, and for meeting the requirements of other applicable laws, overall administration, and performance of the HOME Program, including the HOME projects and activities to be conducted by the Consortium Members. The Lead Entity assumes overall responsibility for ensuring the Consortium's HOME Program is carried out in compliance with the requirements of the program, including requirements concerning a Consolidated Plan as set forth in the HOME regulations.

- **B.** Eligibility Review and Compliance Monitoring. The Lead Entity's supervisory, program and administrative obligations to the Consortium Members shall be limited to the performance of the administrative and program tasks necessary to make HOME funds available to the Consortium Members and to provide monitoring to various projects funded with HOME funds to ensure that they comply with applicable Federal laws and regulations. The Lead Entity shall be responsible for determining eligibility and confirming the compliance of the HOME Program projects with applicable Federal laws and regulations.
- **C. Reporting Requirements**. The Consortium Members will provide the Lead Entity with an annual HOME Program activity report of HOME funded projects. The Consortium Members will also, on a quarterly reporting cycle, provide the Lead Entity with reports that capture and identify program income derived from the HOME funded activities.

### V. CONSORTIUM MEMBERS' RESPONSIBILITIES

A. Action Plan/Consolidated Plan Submissions. The Consortium Members shall prepare and submit to the Lead Entity their own separate annual Action Plan for the CDBG Program, if applicable. The Consortium Members will submit their Action Plan and/or Consolidated Plan and/or information on proposed annual use of HOME funds, as applicable, to the Lead Entity within a time frame established by the Lead Entity to enable the Consortium's Annual Action or Consolidated Plan to be submitted as a joint submission to HUD.

The Consortium Members shall submit reporting information called for by the Citizen Participation Plan to Lead Entity staff for inclusion into the report or plan. The Consortium Members are also responsible for informing their citizens of the impact of and proposed use of HOME funds (and/or CDBG funds) within the Consortium Member's jurisdiction.

**B.** Reporting Requirements. The Consortium Members shall prepare and submit applicable information on the use of HOME funding to the Lead Entity for consolidation into the HOME report, the following reports, if applicable, for submission to HUD according to applicable deadlines: Impediments to Fair Housing, Citizen Participation Plan, Minority Business Enterprise/Women's Business Enterprise reports, and federal cash transaction reports. The annual HOME Consolidated Action Plan Evaluation Report (CAPER) will be a joint effort with the Consortium Members providing information on their annual use of HOME funds as applicable. The Consortium Members will also prepare and submit any other reporting requirements required by HUD.

- C. Lead Entity and Consortium Member Cooperation. The Lead Entity shall cooperate and work with the Consortium Members in the preparation of detailed projects and other activities to be conducted or performed within the Consortium Member during the Federal Program Years this Agreement is in effect. The Consortium Members agree to cooperate with the Lead Entity to undertake or to assist in undertaking housing assistance activities for the HOME Program
- **D. Disallowed Expenditures**. The Consortium Members assume full responsibility for payment of HOME expenditures made in their jurisdictions that are disallowed by HUD.

#### VI. SPECIAL PROVISIONS

- **A.** Indemnification. Each party assumes responsibility for the actions and omissions of its agents and its employees in the performance or failure to perform work under this Agreement. The parties agree that the liability for actions or omissions of its own agents and employees is not intended to increase the amounts set forth in the Colorado Governmental Immunity Act, now existing, or as may be amended. By agreeing to this provision, the parties do not waive nor intend to waive the limitations on liability which are provided to the parties under the Colorado Governmental Immunity Act§ 24-10-101 et seq., C.R.S., as amended.
- **B.** Compliance with the Act. In the event there is a revision of the Act and/or regulations that would cause this Agreement to be out of compliance with the Act or regulations, all parties to this Agreement shall review this Agreement to reasonably, and in good faith, renegotiate those items necessary to bring this Agreement into compliance.

All parties understand that the refusal to renegotiate this Agreement may result in the loss of the effective use of this Agreement as of the date it is out of compliance with the Act and/or Regulations as amended.

C. Monitoring and Accounting. The Lead Entity shall maintain financial, project, and other records and accounts for the Consortium in accordance with the requirements of the Act and regulations.

All Consortium Members agree to make available all records and accounts pertaining to HOME funded projects covered by this Agreement at all reasonable times to their respective personnel and duly authorized federal officials.

- **D.** Other Applicable Laws. All projects undertaken pursuant to this Agreement shall be subject to any relevant State statutes, home rule charter provisions, assessment, planning, zoning, sanitary and building laws, ordinances and regulations applicable to each Consortium Member or smaller municipality in which a project receiving HOME funds is situated.
- **E.** Authority to Amend Agreement. The Lead Entity is authorized to amend the agreement, to add new members, or to incorporate automatic renewal provisions, or for other reasons approved by HUD on behalf of the entire consortium, unless otherwise specified in this agreement.

- **F.** Severability. Invalidation of any one or more of the provisions of this Agreement shall in no way affect any of the other provisions thereof, which shall remain in full force and effect.
- G. Financial Obligations of the Parties. Each party's financial obligations under this Agreement are contingent upon appropriation, budgeting, and availability of specific funds to discharge those obligations. Nothing in this Agreement constitutes a debt, a direct or indirect multiple fiscal year obligation, a pledge of the credit of either party, or a payment guarantee by either party to the other party.

EXECUTED as of the date first set forth above.

	CITY AND COUNTY OF BROOMFIELD
	Mayor
SEAL	
ATTEST:	
Office of the City and County Clerk	
	APPROVED AS TO FORM:
	City and County Attorney

	Boulder County Board of Commissioners
	By:Chair of the Board of County Commissioners
ATTEST:	
Clerk to the Board	

CITY OF LONGMONT	
MAYOR	
ATTEST:	
CITY CLERK	DATE
APPROVED AS TO FORM:	
ASSISTANT CITY ATTORNEY	DATE
PROOFREAD	DATE
APPROVED AS TO FORM AND SUBSTANCE:	
ORIGINATING DEPARTMENT	DATE

# CITY OF BOULDER, a Colorado home rule city

	Nuria Rivera-Vandermyde City Manager	
	Date:	
ATTEST:		
City Clerk		
Date:		
APPROVED AS TO FORM:		
City Attorney's Office		
Data		

## **City of Broomfield**



## **City Council Regular Meeting**

## Proposed Resolution approving an IGA with RTD for Election Services

Meeting	Agenda Group	
Tuesday, August 27, 2024, 6:00 PM	Consent Items Item: 6E	
Presented By		
Crystal Clemens, City Clerk		
Community Goals		

## **Overview**

View Correspondence

Staff is seeking Council approval for a legally required Intergovernmental Agreement (IGA) with the Regional Transportation District (RTD) who desires to have a question on the ballot in the November 5, 2024 General Election. This IGA is required per statute between the county clerk and any political subdivision looking to put a question on the ballot in that county.

## **Attachments**

Memo 2024 Election IGA RTD.pdf Resolution 2024-125.pdf 2024 RTD IGA Agreement.pdf Memo for Resolution 2024-125 approving RTD IGA for the November 5, 2024 General Election. Prepared By: Crystal Clemens

# **Summary**

## View Correspondence

Staff is seeking Council approval for a legally required Intergovernmental Agreement (IGA) with the Regional Transportation District (RTD), which desires to have a question on the ballot in the November 5, 2024 General Election.

C.R.S. §1-7-116(2) requires that political subdivisions, which includes special districts, wishing to place contests or questions on a ballot being coordinated by the county clerk enter into an IGA with that county that allocates responsibilities between the county clerk and the political subdivision for the preparation and conduct of the coordinated election. These IGAs are required to be due back to the Election Division by August 27, 2024, per C.R.S. §1-7-116(2). Ballot content certification is due September 6, 2024, per C.R.S. §1-5-203(3)(a).

RTD, as a political subdivision, intends to put a question on the November 2025. RTD sent Broomfield's City and County Clerk Elections Division notification of "intent to coordinate" on July 26, 2024. The statutory timeline and varied meeting schedule of the RTD board prevent the Elections Division from being able to provide an RTD-signed IGA in this packet. However, staff has communicated with RTD staff who ensure that a RTD-signed IGA will be provided on or before August 27, 2024 to meet the statutory deadline.

Pursuant to Section 16.2 of the City Charter, approval of an intergovernmental agreement requires a two-thirds affirmative vote of the entire Council.

## **Financial Considerations**

The participating jurisdictions reimburse Broomfield for a proportional share of the election expenses. The charges to the entities will be between \$1.50 per voter to participate in the election. The minimum amount charged to a coordinating jurisdiction is \$200. The current voter count and expected payment from RTD is shown in the table below. The actual payment will be determined after the election based on final numbers of registered voters for the RTD.

Sources and Uses of Funds	Amount
Regional Transportation District (RTD) (53,701 current voter count)	\$80,551.50

## **Prior Council or Other Entity Actions**

On <u>July 23, 2024</u>, Council approved similar IGAs with Adams 12, St. Vrain Valley School District RE-1J, and Weld RE-8.

## **Boards and Commissions Prior Actions and Recommendations**

N/A

## **Proposed Actions / Recommendations**

If Council desires to approve the intergovernmental agreement with RTD, the appropriate motion is...

That Resolution 2024-125 be adopted.

## **Alternatives**

There are no alternatives as the City and County Clerk is required by law to administer these elections and intergovernmental agreements with political subdivisions are a statutory requirement.

# **RESOLUTION NO. 2024-125**

A Resolution authorizing an Intergovernmental Agreement for Election Services between the City and County of Broomfield and the Regional Transportation District (RTD)

Be it resolved by the City Council of the City and County of Broomfield, Colorado:

## Section 1.

The Intergovernmental Agreement between the City and County of Broomfield and the Regional Transportation District (RTD) for election services for the November 2024 election is approved.

## Section 2.

The Mayor or Mayor Pro Tem is authorized to sign and the Office of the City and County Clerk to attest the Intergovernmental Agreement, in substantially the form attached hereto and in final form approved by the City and County Attorney's Office.

## Section 3.

This resolution	is	effective	upon	its	apı	proval	by	the (	City	Council	ι.

Approved on August 27, 2024.

The City and County of Broomfield, Colorado

Mayor

Attest:

Office of the City and County Clerk

Approved as to form:

City and County Attorney

#### INTERGOVERNMENTAL AGREEMENT

## **BETWEEN**

## **CITY AND COUNTY OF BROOMFIELD**

AND

**Regional Transportation District** 

## **REGARDING THE CONDUCT AND ADMINISTRATION OF**

THE NOVEMBER 5, 2024

**GENERAL ELECTION** 

## **PREPARED BY:**

**BROOMFIELD COUNTY CLERK AND RECORDER** 

**ELECTIONS DIVISION** 

**ONE DESCOMBES DRIVE** 

**BROOMFIELD, COLORADO** 

80020

303-464-5857

THIS AGREEMENT is made by and between the City and County of Broomfield Council, on behalf of the Broomfield County Clerk and Recorder (hereinafter referred to as the "City and County") and Regional Transportation District, (hereinafter referred to as the "Jurisdiction") (hereinafter collectively referred to as the "Parties"); and

**WHEREAS**, pursuant to the Uniform Election Code of 1992 (Articles 1 to 13 of Title 1, C.R.S.) as amended, governmental entities are encouraged to cooperate and consolidate elections in order to reduce taxpayer expenses; and

WHEREAS, pursuant to section 1-7-116, C.R.S. if more than one jurisdiction holds an election on the same day in November and the eligible electors for each such election are the same or the boundaries overlap, the County Clerk and Recorder is the coordinated election official and, pursuant to section 1–5–401, C.R.S. shall conduct the elections on behalf of all jurisdictions whose elections are part of the coordinated election utilizing the mail ballot procedures set forth in article 7.5 of title 1; and

**WHEREAS**, the City and County and Jurisdiction have determined that section 1-7-116, C.R.S. applies and it is in the best interest of the taxpayers and the electors to enter into this Agreement to conduct the November 5, 2024 General Election; and

WHEREAS, such agreements are authorized by State law.

**NOW, THEREFORE**, for and in consideration of the promises herein contained, the sufficiency of which is hereby acknowledged, the Parties hereto agree as follows:

This election shall be conducted as a Coordinated Election in accordance with the Uniform Election Code of 1992 (Articles 1-13 of Title 1, C.R.S.). The election participants will execute agreements with the City and County of Broomfield for this purpose and may include municipalities, school districts, and special districts within the Broomfield City and County limits and the State of Colorado.

The Broomfield Clerk and Recorder shall be designated as the Coordinated Election Official (hereinafter "CEO") and the Jurisdiction hereby identifies Melody J. Snyder as its Designated Election Official (hereafter "DEO).

Further, the Parties agree as follows:

# SECTION I. PURPOSE AND GENERAL MATTERS

## 1.1 **DEFINITIONS.**

- A. "Address Library Report" means the address report from the Secretary of State's voter registration system that defines street addresses and precincts within the jurisdiction.
- B. "Coordinated Election Official" (hereinafter "CEO") shall mean the Clerk and Recorder who shall act as the "coordinated election official," as defined within the Code and Rules and, as such, shall conduct the election for the Jurisdiction for all matters in the Code and the Rules which require action by the CEO.
- C. "Colorado Election Code" or "Code" means any part of the Uniform Election Code of 1992, (Articles 1- 13 of Title 1, C.R.S.) or any other Title of C.R.S governing participating Jurisdiction's election matters, as well as the Colorado Constitution, and the State of Colorado Secretary of State (SOS) Rules.
- D. "Coordinated Election" means an election where more than one jurisdiction with overlapping boundaries or the same electors holds an election on the same day and the eligible electors are all registered electors, and the County Clerk is the Coordinated Election Official for the jurisdiction.
- E. "Contact Officer" means the individual who shall act as the primary liaison or contact between the Jurisdiction and the County Clerk. The Contact Officer shall be that person under the authority of the County Clerk who will have primary responsibility for the coordination of the election for the Jurisdiction and the procedures to be completed by the County Clerk hereunder. The CEO designates Penny Norman, or her designee, (Phone: 303-325-1093; Email: pnorman@broomfield.org) as the contact person to act as the primary liaison between the CEO and the Jurisdiction.
- F. "Designated Election Official" (hereinafter "DEO") means the individual who shall be identified by the Jurisdiction to act as the primary liaison between the Jurisdiction and the Contact Officer and who will have primary responsibility for the conduct of election procedures to be handled by the Jurisdiction hereunder. To the extent that the Code requires that an Election Official of the Jurisdiction conduct a task, the DEO shall conduct the same.
- G. "IGA" or "Agreement" means this Intergovernmental Agreement between the City and County and the Jurisdiction for election coordination.
- H. "Jurisdiction" means a political subdivision as defined in § 1-7.5-103(6), C.R.S. and referenced in the Code and, in this Agreement, is interpreted to refer to the Adams 12 Five Star Schools.
- I. "Logic and Accuracy Test" means a test of all electronic and electromagnetic voting equipment to test mail, provisional, and audio ballots, in accordance with § 1-7-509, C.R.S. by processing a pre-audited group of ballots.
- J. "Mail Ballot Packet" means the packet of information provided by the CEO to eligible electors

in the mail ballot election. The packet includes the ballot, instructions for completing the ballot, and a return envelope. § 1-7.5-103(5), C.R.S.

- K. "Post Election Audit" means such audit as set forth substantially in the Colorado Election Code.
- L. **"Precinct"** means an area with established boundaries within a political jurisdiction used to establish election districts.
- M. "Proposed Jurisdiction" means a jurisdiction that may be formed pursuant to this election that is not yet identified by a tax authority code in the County Assessor database. When the context of this Agreement so requires, a Proposed Jurisdiction will simply be referred to as a Jurisdiction.
- N. "SOS" means the Colorado Secretary of State.
- O. "SOS Election Calendar" means the most recent election calendar as published on the SOS website located at www.coloradosos.gov.
- P. "TABOR" means a ballot issue that is governed by Article X, § 20 of the Colorado Constitution.
- Q. "UOCAVA voters" means military personnel and overseas civilians who are registered to vote and receive services under the Uniformed and Overseas Citizens Absentee Voting Act of 1986 and the Military and Overseas Voter Empowerment Act of 2009.

## 1.2 JURISDICTIONAL LIMITATION.

The Jurisdiction encompasses territory within the City and County of Broomfield. This Agreement shall be construed to apply only to that portion of the Jurisdiction within the City and County of Broomfield.

#### SECTION II.

## 2.1 JOINT RESPONSIBILITIES.

Nothing herein shall be deemed or construed to relieve the City and County or the Jurisdiction from their official responsibilities for the conduct of the election as generally outlined in the Colorado Election Code.

All parties shall:

- A. Familiarize themselves and adhere to all applicable provisions and timelines of the Colorado Election Code while performing their official responsibilities for the conduct of the election unless superseded by other legal authority.
- B. Enforce all applicable provisions of the Fair Campaign Practices Act.
- C. Review and execute this IGA with all required signatures on or before the deadline outlined in § 1-7- 116(2), C.R.S.
- D. Confirm they have sufficient funds available and appropriated in an approved budget to

pay their expenses for this election.

#### 2.2 CITY AND COUNTY RESPONSIBILITIES.

The City and County shall perform the following duties:

- E. Designate a Contact Officer to provide assistance and information to the DEO of the Jurisdiction on matters relating to the conduct of this election. Such information shall not include legal advice.
- F. Maintain voter records and an address library for City and County of Broomfield voters within the Colorado SCORE voter registration database. Comply with Colorado Secretary of State and City and County of Broomfield cyber-security recommendations to protect confidential voter information.
- G. Send a certified list of registered voters to the Jurisdiction via secure transfer.
- H. To identify which addresses are eligible to receive and vote on the Jurisdiction's ballot question, the City and County shall perform the following duties for the Address Library:
  - 1. Use the Colorado SCORE voter registration database to produce an Address Library Report that indicates residential street ranges included within the boundaries of the Jurisdiction.
  - 2. Provide the Jurisdiction with the Address Library Report in an electronic format, along with an Acknowledgement Form that the Jurisdiction should use to confirm the accuracy of the ranges or note any errors, omissions, and/or corrections.
  - 3. Verify any errors, omissions, and/or corrections identified by the Jurisdiction against County Assessor data, and where appropriate, modify street ranges to accurately define the eligible electors within the Jurisdiction.
- I. Prepare and deliver a proposed mail ballot plan and election contingency plan to the Secretary of State no later than 120 days before the Election.
- J. Receive certified ballot content from the Jurisdiction in electronic format. Layout the text of the official ballot using the certified content without any modifications or formatting changes. Provide an electronic proof of the ballot to the Jurisdiction's DEO via email for written approval prior to final production. Post a sample ballot to <a href="www.votebroomfield.com">www.votebroomfield.com</a>
- K. Determine the number and letter of each ballot issue and question for the Jurisdiction and any other coordinating jurisdictions participating in the election, in accordance with SOS Rule 4.5.2:
  - 1. If the Jurisdiction is entirely contained within the City and County of Broomfield, the City and County has the authority to set the ballot measure order and number.
  - 2. If the Jurisdiction includes territory in more than one county, the City and County will coordinate with the other applicable counties for the purpose of determining the controlling

county and agreeing upon ballot measure numbers for shared issues and questions.

- L. Conduct a Logic and Accuracy Test in accordance with § 1-7-509, C.R.S. Invite the Jurisdiction to participate along with the Testing Board to verify the accuracy of electronic vote tabulation equipment. Post a public notice of the Test seven (7) days in advance.
- M. Provide a candidate hotline at 720-660-5670, which every candidate running for office in the Jurisdiction (if applicable) shall call to provide the phonetic pronunciation of their name as it appears on their Statement of Intent, title of the office, and Jurisdiction for which they are running.
- N. Prepare an accessible audio ballot for the electronic ballot marking devices to be made available to voters upon request at any Voter Service and Polling Center.
- O. Contract with a vendor acceptable to the SOS to print and send Mail Ballot Packets to every active registered voter and transmit ballots electronically to every active registered UOCAVA voter.
- P. Publish and post the required legal notice of election pursuant to § 1-5-205(1), C.R.S. for the Jurisdiction's ballot issues, ballot questions, and/or candidates.
- Q. If the Jurisdiction's election includes a TABOR issue, the City and County shall perform the following duties relative to the TABOR Notice:
  - 1. Provide a Microsoft Word document template for the TABOR Notice to the jurisdiction with instructions to submit its certified ballot language, pro/con statements and financial summary for each ballot question or issue governed by TABOR by the deadline listed in Attachment A.
  - 2. Prepare the TABOR Notice using the certified content provided by the Jurisdiction, without revision.
  - 3. Contract with a printing vendor to produce and mail one copy of the TABOR notice to every household where an active registered voter of the Jurisdiction resides at the least cost possible in the time frame as required by law. If the Jurisdiction is a special district, the TABOR notice also will be mailed to every eligible property owner who is not already a registered voter in the City and County of Broomfield. The City and County may send the TABOR Notice to persons other than electors of the Jurisdiction in an effort to mail the TABOR Notice package at the "least cost."
  - 4. Post the TABOR Notice on <u>www.votebroomfield.com</u>
  - 5. Keep an accounting of time, supplies, printing costs, and salaries attributable to the City and County's TABOR Notice services for the Jurisdiction. The Jurisdiction's proportional share of actual costs shall be based on the City and County's total expenditures relative to the TABOR Notice. The minimum cost to any jurisdiction to participate is \$200.
- R. Hire, instruct, and oversee election judges and temporary workers necessary for the conduct of the election.

- S. Establish and maintain mail ballot drop-off locations, and designate and operate Voter Service and Polling Centers as required by the Code.
- T. Provide trained personnel to pick up sealed ballot containers containing voted ballots from every drop-off location and Voter Service and Polling Center each business day. Provide a replacement sealed empty ballot container(s), except if the location is a stand-alone 24-hour drop-box.
- U. Provide the necessary equipment, the adequately trained personnel, and the secure facility, and conduct and oversee the process to receive, verify voter signatures, open, tabulate and store ballots.
- V. Maintain a record of every eligible voter's registration and every ballot sent, received, voided and cast using the Colorado SCORE voter registration and election management system.
- W. Send letters to voters whose mail ballots are missing a signature, missing identification, or have a signature discrepancy, and provide instructions and an affidavit to cure this issue within eight (8) days of Election Day for the ballot to be counted. Conduct the process to receive and verify voter affidavits and where appropriate, cure and count these ballots.
- X. Maintain the following reports for all City and County of Broomfield eligible voters, and publish a public version (excluding confidential voters) on <a href="https://www.votebroomfield.com">www.votebroomfield.com</a>:
  - 1. A registered voter list, including the names of eligible electors;
  - 2. A turnout list, including the names of eligible electors, precinct number, and date mail ballot was sent, and the date ballot was issued at a Voter Service and Polling Center.
- Y. Accept public inquiries by phone at 303-464-5857 and by email at <a href="mailto:electionsdivision@broomfield.org">electionsdivision@broomfield.org</a> Respond to all correspondence and calls within the City and County's expertise relating to election procedures. Refer members of the public and news media to the DEO for any matters pertaining to the Jurisdiction's race, questions, measures or operations.
- AA. Post unofficial election results by ballot question after the polls close on Election Night at <a href="https://www.coloradosos.gov">https://www.coloradosos.gov</a> and regularly update the unofficial results as more eligible ballots are counted.
- BB. Conduct a recount of the ballots cast if required by law or if requested by the Jurisdiction. In either scenario, the cost of the recount will be charged to the Jurisdiction. If more than one Jurisdiction is involved in the recount, the cost will be pro-rated among the participating Jurisdictions equally.
- CC. Prepare and run the required Post Election Audit in accordance with the Code before certifying election results.
- DD. Appoint a Canvass board and conduct a canvass of the votes in order to certify the results of the Jurisdiction's election. Provide the Jurisdiction with a copy of all election statements and

certificates which are to be created under the Code.

- EE. Keep an accounting of time, supplies, printing costs, and salaries attributable to the City and County's administration of the election.
- FF. Submit to the Jurisdiction an itemized invoice for all expenses incurred under this Agreement.
- GG. Store all election records as required by the Code for 25 months in such a manner that they may be accessed by the Jurisdiction, if necessary, to resolve any challenges or other legal questions that might arise regarding the election.

#### 2.3 JURISDICTION RESPONSIBILITIES.

The Jurisdiction shall perform the following duties:

- A. Identify a Designated Election Official to act as a liaison between the Jurisdiction and the City and County.
- B. Notify the City and County prior to executing this IGA if the Jurisdiction's boundaries include property in any other county.
- C. Review the Address Library Report provided by the City and County, which determines which residential addresses are within the jurisdiction. Confirm the street ranges are correct and identify any errors, omissions, or deletions if necessary. Provide the City and County with certification of any annexations, inclusions, and/or exclusions to the Jurisdiction, including all supporting documents. Return via email a signed copy of the provided Acknowledgement Form to the City and County, including any corrections if necessary, by the date set forth in Attachment A.
  - 1. If the Jurisdiction is a Proposed Jurisdiction not already identified by a tax authority code in the County Assessor's records, the Jurisdiction shall provide the City and County with a certified legal description, map, and a list of street ranges for all streets within the Proposed Jurisdiction on or before eighty (80) days prior to Election Day. If residential addresses are not available, provide a list of the land parcel numbers that are within the boundaries of the Proposed Jurisdiction.
- D. For elections where owning property in the Jurisdiction is a requirement for voting in the election, the Jurisdiction must perform the following tasks relating to the property owners list:
  - 1. Coordinate directly with the Broomfield County Assessor's Office to order and pay for an initial and a supplemental certified list of all recorded owners of taxable real and personal property within the Jurisdiction's boundaries in the City and County of Broomfield, in accordance with § 1-5-304, C.R.S. and by the deadlines in Attachment A.
  - 2. Contact the Voter Registration Manager at the Colorado Secretary of State's Office to receive access to the DEO SCORE lookup. (855-428-3555 ext. 6332).
  - 3. Using the list from the Assessor's Office:

- i. Remove from the list non-person entities and persons not living in the state of Colorado.
- ii. Look up the remaining names using the Secretary of State SCORE lookup tool to determine if each person is a registered voter. Remove from the list those individuals who are not registered to vote.
- iii. Remove from the list persons who reside in the district, as they will already receive a mail ballot.
- iv. Deliver to the City and County via email an initial and a supplemental list of property owners who are property owners in the district, registered to vote in the state of Colorado, and not physically residing in the district. Each list should be delivered by the deadline indicated in Attachment A. The list should be a Microsoft Excel spreadsheet and must contain no more than one (1) eligible elector's name per line. Each line must consist of the following separated fields, in the following order: eligible elector's voter identification number, last name, first name, middle name, mailing address, city, state, zip, parcel number, and phone number, if available.
- E. Directly manage the responsibilities defined in § 1-4-901 to 912, C.R.S. for all candidate petitions for all local election races held by the Jurisdiction, including but not limited to: reviewing the petition format, receiving petitions that are filed, verifying voter validity, determining sufficiency, notifying candidates of sufficiency, accept affidavits of intent for write-in designation, responding to protest filings, and cures if applicable.
- F. Determine the title and text of the Jurisdiction's ballot races, measures and/or issues using plain, non-technical language, worded with simplicity and clarity, in accordance with § 1-40-105(1), C.R.S. Determine the order of candidates in each race by lot drawing, or if applicable, city/town charter.
- G. Defer to the City and County to determine the number and letter of each ballot issue and question, as outlined in Section 2.02. Abstain from communicating or publicizing a ballot issue or question in conjunction with a letter or number before it has been officially determined by the City and County.
- H. Submit the Jurisdiction's certified ballot content, verbatim, as it should appear on the ballot for the Jurisdiction's races, questions, and issues to the City and County. Submit the ballot content via email to Broomfield Elections at <a href="mailto:elections@el
- I. Within 24 hours of receipt from the City and County, proofread the layout and the text of the Jurisdiction's portion of the official ballots and provide written notice of acceptance to the City and County via email to Broomfield Elections at <a href="mailto:elections@broomfield.org">elections@broomfield.org</a>. If no response is received within 24 hours the layout and text will be deemed to be approved and will be printed accordingly.

- J. If the Jurisdiction's election includes a race, contact all candidates on the ballot and ask them to call the City and County's candidate hotline at 720-660-5670 by the deadline indicated in Attachment A and record a voicemail with the phonetic pronunciation of their name, the title of the race and jurisdiction for which they are running.
- K. If the Jurisdiction's election includes a TABOR issue, the Jurisdiction shall perform the following duties relative to the TABOR Notice:
  - 1. Receive the petition representative's written summary of comments relating to ballot issues/ballot questions. Receive and compile community members' written summary of pro/con statements relating to ballot issues/ballot questions.
  - 2. Prepare a financial summary for each ballot question or issue.
  - 3. Prepare a Microsoft Word document using the template provided by the City and County for the TABOR Notice with the final and exact text of its certified ballot language, pro/con statements, and financial summary for each ballot question or issue governed by TABOR by the deadline in Attachment A.
  - 4. Defend and resolve all challenges, as certified to the City and County, related to the candidates, ballot issues and/or ballot questions, or the TABOR Notice at the Jurisdiction's sole expense.
- L. Publish and post any required legal notices for the Jurisdiction's candidates, ballot issues and/or ballot questions, other than the notice published by the City and County in conformance with § 1-5-205, C.R.S. A copy of such published legal notice shall be submitted to the City and County for its records.
- M. Respond to all correspondence and calls for any matters pertaining to the Jurisdiction's race, question or measures, or operations. Refer members of the public and news media to the City and County for any matters outside of the DEO's expertise relating to election procedures. On Election Day, the Jurisdiction shall provide election support by phone and/or in person, as requested by the City and County.
- N. Notify the CEO by the statutory deadline whether a recount is required or desired. The Jurisdiction shall reimburse the City and County for the full cost of the recount. If other Jurisdictions are included in the recount, the cost of the recount will be prorated among the participating Jurisdictions as per § 1-10.5- 101, C.R.S.
- O. Remit to the City and County the total payment, as defined in the schedule of costs in Attachment D, for the Jurisdiction's prorated share of costs for the printing and mailing of ballots, TABOR Notice (if required), any additional or unique election costs resulting from Jurisdiction delays and/or special preparations or cancellations, and all other election expenses within sixty (60) days from the date of receipt of an invoice from the City and County.

# SECTION III. CANCELLATION OF ELECTIONS

#### 3.01 CANCELLATION OF ELECTION BY THE JURISDICTION.

In the event that the Jurisdiction resolves not to hold the election, notice of such resolution shall be provided to the CEO immediately. The Jurisdiction shall be liable for the full actual costs of the activities of the CEO relating to the election incurred before receipt of such notice and activities of the CEO relating to canceling the election after the receipt of such notice. The Jurisdiction shall provide and post notice by publication as defined in the Code. In the event that the Jurisdiction resolves not to hold the election after the last day for the DEO to certify the ballot order and content to the CEO (see Attachment A), the text provided by the Jurisdiction cannot be removed from the ballot and/or the Ballot Issue notice (TABOR Notice).

# SECTION IV. MISCELLANEOUS

#### 4.1 NOTICES.

Any and all notices required to be given by this Agreement are deemed to have been received and to be effective: (1) three days after they have been mailed by certified mail, return receipt requested; (2) immediately upon hand delivery; or (3) immediately upon receipt of confirmation that an email or fax was received; to the address of a Party as set forth below or to such Party or addresses as may hereafter be designated in writing:

City and County: Penny Norman

City and County of Broomfield

Elections Division
One DesCombes Dr

Broomfield, Colorado 80020 Phone: (303) 464-5874 Fax: (303) 410-3815

Email: pnorman@broomfield.org

Jurisdiction Melody J. Snyder

Designated Election Official Regional Transportation District

1660 Blake St, BLK-21 Denver, CO 80202

Entity Phone: (303) 299-2203

Email: Melanie.Snyder@rtd-denver.com

#### 4.2 TERM OF AGREEMENT.

The term of this Agreement shall continue until all statutory requirements concerning the conduct of the election and the creation, printing, and distribution of the TABOR Notice, if needed, are fulfilled.

#### 4.3 AMENDMENT.

This Agreement may be amended only in writing, and following the same formality as the execution of the initial Agreement.

#### 4.4 INTEGRATION.

The Parties acknowledge that this Agreement constitutes the sole and entire Agreement between them relating to the subject matter hereof and that no Party is relying upon any oral representation made by another Party or employee, agent or officer of that Party.

#### 4.5 CONFLICT OF LAW.

In the event that any provision in this Agreement conflicts with the Code or other statute, this Agreement shall be modified to conform to such law.

#### 4.6 TIME OF ESSENCE.

Time is of the essence for this Agreement. The time requirements of the Code shall apply to the completion of the tasks required by this Agreement. Failure to comply with the terms of this Agreement and/or the deadlines in Attachment A or the Code may result in consequences up to and including termination of this Agreement.

#### 4.7 GOOD FAITH.

The parties shall implement this Agreement in good faith, including acting in good faith in all matters that require joint or general action.

#### 4.8 NO WAIVER OF GOVERNMENTAL IMMUNITY ACT.

The Parties understand and agree that the City and County, its commissioners, officials, officers, directors, agents, and employees, are relying on, and do not waive or intend to waive by any provisions of this Agreement, the monetary limitations or any other rights, immunities, protections or defenses provided by the Colorado Governmental Immunity Act (the "CGIA"), §§ 24-10-101 to 120, C.R.S., or otherwise available to the City and County or the Jurisdiction. To the extent the CGIA imposes varying obligations or contains different waivers for cities and counties, both the Jurisdiction and the City and County agree that they will remain liable for their independent obligations under the CGIA, and neither party shall be the agent of the other or liable for the obligations of the other.

#### 4.9 NO THIRD PARTY BENEFICIARIES.

The enforcement of the terms and conditions of this Agreement and all rights of action relating to such enforcement shall be strictly reserved to the City and County and the Jurisdiction, and nothing contained in this Agreement shall give or allow any such claim or right of action by any other or third person under such Agreement.

#### 4.10 GOVERNING LAW: JURISDICTION AND VENUE.

Unless otherwise agreed in writing, this Agreement and the interpretation thereof shall be governed by the laws of the State of Colorado. Venue for any and all legal actions arising under this IGA shall lie in the District Court in and for the City and County of Broomfield, State of Colorado.

#### 4.11 SEVERABILITY.

Should any provision of this Agreement be determined by a court of competent jurisdiction to be unconstitutional or otherwise null and void, it is the intent of the parties hereto that the remaining provisions of this Agreement shall be of full force and effect.

#### 4.12 ATTACHMENTS.

The following attachments are incorporated herein by reference.

Attachment A - Key Election Dates (subject to change)

Attachment B - Sample Candidate Ballot Layout

Attachment C - Sample Issue Notice Example Page

Attachment D - 2024 Cost Estimate

**END OF PAGE** 

## CITY AND COUNTY OF BROOMFIELD

DATED this, 20	024.
THE CITY AND COUNTY OF BROOMFIELD, COLORADO A Colorado Municipal Corporation and County	
	Mayor Guyleen Castriotta One DesCombes Drive Broomfield, CO 80020
ATTEST:	
Office of the City and County Clerk	APPROVED AS TO FORM:
	City and County Attorney

## NAME OF JURISDICTION

Regional Transportation District		
BY:		
(Title)	-	
APPROVED AS TO FORM:	ATTEST:	
Attorney for Jurisdiction	(Title)	

#### Attachment A

## IGA Attachment A - Key Election Dates (subject to change)

## CRS 1-7-116(2) - Tuesday, August 27, 2024

Last day for intergovernmental agreements to be signed by county clerks and political subdivisions. (No later than 70 days before the General Election)

## CRS 1-5-203(3)(a) - Friday, September 6, 2024

Last day for the designated election official of each political subdivision to certify the ballot order and content for the **2024 General Election**. Each DEO must also deliver the certification to the county clerk for the **2024 General Election**. (No later than 60 days before the election)

## CRS 1-5-203(1) - Monday, September 9, 2024

Last day for the Secretary of State to deliver the certification of ballot order and content to each county for the 2024 General Election. (No later than 57 days before the General Election)

Record a voicemail (720-660-5670) with the phonetic pronunciation of their name, title of the race, and jurisdiction for which they are running. - Monday, September 9, 2024

## Art. X, Sect. 20(3)(b)(v) and CRS 1-7-901(4) - Friday, September 20, 2024

Last day to file written comments concerning local ballot issues with the designated election official in order to be included in the ballot issue notice. (By noon the Friday before the 45th day before the election)

## CRS 1-8-3-110(1) - Saturday, September 21, 2024

Last day to transmit ballots and ballot materials to overseas military voters for the **2024 General Election**. (No later than 45 days before the election)

## CRS 1-7-904 - Monday, September 23, 2024

Last day for the designated election official to deliver the full text of any required ballot issue notices to the county clerk. (No later than 43 days before the **2024 General Election**)

Logic and Accuracy Test (LAT) - Thursday, October 1, 2024 (Tentative)

Ballots mailed to voters - Tuesday, October 11, 2024

General Election - Tuesday, November 5, 2024

Risk Limiting Audit (RLA) - Tuesday, November 19, 2024 (Tentative)

Canvass Board and Final Certification of Election - Friday, November 22, 2024 (Tentative)

## Attachment B

# This page is provided for your reference. It may be removed prior to returning the signed IGA to the Clerk and Recorder's office.

## **Sample Candidate Ballot Layout**

	YOUR SCHOOL DISTRICT NAME HERE
	Name of Office here Length of Term here
	(Vote for not more than?)
Candidate's name	

## YOUR SCHOOL DISTRICT NAME HERE

Name of Office here Length of Term here (Vote for not more than?)

Candidate's	name
Candidate's	name

Candidate's name

#### Attachment C

# This page is provided for your reference. It may be removed prior to returning the signed IGA to the Clerk and Recorder's office.

## Ballot Issue Notice Example Page

**NOTE**: The information provided here is offered as a suggestion for the sake of uniformity and convenience to the voters based upon the Constitutional language of TABOR. Jurisdictions should consult with their legal counsel to determine if your data should be supplied as suggested.

### [DISTRICT NAME]

Designated Election
Official: [Name]
[Title]
[Address]
[City, State, Zip]

NOTICE OF ELECTION [TO INCREASE TAXES] [TO INCREASE DEBT] [ON A CITIZEN
PETITION] [ON A REFERRED MEASURE]
[DISTRICT NAME]
CITY AND COUNTY OF BROOMFIELD, STATE OF COLORADO

Election Date: [Insert Election Date]
Election Hours: [7:00 A.M. to 7:00 P.M.]

[Insert Question

Number] <u>Ballot Title</u>

and Text:

[ALL TEXT IN UPPERCASE. This is the same language provided with original ballot certification.]

# Information:

The below information is not required with your ballot certification on 9/06/24. It is required with your Ballot Issue Notice submission which is due on 9/20/24.

## Fiscal Year Spending Information:

Year(Current fiscal year estimated)	[\$0,000,000]
Year (Actual)	[\$0,000,000]
Year (Actual)	[\$0,000,000]

Year (Actual) [\$0,000,000] Year (Actual) [\$0,000,000]

Overall percentage change in fiscal year spending: [Insert % of overall change]
Overall dollar amount change: [Insert \$ amount of change]

Estimated maximum dollar amount of tax increase for [insert year]: [amount of increase]

Estimated [insert year] fiscal year spending without tax increase:[amount of spending]

## <u>Information on Current Bonded Debt:</u>

Principal amount:

[\$?,000,000]

Maximum annual repayment cost:

[\$?,000,000]

Total repayment cost:

[\$?,000,000]

#### Information on Proposed Bonded Debt:

Principal amount:

[\$?,000,000]

Maximum annual repayment cost:

[\$?,000,000] Total repayment cost:

[\$?,000,000]

#### Summary of written comments for the proposal:

- [Summary statements or paragraphs for the proposal must be filed 45 days before the election. See C.R.S. 1-7-901(4)]
- [Summaries must be 500 words or less and accurately summarize all written comments.]
- [Summaries may not contain names of persons or private groups that are for or against the proposal.]
- [If written comments are not filed, state "No comments were filed by the constitutional deadline."]

## Summary of written comments against the proposal:

- [Summary statements or paragraphs against the proposal must be filed 45 days before the election. See C.R.S. 1-7-901(4)]
- [Summaries must be 500 words or less and accurately summarize all written comments.]
- [Summaries may not contain names of persons or private groups that are for or against the proposal.]
- [If written comments are not filed, state "No comments were filed by the constitutional deadline."]

## Attachment D

## **IGA Attachment D - Expected Reimbursement Range**

The participating jurisdictions reimburse Broomfield for a proportional share of the election expense. The charges to the entities will be \$1.50 per registered voter to participate in the election. The minimum amount charged to a coordinating jurisdiction is \$200. The current voter count per district is shown in the table below.

District Name	Current Active Voter Count	Minimum Reimbursement	Maximum Reimbursement
Adams 12 Five Star Schools	29,238	\$43,857.00	\$46,050
Aims Community College	16	\$200	\$200
Boulder Valley RE-2	23,823	\$35,735	\$37,521
27J Schools	0	\$0	\$0
Jeffco Public Schools	5,957	\$8,936	\$9,383
St. Vrain Valley School District RE-1J	2,197	\$3,296	\$3,450
Weld County School District RE-8	16	\$200	\$200
Regional Transportation District	53,701	\$80,551.50	\$84,301.50

## **City of Broomfield**



## **City Council Regular Meeting**

## Rezoning GDC City and County and Police Buildings Ordinance 1st Reading

Meeting	Agenda Group		
Tuesday, August 27, 2024, 6:00 PM	Action Items Item: 7A		
Presented By			
Anna Bertanzetti			
Community Goals			
☑ Thriving, Diverse, Safe and Welcoming Community			

# Overview

<u>View Correspondence</u> and visit <u>BroomfieldVoice.com</u>

The City and County of Broomfield has submitted an application for a rezoning of Broomfield City Center Filing No. 2, Lot 2, and a portion of Lot 1 from Planned Unit Development (PUD) to the Public Facilities (PF) District.

## **Attachments**

<u>GDC and Police Building Rezoning - 1st Reading Memo.pdf</u> <u>Ordinance No. 2249 GDC & Police Buildings Rezoning.pdf</u> George Di Ciero Municipal Building and Combined Police and Courts Building Rezoning Prepared By: Ted Harberg, Associate Planner

# **Summary**

View Correspondence and BroomfieldVoice.com

## Introduction

The City and County of Broomfield has submitted an application for a rezoning of Broomfield City Center Filing No. 2, Lot 2, and a portion of Lot 1 from Planned Unit Development (PUD) to the Public Facilities (PF) District.

Lot 1 is currently developed and includes the George Di Ciero City and County Building, the Broomfield Community Center (BCC) and the Bay Aquatics Park (the Bay). Lot 2 includes the Broomfield Combined Police and Courts Building.

Broomfield is proposing to rezone the approximately 12.5 acre property, located generally west of Spader Way and north of DesCombes Drive - the location of the George Di Ciero City and County Building and the Combined Police and Courts Building. The portion of the property located east of Spader Way is not a part of this rezoning request.

The PF district is a new zone district that was established by City Council on December 5, 2023 to provide greater transparency regarding the uses and development standards for properties developed as or planned for public facilities and open lands. Rezoning these parcels to PF will provide greater clarity regarding existing and any future related land uses.

The rezoning of the property will not cause any nonconforming uses for the existing buildings and will not impact the daily operations of the municipal center.

Proposed Ordinance No. 2249 would approve the rezoning request on first reading and schedule a public hearing and second reading on October 1, 2024.

## **Financial Considerations**

The rezoning of this property will not result in any financial impacts to the City and County of Broomfield.

## **Prior Council or Other Entity Actions**

City Council approved a rezoning of the portion of Broomfield City Center Filing No. 2, Lot 1, the location of the Broomfield Community Center (BCC) and the Bay Aquatics Park (the Bay), on June 4, 2024.

## **Board and Commissions Prior Actions and Recommendations**

On July 22, 2024, the Land Use Review Commission held a public hearing on the proposed rezoning request. The Commission voted 6 to 0 to recommend approval of the proposal without conditions.

George Di Ciero Municipal Building and Combined Police and Courts Building Rezoning Prepared By: Ted Harberg, Associate Planner

## **Proposed Actions / Recommendations**

It is recommended that:

- Ordinance No. 2249 be adopted on first reading and ordered published in full;
- A public hearing on the ordinance be scheduled for 6:00 p.m., October 1, 2024, in the Council Chambers at the George Di Ciero City and County Building; and
- The second and final reading of the ordinance be scheduled for October 1, 2024, following the public hearing.

## **Alternatives**

Do not adopt Ordinance No. 2249 on first reading and do not schedule the public hearing.

## **Project Website**

https://www.broomfieldvoice.com/gdcbuildingrezoning

## **Public Comment**

Correspondence Folder

## **Key Issues Identified By Staff**

Staff has not identified any key issues with this application.

## **Links to Application Materials**

Rezoning Request Letter

## **Supplemental Documents**

Not Applicable

## How to Submit Public Comments on this Proposal

Email directly to planning@broomfield.org

## **Property Owner and Applicant**

The property owner and applicant is the City and County of Broomfield

## Zoning, Previously Approved Development Plans, and Status of Development

The George Di Ciero City and County Building and Combined Police and Courts Building are part of the Broomfield City Center subdivision. The Broomfield City Center is zoned PUD and is governed by the Broomfield City Center PUD Plan which was approved by City Council in 1990. The PUD zoning district is intended to be applied primarily on undeveloped land and to be utilized to permit various land uses to develop in a compatible manner, to encourage innovations in design.

The current Broomfield City Center PUD Plan establishes City and Administration, and Police and Library, as well as future compatible uses as allowed uses in this area of the PUD.

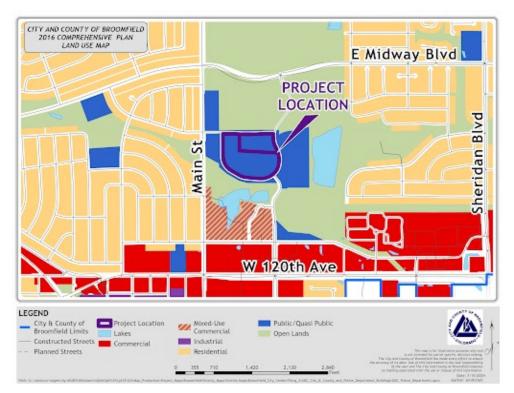
## Status of the Development

The Broomfield City Center development is developed and consists of a mixture of municipal buildings including the George Di Ciero Building (City Hall), the Combined Police and Courts Building, the Bay, and the Broomfield Community Center. City Council approved a rezoning of the portion of Broomfield City Center Filing No. 2, Lot 1, the location of the Broomfield Community Center (BCC) and the Bay Aquatics Park (The Bay), on June 4, 2024.

## **Applicable City and County of Broomfield Plans**

## Comprehensive Plan

The Broomfield Comprehensive Plan designation for the subject property is "Public/Quasi Public." The proposed rezoning request is consistent with this comprehensive plan designation. The following map shows the project location within a portion of the land use map for the surrounding area.



Map of the Project Location and Land Use Designation and Surrounding Community

George Di Ciero Municipal Building and Combined Police and Courts Building Rezoning Prepared By: Ted Harberg, Associate Planner

#### **Goals and Policies**

**Goal LU-G: Civic Center Districts** - "Create a Civic Center District that serves as a key focal point for community and civic activities."

**Policy LU-G.1:** Support completion of current Civic Center Master Plan project and continue to partner with the private sector to develop the Civic Center property into Broomfield's Civic Center District.

**Goal LU-I**: Development Standards - "Use development standards and guidelines to help realize the community's overall vision and goals."

**Policy LU-I.1:** Utilize clear design/development guidelines and standards to direct redevelopment and new development activities.

## **Area Context and Property Location**

The map below identifies the Broomfield City Center Filing No. 2, Lot 1 and Lot 2. This includes the portion of the lot which is subject to the rezoning request (west of Spader Way) and the portion of the site which will remain zoned PUD (east of Spader Way) and depicts the surrounding development context of the property.

To the north of the project area is The Field which is a Broomfield Open Space. To the east is the Broomfield Community Center and The Bay. To the south is Community Park. To the west is the Broomfield Swim and Tennis Club.



Map of the Proposed Rezoning Area and Surrounding Community

## **Current Application - Detailed Description and Staff Review**

## Background/Base Data

PROPERTY OWNER

APPLICANT

City and County of Broomfield

City and County of Broomfield

1 and 17 DesCombes Drive

Approximately 12.5 acres

CURRENT ZONING PUD

PROPOSED ZONING

CURRENT LAND USES

PROPOSED LAND USES

PROPOSED LAND USES

COMPREHENSIVE PLAN DESIGNATION

Public Facilities (PF)

Government Offices

Public/Quasi Public

## **Rezoning Request and Justification**

The City and County of Broomfield has submitted an application proposing to rezone Broomfield City Center Filing No. 2, Lot 2, and a portion of Lot 1 from Planned Unit Development (PUD) to Public Facilities (PF).

The rezoning request is for the portion of the parcel located on the west side of Spader Way and the north side of DesCombes Drive, which includes the George Di Ciero City and County Building and the Broomfield Combined Police and Courts Building. This portion of the property contains approximately 12.5 acres. The image below depicts the overall Broomfield City Center lot and the portion of the lot being rezoned is hatched.



Rezoning Exhibit Showing Portion of Site to be Rezoned

The property is currently zoned Planned Unit Development (PUD) and is governed by the City Center PUD Plan. The PUD zone district is more typically used for larger multi-use projects to allow for flexible development incorporating innovations and best practices. The City is proposing to rezone this portion of the property from PUD to Public Facilities (PF).

George Di Ciero Municipal Building and Combined Police and Courts Building Rezoning Prepared By: Ted Harberg, Associate Planner

The PF zone district is a newly established zone district in the City and County of Broomfield. On December 5, 2023, the City Council adopted Ordinance No. 2220 which amended Section 17-07 Open Lands and Public Facilities Zone District of the Broomfield Municipal Code, and established three distinct zone districts. The ordinance established Chapter 17-07 Public Facilities District, Chapter 17-07.1 Open Space (OS) District and Chapter 17-07.2 Parks, Recreation and Open Lands (PROL) District. The intent of this ordinance was to provide the opportunity for more appropriate zoning of city-owned property and to encourage and allow for community use, necessary municipal facilities, or protection of open space and parks.

With the adoption of Ordinance No. 2220 the PF district was created to provide areas for public facilities and open lands. The PF district established the following uses:

## Uses Allowed by Right in the PF Zone District

- Uses permitted in the OS district (chapter 17-07.1 of the BMC);
- Uses permitted in the PROL district (chapter 17-07.2 of the BMC);
- Public utilities, structures, and buildings, including but not limited to government offices, nature centers, libraries, water and wastewater facilities;
- Water storage reservoirs;
- Lift and booster stations
- Amphitheaters; and
- Public art installations.

## Uses Permitted by Special Review in the PF Zone District

- Barbed wire fences;
- Municipal cemeteries;
- Freestanding solar arrays and solar gardens / solar farms not associated with a principal structure; whereas a solar garden / solar farms are defined as an installation or area of land in which a large number of solar panels are set up in order to generate electricity;
- Wireless communication towers.

The current use of the property as government offices, including administrative, police and courts functions, aligns with the proposed rezoning to PF. The PF district establishes a maximum building height of 50 feet. The existing George Di Ciero City and County building is approximately 35 feet in height and the Police Department building is approved for a maximum building height of 35.5 feet. Both facilities are consistent with the PF zone district's maximum allowed heights.

The PF district also establishes a building setback requirement of 30 feet + 1 foot for each 2 feet of building height in the PF District measured from residential property lines. The property is surrounded by other City and County of Broomfield-owned properties which are not residential. As such, the existing development also complies with the required setbacks of the PF district.

The rezoning of the property from PUD to PF will not result in any nonconforming uses or structures based upon facility use, building height or setbacks.

The rezoning of this property will help with transparency in zoning for current and future residents. Planned Unit Development zone districts are customizable and each PUD has unique allowed uses and development standards. By rezoning the property to the PF district, the public will more easily be able to find the allowable uses on these city-owned properties and to understand the development requirements such as allowed building height and setbacks. This rezoning to PF will also help to clarify the development process for city-owned property.

## Stakeholder and Public Outreach

A neighborhood meeting for the proposed development was held on May 22, 2024. The meeting was held in person at the Broomfield Community Center. One resident attended the meeting and asked questions about the proposed rezoning. A summary of this meeting can be found <a href="here">here</a>.

There will also be an opportunity at the public hearing for the second reading of the proposed ordinance for additional public comments to be provided for City Council's consideration.

## APPLICABLE MUNICIPAL CODE PROVISIONS

A public hearing will be required concurrent with the second reading of the ordinance. At the conclusion of the public hearing, the City Council reviews the application based on the following provisions of the BMC.

## REZONING

## 17-48-020 - Procedure for rezoning.

- A. The owner of any property may apply to the land use review commission for rezoning of his or her property. The applicant shall pay an application fee of \$650.00 for rezoning ten acres or more of land and \$250.00 for rezoning less than ten acres of land.
- B. The city manager is authorized to apply to the land use review commission for rezoning of any property within the city.
  - 1. The city manager shall notify the owner or owners of any property subject to the application for rezoning that a hearing on the rezoning application will be held before the land use review commission and before the city council.
  - 2. The city manager's notification to the owner or owners shall set forth the reasons for the rezoning application.
  - 3. Notification to the owner or owners by the city manager shall be by personal service or by certified mail not less than thirty days prior to the public hearing before the land use review commission.
- C. The land use review commission shall hold a public hearing on the application. Notice shall be given in accordance with the provisions of chapter 17-52, B.M.C. Following the hearing, the land use review commission shall make recommendations to the city council concerning the application.
- D. The city council shall hold a public hearing on the application. Notice shall be given in accordance with the provisions of chapter 17-52. Following the hearing, the city council shall either deny the application or shall approve it by ordinance. An ordinance may impose conditions on rezoning.
- E. Prior to any official submittal of a rezoning, the applicant shall hold a neighborhood meeting. Notice for such neighborhood meetings shall be done consistent with Section 17-52, B.M.C. The neighborhood meeting provides the applicant and surrounding property owners an opportunity to review preliminary requests. The meeting should solicit input and exchange information about the proposal. The applicant shall record attendance on a sign-in sheet and shall create a summary of the meeting discussion which shall be submitted with the formal application.

George Di Ciero Municipal Building and Combined Police and Courts Building Rezoning Prepared By: Ted Harberg, Associate Planner

- F. The recommendation of the land use review commission and decision of the city council for rezoning requests shall consider the applicant's proposed rezoning request based upon the following criteria:
  - (1) The proposal is in (i) general conformance with applicable land use plans including but not limited to the Broomfield Comprehensive Plan and, sub area plans, or (ii) there has been substantial change in the character of the area to support the rezoning action, or (iii) the official zoning classification is in error.
  - (2) The proposal is compatible with existing and allowable land uses in the surrounding area.
  - (3) The proposal's effect upon the health, safety, and welfare of the residents and landowners in the surrounding areas.
  - (4) The proposal is an opportunity or an appropriate site, at an appropriate location, for the particular type of land use or development proposed and will help the city achieve a balance of land use, tax base, or housing types consistent with the city's overall planning and economic development goals.

## **ORDINANCE NO. 2249**

An Ordinance Rezoning the George DiCiero Municipal Building and Police Building, Broomfield City Center Filing No. 2, Lot 2 and a portion of Lot 1 from Planned Unit Development (PUD) to Public Facilities (PF) District

Be it ordained by the City Council of the City and County of Broomfield, Colorado:

#### Recitals

Whereas, the applicant, the City and County of Broomfield through the City and County Manager, submitted an application to rezone Broomfield City Center Filing No. 2, Lot 2 and a portion of Lot 1 from Planned Unit Development (PUD) to Public Facilities (PF) District.

Whereas, a public hearing was heard by the Land Use Review Commission on July 22, 2024, at which time the Land Use Review Commission by formal resolution recommended approval of the rezoning application.

## Section 2.

Giving consideration to Broomfield Master Plan and the Broomfield Municipal Code, recommendations from the Land Use Review Commission, comments of public officials and agencies, and testimony and written comments of all interested parties, the City Council finds as follows:

- A. The proposal is in general conformance with the Broomfield Comprehensive Plan.
- B. The proposal is compatible with existing and allowable land uses in the surrounding area.
- C. The proposal will not result in substantial impacts to the health, safety and welfare of the residents and landowners in the surrounding area.
- D. The proposal is consistent with the city's overall planning and economic development goals.

## Section 3.

The real property as described in <u>Exhibit A</u> attached hereto is hereby rezoned from PUD to Public Facilities (PF) District.

## Section 4.

The City and County Clerk shall amend the zoning district map pursuant to \$17-06-020 of the Broomfield Municipal Code.

## Section 5.

This ordinance shall be effective seven days after public notice following final passage.

Introduced and approved after first reading on August 27, 2024, and ordered published in full						
Introduced a second time and approved on	October 1, 2024, and further ordere	d published.				
	The City and County of Broomfield,	Colorado				
	Mayor	-				
Attest:						
Office of the City and County Clerk						
	Approved as to Form:					
		<b>КК</b> Н				
	City and County Attorney					

#### EXHIBIT A

A portion of a parcel located in the West half of Section 36, Township 1 South, Range 69 West of the Sixth Principal Meridian, City and County of Broomfield more particularly described as that portion of the Broomfield City Center Subdivision Filing No. 2 Lot 1 parcel lying west of the Spader Way right-of-way boundary and north of DesCombes Drive, Content +/- 12.5 acres, together with all of Lot 2, Broomfield City Center Subdivision Filing No. 2, City and County of Broomfield, Colorado.



# **City Council Regular Meeting**

#### **Proposed Resolution Approval of the Raptor Plan**

Meeting	Agenda Group								
Tuesday, August 27, 2024, 6:00 PM	Action Items Item: 7B								
Presented By									
Kristan Pritz, Director of Open Space and Trails									
Community Goals									
☑ Growing Greener									

# Overview

View Correspondence and visit BroomfieldVoice.com

The purpose of this memo is to provide an overview of the proposed Raptor Management Plan and to request that Council approve proposed Resolution 2024-101 that adopts the Plan. The Plan's purpose is to protect and enhance raptor habitat and breeding success. Raptors have three distinctive characteristics: sharp talons used to seize prey, a hooked beak used to kill and consume prey, and a diet consisting entirely of meat. Over 20 species of raptors are known to occur in Broomfield. By developing best management practices at the local level, the Plan is intended to reduce human-caused negative impacts to raptors in Broomfield. Working in collaboration with the Open Space and Trails Advisory Committee and interested local birders, the Plan's outreach and engagement process included surveys of local raptor experts and neighboring wildlife managers, as well as extensive opportunities for public comment.

#### **Attachments**

Memo for Approval of the Raptor Plan.pdf
Resolution 2024-101 Approval of the Raptor Plan.pdf
Exhibit A Raptor Plan.pdf
Exhibit B Appendices.pdf

# **Summary**

#### View Correspondence

#### Introduction

The purpose of this memorandum is to provide an overview of the proposed <u>Raptor Management Plan</u> and <u>Appendices (Plan)</u> and to request that Council approve Proposed Resolution 2024-101 that adopts the Plan.

The Plan's purpose is to protect and enhance raptor habitat and breeding success. By developing best management practices at the local level, the Plan is intended to reduce human-caused negative impacts to raptors in Broomfield.

The memorandum highlights these Plan topics:

- 1. Raptor Biology and Value
- 2. Summary of Federal and State Regulations Pertaining to Raptors
- 3. Public Engagement
- 4. Causes of Raptor Mortality
- 5. Priority Raptor Habitat in Broomfield
- 6. Recommendations

# Raptor Biology and Value

Raptors are carnivorous birds that hunt and capture prey and carrion (dead animals). Generally, these birds eat things such as rodents, snakes, fish, and insects. Raptors can be either diurnal, meaning they feed during the day, or nocturnal, meaning they feed at night. Raptors have three distinctive characteristics: sharp talons used to seize prey, a hooked beak used to kill and consume prey, and a diet consisting entirely of meat. Over 20 species of raptors are known to occur in Broomfield. While some may only be observed passing through during migratory periods, many breed within Broomfield and others are year-round residents. The Plan includes a list of Broomfield's most commonly found species and their habitat (Plan Section 2.3, p.4).

Raptors, like many ecosystem components, are important across a spectrum of value systems. The following represents a brief (not comprehensive) summary of commonly recognized values that are associated with the importance of raptors.

- 1. Ecological: Raptors help to manage rodents and small mammal populations. For this reason, the presence of raptors is often an indicator of ecosystem health.
- 2. Recreational and Educational: Broomfield residents routinely identify birding and passive recreation use of open space and trails as a frequently enjoyed activity in community surveys. Raptors provide a special draw for many birders as their larger size makes them easier to observe and photograph. The visibility and appeal of raptors also provides opportunities to educate communities about wildlife, ecosystems, and environmental stewardship.
- 3. Economic: A 2019 United States Fish & Wildlife study found that 2016 expenditures on birding trips and equipment in the United States exceeded \$39 billion dollars. While this value encompasses non-raptor species, it illustrates that birdwatching can be economically advantageous. Raptors also provide "ecosystem services." Ecosystem services are goods or services that are provided by natural ecosystems and provide a benefit to human health and wellbeing.
- 4. Spiritual and Cultural: Raptors can have significance to people in such a manner that transcends ecological or recreational value to become integral to their spiritual or cultural identities. While the Bald Eagle has for many become a ubiquitous and recognizable symbol of the United States of America, eagles also carry both cultural and spiritual significance for many indigenous people. The

cultural significance of raptors is also evident throughout Broomfield. Broomfield High School's mascot is the Eagles while Broomfield Heights Middle School's mascot is the Falcons. The Eagle Trace neighborhood and Golf Course are located just north of The Field Open Space and residents enjoy Soaring Eagle Park in the Anthem neighborhood. In addition, many prominent streets and neighborhoods in Broomfield are named after raptors, like Eagle Way, Red Hawk Place, Peregrine Circle, and Falcon Drive.

5. Intrinsic: Intrinsic value refers to the value of something purely for its existence, completely independent of any use or benefit it provides to humans.

# Summary of Federal and State Regulations Pertaining to Raptors

An important and often confusing component to wildlife protection and management is understanding who has the authority or responsibility to act and what authorizes them to do so. In the United States, there are several pieces of overarching federal environmental legislation that pertain to raptors. States and local governments can implement policies or programs that reflect their values or priorities, but they must always stay in compliance with federal regulations. In Colorado, wildlife management is the responsibility of the state government, specifically Colorado Parks and Wildlife (CPW). The most significant federal, state, and local regulations that pertain to raptors are summarized below.

- 1. Federal Level:
  - a. Migratory Bird Treaty Act of 1918 (MBTA):
    The MBTA prohibits "take" of migratory birds, their eggs, feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof. As a federal law, enforcement authority lies with the United States Fish & Wildlife, but Colorado Parks & Wildlife (CPW) provides recommendations for buffers and seasonal restrictions for common raptor species that occur in Colorado.
  - b. Bald and Golden Eagle Protection Act (BGEPA):

    The BGEPA prohibits anyone from "taking" eagles, their parts, nests or eggs, with "take" being defined as "to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Unlike the MBTA, incidental take permits can be issued under the BGEPA. Such a permit authorizes the "take" of an eagle, provided that the take is not the purpose of the activity. Permits are issued only if it can be demonstrated that the project cannot be completed without causing a take. Monitoring and reporting are required, and substantial fees can be levied for permit violations.
  - c. Endangered Species Act (ESA):
    The ESA provides additional federal protections for species that are listed as threatened or endangered. Currently, there are no raptor species in Colorado that are listed under the ESA; additionally, none have been proposed as candidates.
  - d. National Environmental Protection Act (NEPA):

    The NEPA requires federal agencies to assess the environmental effects of proposed actions prior to making decisions. Impacts to migratory birds, including raptors, are documented during the NEPA process and can occasionally require extensive surveys and mitigation.

#### 2. State Level:

a. Colorado State Wildlife Plan (SWAP): The SWAP identifies species and habitats that are most vulnerable. It is not a regulatory document, but state wildlife grant funding from the USFWS is contingent upon its use and regular updating. It includes a tiered list of Species of Greatest Conservation Need. Species occurring in Broomfield that are listed include the Burrowing Owl and Golden Eagle in Tier 1, and the Peregrine Falcon, Bald Eagle, Ferruginous Hawk, Northern Goshawk, Northern Harrier, Prairie Falcon, and Swainson's Hawk in Tier 2. Tier 1 represents the highest conservation priority, whereas action is less urgent for Tier 2.

- b. Colorado Threatened and Endangered Species List: The local list for Colorado includes categories for Endangered, Threatened, and State Special Concern, although the latter category is not statutory. There is no permitting process or specific restrictions on projects in habitat for listed species, but it is against the law to take these species. The Burrowing Owl and the Mexican Spotted Owl are the only state-listed threatened raptors, although the Mexican Spotted Owl does not occur in Broomfield. Species of concern include the Peregrine Falcon, Bald Eagle, and Ferruginous Hawk.
- c. CPW Recommended Buffer Zones and Seasonal Restrictions: CPW has developed recommended buffer zones and seasonal restrictions for several raptor species. Much like the SWAP, the recommendations are not elevated to the level of enforceable regulations, but most municipalities in the Front Range use CPW recommendations when establishing trail closures, permitting construction projects, and identifying monitoring needs. Broomfield already relies on these recommendations for their own projects and in the 20-day letter process (described below).

#### 3. Broomfield Level:

- a. 20-Day Environmental Clearance Letter: In the City and County of Broomfield, nearly all grading permits and other development related permits require the completion of a 20-day environmental clearance letter. This letter, which is completed no more than 20 working days prior to the start of the disturbance activity, requires an assessment of several environmental concerns, including nesting habitat for raptors and the results of burrowing owl surveys conducted by a biologist. Though the regulatory authority for the MBTA and BGEPA lies with the federal government, this local development requirement ensures and documents compliance with these laws. The 20-day letter and more general environmental assessments related to development projects are also a tool to identify and review key raptor habitat that may exist on a site, such as mature trees suitable for nesting. Through the development review process, efforts can be made to protect habitat areas and provide buffers to nesting sites as needed. Here is a link to the 20-Day Environmental Clearance Letter.
- b. Broomfield's Policies for Prairie Dog Conservation and Management and the Coexistence with Wildlife Policy: The Plan is written to coincide with these two key Broomfield wildlife policies.
- c. Property Specific Management Plans and Master Plans: Many publicly owned Broomfield properties have specific management or master plans, including Metzger Farm, Broomfield County Commons, The Field, Markel Open Space, Wottge Open Space, and Plaster Reservoir. The Plan is intended to supplement those documents and expand upon wildlife issues and protections, if applicable.

# Public Engagement

Working in collaboration with the Open Space and Trails Advisory Committee and interested local birders, the Plan's outreach and engagement process included surveys of local raptor experts and neighboring wildlife managers, as well as extensive opportunities for public comment. Building on that outreach and scientific information, this Plan provides actionable steps to protect raptors, while working within the state and federal regulatory framework and respecting private property rights.

The public engagement process focused on three key areas:

- 1. Outreach at key public events that included:
  - a. Talon Talk at Centennial Elementary School, May 7, 2022 (Conducted in Spanish and English)
  - b. Migratory Bird Day Celebration at Metzger Farm, October 13, 2023
  - c. National Trails Day June 4, 2022
  - d. At the above events, the consultant team and Broomfield staff were able to staff an information table and meet with members of the public about the issues being considered in

the Raptor Management Plan. Both events featured a QR Code linking to the Broomfield Voice Raptor Plan page and shared survey information.

- e. OSTAC reviewed or received updates about the Plan at their regularly scheduled meetings on the dates below:
  - i. September 23, 2021
  - ii. January 27, 2022
  - iii. February 22, 2024
  - iv. June 27, 2024.
- 2. Surveys and research included the following activities:
  - a. A Survey of surrounding agencies raptor plans and policies;
  - b. Meetings with local experts such as Jefferson County Open Space Staff and Birds of Prey Foundation
  - c. Two presentations to the Broomfield Bird Club
  - d. Attendance at the Raptor Research Foundation Conference
  - e. Administration of the Raptor Policy Scope and Purpose Survey with Stakeholders and Regional Experts (41 response from 23 different groups)
  - f. Hosting of the Raptor Roundtable Review the the draft Management Plan outline with agency leaders and local experts
  - g. A community survey through the PLan's Broomfield Voice Page
- 3. <u>Broomfield Voice Online Project Page</u> was used to keep residents up to date on the project's process throughout the planning process.

# Causes of Raptor Mortality

Nearly 50 wildlife rehabilitation centers across the United States were contacted to determine the causes of raptor injuries and fatalities (Plan, Appendix C). The focus of these conversations was specifically on human-caused injuries and fatalities as those can theoretically be more easily addressed by management plan actions. The overarching purpose of conducting this research was to ensure that the Broomfield plan is responsive to actual issues that urban raptors encounter, rather than overemphasizing threats or concerns that may not be as applicable in urban settings. The research found that the top two leading human caused reasons for raptor injury and mortality are vehicle collisions and window strikes. Other top significant human-caused reasons for raptor injury and mortality include entanglement, gunshots, electrocution, lead poisoning, pesticide poisoning, birds being taken from their nests, and habitat loss. The research found additional reasons for loss of raptors but the above impacts appeared to be the most prominent causes.

# Priority Raptor Habitat in Broomfield

Raptors can occur almost anywhere within Broomfield, from the largest of open spaces to a single tree in a residential yard. However, certain properties have been identified as providing unique features and/or are known to support specific raptor populations. The following list was developed in coordination with Broomfield staff and the local birding community and includes only properties within Broomfield ownership, either fully or jointly with another community. Several of the sites are also not officially designated as open space. However, raptor enhancement measures may still be feasible to implement.

This list of priority habitat is specific to raptors and should be reviewed with consideration for more general priority habitat in Broomfield as identified in the 2024 Open Space, Parks, Recreation, and Trails Plan, which identifies specific high value wildlife habitat areas. This is also not a comprehensive list of all the raptor habitat in Broomfield, nor does it represent the only areas where

raptor enhancements could be beneficial. These are properties that are currently managed by Broomfield and have been selected due to their potential of achieving significant habitat improvements for raptors and other wildlife. These properties are shown in Exhibit 4.

#### Recommendations

In acknowledgement of the complexity of conservation, habitat management, and urban ecology, the Plan recommendations have been organized around three central goals, listed below and near-term action steps:

- 1. Engage and educate the community
  - Develop raptor-specific interpretive signage
  - Continue to expand website resources
  - Develop a brochure with brief Best Management Practices
  - Encourage and promote prompt roadkill reporting
  - Recommend bird-friendly lighting
  - Continue collaboration with partners such as the Broomfield Wildlife Masters, Broomfield Nature Program, Broomfield Open Space Foundation, Broomfield Bird Club, Broomfield Bird City- Environmental of the Americas
- 2. Develop a raptor monitoring program
  - Develop a database of nest locations
  - Create a set of monitoring protocols
- 3. Enhance and protect raptor habitat within Broomfield
  - Promote ecological restoration
  - Monitor and preserve prairie dog colonies where possible and in alignment with property management plans and policies
  - Provide fishing line disposal tubes at heavily used fishing areas, and
  - Install wildlife-friendly fencing for open space properties, as funding allows.
  - Support existing tree and shrub replacement programs and continue to protect and preserve existing mature trees where possible

The following recommendations are generally intended to be responsive to the sources of raptor injuries and fatalities identified through the planning process. The proposed actions are designed to be implemented or undertaken at the municipal level, primarily by Broomfield staff and volunteers. Not all causes of raptor injuries and fatalities can be addressed by direct, municipal action, but they can be targeted with a focus on public education and promotion of best management practices in some key areas. Exhibit 5 summarizes all the plan recommendations and identifies implementation mechanisms, responsible parties, and potential prioritization based on current feasibility. Elements of the Plan are proposed to be implemented as funds and resources allow as approved by the City Council.

## **Financial Considerations**

As shown in the sources and uses of funds summary below, the project was completed within the budgeted amount.

Sources and Uses of Funds	Amount
Raptor Policy Study ( <b>22-70060-55600</b> , <b>19N0018</b> )	\$85,000
Smith Consulting	-\$61,695

Sources and Uses of Funds	Amount
Projected Balance	\$23,305

# **Prior Council or Other Entity Actions**

N/A.

# **Boards and Commissions Prior Actions and Recommendations**

On June 27, 2024, OSTAC unanimously recommended approval of the Raptor Management Plan.

# **Proposed Actions / Recommendations**

If Council desires to approve the Plan, the appropriate motion is... That Resolution 2024-101 be adopted.

#### **Alternatives**

Do not approve the proposed Plan or provide direction as provided by Council to amend the Plan.

# RESOLUTION NO. 2024-101

A resolution Approving the 2024 Raptor Management Plan

Be it resolved by the City Council of the City and County of Broomfield, Colorado:

# Section 1.

The 2024 Raptor Management Plan attached hereto as Exhibit A and the Raptor Plan Appendices attached hereto as Exhibit B is adopted by City Council.

## Section 2.

The Mayor or Mayor Pro Tem is authorized to sign and the Office of the City Clerk to attest the Raptor Management Plan, in form approved by the City and County Attorney

# Section 3.

This resolution is effective upon its approval by the City Council.

Approved on August 27, 2024

	The City and County of Broomfield, Colorado
Attest:	Mayor
Office of the City and County Clerk	
	Approved as to form:
	NCR
	City and County Attorney

Exhibit A Raptor Plan [see attached]

# City and County of Broomfield Raptor Management Plan



Prepared for the City and County of Broomfield August 27, 2024



# **ACKNOWLEDGEMENTS**

# OPEN SPACE AND TRAILS ADVISORY COMMITTEE

Michael McLane, Chair Renae Stavros, Vice-Chair

Jessica Crowley

**Doug Errett** 

Chandler Evev

Teng Keng Vang

Alexis Sweet

Aaron Paudel (Youth Member)

Joel Niles (Alternate)

River Paranto (Alternate)

Ava Fahlsing (Alternate Youth Member)

Former Member Chris Petrizzo (completed term March, 2024)

Former Member Patrick Tennyson (completed term March 2024)

Former Member Scott Whitmore (completed term March 2024)

Former Youth Member Madeleine Fernandez (completed term March 2024)

#### CITY COUNCIL

Guyleen Castriotta, Mayor

Deven Shaff, Mayor Pro Tem (Ward 3)

James Marsh-Holschen (Ward 1)

Kenny Van Nyugen (Ward 1)

Paloma Delgadillo (Ward 2)

Austin Ward (Ward 2)

Jean Lim (Ward 3)

Laurie Anderson (Ward 4)

Bruce Leslie (Ward 4)

Todd Cohen (Ward 5)

Heidi Henkel (Ward 5)

Former Councilmember Stan Jezierski, Mayor-Pro Tem (completed term November 2023)

#### **CONSULTANT TEAM**

Smith Environmental and Engineering

Project Managers: Rebecca Hannon and Matt Strauser

Cover Photos (clockwise from top): Great Horned Owl chick in a cottonwood tree, a Ferruginous Hawk in flight, and a Golden Eagle (*Credit: Matt Strauser*).

Special thanks to Chris Petrizzo and the Strauser Family for the raptor photographs that appear throughout the plan.

# Land Acknowledgement

We acknowledge that the land upon which we reside is the ancestral home of the Arapaho, Cheyenne, and Ute peoples. We further recognize that their connection to this place, both today and for countless generations, stewards the natural and cultural resources that we value so deeply. By acknowledging this connection, we strive to learn from, honor and respect these indigenous ties in our Open Space landscapes.

Created and Adopted by the Open Space and Trails Advisory Committee with guidance from Arapaho, Cheyenne, and Ute Tribal Leaders.

# <u>In Memory of Matt Strauser,</u> <u>Consultant Team Project Manager and Lifelong</u> Birder

I said in my heart, "I am sick of four walls and a ceiling.

I have need of the sky.

I have business with the grass.

I will up and get me away where the hawk is wheeling,

Lone and high,

And the slow clouds go by."

Spring by Richard Hovey

# **TABLE OF CONTENTS**

1.0	INTRODUCTION	1
2.0	RAPTOR BIOLOGY	2
2.1	What is a Raptor?	2
2.2	Why Are Raptors Important?	2
2.3	Raptors of Broomfield	4
3.0	RAPTOR PROTECTION	. 10
3.1	Regulatory Authority for Raptors	
3.2	Raptor Protection Measures in Surrounding Communities	
4.0	PUBLIC ENGAGEMENT	
4.1	Key Public Events	
4.2	Surveys and Outreach	
4.3	Broomfield Voice Online Project Page	
5.0	CAUSES OF RAPTOR FATALITY	
5.1	Vehicle Collision	
5.2	Window Strike	
5.3	Gunshot	
5.4	Poisoning	
5.5	Entanglement	
5.6	Removal from Nest	
5.7	Electrocution	. 20
5.8	Disease	
5.9	Habitat Loss	
5.10	Predation from Pets	
5.11	Entrapment	
5.12	Chemical Exposure	
6.0	PRIORITY RAPTOR HABITAT IN BROOMFIELD	
6.1	Anthem Community Park and Siena Reservoir	
6.2	Anthem Ranch Western Boundary Open Space	
6.3	Broomfield County Commons	
6.4	The Field Open Space and Brunner Reservoir Open Lands	
6.5	Great Western Open Space	
6.6	Harmer Open Space	
6.7	Lac Amora Open Space	
6.8	Markel Open Space and Wottge Open Space	
6.9	Metzger Farm Open Space	
6.10	Plaster Reservoir Open Space	
6.11 6.12	Ridgeview Open Space	
7.0	PLAN RECOMMENDATIONS	
7.1	Engage and Educate the Community	
7.2	Develop a Raptor Monitoring Program	
7.3	Enhance and Protect Raptor Habitat	
8.0	CONCLUSION AND IMPLEMENTATION	
9.0	REFERENCES	. 42

#### LIST OF EXHIBITS

Exhibit 1 - Broomfield Raptor Breeding Guide	9
Exhibit 2 - Leading Human-caused Reasons for Raptor Injury and Mortality	18
Exhibit 3 - Other Significant Human-caused Reasons for Raptor Injury and Mortality	19
Exhibit 4 - Priority Habitat Areas	28
Exhibit 5 - Recommendations Summary Table	40

# LIST OF APPENDICES

Appendix A - Scope and Purpose Survey

Appendix B - Broomfield Community Survey Results Appendix C - Raptor Rehabilitator Survey Results

Appendix D - Nest Box Example

Appendix E - Osprey Platform Example Appendix F - Bird-friendly Building Guide

Appendix G - Recommendations for Bird-Friendly Backyards Appendix H - Dark Skies and Lighting Information Guidelines

#### ACRONYMS AND ABBREVIATIONS

**BGEPA** Bald and Golden Eagle Protection Act **BMPs Best Management Practices** CPW Colorado Parks and Wildlife **EFTA Environment for the Americas** ESA **Endangered Species Act** GIS Geographic Information System Global Positioning System **GPS** IGA Intergovernmental Agreement **MBTA** Migratory Bird Treaty Act National Environmental Policy Act NEPA **OSPRT** Open Space, Parks, Recreation, and Trails **OSTAC** Open Space and Trails Advisory Committee **SWAP** Colorado State Wildlife Action Plan US Fish and Wildlife Service **USFWS** 

# 1.0 INTRODUCTION

The City and County of Broomfield is fortunate to have a variety of active raptor populations thriving in an urban setting. However, these majestic birds, which include species like Bald Eagles, Great Horned Owls, and Red-tailed Hawks, are sensitive to disturbance in their nesting and breeding habitats.

Working in collaboration, the Open Space and Trails Advisory Committee, engaged residents, and Broomfield staff decided to take a proactive approach to protect and enhance raptor habitat and breeding success within the region. They identified the need for a comprehensive Raptor Management Plan that would guide the City and County in identifying ways to minimize impacts on raptors. Through developing best management practices at the local level, the City and County aims to reduce human-caused negative impacts to raptors in Broomfield.

This plan will also serve as an integral component of Broomfield's overall commitment to bird conservation. As this plan was being produced, Broomfield was named an official Bird City through Environment for the Americas (EFTA). EFTA describes the Bird City Colorado Program as "a program that connects community members to bird conservation through actions that help to create a bird-friendly environment, from educational activities to habitat restoration, partnerships, reduction of plastics, and more. The program is a rigorous certification that must be accomplished each year to ensure that actions continue to benefit bird populations." The program is renewed annually and includes a commitment to an annual Migratory Bird Day event hosted in Broomfield.

The Broomfield Raptor Management Plan represents an innovative effort in the Colorado Front Range. It has incorporated feedback collected during a public engagement and outreach process and reflects both community values and the best available science. The



outreach and engagement process included surveys of local raptor experts and neighboring wildlife managers, as well as extensive opportunities for public comment (summarized in Chapter 4). Building on that outreach and scientific information, this plan provides actionable steps to protect raptors, while working within the state and federal regulatory framework and respecting private property rights.

# 2.0 RAPTOR BIOLOGY

## 2.1 WHAT IS A RAPTOR?

Raptors are carnivorous birds that hunt and capture prey and carrion (dead animals). Generally, these birds eat things such as rodents, snakes, fish, and insects. Raptors can be either diurnal, meaning they feed during the day, or nocturnal, meaning they feed at night. Raptors have three distinctive characteristics: sharp talons used to seize prey, a hooked beak used to kill and consume prey, and a diet consisting entirely of meat.

#### 2.2 WHY ARE RAPTORS IMPORTANT?

Raptors, like many ecosystem components, are important across a spectrum of value systems. While some values can be quantified, others are more subjective or personal. Not all values will be recognized by all individuals or communities. The following represents a brief (not comprehensive) summary of commonly recognized values that are associated with the importance of raptors.

## 2.2.1 Ecological

Raptors are often the main predator in urban and suburban ecosystems. Predatory species are largely responsible for controlling the populations of their prey. In the Front Range, raptors help to manage rodents and small mammal populations, including rabbits, prairie dogs, mice, rats, and voles. For this reason, the presence of raptors is often an indicator of ecosystem health. A healthy predator population relies on a strong base of primary productivity (vegetation) and primary consumers (herbivores, including many small mammals). When predators such as raptors fail to thrive in an area, this can reflect an existing or possibly imminent imbalance at lower levels in the food web.

# 2.2.2 Recreational and Educational

According to the US Fish and Wildlife Service (USFWS) (Carver 2019), there were an estimated 45 million birders in the United States, approximately 18 percent of the population in 2016! These numbers have only increased since the Covid-19 pandemic when many people discovered the joy of backyard birding or birdwatching at their local parks and open space areas. Raptors provide a special draw for many birders as their larger size makes them easier to observe and photograph. The visibility and appeal of raptors also provides opportunities to educate communities about wildlife, ecosystems, and environmental stewardship.

Broomfield residents routinely identify birding and passive recreation use of open space and trails as a frequently enjoyed activity in community surveys. The Broomfield Bird Club is an active community nonprofit that hosts many birding events open to the public throughout the year, including bird walks. They also participate in many Broomfield events to educate the public on birding activities and information, including Migratory Bird Day and Broomfield Days. In addition, citizen-science platforms including iNaturalist and eBird demonstrate that many areas in Broomfield are birding hotspots, with the birding community actively using in these platforms and working to identify and monitor birds throughout the county.

# 2.2.3 Economic

In 2016, expenditures on birding trips and equipment in the United States exceeded \$39 billion dollars (Carver 2019). While this value encompasses non-raptor species, it illustrates that birdwatching can be economically advantageous, especially for small towns and rural areas with unique species or in exceptional migration pathways.

Raptors also provide "ecosystem services". Ecosystem services are goods or services that are provided by natural ecosystems and provide a benefit to human health and wellbeing. Raptors, for example, prey on species that can cause damage to ecosystems through overgrazing or can serve as disease vectors to humans. While such services are notoriously difficult to assign monetary value, one can imagine that additional resources and expenditures would be needed for rodent control, roadkill removal, and revegetation efforts if it were not for raptors.

## 2.2.4 Spiritual and Cultural

Raptors can have significance to people in such a manner that transcends ecological or recreational value to become integral to their spiritual or cultural identities. While the Bald Eagle has for many become a ubiquitous and recognizable symbol of the United States of America, eagles also carry both cultural and spiritual significance for many indigenous people. The USFWS grants special permits to Native American tribes for the use of eagles and eagle parts (i.e., feathers) for religious purposes. The cultural significance of raptors is also evident throughout Broomfield. Broomfield High School's mascot is the Eagles while Broomfield Heights Middle School's mascot is the Falcons. The Eagle Trace neighborhood and Golf Course are located just north of The Field Open Space and residents enjoy Soaring Eagle Park in the Anthem neighborhood. In addition, many prominent streets and neighborhoods in Broomfield are named after raptors, like Eagle Way, Red Hawk Place, Peregrine Circle, and Falcon Drive.





#### 2.2.5 Intrinsic

The most abstract of the values listed here, intrinsic value refers to the value of something purely for its existence, completely independent of any use or benefit it provides to humans. The characteristics that we admire about raptors - their mastery of flight and hunting prowess - evolved to serve their own needs, not ours, and there is value in that recognition.

#### 2.3 RAPTORS OF BROOMFIELD

Over 20 species of raptors are known to occur in Broomfield. While some may only be observed passing through during migratory periods, many breed within Broomfield and others are year-round residents. The following species list describes the most common species that are observed in Broomfield. It is noted below each species whether or not that species is currently known to nest in Broomfield (and more detail on nesting periods is provided in Exhibit 1). There are other species that are not included in this list that may be spotted in Broomfield, especially during migratory periods, but they are rare and generally do not spend extended time in Broomfield. The most commonly found species are described below, along with their habitat use, in order to focus this Raptor Management Plan on the specific species that will be most likely to benefit from the recommendations found in this plan.

The following species are ordered taxonomically (i.e., based on scientific classification), which is how these species would generally be listed in a field guide. In the species descriptions, raptors are often described by the coloration of their feathers "above" and "below." This reflects how the birds would be viewed in flight. Colors "above" correspond to the tops of their wings and backside, as if viewed from above. Colors "below" are generally the breast and underside of the wings.

## 2.3.1 Bald Eagle (Haliaeetus leucocephalus)

#### Currently nesting in Broomfield? No

**Description:** (Length: 31in; Wingspan: 80in) Adults are very large bodied with a white head and tail feathers and dark brown bodies with a yellow beak and legs. Juveniles have darker head and tail feathers with white mottled bodies and wings.

**Habitat Use in Broomfield:** Found in Broomfield year-round. No current active nests in Broomfield, although an active nest is adjacent to the Lac Amora Open Space, in Boulder County. Nests are in large trees (usually cottonwoods) in proximity to large water bodies. Likely to be seen foraging over open space, large water bodies, and prairie dog colonies.

# 2.3.2 Golden Eagle (Aquila chrysaetos)

#### Currently nesting in Broomfield: No

**Description:** (Length: 30in; Wingspan: 79in) Adults are very large bodied with primarily dark brown coloring and a golden sheen on the back of the head and neck. Juveniles are distinguished by white patches at the base of the tail and in the wings.

**Habitat Use in Broomfield:** Found in Broomfield year-round. Prefer to nest on cliffs but will also construct nests in trees and on human structures. Not known and not likely to nest in Broomfield due to its preference for nesting on cliffs. It has been seen using local open space for foraging.

# 2.3.3 Osprey (Pandion haliaetus)

## Currently nesting in Broomfield: No

**Description:** (Length: 23in; Wingspan: 63in) Adults are large bodied while slender. Coloration is brown above and white below with prominent dark patches at the wrists under the wings. They have a white head with a wide brown stripe through the eye. Juveniles have white spots on the back with a buffy breast. Distinct M-shaped wings when observed from below in flight.

**Habitat Use in Broomfield:** Summer resident that constructs easily approachable nests with a wide secure base in open areas, usually tree snags, treetops, cliffs, or human-built platforms. Not currently known to nest in Broomfield but has the potential to. Will forage over open water in Broomfield.

# 2.3.4 Cooper's Hawk (Accipiter cooperii)



# Currently nesting in Broomfield: Yes

**Description:** (Length: 16.5in; Wingspan: 31in) Medium-sized hawk. Adults are gray above with reddish bars below. Thick bands on tail and red eyes. Juveniles are brown above with brown streaks below. Thick bands on tail and yellow eyes.

**Habitat Use in Broomfield:** Year-round resident known to nest in Broomfield. Nests in wooded areas; often in suburban neighborhoods.

# 2.3.5 Sharp-shinned Hawk (Accipiter striatus)

Currently nesting in Broomfield: No

**Description:** (Length: 11in; Wingspan: 23in) Small hawk. Adults are gray above with reddish bars below. Thick bands on tail and red eyes. Juveniles are brown above with brown streaks below. Thick bands on tail and yellow eyes.

**Habitat Use in Broomfield:** Year-round resident with the potential to nest in Broomfield though no active nests have been reported in recent years. Nests in wooded areas; often in suburban neighborhoods.

# 2.3.6 Red-tailed Hawk (Buteo jamaicensis)

Currently nesting in Broomfield: Yes

**Description:** (Length: 19in; Wingspan: 49in) Large hawk. Light to dark brown above, pale below with a dark shoulder bar, and a distinctive red tail. Plumage is extremely variable.

Habitat Use in Broomfield: Year-round resident known to nest in Broomfield and commonly seen on high perches or foraging in open spaces.



# 2.3.7 <u>Ferruginous Hawk (Buteo regalis)</u>

Currently nesting in Broomfield: No

**Description:** (Length: 23in; Wingspan: 56in) Large hawk. Dark above, white below with darker leg feathers forming a "V" when flying. Light gray head and pale flight feathers with dark tips.

**Habitat Use in Broomfield:** Year-round resident with the potential to nest in Broomfield though no active nests have been reported in recent years. Nests are often located on the ground, so any disturbance is a significant deterrent to nesting. Will use open space for foraging, where they generally hunt from the ground or in low flight.

# 2.3.8 Swainson's Hawk (Buteo swainsoni)

#### Currently nesting in Broomfield: Yes

**Description:** (Length: 19in; Wingspan: 51in) Large hawk with broad wings and short tails. Adults typically are light-bellied birds with a darker chest. Males tend to have gray heads while females tend to have brown heads. Underwings have distinct white wing linings contrasting black flight feathers.

**Habitat Use in Broomfield:** Long-distance migrant known to nest in Broomfield. Typically nest near the top of a lone tree or in a small stand of trees along a stream. Will use Open Space for foraging.

# 2.3.9 Rough-legged Hawk (Buteo lagopus)

## **Currently nesting in Broomfield: No**

**Description:** (Length: 21in; Wingspan: 53in) Large, slender hawk. Adults are dark brown with tails that are dark at the tip and pale at the base. There are dark and light morphs. **Habitat Use in Broomfield:** Over-wintering resident of Broomfield. Generally does not nest in the lower 48 states. Will use open space for foraging.

## 2.3.10 Northern Harrier (Circus hudsonius)

## Currently nesting in Broomfield: No

**Description:** (Length: 18in; Wingspan: 43in) Long and slender hawk with a distinct V-shaped flight pattern and owl-like head. Males are gray above, white below with black wing tips. Females are brown above, lighter below with brown streaks and black bands on the tail. All harriers, including juveniles, display a distinct white rump patch in flight. **Habitat Use in Broomfield:** Year-round resident with the potential to nest in Broomfield though no active nests have been reported in recent years. Ground nester, usually in a clump of dense vegetation, in dry upland habitat. Will use open space and agricultural land for foraging.

## 2.3.11 American Kestrel (Falco sparverius)



# Currently nesting in Broomfield: Yes

**Description:** (Length: 9in; Wingspan: 22in) Small falcon. Pale white/cream below, adults have a rufous (i.e., reddish brown) back and tail. Heads with distinct pairs of black vertical slashes and a black band near the tip of the tail. Males have slate blue wings and females have reddish-brown wings.

Habitat Use in Broomfield: Year-round resident known to nest in Broomfield. Nests in cavities including old woodpecker holes, natural tree hollows, and rock crevices. Will use open space and agricultural land for foraging.

## 2.3.12 Merlin (Falco columbarius)

#### Currently nesting in Broomfield: No

**Description:** (Length: 10in; Wingspan: 24in) Compact yet powerful falcon. Generally dark in color above and below; males are light to dark gray, while females and juveniles are browner. Tail has prominent narrow white bands, and the chest is heavily streaked. **Habitat Use in Broomfield:** Will use open space for foraging while migrating between winter and summer range. Transitory use only; will typically not nest in Broomfield.

# 2.3.13 Prairie Falcon (Falco mexicanus)

Currently nesting in Broomfield: Yes

**Description:** (Length: 16in; Wingspan: 40in) Large falcon. Brown above and pale below with brown markings on the breast and belly. Head white above and behind the eye with a brown mustache stripe. **Nesting and Habitat Use in Broomfield:** Year-round resident with potential to nest in Broomfield. Prefer to nest in a natural crevice or ledge on a cliff but will also use trees and manmade structures. Will use open space for foraging.



# 2.3.14 Peregrine Falcon (Falco peregrinus)

Currently nesting in Broomfield: No

**Description:** (Length: 16in; Wingspan: 41in) Large falcon. Dark blue-gray above, pale below with barred underparts and a dark head. Juveniles are dark gray-brown with vertical streaks instead of horizontal bars.

**Habitat Use in Broomfield:** Year-round resident unlikely to breed in Broomfield. Typically a cliff nester, but will also use tall manmade structures and older nests of other species. Will use open space for foraging.

#### 2.3.15 Burrowing Owl (Athene cunicularia)



Currently nesting in Broomfield: Yes

**Description:** (Length: 9.5in; Wingspan: 21in) Small owl. Adults are brown above with spots, and pale below with bars. Distinct white throat and eyebrows with yellow eyes. Juveniles are less mottled.

**Habitat Use in Broomfield:** Migratory resident of Broomfield with some individuals potentially staying year-round. Prefer to nest in existing burrow systems, most commonly in areas of dense prairie dog colonies.

# 2.3.16 <u>Great-horned Owl (Bubo virginianus)</u>

**Currently nesting in Broomfield: Yes** 

**Description:** (Length: 22in; Wingspan: 44in) Large-bodied with two prominent head tufts above the eyes. Dark, grayish above, densely barred below, with a white throat patch. **Habitat Use in Broomfield:** Year-round resident known to nest in Broomfield. They will typically adopt a tree nest built by another species, but will use cavities, dead snags, ledges, or even the ground for nesting. Will use open space for foraging.

#### 2.3.17 <u>Eastern Screech Owl (Megascops asio)</u>

Currently nesting in Broomfield: No

**Description:** (Length: 8.5in; Wingspan: 20in) Small, stocky, short-tailed, broad-winged, and large-headed owl. Variable plumage from gray to rufous with complex patterns and ear tufts.

**Habitat Use in Broomfield:** Not known to nest or heavily use Broomfield due to its location at the extreme western portion of the owl's range. Cavity nesters that cannot produce their own cavities; they will most commonly occupy abandoned woodpecker nest holes.

## 2.3.18 Barn Owl (Tyto alba)

Currently nesting in Broomfield: Yes
Description: (Length: 16in; Wingspan: 42in)
Medium-sized, short-tailed, and long-legged owl.
Round white faces with dark eyes; adults are buffy and gray above, and white below.
Habitat Use in Broomfield: Year-round resident in Broomfield. Cavity nester utilizing holes in trees, cliff ledges/crevices, and a wide variety of manmade structures.



# 2.3.19 Short-eared owl (Asio flammeus)

Currently nesting in Broomfield: No

**Description:** (Length: 16in; Wingspan: 37in) Medium-sized, short-tailed, rounded head. Pale faced with yellow eyes outlined in black. They are brown-spotted with white and buffy underparts; the breast is brown-streaked.

**Habitat Use in Broomfield:** Year-round resident with potential to breed in Broomfield. Ground nesters in marshy areas or grasslands; they ring their nests with grasses and feathers.

# 2.3.20 Long-eared owl (Asio otus)

Currently nesting in Broomfield: No

**Description:** (Length: 14in; Wingspan: 37in) Medium-sized, slender bird with long ear tufts. Darker owls with orange- or buff-colored faces. Feathers are complexly colored with brown, black, and buff patterning. Yellow eyes with two vertical white lines between. **Habitat Use in Broomfield:** Year-round residents with potential to breed in Broomfield. They use abandoned nests from other bird species that are found in cavities of cliffs or trees and sometimes on the ground.

#### 2.3.21 Turkey Vulture (Cathartes aura)

Currently nesting in Broomfield: No

**Description:** (Length: 26in; Wingspan: 67in) Large, dark bird. Brown above with a featherless red head and white beak. Two-toned underneath with dark shoulders and silvery flight feathers.

**Habitat Use in Broomfield:** Year-round resident highly unlikely to nest in Broomfield. They are cliff-nesters who prefer to nest far away from humans.

**Exhibit 1. Broomfield Raptor Breeding Guide.** Exhibit 1 shows the breeding periods for raptor species that nest in the Front Range. Only the species in **bold** are known to nest in Broomfield as of the publication of this plan. Shaded cells represent the active nesting period; asterisks represent the period of nests with young.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Incubation Period
Bald Eagle				*	*	*	*	*					35 days
Golden Eagle				*	*	*	*						41-45 days
Osprey				*	*	*	*						38 days
Cooper's Hawk					*	*	*						36 days
Sharp-shinned Hawk					*	*	*	*					30-35 days
Red-tailed Hawk				*	*	*	*						28 days
Ferruginous Hawk					*	*	*						32 days
Swainson's Hawk					*	*	*	*					35 days
Northern Harrier						*	*						24-30 days
American Kestrel				*	*	*	*	*					29- 31 days
Prairie Falcon					*	*	*						29-39 days
Burrowing Owl					*	*	*	*					30-37 days
Great-horned Owl		*	*	*	*	*	*	*					28-30 days
Eastern Screech Owl				*	*	*							26- 34 days
Barn Owl					*	*	*	*	*				30 days
Short-eared Owl					*	*	*						24-28 days
Long-eared Owl				*	*	*	*						25-30 ays

# 3.0 RAPTOR PROTECTION

Wildlife protection in the United States has a lengthy history, and raptors are no exception. This section briefly describes how raptors are protected and/or considered at various levels of governance, including among communities in the Colorado Front Range.

#### 3.1 REGULATORY AUTHORITY FOR RAPTORS

An important and often confusing component to wildlife protection and management is understanding who has the authority or responsibility to act and what authorizes them to do so. In the United States, there are several pieces of overarching federal environmental legislation that pertain to raptors. States and local governments can implement policies or programs that reflect their values or priorities, but they must always stay in compliance with federal regulations. In Colorado, wildlife management is the responsibility of the state government, specifically Colorado Parks and Wildlife (CPW). The most significant federal, state, and local regulations that pertain to raptors are summarized below.

# 3.1.1 Federal Government

## Migratory Bird Treaty Act of 1918

Most bird species, including raptors, and their nests are protected under the Migratory Bird Treaty Act of 1918 (MBTA), which prohibits "take" of migratory birds, their eggs, feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof. As a federal law, enforcement authority lies with the USFWS, but CPW provides recommendations for buffers and seasonal restrictions for common raptor species that occur in Colorado (CPW 2020). These recommendations are designed to facilitate local compliance with the MBTA for sensitive species.

#### Bald and Golden Eagle Protection Act

Bald and Golden Eagles are afforded additional protections under the Bald and Golden Eagle Protection Act (BGEPA). The BGEPA prohibits anyone from "taking" eagles, their parts, nests or eggs, with "take" being defined as "to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." The USFWS has defined "disturb" as "to agitate or bother a Bald or Golden Eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior". Unlike the MBTA, incidental take permits can be issued under the BGEPA. Such a permit authorizes the "take" of an eagle, provided that the take is not the purpose of the activity. They are most common for projects occurring within close proximity to an active nest, but some are also issued to large-scale projects such as wind farms to account for eagle mortality. Permits are issued only if it can be demonstrated that the project cannot be completed without causing a take. Monitoring and reporting are required, and substantial fees can be levied for permit violations.

#### **Endangered Species Act**

The Endangered Species Act (ESA) provides additional federal protections for species that are listed as threatened or endangered. Currently, there are no raptor species in Colorado that are listed under the ESA; additionally, none have been proposed as candidates. The Bald Eagle, however, remains one of the ESA's greatest success stories, as its recovery under ESA protections resulted in it being delisted in 2007.

#### National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires federal agencies to assess the environmental effects of proposed actions prior to making decisions. In Colorado, NEPA analysis is commonly implemented during the planning of federally funded projects (such as highways) or for projects proposed on federally owned lands (such as National Parks or National Forests). NEPA can also be required during the issuance of certain permits, including eagle incidental take permits. Impacts to migratory birds, including raptors, are documented during the NEPA process and can occasionally require extensive surveys and mitigation.

#### 3.1.2 State Government

#### Colorado State Wildlife Action Plan

The Colorado State Wildlife Action Plan (SWAP) identifies species and habitats that are most vulnerable. It is not a regulatory document, but state wildlife grant funding from the USFWS is contingent upon its use and regular updating. The SWAP provides guidance on prioritization and best management practices for land managers. It includes a tiered list of Species of Greatest Conservation Need. Species occurring in Broomfield that are listed include the Burrowing Owl and Golden Eagle in Tier 1, and the Peregrine Falcon, Bald Eagle, Ferruginous Hawk, Northern Goshawk, Northern Harrier, Prairie Falcon, and Swainson's Hawk in Tier 2. Tier 1 represents the highest conservation priority, whereas action is less urgent for Tier 2.

#### Colorado Threatened and Endangered List

Many states often have their own list of threatened and endangered species, though the level of protection or permitting requirements may deviate from those required at the federal level. The local list for Colorado includes categories for Endangered, Threatened, and State Special Concern, although the latter category is not statutory. There is no permitting process or specific restrictions on projects in habitat for listed species, but it is against the law to take these species. The Burrowing Owl and the Mexican Spotted Owl are the only state-listed threatened raptors, although the Mexican Spotted Owl does not occur in Broomfield. Species of concern include the Peregrine Falcon, Bald Eagle, and Ferruginous Hawk.

#### Recommended Buffer Zones and Seasonal Restrictions

While protections for birds are made clear in the MBTA and BGEPA, it can be challenging for project proponents, wildlife managers, or individuals to determine how best to stay in compliance. CPW has developed recommended buffer zones and seasonal restrictions for several raptor species in Colorado. Much like the SWAP, the recommendations are not elevated to the level of enforceable regulations, but most municipalities in the Front Range use CPW recommendations when establishing trail closures, permitting construction projects, and identifying monitoring needs. Broomfield already relies on these recommendations for their own projects and in the 20-day letter process (described below).

#### 3.1.3 Local Government

Local governments can work cooperatively with landowners to implement monitoring, nest buffers, and other protective measures to minimize raptor disturbance that may exceed the requirements of the federal and state agencies.

#### Broomfield 20-Day Environmental Clearance Letter

In the City and County of Broomfield, nearly all grading permits and other development related permits require the completion of a 20-day environmental clearance letter. This letter, which is completed no more than 20 working days prior to the start of the disturbance activity, requires an assessment of several environmental concerns, including nesting habitat for raptors and the results of burrowing owl surveys conducted by a biologist (where necessary). Though the regulatory authority for the MBTA and BGEPA lies with the federal government, this local development requirement ensures and documents compliance with these laws. The 20-day letter and more general environmental assessments related to development projects are also a tool to identify and review key raptor habitat that may exist on a site, such as mature trees suitable for nesting. Through the development review process, efforts can be made to protect habitat areas and provide buffers to nesting sites as needed.

#### Broomfield Policies for Prairie Dog Conservation and Management & Coexistence with Wildlife

This raptor policy will join a series of wildlife management policies that the City and County of Broomfield has previously produced, presented to the public, and adopted by City Council. The two main Broomfield wildlife management policies are the Prairie Dog Conservation and Management Policy and the Coexistence with Wildlife Policy. These policies are designed to be complimentary; no one plan is elevated above the others. Care has been taken during the preparation of this raptor plan to ensure that the approach and recommendations are generally in alignment with the previously approved plans. In rare instances, newer findings or community priorities may influence amendments or updates to existing plans, but the goal is not to create unnecessary conflict between the planning documents.

#### Property-specific Management Plans and Master Plans

Many Broomfield properties have property-specific management or master plans, including Metzger Farm, Broomfield County Commons, The Field, Markel Open Space, Wottge Open Space, and Plaster Reservoir. The raptor plan is intended to supplement those documents and expand upon wildlife issues and protections if applicable.

#### 3.2 RAPTOR PROTECTION MEASURES IN SURROUNDING COMMUNITIES

According to the research conducted for this plan, there are no municipalities in the Front Range that have produced a management plan specifically for raptors. However, local cities and counties have undertaken other valuable and effective measures for the protection of raptors and the enhancement of their habitats. The following briefly summarizes actions several communities surrounding Broomfield have implemented. It is important to note that even within a similar geographic setting, all communities are different, especially regarding their values, priorities, and resources. Each community is pursuing admirable measures that reflect priorities based on community values and available resources. Broomfield staff has had the opportunity to talk with other staff members from many of these communities and extend a thank you for their assistance.

#### 3.2.1 Boulder County

Boulder County has adopted mostly site-specific management plans, in combination with resource-specific plans for prairie dogs and noxious weeds. They produce an annual wildlife report, which includes nesting success for raptor nests on County-owned lands. There are volunteer positions for raptor nest and Burrowing Owl monitoring, and they curate a county raptor map. Boulder County also has an osprey camera on a nesting platform at the Boulder County Fairgrounds in Longmont. This has been a popular educational tool that is often reported on by local news media. In addition, they also offer a self-guided driving tour map that tells visitors what species to look for in what open space areas. Similar to other municipalities, Boulder County also implements seasonal closures for sensitive species (such as Bald Eagles) to prevent disturbance from recreators and wildlife watchers.

#### 3.2.2 City of Boulder

Both the Open Space and Mountain Parks Master Plan and the Agricultural Resources Management Plan for the City of Boulder discuss the significance of raptors within local ecosystems. They have recently developed an internal set of standard operating procedures for raptor habitat management, specifically clarifying staff roles and for implementation of trail closures. The City of Boulder also has a raptor monitoring program that utilizes a combination of staff and volunteers; they have around 40 volunteers who log over 2,000 hours annually. In a survey response, a senior ecologist at Boulder reported that they "commonly hear from residents during public meetings and out in the field about how much they value us protecting habitat for nesting raptors." Boulder staff also collaborate with recreation user groups, specifically the climbing community, when seasonal closures are implemented.

# 3.2.3 City of Fort Collins

Raptors are briefly addressed in the City of Fort Collins Natural Areas Wildlife Conservation Guidelines and the Natural Areas Master Plan, but most management plans are written specifically for individual open space properties. Fort Collins provides educational resources and programming focused on raptors, often in partnership with the Rocky Mountain Raptor Program, a rehabilitation center located in Fort Collins. They also host "Eagle Watches" in winter with their Volunteer Naturalists, during which the public is invited to observe roosting eagles from a safe distance.

#### 3.2.4 Jefferson County

Like the other communities, Jefferson County does not have an overarching policy specific to raptors, and they rely primarily on state guidance (SWAP and the buffer guidelines) for season closures. They have site-specific management plans that often identify raptor use areas, and in some instances, they have designated areas as closed to the public and/or have no plans for infrastructure development to protect sensitive nesting resources. Jefferson County provides educational materials regarding raptors on their website and conducts outreach on raptor biology and the importance of the closures. Their raptor monitoring program is run primarily by volunteers who undergo annual training with County staff and are assigned to specific areas. Data are entered directly into a GIS database which is accessible only by staff, though they are coordinating with their GIS department to create dashboards that can be shared with volunteer teams.

#### 3.2.5 Larimer County

Raptors are mentioned in the County's Open Lands Master Plan and the role of Larimer County's staff in monitoring and conducting wildlife management activities is discussed. However, Larimer County primarily utilizes raptor management guidelines from site-specific management plans that identify key habitat areas and monitoring needs. Like many other Front Range communities, Larimer County also implements seasonal trail closures as needed to protect nesting raptors. Nests are also monitored by staff and volunteers.

# 3.2.6 City of Longmont

Longmont has incorporated raptors into their comprehensive Wildlife Management Plan, and their city website provides specific information to the public on nesting birds. They also have an established a raptor monitoring program with up to 20 participants, though most of their nests are monitored by staff. They have a Volunteer Raptor Monitoring Handbook to ensure consistent data collection and reporting protocols. Consultants are also utilized on Citymanaged roadway projects to ensure that disturbance is minimized during operations within the recommended buffers. Longmont publishes an annual report with the results of all raptor nest monitoring. They are considering adding winter monitoring of high-use open space areas and implementing trail closures where necessary.

# 4.0 PUBLIC ENGAGEMENT

Public engagement has been a critical part of the planning process for the Raptor Management Plan. Before generating and prioritizing management recommendations, evaluating the community's values was essential to ensure that the direction and scope of the plan was appropriate. The public engagement process can be summarized in three key areas: 1) outreach at key public events, 2) conducting and analyzing a variety of surveys, outreach, meetings, and feedback, and 3) creation and curation of a project page on the Broomfield Voice website.

The goal of the public engagement process was to generate information to guide the prioritization of the management recommendations. Rather than having a team of specialists independently develop this management plan, it was important to incorporate the community's values and glean expertise from key local and regional sources. Feedback from the community will also be utilized to prioritize the implementation of plan recommendations.

#### 4.1 KEY PUBLIC EVENTS

## 4.1.1 Talon Talk and Migratory Bird Day

A "Talon Talk" program was held at Centennial Elementary School in Broomfield on May 7, 2022. The Migratory Bird Day celebration was held on October 13, 2023, at the Metzger Farm Open Space. These events were educational programs that included a presentation by Nature's Educators, a wildlife outreach nonprofit. Trained handlers displayed three live raptors (see photo below) that were rehabilitated through their program but were unable to be released into the wild.



At both events, the consultant team and Broomfield staff were able to staff an information table and meet with members of the public about the issues being considered in the Raptor Management Plan. Both events featured a QR Code linking to the Broomfield Voice Raptor Plan page and shared survey information. The Talon Talk presentation was also conducted partially in Spanish and bilingual staff members were available to discuss raptors with residents in Spanish.

#### 4.1.2 National Trails Day

The annual National Trails Day event was held at Anthem Community Park/Siena Reservoir in Broomfield on June 4, 2022 during the public outreach portion of the plan. This is a signature event for the Open Space and Trails department, and it attracted a significant number of outdoor enthusiasts. The consultant team set up a table with the QR code directing to the survey and project page, raptor identification books, stickers, and snacks. A spotting scope and binoculars were also available to encourage people to practice birding, and project representatives were in attendance to answer questions and direct people to the survey.

#### 4.1.3 OSTAC Involvement

The Open Space and Trails Advisory Committee (OSTAC) is composed of eleven Broomfield residents appointed by the City Council. A total of four meetings were held with OSTAC to collect guidance and provide community context for the management plan. All OSTAC meetings are open to the public.

The consultant team presented to OSTAC during their regularly scheduled monthly meeting on September 23, 2021 to introduce the impetus, purpose, and goals of the management plan. During the January 27, 2022 meeting, Broomfield Project Manager Pete Dunlaevy provided an update on plan development, including causes of raptor mortality, local approaches to raptor projection, and anticipated public events. An initial draft of the management plan was presented at the September 22, 2022 meeting. The final document has incorporated comments received from the OSTAC and general public. An overview of the final recommendations was presented to OSTAC for comment at the February 22, 2024 OSTAC meeting. These comments were incorporated into the Final Draft Plan that was presented to OSTAC on June 27, 2024.

#### 4.2 SURVEYS AND OUTREACH

Leading up to the start of the Raptor Plan process, and throughout the development of the plan, Broomfield staff coordinated a variety of outreach activities, including surveys, in-person meetings, presentations, reviews of existing raptor plans/policies, and general feedback from experts and stakeholders. A summary of some of those activities is listed below:

- Broomfield staff conducted a brief and informal survey of Raptor Plans/Policies from nearby agencies, April/May 2018 for Broomfield staff to research and gauge existing raptor management plans from nearby municipalities.
- Broomfield staff meeting with Jefferson County Open Space staff on Raptor Conservation Strategies, February 7, 2019.
- Broomfield staff attended the Raptor Research Foundation Conference in Fort Collins, November 6-9, 2019.
- Broomfield staff toured Birds of Prey Foundation facilities and reviewed the draft Broomfield Raptor Management Plan outline with the foundation staff, December 12, 2019.
- Broomfield staff administered a Raptor Policy Scope and Purpose Survey with Stakeholders and Regional Experts, January-February 2020. Responses were received from 41 individuals representing 23 different groups. The survey and results can be reviewed in Appendix A.
- Broomfield staff conducted a Raptor Roundtable Review of the draft Management Plan outline with agency leaders and local experts, April 2020.

- The consultant team and Broomfield staff conducted a community survey administered through the Broomfield Voice page and promoted at in-person events (Talon Talk event May 7, 2022 and National Trails Day June 4, 2022). The survey closed on October 12, 2022, and included six multiple choice questions about the participants' familiarity with raptors, items for inclusion in the plan, responsibility for implementing the plan, and their relationship to Broomfield (survey information can be viewed in Appendix B).
- Broomfield staff presented a draft of the Raptor Management Plan at a Broomfield Bird Club Meeting (virtual), March 14, 2023.
- Broomfield staff presented an updated draft of Raptor Management Plan at the Broomfield Bird Club Annual Meeting (in-person), January 28, 2024.
- Broomfield residents were invited to view the raptor plan Broomfield Voice informational
  website at the annual Migratory Bird Day. During the planning period of the raptor
  management plan, the Migratory Bird Day celebrations were held on October 13, 2023 and
  May 3, 2024.

#### 4.3 BROOMFIELD VOICE ONLINE PROJECT PAGE

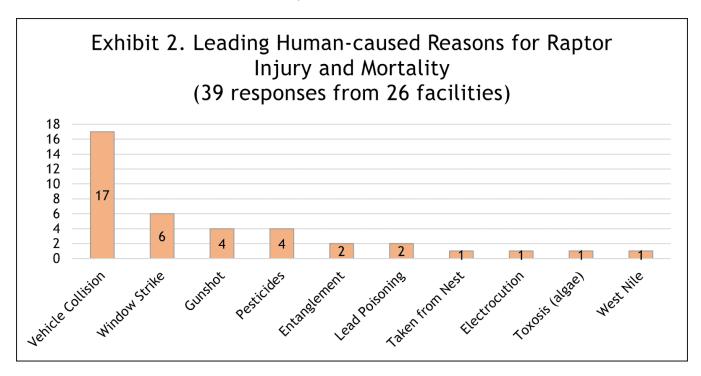
The Broomfield Voice platform was used to disseminate information about the planning process. Draft documents and opportunities for public engagement were provided through this website tool. The consultant team and City staff collaborated to provide content for the project page, which was hosted online at the Broomfield Voice website for the duration of the project. The page includes photos of raptors, contact information, a monitored Q&A section, and a public engagement survey (questions and results can be found in Appendix B). The Q&A widget was a well-used feature of the website, with a dozen questions being submitted on topics including how to protect nests on private property, ways to reduce impacts from development, and requests to be involved in future programs.

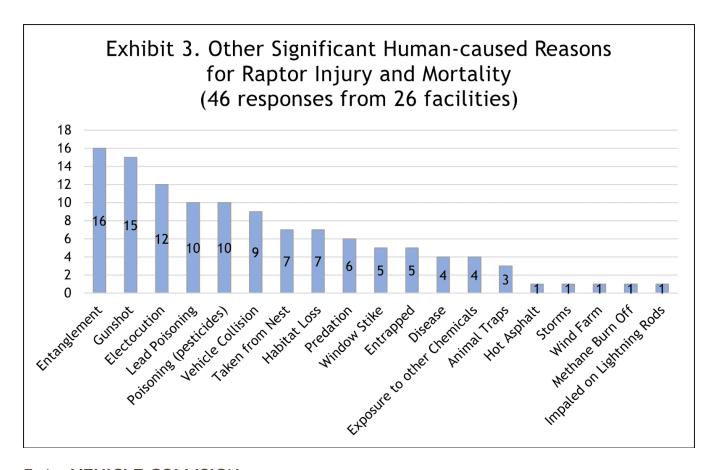
# 5.0 CAUSES OF RAPTOR FATALITY

Nearly 50 wildlife rehabilitation centers across the United States were contacted to determine the causes of raptor injuries and fatalities (Appendix C). The focus of these conversations was specifically on human-caused injuries and fatalities as those can theoretically be more easily addressed by management plan actions. The overarching purpose of conducting this research was to ensure that the Broomfield plan is responsive to actual issues that urban raptors encounter, rather than overemphasizing threats or concerns that may not be as applicable in urban settings.

While some issues faced by rehabilitation centers in different regions are not as applicable in Colorado, it was the aim of the project team to interview more experts to identify broader trends across the United States, which is only feasible with a larger sample size. Each rehabilitation center was asked to identify what they perceived as the leading (i.e., most common or significant) human cause of raptor injury or mortality. As a follow-up, they were also invited to share other significant causes. Note that the number of responses exceeds the number of facilities, as many interviewees provided more than one answer to each question.

The results are summarized in Exhibits 2 and 3 below, and a discussion of the most significant issues follows. This research was used to develop Broomfield-specific recommendations to address the instances of these human-caused fatalities, which are discussed in Section 7.0.





## 5.1 VEHICLE COLLISION

Vehicle collisions were far and away the leading human-caused reason for raptor injury and fatality, as reported by the rehabilitation centers. This pattern held across the United States, as rehabilitation centers as widespread as Texas, Georgia, New York, and Colorado reported concerns with vehicle strikes. This is somewhat unsurprising as our transportation corridors represent a significant and ubiquitous feature of our built environments, and it is also one of the more challenging raptor injury causes to address.

#### 5.2 WINDOW STRIKE

Window strike injuries are perhaps more common in urban areas with high-profile buildings, but they can still occur at smaller homes and offices in rural and suburban areas. Wing injuries and head trauma are common injuries that can result from window strikes.

#### 5.3 GUNSHOT

Despite federal laws that criminalize the shooting of most birds and local restrictions on firearms discharges in urban and suburban areas, gunshot wounds remain a significant cause of injury and mortality for raptors. The shooting of raptors has been (misguidedly) implemented to protect crops or livestock, and this practice still continues, albeit on a smaller scale compared to previous generations (Bryce 2018). Both intentional and accidental shooting contribute to this problem.

Broomfield's Municipal Code specifically prohibits the discharge of firearms, under Section 9-72-020 *Possession, sale, transfer, and use of Weapons.* The shooting of raptors is also a violation of state law, and can be a federal violation as well, depending on the species and circumstances.

#### 5.4 POISONING

Several types of poisoning were referenced by the rehabilitation centers, but lead poisoning was by far the most common. Lead poisoning can occur as a result of lead shot that is embedded in the raptor or as secondary poisoning, meaning that other animals have ingested or been exposed to lead and the raptors subsequently prey on the exposed animals. Lead shot and lead fishing tackle are the most common culprits. Secondary poisoning by rodenticides was also commonly cited. Poisoning from other sources, including other pesticides, is most difficult to diagnose and is addressed in chemical exposure below.

#### 5.5 ENTANGLEMENT

Entanglement refers to injuries caused primarily by nets, string, fencing, or other materials that cause complete or partial immobilization of the entangled raptor. Barbed wire was the most commonly cited material causing entanglement. Fishing line was also cited, specifically for Ospreys which feed almost exclusively on fish. Ospreys also collect a diverse array of materials for nest building and can become tangled in twine or other man-made items. Soccer nets were also cited as an entanglement risk.

#### 5.6 REMOVAL FROM NEST

One rehabilitation center referred to this concern as "baby season," which occurs when well-meaning people believe that a fledgling or juvenile bird has been abandoned or orphaned and either attempts to rehabilitate the bird on their own or takes them to a rehabilitation center. When untrained individuals attempt to rear raptors, there is a significant risk of malnourishment or imprinting on humans. If someone suspects a fledgling has been abandoned, most centers recommend returning it to or near the nest and minimizing disturbance in the area to see if the adults will return. If abandonment has truly occurred, only trained professionals should remove and care for the birds. Possession of wildlife without a license is a violation of both the MBTA and state wildlife laws.

#### 5.7 ELECTROCUTION

Electrocution of raptors has long been a concern due to many species' propensity to perch on towers and utility lines while hunting. Some species have even been known to nest on these structures. Transformers, power lines, and other electrical transmission equipment have advanced over the past several decades to reduce avian electrocutions, but older, malfunctioning, or damaged equipment can still harm perched birds.

#### 5.8 DISEASE

Because rehabilitation centers across the country were consulted, some diseases that were reported are not a concern in the Front Range (such as red tide exposure). Until 2022, West Nile virus was the most significant disease affecting raptors in the west. It is transmitted through infected mosquito bites, and thus tends to spike in populations during the warmer months.

However, our surveys were conducted prior to the avian influenza outbreak of 2022 and 2023, and that highly contagious pathogen has become a significant global concern. The avian flu virus is shed in feces and other bodily secretions of infected birds, meaning that birds do not have to come into direct contact with one another to become infected; any contact with infected feces or other fluids may cause transmission. Concern has been greatest for domestic species and for wild species that congregate in large flocks or groups. Nonetheless, raptors are still exposed when they prey on these species or when they use the same habitat areas. Exposure to birds that congregate can result in disease spread for raptors that predate on smaller birds.

In Broomfield, this avian influenza outbreak became noticeable in wild bird populations around December 2022 and peaked around April 2023. Both local observations and Colorado Department of Public Health data indicate that the most impacted species were waterfowl, namely Canada Geese that congregated around surface water. While surrounding communities, including Boulder County, did have raptor species test positive for avian influenza during this outbreak, there were very few confirmed cases in raptors and backyard domestic birds in the Broomfield area during this time. CPW did issue guidance on best practices for handling deceased birds, including wearing gloves and burying deceased birds to curb the spread of the disease.

#### 5.9 HABITAT LOSS

Though habitat loss in general is a broad concern, it can result in injury to raptors if activities are undertaken during the nesting season. For example, tree removal or even trimming, can cause harm to an active nest. Habitat loss in the area immediately surrounding a nest can also eliminate food sources that the raptors rely on, such as a prairie dog colony. This can be especially problematic for species that exhibit high nest fidelity year after year. As habitat conditions degrade, successful nesting becomes more challenging.

#### 5.10 PREDATION FROM PETS

The rehabilitation centers reported injuries to raptors, primarily juveniles, caused by both cats and dogs. These injuries from domestic animals were reported separately from predation by wild animals. Generally, predation or injury by wild animals would not be considered a human-caused concern and is not addressed in this plan. An important aspect of preventing predation of birds by pets will be the observance and enforcement of the leash law in Broomfield and providing education and information on the consequences and dangers of pets running at large in general.

#### 5.11 ENTRAPMENT

Entrapment refers to injury caused by a raptor becoming trapped in a building, structure, or other enclosure (other than those described as entanglement). It can result in physical injuries such as breaks or head trauma but can also include exhaustion and dehydration during attempts to escape.

#### 5.12 CHEMICAL EXPOSURE

Chemical exposure encompasses hazardous materials that raptors are exposed to but do not generally cause poisoning effects. Smoke and other inhalants (including paints, glues, or other volatile substances) can cause respiratory distress and other problems. One rehabilitation center mentioned "fertilizer burns" that can occur on turf areas when applications have not been watered into the soils. Encounters with oil and tar, which can damage feathers, are also an exposure concern.

#### 6.0 PRIORITY RAPTOR HABITAT IN BROOMFIELD

Raptors can occur almost anywhere within Broomfield, from the largest of open spaces to a single tree in a residential yard. However, certain properties have been identified as providing unique features and/or are known to support specific raptor populations. The following list was developed in coordination with Broomfield staff and the local birding community and includes only properties within Broomfield ownership, either fully or jointly with another community. Several of the sites are also not officially designated as open space. However, raptor enhancement measures may still be feasible to implement. These properties, shown in Exhibit 4, will be prioritized for habitat enhancement activities, with highest priority given to open space properties.

This list of priority habitat here is specific to raptors and should be reviewed with consideration for more general priority habitat in Broomfield as identified in the 2024 Open Space, Parks, Recreation, and Trails Plan, which identifies specific high value wildlife habitat areas. This is also **not** a comprehensive list of all the raptor habitat in Broomfield, nor does it represent the only areas where raptor enhancements could be beneficial. These are properties that are currently managed by Broomfield and have been selected due to their potential of achieving significant habitat improvements for raptors and other wildlife.

The aim of these recommendations is to identify specific enhancement opportunities on individual properties due to their known ecological site characteristics. These are not intended to be comprehensive lists of every potential action, and a further discussion of habitat enhancement is included in the Plan Recommendations. It is important to note that every raptor species has different needs and preferences, so no single action will benefit all raptors. Exhibit 4 shows a map of these sites at the end of this section.

#### 6.1 ANTHEM COMMUNITY PARK AND SIENA RESERVOIR

**Priority Raptor Species:** Great Horned Owl, Red-tailed Hawk, Swainson's Hawk, American Kestrel **Features:** Grasslands, Mature trees, Open Water

Anthem Community Park is located just south of Northwest Parkway and north of Sheridan Parkway on approximately 94 acres. As a park property, many areas are landscaped and maintained for the primary purpose of active recreation, but there are some areas, especially around Siena Reservoir that feature more natural (and unmowed) grasses. While there are few trees around the reservoir, there are some mature cottonwoods along Community Ditch to the east of the reservoir.

**Enhancement Opportunities:** Promote and maintain natural vegetation around the reservoir and along the Community Ditch. Evaluate for a possible osprey nest installation near the reservoir, if deemed an acceptable site by Parks, Public Works, and CPW staff.

#### 6.2 ANTHEM RANCH WESTERN BOUNDARY OPEN SPACE

Priority Raptor Species: Red-tailed Hawk, Swainson's Hawk, Burrowing Owl, Bald Eagle

Features: Grasslands, Prairie dog colony

As the name implies, the Anthem Ranch Western Boundary Open Space provides a buffer between the private residences and high-use areas associated with the Anthem development on the east and Boulder County and City of Lafayette open space to the west. The Anthem open space has a system of trails and contains several drainage features for the subdivision, some of which support wetlands. There are no mature trees in the area at present, but landscaped plantings are anticipated to continue to grow and mature. The Boulder County/Lafayette open space to the west (formerly referred to as the "Egg Farm" property) supports more diverse vegetation, including some trees, as well as a colony of prairie dogs. Two raptor perches have already been installed along the western edge, and there may be potential for additional perch locations.

**Enhancement Opportunities:** Continue coordination with Boulder County and the City of Lafayette on raptor management in the region. Install educational signage to encourage raptor viewing and best management practices. Coordinate with the Anthem Ranch Community Association to engage homeowners whose properties abut the open space.

#### 6.3 BROOMFIELD COUNTY COMMONS

**Priority Raptor Species:** Great Horned Owl, Red-tailed Hawk, Swainson's Hawk, American Kestrel, Northern Harrier

Features: Open Water, Prairie Dog Colony, Riparian areas, Wetlands, Grassland/Agricultural Land

The Broomfield County Commons Open Space is located north of Midway Boulevard between Lowell Boulevard and Sheridan Boulevard. While there are adjacent active recreation amenities in the area, including the Broomfield Commons Sports Fields and the Broomfield County Commons Park, 237 acres remain in open space with passive recreation and agricultural land uses. There is an extensive wetland complex extending between Le Gault Reservoir to the west and Tom Frost Reservoir to the east. There are mature trees especially in the Le Gault Reservoir area (which no longer holds standing water). North of the wetlands, there is a prairie dog colony that provides a significant source of prey for many raptor species.

A Broomfield County Commons Open Space Management and Master Plan exists for this site and was adopted by the City Council in December of 2004. Any habitat enhancements would need to be made with consideration of the plan objectives and specific character zones that were designed to promote different niches and preserve habitat diversity across the site.

**Enhancement Opportunities:** Preserve prairie dog colony as a prey source within the designated preserve area (approximately 35 acres). Install additional hunting perches near prairie dog colony and review possible installation of an osprey platform near Tom Frost Reservoir. Additional nesting boxes for kestrels or small owls could be installed near LeGault Reservoir or in riparian areas.

#### 6.4 THE FIELD OPEN SPACE AND BRUNNER RESERVOIR OPEN LANDS

**Priority Raptor Species:** Red-tailed Hawk, Northern Harrier, Swainson's Hawk, American Kestrel **Features:** Grassland/Agricultural Land, Open Water

The Field is located southeast of East 10<sup>th</sup> Avenue and Main Street; Brunner Reservoir and the Broomfield Town Square area are located just to the south. The property is bisected by Midway Boulevard, and Ellie's Pond is located in the northeastern corner. The western half of the property is still in agricultural use, primarily for winter wheat, while the eastern half was converted to grasslands. This provides vegetative diversity on a small scale, and though natural grass throughout the site is proposed for the long-term, some wildlife do thrive in agricultural settings. The northeast quadrant of the property has mature cottonwood trees along an old irrigation ditch and a wetland area with willows and cattails, east of Ellie's Pond. The grassland areas on the eastern half of the site support good habitat for kestrels and northern harriers. Any decisions on this property should be coordinated with The Field Master Plan, which was approved by the City Council in March of 2000.

Brunner Reservoir, slightly over 20 acres in size, is located south of The Field. It has almost no mature trees and is primarily utilized by waterfowl. Brunner Reservoir, while having a natural setting, is not officially designated as open space but instead is open lands.

**Enhancement Opportunities:** Increase structural diversity with tree and shrub plantings, where suitable, and native grassland restoration in the agricultural areas.

#### 6.5 GREAT WESTERN OPEN SPACE

Priority Raptor Species: Red-tailed Hawk, Swainson's Hawk, Ferruginous Hawk, Bald Eagle, Prairie

Falcon, Burrowing Owl, Osprey

Features: Open water, Prairie Dog Colony

At 750 acres, Great Western Open Space which encompasses Great Western Reservoir, is one of the largest Broomfield open space land holdings. The property does not have public access given State protection requirements that must be met for Great Western Reservoir and the desire to protect public safety given the adjacent Broomfield Police Shooting Range. While the area features the reservoir, marsh and wet meadow wetlands, and mature trees, it is also home to an expansive prairie dog relocation area that is utilized for projects throughout Broomfield. The colony boundaries and densities can fluctuate year to year, as is common with prairie dogs in natural settings. In addition to raptors, an abundance of wildlife has been observed in the open space, including elk, coyotes, and rattlesnakes.

**Enhancement Opportunities:** Preserve prairie dog colony as a prey source and continue to supplement the prairie dog colony through on-going prairie dog relocation efforts. Continue to dust the colony for fleas and monitor prairie dogs to prevent plague outbreak. Consider installation of an osprey platform near the reservoir, as ospreys have been seen hunting, but not nesting at this time. Continue to restrict public use, especially for dogs. Restore native vegetation where feasible both inside and outside of the prairie dog colony north of the reservoir to promote existing wildlife habitat and wildlife use.

#### 6.6 HARMER OPEN SPACE

**Priority Raptor Species:** Great Horned Owl, Red-tailed Hawk, Swainson's Hawk, Prairie Falcon **Features:** Grassland/Agricultural Land, Mature trees, Community Ditch and Lateral Irrigation Ditches

Harmer Open Space is located east of County Road 7 and south of County Road 6 and west of Interstate-25. The 132 acres have been more recently acquired relative to the other Broomfield Open Spaces and do not currently have passive recreation features. The property remains largely in agricultural production, specifically in alfalfa hay and winter wheat. There are a series of irrigation ditches on the property, and some mature trees occur along the banks of the most permanent features (including Community Ditch). Owls and hawks are known to nest in this area. The intent is to complete a Management Plan for this site in the near future.

**Enhancement Opportunities:** There is potential to transition some agricultural fields to native grasslands to create more landscape diversity and encourage more wildlife usage, especially for prey species. The future management plan will provide information on what enhancements are recommended for this property.

#### 6.7 LAC AMORA OPEN SPACE

Priority Raptor Species: Bald Eagle, Great Horned Owl, Red-tailed Hawk, Swainson's Hawk,

Ferruginous Hawk

Features: Open Water, Mature Trees, Prairie Dog Colony

The Lac Amora Open Space is approximately 129 acres located between a residential development to the south and the Carolyn Holmberg Preserve at Rock Creek Farm Open Space to the north, which is owned and managed by Boulder County. Stearns Lake is located on the Boulder County property, and there is an active Bald Eagle nest near its south bank (as of the publication of this plan). There is a clear line of sight between the Lac Amora Open Space and the nest, though the distance exceeds the 0.5-mile "no human encroachment" buffer that is suggested by CPW during the nesting season. Broomfield and Boulder County have an intergovernmental agreement (IGA) and joint conservation easement that has resulted in communication and collaboration on management issues for Stearns Lake. At Lac Amora, there is also a small pond called Josh's Pond, mature trees, mature grassland areas, prairie dog colonies, and existing pole perches.

Enhancement Opportunities: Preserve the prairie dog colony as a prey source, while also considering landscape impacts, such as vegetation changes, and impacts to other surrounding land uses like residential properties. Consider installing signage or a viewing scope to encourage raptor watching at Stearns Lake. Continue coordination with Boulder County on raptor management in the region. A future overall management plan is slated for the site in the coming years, to define and preserve some of the different habitat types and niches across the open space, such as the prairie dog colony, wetland/riparian areas, and established stands of grasses. Protection of these different niches, like the stands of grasses adjacent to prairie dog colonies, can support a more diverse range of raptors and help preserve different character zones within the open space.

#### 6.8 MARKEL OPEN SPACE AND WOTTGE OPEN SPACE

Priority Raptor Species: Great Horned Owl, Red-tailed Hawk, American Kestrel

**Features:** Open water, mature trees

At 25.7 acres, Markel Open Space is the smallest property on this list, located in a residential area at W 136<sup>th</sup> Avenue and Aspen Street. There is a small pond that has mature trees suitable for nesting or roosting. Community Ditch also occurs along the southern boundary of Markel and supports several mature trees that have hosted successful raptor nests (Great Horned Owl and Red-tailed Hawk) in recent years. Wottge Open Space, located just northeast of Markel, is larger at nearly 75 acres. The majority of the property is currently being maintained as an agricultural field, but the property also has a mature cottonwood tree and a shallow drainage swale on the southern end. Management plans for both properties were approved in December of 2023 and incorporate passive recreation features as future improvements, such as trails and interpretive educational signage. Enhancements of native vegetation are also a key part of each plan.

**Enhancement Opportunities:** In consultation with the existing management plans for these properties, implement vegetation enhancements that would improve wildlife habitat, including native grassland establishment and tree plantings where appropriate.

#### 6.9 METZGER FARM OPEN SPACE

Priority Raptor Species: Great Horned Owl, Red-tailed Hawk

Other Notable Bird Species: Great Blue Heron, Black-crowned Night Heron

Features: Heron Rookery, Habitat Diversity, Open Water, Mature Trees, Riparian Area

The Metzger Farm Open Space is jointly owned and managed by the City and County of Broomfield and the City of Westminster. It is located on the northeast corner of W 120<sup>th</sup> Avenue and Lowell Boulevard, and all 152 acres are located within the City of Westminster within Adams County. Big Dry Creek flows through the southeastern corner of the property, and there are also two ponds located south of the farmstead area. The western pond has filled in with cattails and other vegetation. The open space, therefore, features a variety of habitat types, including wetlands, grasslands, riparian areas, and open water. A Great Blue Heron rookery is located in the mature trees between the creek and the eastern pond, and successful breeding has been documented for many years. Great Horned Owls and Red-tailed Hawks have also nested on this property.

The property was acquired in 2006, and the Metzger Farm Open Space Master Plan was approved for the property in 2010. The property opened to the public in 2012. The management of the property is also overseen by a Broomfield-Westminster Metzger Open Space Foundation, and any changes or improvements to the property would need to be coordinated with Westminster.

**Enhancement Opportunities:** Install potential nest boxes on trees facing open areas away from human activity areas. Add additional native plantings and vegetation restoration and consider raptor friendly design in future improvements to the farmstead area.

#### 6.10 PLASTER RESERVOIR OPEN SPACE

Priority Raptor Species: Great Horned Owl, Red-tailed Hawk, Swainson's Hawk, Bald Eagle

Other Notable Bird Species: Great Blue Heron, American White Pelican

Features: Open Water, Mature trees, Riparian area

Plaster Reservoir is an open space property located northeast of W 136<sup>th</sup> Avenue and Lowell Boulevard and west of Legacy High School. At 45.3 acres, it is one of the smaller holdings on this list. It is almost entirely surrounded by development, but its expansive open water, marsh wetlands, and mature cottonwood overstory provide excellent habitat for many raptors and water bids alike. According to the online birding platform eBird (2022) which is run by the Cornell Lab of Ornithology, Plaster Reservoir is considered a birding hotspot that exhibits some of the greatest bird diversity in Broomfield. As of August 2022, over 200 bird species have been observed at the reservoir, almost twenty more than the nearby and larger McKay Lake.

**Enhancement Opportunities:** Install hunting perch and/or osprey platform on the west side of the reservoir where there are fewer trees. Reference the existing Plaster Reservoir Open Space Management Plan for additional recommendations for wildlife habitat improvements.

#### 6.11 RIDGEVIEW OPEN SPACE

Priority Species: Red-tailed Hawk, Swainson's Hawk, Burrowing Owl, Bald Eagle

Features: Grasslands, Prairie dog colony

Similar to Anthem Ranch, Ridgeview serves as a buffer between the Ridgeview residential development to the east and US 287 to the west. Ruth Roberts Preserve Open Space, which is jointly managed through an Inter-governmental Agreement with Boulder County and joint conservation easement, is located to the north. Ridgeview encompasses approximately 78 acres of primarily grasslands with some intermittent swales and dispersed trees. A system of trails passes through the eastern extent of the open space, near the residential area. Prairie dogs are active in the area, though they are managed near the homes and trails per the Broomfield Policy for Prairie Dog Conservation and Management.

**Enhancement Opportunities:** Continue coordination with Boulder County on raptor management in the region. Install educational signage to encourage raptor viewing and best management practices. Install raptor perches and preserve prairie dog habitat to the extent allowed given the Broomfield Policy for Prairie Dog Conservation and Management's goal to also avoid conflicts with developed areas.

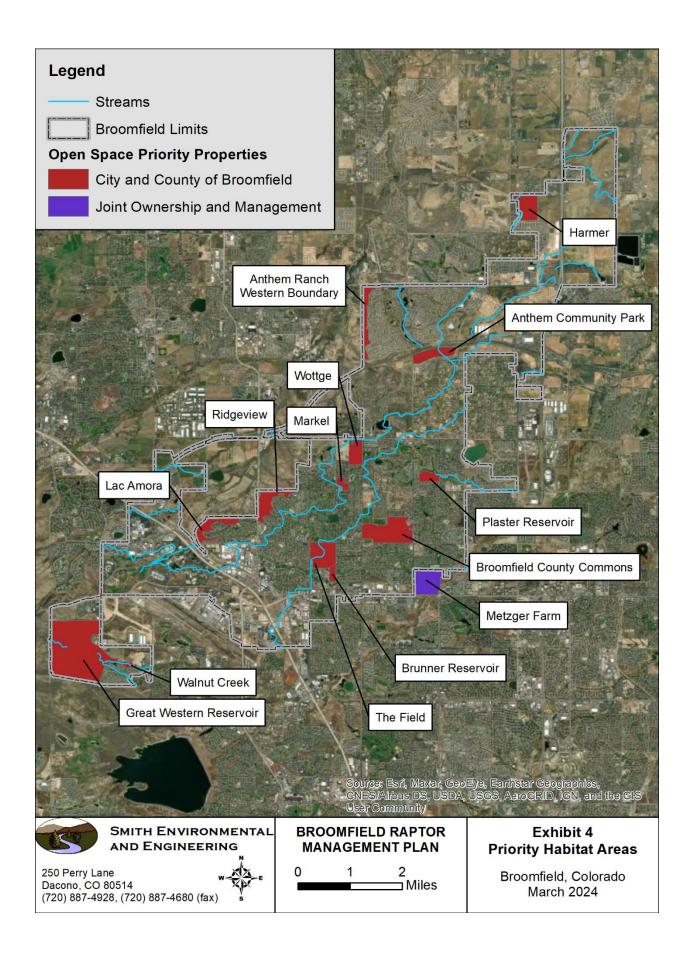
#### 6.12 WALNUT CREEK

**Priority Species:** Great Horned Owl, Red-tailed Hawk, Bald Eagle, American Kestrel

Features: Mature trees, Open Water, Drainageway, Riparian area

The Walnut Creek drainageway is located north of Skyestone Parkway and west of Simms Street, to the east of Great Western Reservoir. The creek meanders through a natural riparian area and features two open water ponds on its southern side. There are large cottonwood trees with high quality nesting sites, particularly on the western side of the drainageway. There are also smaller trees, shrubs, willows, and some wetland vegetation along the creek.

**Enhancement Opportunities:** Increase structural diversity with tree and shrub plantings where suitable. Consider possible kestrel box installations where suitable.



#### 7.0 PLAN RECOMMENDATIONS

In acknowledgement of the complexity of conservation, habitat management, and urban ecology, the Plan recommendations have been organized around three central goals, listed below:

- 1. Engage and educate the community
- 2. Develop a raptor monitoring program
- 3. Enhance and protect raptor habitat within Broomfield

The following recommendations are generally intended to be responsive to the sources of raptor injuries and fatalities identified in Section 5. The proposed actions are designed to be implemented or undertaken at the municipal level, primarily by Broomfield staff and volunteers. Not all causes of raptor injuries and fatalities can be addressed by direct, municipal action, but they can be targeted with a focus on public education and promotion of best management practices in some key areas.

Exhibit 5 summarizes the plan recommendations and identifies implementation mechanisms, responsible parties, and potential prioritization based on current feasibility. Elements of the plan can continue to be implemented as funds and resources allow as approved by the City Council.

#### 7.1 ENGAGE AND EDUCATE THE COMMUNITY

The causes of raptor fatalities identified in Section 5.0 cannot be entirely addressed through policy or enforcement, because they are often a response of human behavior. Community outreach is a positive way to engage residents in learning more about raptors and promoting best-management practices across the community. This approach has the potential for the widest reaching impact of municipal actions. Below are recommendations for engagement.

#### 7.1.1 Develop Raptor-specific Interpretive Signage

Signage is perhaps one of the most cost effective tools to engage the public where they are most likely to encounter raptors: in public parks and open spaces. Interpretive signs can be utilized to educate and promote safe wildlife viewing. Signs would be most effective if deployed in areas with known raptor activity and could include visual displays to help visitors identify local species and understand the raptors' use of the space. Signage can also be used to promote raptor-friendly behaviors. Fishing ponds can include signage about the dangers of lead poisoning and direct anglers to information on alternatives to lead tackle. Signage can also promote safe disposal of used fishing line, ideally with on-site disposal tubes, and this information can be promoted at event outreach/education tables as well. The intent is to use strategically placed signage that will provide helpful information, while avoiding sign clutter.



Broomfield already has several interpretive signs throughout Open Space that educate the public on the birds they may encounter in that area, including waterfowl and some raptors (see example in photo). Broomfield also has deployed fishing line disposal tubes with signage at three ponds. Interpretive signs and these line disposal tubes could continue to be deployed throughout Broomfield to continue these efforts in educating the public. The desire for more educational signage was a stated goal based on public feedback in the Open Space, Parks, Recreation, and Trails (OSPRT) plan that was updated and adopted in 2024, so the addition of educational signage is known to be desired by residents and will further OSPRT Plan goals.

#### 7.1.2 Continue to Expand Website Resources

The existing City and County of Broomfield Open and Space Trails website (broomfield.org/openspace) can serve as a comprehensive resource for anyone seeking more information on raptors and the Raptor Management Plan. A list of raptor-related best management practices (BMPs) that individuals could implement to minimize the risk of raptor mortality could be a useful resource on this website. These BMPs would include items such as cleaning bird feeders (or removing them during disease outbreaks), keeping pets indoors unless supervised, keeping dogs on a leash, keeping garage and barn doors closed when not in use, using window clings or decals that make glass visible to birds to minimize window strikes, and properly storing and disposing of toxic chemicals.

Additionally, the Open Space and Trails website (and printed materials) could feature key information to respond to some specific causes of raptor injury and fatality (as researched and discussed in Section 5), including information on:

- The particular dangers to raptors related to the use of lead fishing lures and chemical rodenticides for rodent poisoning (particularly anticoagulants and baits).
- How to report disease outbreaks (such as Avian Flu occurrences), injured birds, and active nesting sites to staff.
- Lights Out Colorado information that explains how artificial lighting can severely impact migrating birds' ability to navigate, especially since many species are most active at night. The Dark Sky Society has guidelines on the types of lighting fixtures that minimize impacts, while still being effective and ensuring security and safety measures. Please see Appendix H for more information on lighting, dark skies efforts, and recommendations.
- The volunteer monitoring program and trail closure information.
- Best ways to promote raptor habitat in residents' own backyards, which could include the
  above BMPs as well as how to create habitat through planting native plants including
  shrubs that can be utilized as perches, by raptors and other birds or through planting
  native grasses that promote pollinators and, in turn, a prey-base for raptors.

#### 7.1.3 Develop a Brochure

While the website page will be the official repository for raptor information, it requires interested parties to seek out the information. A well-crafted brochure, similar to engaging, strategically located signage, is a way to provide information to residents in-person. Broomfield Open Space and Trails hosts and participates in multiple public events throughout the year. Providing a brochure at these functions is a good way to get the highest priority messaging out to the public, while also directing them to the website for more detailed information. A more extensive document (such as a booklet) may also be valuable in the long-term, but a trifold brochure can be created as an initial step. This brochure could feature practical information for Broomfield residents and things that they can do to support raptors in their own yards. The BMPs listed in 7.1.2 can also be referenced in this brochure.

#### 7.1.4 Encourage Prompt Reporting of Roadkill

Vehicle collisions with raptors are the leading reported cause of raptor injuries in urban areas, and it is unfortunately one of the most challenging issues to address. Pursuing changes to driving habits, location of roadways, or speed limits would be outside of the scope of this plan. Instead, this plan focuses on methods to decrease the amount of time that raptors spend near active roadways. Raptors are often struck while hunting or foraging, because their prey is also often injured or killed by vehicle collisions. Roadkill removal is a dangerous and often unnoticed task, but removing roadkill as promptly as possible could help reduce the death or injury of raptors by vehicle strikes. The reporting of roadkill occurrences is one tool to promote prompt removal. Information on how to report roadkill observations to Broomfield Police Dispatch will be provided on the Open Space and Trails website and can be shared at public events, printed on outreach materials, and promoted through volunteer groups such as the Wildlife Masters.

#### 7.1.5 Develop Design Information on Bird-friendly Windows

The Open Space and Trails Department can provide information on bird-friendly window options and design considerations for the public and Broomfield staff to minimize raptor injuries. Most residential units do not constitute a substantial risk or they can be mitigated with lower cost solutions such as temporary window clings (patterned, transparent films), stickers, or blinds, all of which can make windows more visible to birds. Minimizing window strikes is dependent upon the building and resources available to the building owner. Development applicants and residents could be provided with information and options for window designs that minimize bird strikes. The American Bird Conservancy has a "Bird-Friendly Building Design" publication that details solutions such as awnings, external nettings or screens, patterned glass, angled glass, and opaque or translucent glass (Appendix F).

#### 7.1.6 Recommend Bird-friendly Lighting

Artificial lighting can severely impact migrating birds' ability to navigate, especially since many species are most active at night. Broomfield should evaluate the best strategies to strike a balance between security lighting needs to protect human life and property while also minimizing impacts on wildlife. The Dark Sky Society has guidelines on the types of lighting fixtures that are acceptable and unacceptable (Appendix F-H). Good lighting should point downward, have shielding on the sides, and have low color and intensity. New developments should be encouraged to utilize acceptable fixtures that reduce glare.

#### 7.1.7 Continue Collaboration with Partners

Where relationships between the City and County of Broomfield and community partners already exist for community education, engagement, and collaboration, those resources can be utilized. Through leveraging existing networks, volunteer groups, and events, time that would typically be spent developing new outreach methods can instead be used to focus more fully on messaging. For instance, Colorado Parks and Wildlife, Broomfield Wildlife Masters, Broomfield Nature Program, Broomfield Open Space Foundation, and Broomfield Bird Club are existing groups of knowledgeable individuals who frequently engage with the public.

Broomfield is also now officially designated as a Bird City through Environment for the Americas (EFTA). The City and County of Broomfield can utilize that program, the marketing reach of EFTA, and Broomfield's Bird City website (<a href="mailto:birdcity.org/colorado/broomfield">birdcity.org/colorado/broomfield</a>) for additional outreach. Coordinating messaging and information with these groups can reach and engage more individuals than could be done with Broomfield staff alone.

Additionally, neighborhood groups and homeowners' associations have established leadership structures and regularly scheduled meetings; reaching out to these groups to engage with their members would help target information to particular locations and urban issues. Lastly, Broomfield should continue to collaborate with its municipal and county partners, especially those that abut or jointly manage Broomfield properties.



#### 7.2 DEVELOP A RAPTOR MONITORING PROGRAM

The development of a monitoring program will enable the City and County of Broomfield to evaluate and determine the success of the implementation of other raptor habitat enhancement strategies. Without a formalized way to track raptor breeding in Broomfield, it is more difficult to determine if any actions taken to minimize injury or enhance habitat are successful. For example, nest boxes could be installed and utilized by raptors, which would initially seem like a successful effort; however, a comprehensive monitoring program may indicate that the total number of nesting locations remains constant, implying that breeding pairs have merely changed nesting locations. Alternatively, monitoring after nest box implementation could potentially indicate a decline in active nest sites, which would require a more thorough evaluation of the program to determine if the boxes are beneficial to raptor populations. Additionally, the importance of raptor data can be a valuable indicator for overall habitat quality and ecosystem health.

Many municipalities in the Front Range have monitoring programs that utilize a combination of staff and volunteer resources (discussed in Section 3.2). Broomfield currently has an eagle watch program that could be expanded to a more comprehensive Broomfield raptor nest monitoring program. This program could then be utilized to facilitate the sharing of data and collaboration with surrounding communities. Furthermore, a volunteer monitoring program would help achieve a secondary goal in providing a platform for public education and further community engagement in raptor preservation.

While the program can be designed and adapted to fit Broomfield's unique conservation goals and resources, several key steps are recommended:

#### 7.2.1 Develop a Database of Nest Locations

At a minimum, it is recommended that Broomfield develop and maintain a database of known raptor nest locations. A GIS-based platform is recommended so that nest locations can be easily spatially referenced. Ideally, this would be an internal document accessible to multiple Broomfield departments, which could facilitate departmental collaboration while reducing the workload on any one department. Broomfield Open Space and Trails volunteers or contractors may also be provided with access, but editing privileges should be reserved for Broomfield Open Space and Trails staff (or data entry volunteers under direct supervision). A public-facing, web-based data entry tool could be developed to provide additional data for private properties within Broomfield, but nest locations should not be viewable to the public to minimize nest disturbance or potential trespassing. This database could start out as a small list of currently known nesting locations and grow over time as additional sites are identified.

#### 7.2.2 Develop a Set of Monitoring Protocols

Data are most valuable when they are collected in a consistent and uniform manner. For raptor nest monitoring, this includes factors such as the timing and duration of the survey, frequency of site visits, distance between the viewer and nest, and types of information recorded. For instance, federal requirements for Bald Eagle monitoring include eagle behavior and human activity recorded in 15-minute intervals for four hours beginning at sunrise.

Most monitoring programs in the Front Range are far less intensive. The City of Longmont asks volunteers to commit to at least 30 minutes per week while a nest is active and to record observed behaviors. The Town of Superior also has a volunteer-led nest monitoring program, which Broomfield can potentially coordinate with for training and ideas. At a minimum, nests can be assessed seasonally to determine if they are active, which species is nesting, and how many chicks have fledged. The exact protocols should be determined by Broomfield and should directly correspond to programmatic goals. Staff and volunteers should try to utilize the same monitoring protocols to the extent possible.

#### 7.2.3 Recruit and Train Volunteers

Volunteers can serve as resource advocates to the community at-large and can become helpful citizen scientists. Volunteers also are a great support to staff and can decrease staff time spent on some tasks. But they do not eliminate staffing needs, as volunteer oversight, training, coordination, and appreciation are essential for an effective volunteer program. For a new monitoring program, it is recommended to begin with a "pilot" program of a small group of volunteers who have nest monitoring experience. After a season with this group, it will be helpful to discuss what worked well and what could be improved before inviting new volunteers to join the program. An application process is recommended to convey the expectations and responsibilities that will be asked of participants.

#### 7.2.4 Identify Monitoring Areas and Assign Them Annually

While Broomfield is a relatively small county, it contains thousands of trees and hundreds of acres of usable habitat. The GIS database should be used to determine where nests are and which locations can be easily (and legally) monitored. Nests on open space, other open lands, or other Broomfield-owned properties, especially those near trails or recreational areas, should be the highest priority. Jointly managed lands, privately managed parklands, rights-of-way, and other publicly owned facilities can be included as appropriate, but private property generally should not be included within this database unless the landowner has expressly authorized monitoring (and ideally conducts it themselves). Monitoring areas should be assigned to staff and volunteers as appropriate to ensure that monitoring efforts are not duplicated and priority areas are not missed.

#### 7.2.5 Collect, Enter, and Analyze Monitoring Data

While data collection is often the easiest (and most fun) part of the program, advance consideration needs to be given to the data entry and analysis phase. Monitoring data must be assessed to be incorporated into decision making and analysis of how/if the implementation of the raptor measures are successful or beneficial. Prior to implementing a monitoring program, there should be a consideration of how data are entered, by whom, and what is done with the information collected. Nest data and locations can also be collected and compiled from other resources, like environmental reports and 20-day clearance letters for development projects. This information should be combined with the information from the monitoring program, to develop a more comprehensive database of nest information. An annual report may be appropriate once the program is established.

#### 7.3 ENHANCE AND PROTECT RAPTOR HABITAT

While many species of raptors call Broomfield home, there are always improvements that can be made to encourage greater diversity and frequency of raptor use and hopefully more breeding success. These steps correspond with many of the suggestions made for specific properties in Section 6, and build upon why these actions could be beneficial and how best to implement them. As previously stated, each recommendation is not suitable for every site. Each species has different needs and preferences, and some will be more attracted to an area than others. Habitat enhancements must work within this existing paradigm of habitat suitability. Additionally, this section will deal with reducing habitat loss and protections from dangers, such as entanglements from things like fishing line at ponds, barbed-wire fencing, and netting at athletic fields.

#### 7.3.1 Promote ecological restoration.

Ecological restoration will promote healthy ecosystems through providing an array of habitat and food resources for a variety of organisms. Adding habitat will directly benefit raptors through the provision of perches and areas to nest, and indirectly support raptors through supporting the habitat and resources for their prey to reproduce and flourish. In addition to the raptor restoration sites identified in Exhibit 4, native restoration projects in highly disturbed areas and on agricultural land will also benefit raptors. Many ecological management practices refrain from focusing on single-species or a single type of wildlife management because these practices often do not fully acknowledge the interconnectedness of ecosystems. Building a hunting perch in an agricultural field is well-intentioned, but if the vegetative and invertebrate communities cannot support adequate prey populations raptors cannot thrive. An osprey platform near a reservoir will only be utilized if the water quality in the reservoir is good enough to support an aquatic community of vegetation, invertebrates, and fish. Viewed from this ecosystem perspective, any effort taken to improve overall ecosystem health and resiliency in Broomfield is an effort to enhance habitat for raptors. This is especially true due to raptors' position as predators within the food chain; enhancements to vegetation and lower feeding levels will in turn better support predator populations.

It is important to visualize landscapes, even on a small scale, as diverse ecosystems. There is no single habitat type that suits all raptors. Red-tailed hawks and great horned owls will hunt prairie dogs in short-grass prairie, but other species are too small to hunt prairie dogs. Kestrels and harriers need taller grasses and forbs to hunt effectively. Cooper's Hawks eat mostly small birds and are usually found in trees. Thus, it is important to conduct restoration and management activities with diversity in mind. In respect to publicly owned open space, a property management plan for larger properties can be effective in defining a vision of diversity unique to that property and providing the mechanisms for achieving it. Many of the municipalities discussed in Section 3.2 utilize this approach of site-specific habitat planning. The Broomfield County Commons Open Space Management and Master Plan, for example, divides that property into specific character zones, with each zone hosting vegetation and habitat that can support different wildlife needs.

As Broomfield continues to implement restoration within its open space system, areas of known or potential raptor habitat can be used to prioritize projects and funding. For instance, an area that already exhibits high quality habitat may achieve only incremental improvements following a restoration investment, but an area with moderate levels of disturbance or degradation may require only a few key enhancements to achieve significant results. Likewise, an area that is significantly degraded may require a substantial effort to achieve tangible results and would be best suited for long-term conservation planning.

### 7.3.2 <u>Support the installation of nesting boxes for kestrels and small owls at open space properties where appropriate.</u>

While there is a preference to focus on natural habitat and for raptors to utilize natural nesting sites, some raptor species have adapted quite well to human spaces and will even readily use artificial nest boxes installed on buildings or trees. The boxes can be very simple to construct (see Appendix D) and install, but careful consideration should be given to their location and placement. Unshaded, south-facing areas should be avoided as they can become very hot and may cause nest failure. Areas that experience a high level of human disturbance are also not preferred. That is not to say humans cannot be present at all within the area of a nest box, but rather their use should be low-impact and predictable. Nesting boxes designed for kestrels may also be used by smaller owls (like barn owls and saw whet owls).

Open space properties like Metzger Farm and The Field are suggested for potential nest box installation, as deemed appropriate at the site, and more properties can be added if the nesting boxes are successful. Nest box planning and implementation should also consider the potential capability for maintenance and cleaning, as needed and be realistic given staffing constraints. The possible need for general and periodic cleaning of the nesting boxes should be coordinated with potential staff or volunteer capability prior to installation, to ensure that the nesting boxes are utilized and can function as intended in a sustainable way. Broomfield could participate in the installation and monitoring of kestrel boxes led by Jennifer Redmond and the Colorado Avian Research and Rehabilitation Institute. This program was presented as part of the Broomfield Open Space Speaker Series in April 2024.

#### 7.3.3 <u>Install osprey nesting platforms at open space properties with large water bodies.</u>

Osprey are known to nest in the Colorado Front Range, and if located appropriately, ospreys will build nests on constructed elevated platforms. There are several suitable designs (Appendix E), but the most important features include sufficient height to discourage predators and allow a clear view of the surroundings (10-20 feet) and the ability to hold up to 300 pounds as osprey can build extensive (and heavy) stick nests. There is no guarantee that osprey will use a platform if constructed. However, these platforms (and other structural-

type enhancements) can be viewed as relatively low-cost experiments. If the platforms are not utilized, they can be removed or relocated. At this time, Plaster Reservoir, Great Western Reservoir, and Siena Reservoir would be recommended as possibilities, but other potential sites could be considered in the future, if deemed applicable.

Several municipalities (City of Boulder, City of Loveland, Boulder County) have set up "osprey cams," which are wildlife cameras focused on



active osprey nests. If a platform in Broomfield is utilized by a breeding pair, a camera is an excellent tool to engage the public in raptor and conservation issues.

#### 7.3.4 Install hunting perches in areas that lack mature trees.

Artificial perches can be installed to facilitate raptor hunting in areas that lack mature trees, especially in areas with known prey populations like prairie dog colonies. These can also become very popular features for wildlife viewing and photography. Broomfield staff and volunteer groups have installed a number of pole perches to date. However, not all species will readily use hunting perches, and installing them in some areas may have the effect of altering the competitive balance between species. Ferruginous hawks, for example, often hunt from the ground or from a low flight and can thus be outcompeted by the more common Red-tailed Hawks that might utilize a perch.



An objective of this plan is to preserve the diversity of habitat niches that help support different raptor species and their particular hunting styles. Therefore, additional hunting perches may not be recommended at sites that commonly feature non-perch hunting raptors, like ferruginous hawks and northern harries. In general, an analysis of which raptors are commonly seen at a site will help to evaluate which sites are more appropriate for perch installations. Currently, that analysis is considered with the habitat enhancement recommendations in Section 6, but the prominent species at a site could change over time and the planning of a perch installation should rely on the most current information available.

7.3.5 Monitor and preserve prairie dog colonies where possible and in alignment with property management plans or policies. Evaluate the potential for flea dusting or plague vaccine bait for vulnerable or highly desirable colonies when practical. Though raptors consume a variety of rodent species, smaller birds, fish, and occasionally reptiles and amphibians, prairie dogs are also a component of the diets of many of the commonly observed raptors in Broomfield. In public spaces where prairie dogs are currently preserved, efforts should be taken to maintain the viability of these populations as a source of prey for raptors. The biggest natural threat to such colonies is the sylvatic plague, which is a bacteria disease spread by fleas. Plague can cause mass die-offs in prairie dog colonies, and it can take years for the survivors to recover the colony to pre-plague populations.

If Broomfield identifies prairie dog colonies that are particularly vulnerable to plague or are in a highly desirable area for prairie dog and raptor habitat, flea dusting can be utilized to prevent plague outbreaks. Broomfield has already taken this initiative at Great Western Reservoir Open Space, which is a prairie dog relocation site and is currently dusted with an insecticide annually to control fleas.

Continued coordination with Colorado Parks and Wildlife staff will be necessary to evaluate additional measures to prevent plague outbreaks, such as the potential use of vaccines. Broomfield has reviewed the possibility of using plague vaccine baits at a site like Great Western Reservoir Open Space in recent years. Due to limited availability of the vaccine baits in general, and limited testing data available at the time of this plan's development, that has not been deemed viable. However, the use of vaccine baits could be reviewed as a management possibility in the future.

In regards to prairie dogs possibly being struck by vehicles and becoming a danger for scavenging raptors, habitat improvement considerations, like the placement of nesting boxes or perches, can be designed to avoid placement close to major roadways. Lastly, one design consideration for the planning for any future prairie dog preserves or relocation sites will be to consider avoiding close proximity to roadways, as much as possible. However, given the challenges of locating relocation sites, numerous other factors are also critical to evaluate such as proximity to residents, habitat quality, and size of the site.

# 7.3.6 Continue to utilize mapping and GIS/GPS data collection to develop nesting database and make informed decisions regarding development projects and nest disturbances.

This is the natural extension and application of the data collected from the monitoring program (Section 7.2). Once the known nest locations and use areas in Broomfield are better understood, minimizing disturbance to ensure breeding success is the next step. This data on nesting sites combined with information received from 20-day environmental clearance letters can inform the need for trail closures, additional monitoring, or other mitigation measures. There is no approach that will be the same for all raptor species, and many species have exhibited tolerance to human use in urban and natural areas.

Construction projects or other large activities proposed within the vicinity of an active nest should continue to have a set of procedures to determine when and how they should proceed, in accordance with the 20-day letter review and provisions. To the extent practicable, such projects should be scheduled outside of the nesting period. When this is not possible, consideration should be given to the species (and their tolerance of disturbance), the presence of natural screening (such as mature trees), the extent and condition of baseline levels of disturbance, and the proposed increase in disturbance.

#### 7.3.7 Provide fishing line disposal tubes at heavily used fishing areas.

An actionable response to raptor entanglement is the presence (and maintenance) of fishing line disposal tubes at fishing areas. While many species can become entangled in discarded fishing line, it is a heightened concern for osprey, which nest near water bodies and have been known to add fishing line to their nests. Disposal tubes are often located near trash cans, but the installation of specific tubes can allow the line to be recycled if a suitable program exists. They are only effective if they are emptied and maintained, as an overflowing bin can attract attention and have the opposite effect. Their use can be maximized when installed together with strategic educational signage (Section 7.1).

#### 7.3.8 Work to reduce the risks of entanglement in athletic field netting.

Entanglement in soccer nets was noted by several of the raptor rehabilitation facilities, especially for species such as owls that are active at dusk and night. Many goal frames on athletic fields in Broomfield are already furnished with clips to attach the nets in most cases, allowing for the nets to be easily lowered when not in use. Broomfield staff currently attempts to lower the nets when not in use on City-owned fields, but the fields are reserved and operated by 3rd parties in most cases. Efforts to promote this practice of lowering nets can be promoted and requested of 3rd parties as well, which will require communication with the private soccer clubs, lacrosse clubs, and other users who commonly reserve the fields. Local schools could also be encouraged to remove nets when not in use, when possible, as schools operate soccer and lacrosse fields in Broomfield on their own properties.

This effort will involve Open Space and Trails staff preparing information to share with Broomfield Parks, Recreation and Senior Services to see if it could be added to reservation application paperwork or other materials that are shared with the schools. Discussion with Broomfield Parks staff has already taken place on this topic and coordination will be ongoing with the Parks staff assigned to athletic fields. This practice will benefit not only raptors, but other wildlife that have been known to become entangled in netting.

#### 7.3.9 Recommend wildlife-friendly fencing for open space properties.

Though ubiquitous in the American West, barbed wire fencing is generally bad for wildlife. Raptors use many human structures for perching, including fence posts, and they can become entangled and injured on barbed wire. The use of barbed-wire in Broomfield is already limited by the Municipal Code in Section 17-32-140. For properties where fencing is still necessary, barbed wire can be replaced with an alternative wildlife-friendly fence. CPW has published recommendations for specific uses that can be consulted on a case-by-case basis. Fencing installed at the Great Western Reservoir property in 2023 is a good example of wildlife-friendly design for new fencing or replacement fencing projects. Additionally, if properties are identified that do not require any form of fencing, it should be removed entirely. If there are private properties with barbed wire that represent a specific concern due to wildlife activity in the area, Broomfield could seek coordination with landowners to encourage fence replacement.

### 7.3.10 Support existing tree and shrub replacement programs and continue to protect and preserve existing mature trees where possible.

Habitat on private land cannot be protected in the same ways that publicly owned spaces can, but there are mechanisms that can be used to minimize impacts or mitigate losses from development. Broomfield Parks staff currently has a tree and shrub replacement program in place for Broomfield projects, and logistics like irrigation, soil conditions, and species choice are reviewed to make effective decisions. The development review process is also an opportunity for Broomfield staff to review site characteristics of a property and attempt to preserve habitat niches, like mature trees and vegetation. Broomfield is also developing a Tree Preservation Ordinance (in process at the time of writing this plan and slated for review and approval in 2024).

#### 8.0 CONCLUSION AND IMPLEMENTATION

The City and County of Broomfield provides habitat for at least 21 raptor species. An expressed interest in the well-being and continued success of these species motivated staff, residents, recreators, and wildlife advocates to pursue the development of a comprehensive raptor management plan.

Exhibit 5 summarizes the proposed recommendations, which can be categorized as public education, monitoring, and habitat enhancement and protection. These recommendations are a targeted approach to promote raptors based on the research summarized throughout this plan (or similar). Ultimately, the decision of which actions to implement and when depends on resource availability. Raptors represent a segment of the overall wildlife population in Broomfield, and their management priorities must be balanced with the needs of the entire community.

The following items have been identified as key actions for Broomfield staff to implement:

- 1. Creation and promotion of key education and outreach materials, accessible from the Open Space and Trails website and as printed materials, including:
  - a. List of bird friendly features and ideas for residential yards
  - b. Information on Lights Out initiatives and lighting recommendations
  - c. Information on reporting of roadkill observations
  - d. Information for developers on bird-friendly windows, fencing, and lighting design
- 2. Development and implementation of a pilot nest monitoring program.
- 3. Planning and implementing habitat improvement and restoration projects on key properties.

Management plans function best as living documents. As recommendations are implemented, site conditions will change. Over time, communities - and their management priorities - can also change. Revisiting and updating this management plan every 10-15 years is advisable. This will allow the document to remain a valid reflection of the community and continue to provide scientifically sound management recommendations.

Exhibit 5. Recommendations Summary Table

Exhibit 5. Recommendations Summary Table								
Actions	Action Type	Collaborating Groups*	Phase	Opportunities	Constraints			
Goal 1: Engage and educate the community.								
1.1: Develop raptor-specific interpretive signage. Post signage in areas with known raptor activity (Metzger Farm, Plaster Reservoir, Lac Amora) to encourage respectful behavior and provide tips for optimal viewing. Post signage at fishing ponds that discourage the use of lead fishing tackle and emphasize the importance of removing fishing line.	Infrastructure	OST	Mid-term	Meets the public where they are. Direct response to feedback from residents requesting additional educational signage during Open Space, Parks, Recreation and Trails Plan update.	Requires initial investment in design and installation. Potential for vandalism. Ongoing maintenance required.			
<ul> <li>1.2: Continue to expand website resources. Develop an educational website with "Raptor BMPs" that can be implemented by individuals, including: <ul> <li>Discourage the use of lead fishing tackle and lead shot and recommend alternatives.</li> <li>Summarize the laws that protect birds and emphasize that shooting any raptor, intentionally or accidentally, is illegal.</li> <li>Provide contact information for reporting roadkill and disease outbreaks.</li> <li>Provide information for reporting raptor nests (outside of the monitoring program).</li> <li>Describe methods to minimize window strikes at homes and businesses (films, decals, screens, etc.). Encourage "lights out" during migratory periods.</li> <li>Encourage proper storage of outdoor netting when not in use.</li> <li>Provide information for assisting sick and injured birds, including tips for assessing whether or not juvenile birds need assistance.</li> <li>Describe proper cleaning processes and frequencies for bird feeders to prevent disease.</li> <li>Describe practices to minimize mosquito breeding habitat in yards.</li> <li>Strongly encourage pet owners to closely supervise dogs and cats when outside and to keep all pets leashed in open spaces. Cats especially should not be allowed to roam freely.</li> <li>Keep garage and barn doors closed when not in use.</li> <li>Provide guidance on inspecting trees for raptor nests prior to trimming or removal. Emphasize the importance of hiring arborists who are licensed and prioritize wildlife protection.</li> <li>Provide information on use and storage of pesticides, especially rodenticides.</li> <li>Provide information on participating in the volunteer monitoring program.</li> <li>Announce trail closures related to active nest sites.</li> </ul> </li> </ul>	Outreach	OST	Near-term	Provides a single repository of information that is easily accessible. Includes references for additional information or action on specific issues. Little maintenance effort once active.	Requires staff hours to generate content and ensure that information is accurate, accessible, and up-to-date. Requires City and County resources for web hosting.			
<b>1.3: Develop a brochure</b> with abbreviated BMPs that can be distributed at OST and Parks events.	Outreach	OST	Near-term	Engages the public at events.	Requires staff hours to generate and distribute content.			
1.4: Encourage and promote prompt reporting of roadkill. Disseminate phone numbers and reporting protocols through the brochure and website.	Outreach	OST	Near-term	Potential to reduce vehicle strikes.	May increase workload on police and animal services.			
1.5: Share design information on bird-friendly windows.	Outreach	OST, Planning	Near-term	Potential to reduce window strikes.	Potentially controversial for the development community.			
1.6: Recommend bird-friendly lighting.	Outreach	OST, Planning	Near-term	Potential to reduce strikes and disruption to migration.	Potentially controversial for the development community. Potential public safety concerns.			
1.7: Continue collaboration with partners. Collaborate with the Broomfield Wildlife Masters, Broomfield Nature Program, Broomfield Open Space Foundation, and Broomfield Bird Club to generate educational content and address common concerns. Coordinate efforts with municipal partners and local homeowners and neighborhood associations.	Outreach	OST	Near-term	Ensures consistent messaging and maximizes reach of efforts. Cross jurisdictional efforts enhance regional breeding success. Can reduce workload on staff.	Requires staff hours to generate and share content. Must ensure compatibility of missions and goals and minimize conflicts of interest.			

<sup>\*</sup>Open Space and Trails staff is responsible for coordinating with the appropriate staff, as noted below for each of the Actions as listed in the table.

Actions	Action Type	Collaborating Groups*	Phase	Opportunities	Constraints
Goal 2: Develop a raptor monitoring program.					
<b>2.1: Develop a database of nest locations.</b> While this database will be accessible only by Broomfield staff, a public-facing tool should be available to the public for data entry.	Program	OST/IT	Near-term	Data on nesting is needed to assess success of implemented practices and for decision-making on trail closures and priority areas.	Will require extensive coordination between OST and IT staff. Resources for development and hosting required.
<b>2.2: Develop a set of monitoring protocols.</b> Utilize tools and knowledge from other municipalities with similar programs.	Program	OST	Near-term	Will ensure data collected is standardized and robust. Detailed information already available from other programs.	May be some conflict between municipalities and volunteers on priorities.
<b>2.3: Recruit and train volunteers.</b> Begin with a "pilot program" of current volunteers and expand to the broader public.	Program	OST	Mid-term	Pilot program will allow time to identify what works and does not. Use of volunteers minimizes staff time (in the long-term).	Will require extensive staff time and investment.
<b>2.4:</b> Identify monitoring areas and assign them annually. Utilize trained staff to oversee monitoring data and to conduct monitoring on nests that lack an assigned volunteer.	Program	OST	Mid-term	Minimizes bias against more remote or less popular sites.	May require staff resources to ensure thorough coverage.
<b>2.5: Collect, enter, and analyze monitoring data.</b> Publish an annual report or summary to assess trends and acknowledge volunteer effort.	Program	OST	Mid-term	Provides baseline and ongoing data for assessing other plan actions. Engages the community in protecting wildlife.	Quality and reliability of data can decrease with volunteers.
Goal 3: Enhance and protect raptor habitat.	T = .		T 2 .		
<b>3.1: Promote ecological restoration,</b> especially in highly disturbed spaces or in largely agricultural landscapes. Promote structural diversity where possible to support a diverse prey base.	Restoration	OST, Parks, Public Works	Ongoing	Diversify landscapes and promote wildlife use. Holistic ecosystem approach.	Can be costly and difficult to execute in disturbed landscapes. Requires diligent maintenance to prevent weed infestations.
3.2: Support the installation of nesting boxes for owls and kestrels at open space properties where appropriate.	Infrastructure	OST, Parks	Mid-term	Provides nesting sites for some raptor species and is an outreach opportunity.	Requires staff time to develop a science-based plan. Requires annual maintenance. May be used by other species (or wasps).
<b>3.3:</b> Install osprey nesting platforms at open space properties with large water bodies (i.e., Broomfield Commons, Plaster Reservoir, Great Western).	Infrastructure	OST, Parks, Public Works, Water	Long-term	Increase breeding success for osprey. Opportunities for wildlife cameras.	May go unused. Require proper installation for public safety.
<b>3.4: Install hunting perches in areas that may lack mature trees</b> (i.e., Anthem Ranch, The Field, Broomfield Commons).	Infrastructure	OST, Parks	Mid-term	Increase hunting success for several species.	May go unused. Require proper installation for public safety. A competitive disadvantage for some raptor species.
3.5: Monitor and preserve prairie dog colonies where possible and in alignment with property management plans and policies. Evaluate the potential for flea dusting or plague vaccine bait for vulnerable or highly desirable colonies.	Policy/Data Collection	OST	Ongoing	Ensures a continued source of prey for raptors. Promotes a more natural ecosystem structure.	Efforts can be costly. Investments in prairie dogs can be controversial.
3.6: Continue to utilize mapping and GIS data collection to develop a nesting database and make informed decisions regarding development projects and nest disturbances.	Policy/Data Collection	OST, IT, Community Development	Mid-term	Minimizes disturbance and potential for nest failure.	Potentially unpopular for resource users and project proponents. May have limited efficacy for urban-adapted species.
3.7: Provide fishing line disposal tubes at heavily used fishing areas.	Infrastructure	OST and Parks	Ongoing	Minimizes potential for entanglement. Relatively low cost.	Requires ongoing maintenance.
3.8: Work to reduce the risks of entanglement in athletic field netting.	Policy/ Infrastructure	OST and Parks	Mid-term	Minimizes potential for entanglement.	Requires storage and potentially additional staff capacity. Reduces access to soccer facilities outside of scheduled times.
3.9: Install wildlife-friendly fencing for open space properties, as funding allows.	Policy/ Infrastructure	OST and Parks	Ongoing	Minimizes potential for entanglement.	Requires an investment at the municipal level.
3.10: Support existing tree and shrub replacement programs and continue to protect and preserve existing mature trees where possible. Provide a list of suitable species for when inkind replacement is not advised.	Policy	OST, Parks, Community Development	Ongoing	Mitigates impacts to vegetative structure and composition. Supports prey diversity over time.	Will require coordination with existing landscaping code and requirements.

#### 9.0 REFERENCES

Bryce, Emma [National Audubon Society]. 2018. Raptors Around the Work Are Still Being Massacred. What Can Be Done? Available at: <a href="https://www.audubon.org/news/raptors-around-world-are-still-being-massacred-what-can-be-done">https://www.audubon.org/news/raptors-around-world-are-still-being-massacred-what-can-be-done</a>. Accessed August 25, 2022.

Carver, Erin [USFWS]. 2019. Birding in the United States: A Demographic and Economic Analysis. Addendum to the 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. Report 2016-2.

CPW. 2020. Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors. Denver, CO. Available at: https://cpw.state.co.us/Documents/WildlifeSpecies/LivingWithWildlife/Raptor-Buffer-Guidelines.pdf. Accessed February 4, 2021.

APPENDICES INCLUDED IN A SEPARATE DOCUMENT

Exhibit B
Appendices
[see attached]

# City and County of Broomfield Raptor Management Plan

### **APPENDICES**



Prepared for the City and County of Broomfield August 27, 2024



#### LIST OF APPENDICES

Appendix A - Scope and Purpose Survey

Appendix B - Broomfield Community Survey Results

Appendix C - Raptor Rehabilitator Survey Results

Appendix D - Nest Box Example

Appendix E - Osprey Platform Example

Appendix F - Bird-friendly Building Guide

Appendix G - Recommendations for Bird-Friendly Backyards

Appendix H - Dark Skies and Lighting Information Guidelines

Cover photo by Chris Petrizzo.

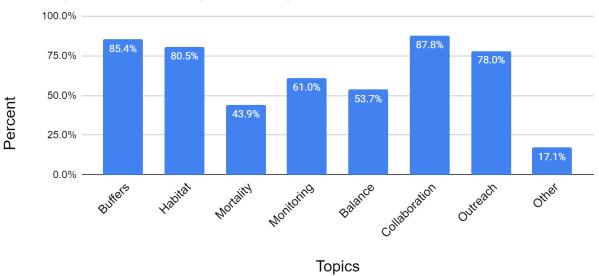
#### **APPENDIX A - SCOPE AND PURPOSE SURVEY**

#### CCOB Raptor Management Plan Scope and Purpose Survey Results

The Scope and Purpose survey was released on February 6, 2020 and received responses from 41 individuals, representing 23 different groups: City Council, OSTAC, Environmental Stewardship Committee, Broomfield staff, Eagle Watch Volunteers, Birds of Prey Foundation, BOSF, Broomfield Bird Club, Front Range Nesting Bald Eagle Studies, Prairie Preserves LLC, ERO, Smith, EDM, CORE, McWhinney, Wellborne Sullivan Meck and Tooley, City of Boulder, Fort Collins, Westminster, Jeffco, Boulder County, CPW, and USFWS. The response rate was approximately 91%.

Respondents selected a variety of topics to be covered in the policy, with 87.8% selecting collaboration with other agencies and organizations to ensure raptor protections, 85.4% selecting protections/buffers for active raptor nests, 80.5% selecting conservation/enhancement of raptor habitat and prey availability, 78% selecting community outreach and education on raptors and how to protect them, 61% selecting monitoring of existing raptor populations, 53.7% selecting balance between raptor conservation and other necessary human activities, and 43.9% selecting reduction of human-caused raptor mortality. Other topics that respondents mentioned included emphasizing the importance of science-based management practices and the expertise of biologists, evaluating habitat from a landscape level, protections for floodplains, and advocating for raptor protections at the state and federal levels.

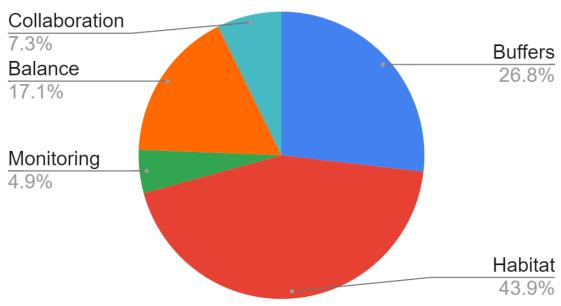
#### Q1. Topics CCOB Raptor Policy Should Focus On



Respondents then selected their <u>top priority</u> for the policy, with 43.9% selecting conservation and enhancement of raptor habitat and prey availability, 26.8% selecting protections/buffers for active raptor nests, 17.1% selecting balance between raptor conservation and other necessary human activities, 7.3% selecting collaboration with other agencies and organizations to ensure raptor protections, 4.9% selecting monitoring of existing

raptor populations. No respondents selected reduction of human-caused raptor mortality, community outreach and education on raptors and how to protect them, or other topics as their top priority. However, although respondents did not indicate these factors as a top priority, Q1 results indicate that these factors are important to the overall policy.





Respondents described what the purpose of the policy should be in a variety of ways. Nearly half of the respondents (19) mentioned conservation and enhancement of raptor habitat in their purpose for the policy. Specifically, respondents recommended protecting existing nest trees and prey abundance, enhancing available habitat and vegetation diversity, avoiding habitat fragmentation, managing recreation to reduce disturbance, encouraging developers to implement habitat restoration and enhancement plans, and pursuing collaboration with other landowners through conservation easements and intergovernmental land management agreements. Many respondents (18) also mentioned the need to protect and conserve raptors through clear, consistent, and realistic expectations. Six respondents specifically added that any protections should be created in cooperation with the existing state and federal regulations. Eleven respondents included public engagement and outreach in their purpose, and four respondents recommended collaboration with neighboring agencies. The remaining comments were not as frequently cited, but included basing the policy on scientific expertise, balancing raptor protections with development needs, describing how protecting raptors benefits the public's well-being, and emphasizing the importance of transparent policy-making and proactive planning.

Recommended Topics for Policy's Purpose	# of Respondents
Habitat conservation and enhancement	19
Protections for raptors	18
Public engagement and outreach	11
Cooperation with existing state and federal regulations	6
Collaboration with neighboring agencies	4
Population monitoring and mapping	4
Based in scientific expertise	2
Balance with development	2
Benefit to the public's well-being	2
Transparent policy-making	1
Proactive planning	1

Finally, respondents expressed other concerns, comments, and questions. Several respondents emphasized the need for long-term habitat conservation, specifically for nesting sites and prey availability, including prairie dog colonies. Comments on habitat also included restoring the biodiversity of agricultural monocultures and avoiding new trails along riparian corridors. The comments also often encouraged collaboration, especially with developers and the state and federal agencies, and the need for flexible buffer guidelines. There was also general support for public outreach. Some respondents added that the policy should focus on species of greatest conservation need (specifically burrowing owls, northern harriers, and ferruginous hawks), and a plan to inventory and monitor such species. Finally, respondents stressed concerns that the policy be guided by experienced biologists and scientific management practices, and cautioned the need for a detailed policy given the existing regulations, resources, and staff.

#### **APPENDIX B - BROOMFIELD COMMUNITY SURVEY RESULTS**

## **Raptors**

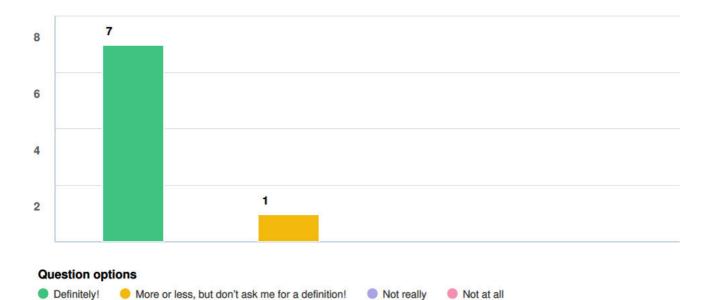
SURVEY RESPONSE REPORT 03 April 2018 - 12 October 2022

PROJECT NAME: Broomfield Raptor Management Plan



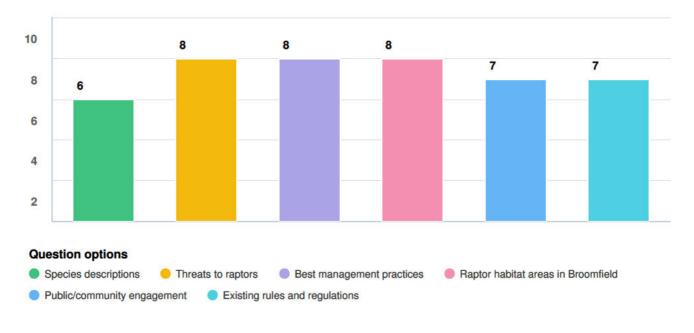
SURVEY QUESTIONS

### Q1 Do you know what a raptor is? (Don't worry if you don't! We just want to know how much we should focus on education in the ...



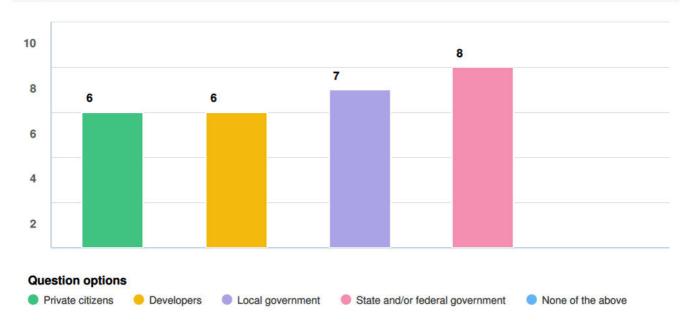
Optional question (8 response(s), 0 skipped)
Question type: Checkbox Question

### Q2 What do you think should be included in the Broomfield Raptor Management Plan? Check all that apply.



Optional question (8 response(s), 0 skipped) Question type: Checkbox Question

#### Q3 Who do you think should bear responsibility for protecting raptors? Check all that apply.



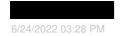
Optional question (8 response(s), 0 skipped)
Question type: Checkbox Question

#### Q4 Other (please explain)



6/22/2022 04:24 PM

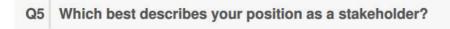
It is important to balance the measures taken against the relative impact to the community vs. the relative impact avoidance for raptors. If the main think killing raptors is lead from buckshot and bullets lodged in the prey that they consume, then that should be the focus of conservation efforts. Closing down segments of trails to protect species that aren't really impacted by humans just walking around will just impact the community, but won't do much to help the raptors, it is not a relevant solution.

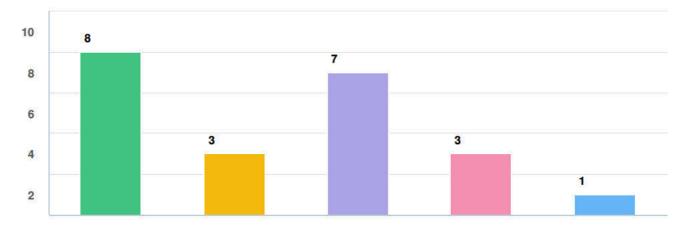


I think local government should have more responsibility and give support to private citizens whose homes are shared with a raptors habitat.

Optional question (2 response(s), 6 skipped)

Question type: Essay Question



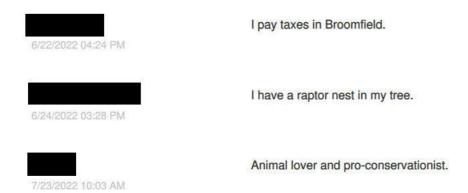


#### **Question options**

I live in Broomfield.
 I work in Broomfield.
 I recreate in Broomfield's open spaces.
 I am a member of the birding community.
 I volunteer or am employed in raptor monitoring or rehabilitation.

Optional question (8 response(s), 0 skipped)
Question type: Checkbox Question

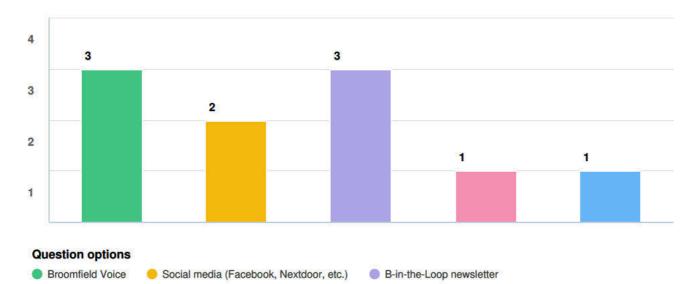
# Q6 Other (please explain)



Optional question (3 response(s), 5 skipped)

Question type: Essay Question





Optional question (8 response(s), 0 skipped) Question type: Checkbox Question

At an event or public meeting

# Is there anything else that you would like to share?

From a friend or family member



6/12/2022 10:43 AM

Here's a few suggestions, but fostering healthy ecosystems for wildlife is about a lot more than raptor species . (1) Find reasons to leave old growth cottonwood trees in place and foster their establishment in appropriate habitat. This will benefit breeding Bald Eagle, Red-Tailed Hawk, Swainson's Hawk, American Kestrel and Great Horned Owl populations in the area. Way too much of Broomfield's designated Open Space is tree-less sometimes grassless fields bordering on "dead earth" conditions. (2) Construct one or more Osprey platforms in appropriate Broomfield habitat. Osprey are commonly observed in Broomfield County, but only in the Spring when they are looking for possible nesting sites. Osprey choose to nest in other nearby Counties instead of Broomfield, due to lack of nesting opportunities. Possible sites include: (1) the Open Space around Great Western Reservoir; (2) the Open Space behind Legacy High School (midway between Plaster Reservoir and McKay Lake; (3) the Open Spaces near Matthew Glasser Reservoir; and (4) East of I-25 near Luna Reservoir. (3) Educate and encourage residents to refrain from using poison to control pests like field mice, etc. These chemicals almost certainly adversely impact American Kestrel populations, which are declining over most of North America. (4) Start a nesting box project on Open Space, City and even private property,

providing additional nesting opportunities for American Kestrel, Eastern Screech Owl and Barn Owl populations, in appropriate habitats. (5) Preserve and restore - to the extent possible - any and all historical wetland and grassland habitat. Too many of Broomfield's former wetlands and grasslands are a shadow of what they once were.

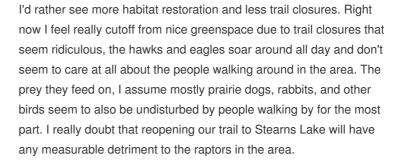


6/15/2022 09:07 AM

Perches and platforms need to be in safe/large open space areas with plenty of room for raptors to claim territories to hunt and nest. Also, eagles rarely use the platforms, osprey commonly do though.



6/22/2022 04:24 PM





The eagles in the Carolyn Holmberg open space are a popular attraction for birders in the area and people using the trail while running, biking, walking enjoy stopping to watch the eagles and chat about them with their neighbors. It is so valuable to have such incredible creatures living in our area, and it is our duty to protect their habitat wherever possible.



7/02/2002 10:02 AM

Thank you for protecting these amazing birds!



I think it is so important to protect wild open spaces that the raptors need so that their food sources are available to them.

Optional question (6 response(s), 2 skipped)

Question type: Essay Question

# APPENDIX C - RAPTOR REHABILITATOR SURVEY RESULTS

Note: Statements made by the rehabilitators reflect their own experiences and opinions. They do **not** necessarily reflect the opinions of the City and County of Broomfield.

Name	Location	General	General Email	Date Contacted	Contact Person	Question 1	Question 2	Additional information
		Phone		and Method				
Rocky Mountain	Fort Collins,	970-484-7756	info@rmrp.org	9/2/2021	Michael Tincher			
Raptor Program	Colorado	202 460 0674		Emailed Mike				
Birds of Prey	Broomfield,	303-460-0674	raptor@birds-of-prey.org	9/2/2021				
Foundation	Colorado			Phone, no answer, left				
				*				
Nature's Educators	Sedalia, Colorado	720-900-4295	info@natureseducators.org	message 8/18/2021 Emailed	Emily Davenport	collisions with vehicles or collisions in general (window, fence, wall, etc.)	Entanglement (barbed wire, fishing line), Entrapment (building, chimney, storm drain), Projectile (gunshot, bow and arrow), Predation (dog, cat, other domestic animals), Exposure (oil, chemical, smoke, paint, glue), Toxicity (rodenticide, lead), Nest/habitat disturbance (taken intentionally and often have sever nutritional deficiencies)	More indirect- climate change, habitat/nesting site loss ("For example, this year we hypothesize due to the higher than average temperatures, we have received many nestlings that "fledged" early. We believe this is due to high temps and these birds "jumping ship" because they were too hot"), drought may also lead to lack of food/prey items, lack of care or knowledge to send raptors to rehab
Pauline S. Schneegas Wildlife	Silt, Colorado	970-876-5676	psswildlifefoundation@gmail.com	8/18/2021- Emailed	Nanci Limbach or Erin Romero	vehicle strikes (broken wings/legs, soft tissue damage, head trauma)	electrocution, shot, kidnapped fledglings, orphaned for other possible human-caused but unknown reasons,	programs (more education necessary?)
Foundation							Osprey-hung up in fishing line, Great Horned Owls- caught in soccer nets or barbed wire fences	
North Park	Walden,	970-217-5372	northparkwildlife.rehab@gmail.com	8/18/2021		lead poisoning (leftovers from hunting	vehicles, tangled in fences, old,	roadkill rangers- throw roadkill away
Wildlife Foundation	Colorado	970-217-5755 970-217-9082		Phone		or ranchers protecting livestock)-are alternative ammunition that is less deadly	exposed transformers-very lethal/can be a popular perching spot, roadkill- also sometimes get dazed by hot asphalt/think water is present	from the road
Second Chance	Pueblo,	719-543-1946	NA	8/18/2021-				
Wildlife Rehabilitation	Colorado			Phone message referring to Nature and Wildlife Discovery Center (Pueblo Raptor Center)				
Nature and	Pueblo,	719-549-2327	diana@hikeandlearn.org	8/18/2021	Diana			
Wildlife Discovery Center (Pueblo Raptor Center)	Colorado			Phone, left message				
Catamount Wildlife Rehabilitation Center	Woodland Park, Colorado	719-687-9406	cwrc209@aol.com	8/18/2021 Phone-left message	_			
Angela Davis	NA	NA	friend2wlife@msn.com	8/18/2021				
				Emailed				

Name	Location	General Phone	General Email	Date Contacted and Method	Contact Person	Question 1	Question 2	Additional information
Southwest Avian Protection Service	Dove Creek, Colorado	NA	ck37little@gmail.com	8/18/2021 Emailed				
St. Francis Wildlife Rehabilitation	Pagosa Springs, Colorado	970.883.2519 970.946.7452	keepthemfree@gmail.com	8/18/2021 Phone and email				
Roubideau Rim Wildlife Rescue	Montrose, Colorado	970-209-5946	rrwildliferehab@gmail.com	8/18/2021 Phone and email	Brenda Miller	smaller raptors come in due to window strikes (going after songbirds at bird feeders)	Secondary poisoning from herbicides/pesticides/chemical fertilizers (agro-phosphate, anhydrous ammonia) (eating prey present in area at time of application- can cause neurological issues which leads to other problems (trouble hunting, collisions, or slowly deteriorate), dog attacks on juvenile raptors that fall to the ground, vehicle collisions, development and loss of habitat/territory/space from humans	See sheet 2 for email response from Brenda
Teton Raptor Center	Wilson, Wyoming	307-203-2551	raptors@tetonraptorcenter.org	9/1/2021 Phone and email	Jessie Walters	car strikes or window strikes (birds likely looking for food/see prey going across road and get hit), nature of injury changes depending on size of bird/speed/where hit, often results in wing or head trauma (sometimes eye or severe internal trauma	poisons (rodenticides), lead (fishing tackle and hunting ammo), illegal or criminal activity (will ask for additional info-shot or electrocution by powerlines (power companies required by law to address the issue, or will be fined))	Often tell people to slow down when driving at night/low light levels, often advise people to look around and be aware of birds in the area too, window strikes-advise people to use UV window clings/treatments (birds can see UV, we can still see out window)
Ironside Bird Rescue, Inc.	Cody, Wyoming	307-527-7027	NA	9/1/2021 Phone	Susan	shot (smaller birds)	lead poisoning, hit by cars (Great Horned Owls), babies falling out of nests	windfarms- can be dangerous during migration (although hasn't ever had a bird come in because of windfarms)
Wildlife Rehabilitation Center of Northern Utah	Ogden, Utah	801-814-7888	info@wrcnu.org	9/1/2021 Phone	Dalyn	baby season-well-meaning people trying to take care of them improperly (found on ground or similar), window strikes (accipiters), buteos (hit by vehicles)	purposely shot,	finding out the right way to get them help would be better than trying to do it themselves

Name	Location	General	General Email	Date Contacted	Contact Person	Question 1	Question 2	Additional information
Arizona Raptor Center	Phoenix, Arizona	Phone 602-549-8482	azraptorcenter@gmail.com	9/1/202 Phone	Jerry	shot by pellet (80%) (pellet not always left in bird)	electrocution in the city, barbed wire fences (especially Great Horned Owls), bird baths (diseases and parasites from sharing water with other species), window strikes, car strikes	everything they get is human-caused, public education and awareness, don't use bird baths especially in summer, they have artificial burrows for Burrowing Owls-found 100% failure, lots of people in charge of rehabilitation that aren't really qualified, falconers believe rehabbing shouldn't exist, need to understand the mental health of the bird, make desirable nesting areas as attractive to the raptors as possible. In general, seemed to believe (or sees in his experience) that most people trying to rehab don't truly understand what the bird needs (injury, species, etc.) and it would be kinder to leave it alone and
Tucson Wildlife Center	Tucson, Arizona	520-290-9453	NA (contact form on website)	9/1/2021 Phone 9/8/2021 Email	Lisa Bates	hit by car	window strikes, toxins (lead), predator (dog or cat attacks on smaller raptors), electric injury/electrocution, orphaning/nests falling apart/destroyed in storms	have a chance to get better by itself
White Mountain Nature Center	Pinetop, Arizona	928-358-3069	NA (contact form on website)	9/1/2021 Phone, form on website	Jeff Wolf	Poisoning (probably ranchers poisoning for/rodent control	Auto collisions, barbed wire fences, pet attacks	
Wild at Heart	Cave Creek, Arizona	480-595-5047	Info@WildAtHeartOwls.org	9/1/2021 Phone	Beth Edwards	top 5: hit by car/building, other impact, poison (rodenticide, insecticide), electrocution, and gunshot	trichomyosis (natural pathogen, often get from not recently cleaned feeders and bird baths, raptors get from eating pigeons and other infected birds), people trying to "rescue" babies and they become habituated, don't get fed correct food and get malnourished (splay-legged)	most reasons are human cause
Sante Fe Raptor Center	Sante Fe, New Mexico	505-699-0455	santaferaptorcenter@gmail.com	9/1/2021 Phone	Lori Paras	head trauma by vehicle strikes	gunshot, electrocution, lead poison, kidnapping, barbed wire, similar to other answers	
Wildlife Rescue, Inc. of New Mexico	Albuquerqu e, New Mexico	505-344-2500	info@wildliferescuenm.org	9/1/2021 Phone and email	Stephanie Lindsell	vehicle collisions (see this trend across species)	gunshot, electrocution (power lines), barbed wire, also see trichomoniasis (disease in birds, often transmitted to raptors from pigeons)	pigeons are disease transmission vectors, invasive, congregate in cities, etc. = human related issue

Name	Location	General Phone	General Email	Date Contacted and Method	Contact Person	Question 1	Question 2	Additional information
Blackland Prairie Raptor Center	Lucas, Texas	469-964-9696	info@bpraptorcenter.org	9/1/2021 Phone, email	Hailey LeBaron	hit by vehicle (owls hard to see at night, diurnal birds hunting and them and drivers aren't paying attention)	gunshots (especially hunting season and vultures), pesticide/warfarin/pathogen ingestion, electrocution, pet attack, fertilizer burns, traps (glue, poll, rat, bear), barbed wire/soccer nets/baseball nets, trimming trees during breeding season, window strikes, fishing lines, kidnapping by well-meaning people trying (and failing) to help, kidnapping for purpose of making raptors pets (then abandoned or imprinted), Lead: most eagles/vultures/osprey are tested (most likely to have lead poisoning) have some degree of toxicity in their system (new findings showing it is increasing for hawks too), Fertilizer burns: usually birds coming from HOAs/home owners/parks/green spaces (juvenile owls fledge and land on fertilizer not yet hosed into soil)(the nitrogen and some other chemical buildup causes burns-can be bad enough that euthanasia is considered)	other issues to consider (not direct causes of admittance)-light pollution for migratory birds, destruction of habitat
Gulf Coast Wildlife Rescue	Angleton, Texas	979-849-0184	gulfcoastwildliferescue@gmail.com	9/2/2021 Emailed				
Last Chance Forever	San Antonio, Texas	210-499-4080	info@lastchanceforever.org	9/2/2021 Phone, emailed				
Wildlife Rescue & Rehabilitation	Kendalia, Texas	830-336-2725	info@wildlife-rescue.org	9/2/2021 Emailed	Kelly McCoy	gunshot wound/lead poisoning (either directly shot or eating animal hit with lead shot)	window strikes, vehicle collisions, kidnapped babies (presumed orphans- facility encourages people to attempt to reunite before bringing bird in)	
Raptor Conservation Alliance	Nebraska	402-994-2009	NA (contact through FB messenger)	9/2/2021 Phone	Doug Finch	hit by cars	gunshot, barbed wire fences, powerlines, secondary poisoning from rodenticide	

Name	Location	General	General Email	Date Contacted	Contact Person	Question 1	Question 2	Additional information
		Phone		and Method				
Eagle Valley	Cheney,	316-393-0710	raptorcare@aol.com	9/2/2021	Ken Lockwood	hit by cars	babies- can depend on the year,	Belief- so many people don't really
Raptor Center	Kansas			Phone			eagles-broken wings, windfarms-	know what raptors are and how they
							eagles get caught up in vortex caused	help humans, raptors are tell-tale signs
							by blades and get sucked in, see	of environmental health, raptors can
							golden eagles farther east than normal	help with rodent control on farms
							(think it's because of drought issue,	=help farmers keep more crops, turkey
							pushing prey east too), golden eagles-	vultures clean up dead animals=less
							shot by ranchers, barbed wire fences,	spread of disease, great horned owls
							soccer nets, Great Horned Owls	eat skunks (biggest carrier of rabies),
							nesting in/on shopping centers,	education- show people how raptors
							Cooper's Hawk- loss of habitat (old	help humans (rodent control, disease
							barns), kestrels-pesticides on	control, environmental indicators, etc.)
							grasshoppers= secondary poisoning	
		500 700 1005		0 /0 /0 00 4	2 2		(suspected), eagles- lead poisoning	
Great Bend	Great Bend,	620-793-4226	NA	9/2/2021	Becca Curtiss	see a lot of wing injuries (often don't	orphaned birds that fell from nests (or	
Raptor Center	Kansas			Phone		know what caused the break	if tree cut down), one case with red-	
							tailed hawk caught in farm equipment,	
							shot/suspected to be shot, bald and	
							golden eagles often tested for lead poisoning (common issue), less	
							common- car	
							collisions/electrocution/poisoning	
Northwest	Sequim,	360-681-2283	NA	9/2/2021			comsions/electrocution/poisoning	
Raptor &	Washington	300-081-2283	NA .	Phone-				
Wildlife Center	VVasimigeon			permanently				
Wilding Center				closed				
Sardis Raptor	Ferndale,	360-366-3863	NA (contact through FB messenger)	9/2/2021				
Center	Washington		The (contract time agree a messenger)	Phone				
Evelyn	Hampton	631-728-4200	info@wildliferescuecenter.org	9/2/2021	Kyra Leonardi	rodenticide poisoning (mice don't die	hit by cars (especially screech owls),	
Alexander	Bays, New	031 /20-4200	mnoe whamerescaecemenoig	Phone	Ryla Leonalui	right away-get outside before they die,	hit by trains, entanglement (balloons	
Wildlife Rescue	York			THORE		also slow to respond and easier for	wrapped around feet), fishing line	
Center						raptors to catch)	(especially Osprey)	
Hawk Creek	West Falls,	716-652-8646	ed@hawkcreek.org	9/2/2021			(corporation) copyright	
Wildlife Center	New York			Phone, emailed				
		1			1			

Name	Location	General Phone	General Email	Date Contacted and Method	Contact Person	Question 1	Question 2	Additional information
Kindred Kingdoms Wildlife Rehabilitation Center	Pennellville, New York	315-695-6418	jeanws46@gmail.com	9/2/2021 Emailed	Jean Soprano	hit by vehicle	poison (rats poisoned by rat poison), caught in traps (set with live bait), trapped in buildings (emaciated/dehydrated), fell in vats of oil (car shops, especially the smaller birds), gunshot (with lead bullets too), lead poisoning (leave gut pile in woods, often lead particles left behind in pile, eagles especially during winter (about 90% of eagles that come in)), can't use lead for waterfowl, still can for deer (copper bullet alternative, but expensive), Cooper's hawk and sharpshinned hawk fly into warehouses chasing bird/get trapped/get emaciated and dehydrated	immature bald eagle plumage could be mistaken for turkey (especially with young hunter), car shop oil problem: potentially enforce covering containers of oil?
North Country Wild Care	Lake George, New York	no non- emergency number listed	contact form on website	9/2/2021 Contact form on website				
Ravensbeard Wildlife Center	Saugerties, New York	NA	contact form on website	9/2/2021 Contact form on website				
Volunteers for Wildlife	Locust Valley, New York	516-674-0982	info@volunteersforwildlife.org	9/2/2021 Phone, emailed	Lauren Schulz	vehicle collisions (often because of hunting strategies)	toxicity (rodenticides and secondary poisoning), young displaced (habitat destruction), entanglement (soccer nets especially for adult Great Horned Owl in winter), methane burns (hawks, methane burners turn off and on intermittently), ospreys entangled in litter used as nesting material, recently have seen many osprey impaled on lightning rods	usually excluder devices on methane burners to deter raptors from perching
Wild Bird Fund	New York City, New York	646-306-2862	contact form on website	9/2/2021 Phone, contact form on website				
Avian Reconditioning Center	Apopka, Florida	407-461-1056	ARC4RAPTORS@GMAIL.COM	9/2/2021 Phone, emailed				
Conservancy of Southwest Florida Nature Center	Naples, Florida	239-262-0304	info@conservancy.org	9/2/2021 Phone, emailed				
CROW	Sanibel Island, Florida	239-472-3644	info@crowclinic.org	9/2/2021 Phone	Jenna	Toxicosis- red tide exposure, blue- green algae exposure, rodenticide (neurological), west nile virus	hit by cars, entanglement (osprey and fishing line/hooks)	
Peace River Wildlife Center	Punta Gordo, Florida	941-637-3830	peaceriverwildlife@yahoo.com	9/2/2021 Phone, emailed				

Name	Location	General Phone	General Email	Date Contacted and Method	Contact Person	Question 1	Question 2	Additional information
Wildlife Sanctuary of Northwest Florida	Pensacola, Florida	850-433-9453	contact form on website	9/2/2021 Phone, emailed	Dorothy Kaufmann			
AWARE Wildlife Center	Lithonia, Georgia	678-418-1111	contact form on website	9/2/2021 Contact form on website	Scott Lange	vehicle impacts (people throw food waste at side of road, draws rodents and then raptors, who get hit)	people intentionally shooting raptors, attacks from pets (both much less common that vehicle strikes)	ways to avoid car strikes-1) educating the public to not litter (even biodegradable litter) 2) systematically cleaning roadways
Hawk Talk	Canton, Georgia	770-720-1847	monteen@hawktalk.org	9/2/2021 Emailed, contact form on website				
Hawai'i Wildlife Center	Kapa'au, Hawaii	808-884-5000	birdhelp@hawaiiwildlifecenter.org	9/2/2021 Phone, emailed				
Illinois Raptor Center	Decatur, Illinois	217-963-6909	contact@illinoisraptorcenter.org	9/2/2021 Emailed				
Indiana Raptor Center	Nashville, Indiana	no non- emergency number listed	indianaraptorcenter@gmail.com	9/2/2021 Phone, emailed	Patti Reynolds	car strikes	barbed wire, batting/soccer nets, electric wires, poisons (rodenticides, insecticides, crop overspray), shootings, cutting down trees/demolishing old barns causes nest destruction (or death to parents and chicks), flying into windows (mostly Cooper's hawks chasing songbirds)	need to educate people on these issues (example: people need to check on old barns and trees before removing)
Soarin' Hawk Raptor Rehabilitation Center	Fort Wayne, Indiana	no non- emergency number listed	mike.dobbs@soarinhawk.org	9/2/2021 Contact form on website				
Hoo's Woods Raptor Center	Milton, Wisconsin	608-883-2795	falco5@ticon.net	9/2/2021 Phone, emailed				
Alaska Raptor Center	Sitka, Alaska	907-747-8662	members@alaskaraptor.org	9/2/2021 Phone, emailed	Jennifer Cedarlear	collisions (wires, windows, buildings, vehicles, trees, ground)	electrocution, entanglement (mostly fishing gear), entrapment (mostly in containers of ground-up fish)/sometimes get owls and goshawks trapped in chicken coops or netting around coops, gunshot, leghold trap (not common-hasn't seen this injury in 7-8 years)	this center mostly admits bald eagles, so most of these pertain to bald eagles unless otherwise noted
The Raptor Center of University of Minnesota Veterinary College	St. Paul, Minnesota	612-624-4745	raptor@umn.edu	9/2/2021 Phone, emailed	Lori Arent	hit by vehicle, or other type of collision	avg. 30% bald eagles admitted with lead toxicity, about 4-6% bald eagles have projectiles on radiograph, some birds (primarily owls) caught in soccer nets/other netting or trapped in chimneys, other birds collide with planes, feather issues (tar, oil), trapped in buildings (especially Cooper's Hawks)	have an outreach program to reach the public and inform them about raptors and how they can help raptors and the environment

# APPENDIX D - NEST BOX EXAMPLE

Note: Approval from Broomfield Open Space and Trails is **required** before any nest boxes are placed on Broomfield-owned land. A commitment to cleaning and maintenance will also be required.

# **American Kestrel Nest Box Plan**

Art Gingert PO Box 185 West Cornwall CT 06796

Updated Spring 2015



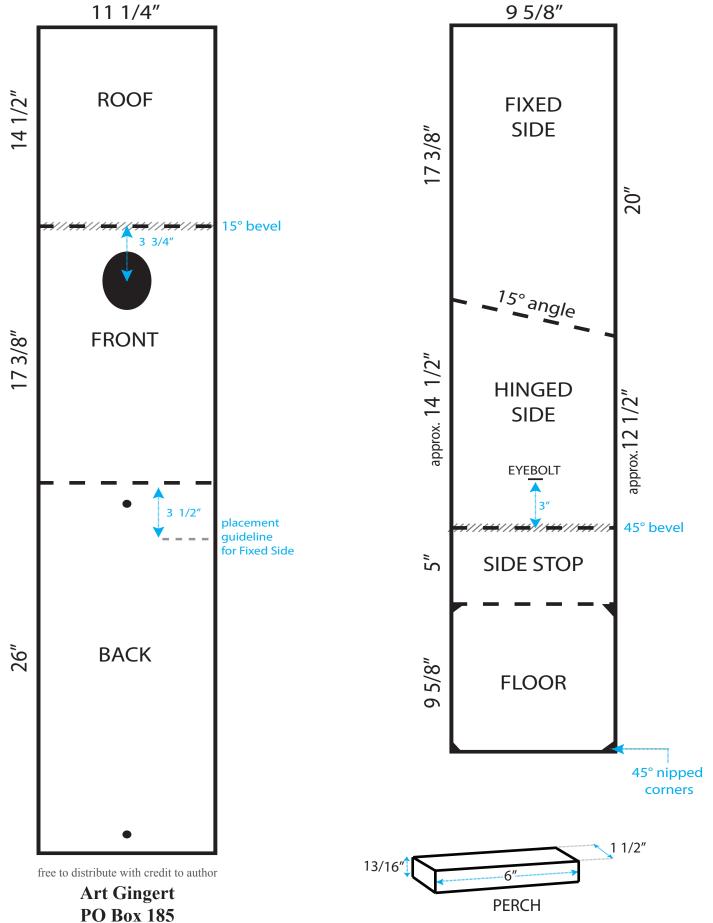
These plans for the construction of an American Kestrel (*Falco sparverius*) nest box are based on experience gained during more than thirty years of field work in northwest and north-central Connecticut (National Audubon Society and individually) with a now successful, well-established population of kestrels. It is hoped that the information will be used by raptor enthusiasts elsewhere who are interested in the welfare of this open country falcon, whose numbers continue to decline in several regions of North America.

# **Notes on Design**

- The **side-opening design** of the nest box -- with fixed Side Stop -- serves a number of practical purposes. The box is much safer to monitor than if it were top-opening; wood shavings, eggs and nestlings are secure; and adult birds and nestlings are easier to capture for banding and research work.
- The **floor size** for this nest box design provides almost 93 square inches, which is close to 50% larger than the 8"x 8" floors recommended in the majority of American Kestrel nest box designs available in the literature or online. Having observed breeding kestrels using wood duck boxes in drained beaver swamps years ago, I realized that more living space was significantly advantageous for broods of five or six nestlings which spend up to a month in the nest boxes.
- Though a 3" diameter entrance hole is standard on many plans, a **3"x 4" vertical oval hole** provides more room for older nestlings looking outwards from the inside Perch, and may also offer a place for adult male pair-bonding display early in the breeding season.

Further notes regarding *Nest Box Sites and Installation* (choosing good American Kestrel breeding habitat, selecting ideal box locations, and options for safely erecting and monitoring a kestrel box) will be available. Good luck with your own efforts in assisting these beautiful raptors, and I welcome inquiries regarding wildlife management work with American Kestrels.

# **American Kestrel Nest Box Plan**



West Cornwall CT 06796

#### **Notes on Materials**

- A great choice for lumber is Type EWP, 1x12 "rough one side" white pine, which is not only easy to work with, lightweight and quite aesthetic, but also inexpensive. It is most often found in a thickness of 13/16". Approximately 10' of 1x12 EWP lumber is needed per box, allowing for minimal waste and avoidance of knots, cracks, etc. Average 2015 prices are \$1.50 per lineal foot. Cedar is also a good choice, but pricier, and oak, though durable, is heavier than needed. Avoid using 1" rough-cut sawmill pine, which is much harder to work with and creates a heavy, unwieldy nest box which can be unsafe to deal with during installation on post, tree, or building.
- For fasteners, Torx-head GRK screws (2" x #8 \*\*Trimhead type) are superb. They are strong, easy to use with a cordless drill, look good, and most importantly, they will not split the lumber near the ends of pieces (which may happen with standard GRKs, decking screws or nails). Approximately 35 screws per box.
- The use of a light bead of high quality PL Premium construction adhesive on all joined edges guarantees a strong, weatherproof nest box with tight joints.
- Do not paint or otherwise treat with a wood preservative. The EWP pine will weather to a warm gray color naturally and last in all weathers and seasons for several decades, if well constructed.
- Approximate cost for lumber & hardware materials is \$ 20.00 per nest box, at 2015 prices.

# **Assembly Sequence:**

- Attach Back to Fixed Side, then secure Floor to Back and Fixed Side.
- Attach Front (with oval entrance hole and inside Perch) to Fixed Side and Floor.
- 3. Attach Roof to Fixed Side, Front and Back.
- **4.** Cut 45° bevel across Hinged Side, check fit, and secure Side Stop to Back, Front and Floor.
- 5. Finally, attach Hinged Side using hinge nails.



©Art Gingert/Wildlands Photography

#### **Construction Notes**

- Quality carpentry in construction is important for many reasons -- for durability, appearance, weather "tightness" and ultimately the safety of the bird species which may use the box.
- A miter or radial arm saw is quite useful for cutting out nest box pieces, especially for the bevel and angle cuts, and for incidental trimming. Use a table saw to trim some of the 1x12 EWP boards to 9 5/8" as needed (see Nest Box Plan).
- If a number of boxes are needed, it is helpful to make a "jig" with support rails to assist in securing the Back of the box to the Fixed Side, which is the first step in construction. Drawing a short guideline 3 ½" down from the top of the Back is helpful for positioning these two pieces, which ensures adequate space (2 ½") at the top and bottom of the Back for the lag screws used when mounting the box. The Fixed Side can be installed on either the right or left side of the nest box, depending on the terrain at a prospective site or personal preference when monitoring.
- The Floor piece is inset upwards 1/8" in order to keep rainwater from seeping into the joints. Be sure to test the fit of this piece against the two sides, for both width and depth, since it may need to be trimmed slightly. Nip off small 3/8" sided triangles from each corner before securing the Floor. This ensures that however the box is mounted, any rainwater entering the box will find its way out at the lowest corner and drainage hole.
- A pattern can be made for the 3" x 4" oval entrance hole from wood, cardboard or plastic. A jigsaw can be used to cut out the oval, and 80 grit sandpaper wrapped around a 1" diameter dowel works well as a tool for smoothing the raw edges.
- A small Perch piece is very useful, secured horizontally inside the box, centered 2" below the base of the entrance hole. A bead of construction adhesive on the Perch helps it stay in place while the Front is turned over, braced, and the Perch screwed in place from the outside (using 2 screws, approximately 8" down from the roof, and 4" in from each side of box).
- When securing the Front, carefully align it with the Fixed Side. Trim bottom edge of Front if necessary.
- Cut the 45° bevel across the Hinged Side, with the cut edge of the upper part overlapping the lower part (shingle-like). Check for good fit with both pieces, leaving a 3/8" space below the top edge of the Front to allow for "hinging" & ventilation. If the Hinged Side is tight and needs trimming along one of its vertical edges, use a pencil with one's hand inside the entrance hole to mark it. One can also trim the lower edge of the Side Stop if needed. Secure the Side Stop piece to the Front, Back and Floor. \*\* It is helpful to drill small-diameter pilot holes before installing two or three screws to attach the Side Stop to the Floor. This usually prevents any splitting of the Side Stop as drying occurs over time. (Alternately, the Side Stop can be made from an additional piece of wood, orienting the grain so it is perpendicular to that of the Hinged Side.)
- The "hinge nails" for the Hinged Side are placed exactly in line with each other use a combination square to mark the locations. Start with a mark for the nail on the Front, 2" down from the top. Use a thin wood shim to hold the Hinged Side exactly in place, and a thin drill bit to make pilot holes for two 8 penny galvanized common nails before hammering them home in turn.

- Select a clear piece of wood when cutting out the Roof -- or one with few imperfections -- which will help with durability. The Roof is best secured by working from the back of the box. Apply a thick bead of construction adhesive to the beveled edge of the Roof and use some force to squeeze the Roof tightly against the Back, creating a totally weatherproof seal which is quite durable in the field. A high quality caulk (like clear Lexel) could also be used with this step. Start by securing the Roof to the Fixed Side, and then to the Front. Make sure to put several screws through the Back and into the rear edge of the Roof to ensure a tight, waterproof joint.
- A 5/16" x 2 ½" zinc-plated (or stainless steel) eye bolt (Stanley Tool Co. #N221-150) provides a strong purchase for opening the Hinged Side, which may be tight in humid weather. Secure the eye bolt with a flat washer and lock nut on the inside of the Hinged Side, 3" up from the bevel cut. A 1 ¼" wooden cabinet knob is a nice-looking alternative, though it can dry out and split over time.
- To fasten the Hinged Side securely, one can use two 1 ¼" galvanized Screen & Storm series Half-Turn Buttons (Stanley Tool Co. #38-0010) at the top of the Side Stop, each placed 2" in from the edges of the box.
- Mark locations for two, 5/16" box mounting holes at the top and bottom of the Back piece centered, and 1 ½" in from the edges and drill them. It is suggested that two 5/16" x 3 ½" galvanized lag screws and washers be used for mounting (use shorter lags for utility poles or barn sides).
- A single 8 penny galvanized common nail (use thin pilot hole) can be driven into the lower edge of the Back piece, near the base of the Fixed Side. Leaving only ½" of the nailhead showing provides a very useful place to hang a small bucket (or stuff sack filled with wood shavings) when visiting the nest box for monitoring purposes.
- As the last step in assembly, either PL Premium construction adhesive or clear Lexel caulk can be used to seal any exposed end grain. This is very effective in limiting weathering in these susceptible areas, and will measurably extend the life of the nest box. Thin latex or vinyl gloves can be worn while using a 1" wide putty knife (or fingers) to apply and spread a protective coating on the following:
  - Top and bottom edges of Back and front edge of Roof
  - Bottom edges of Front and Fixed Side
  - Top and bottom edges of the Hinged Side and Side Stop

It is also a good practice to seal the exposed edges of the entrance hole, where splitting can occur. Making a quick swipe with the sealant over any knots or small cracks is also recommended.

- Using EWP pine lumber and GRK Trimhead screws, the completed nest box will weigh 12 to 13 pounds.
- The name or identifying logo of a sponsoring organization can be applied to the Fixed Side of the box if desired.

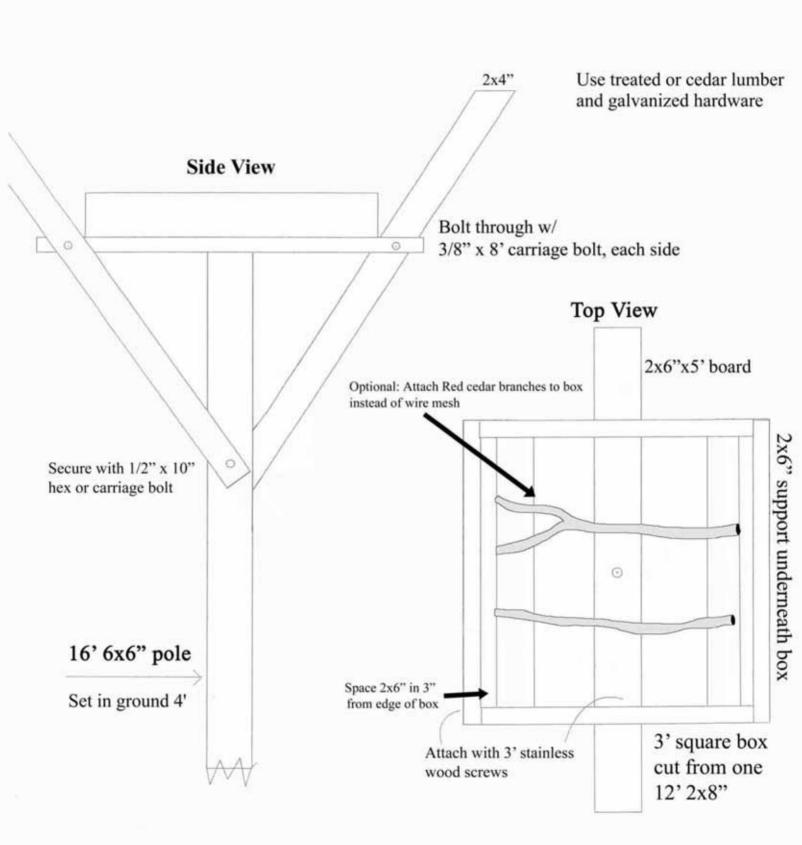
# APPENDIX E - OSPREY PLATFORM EXAMPLE

Note: Approval from Broomfield Open Space and Trails is **required** before any platforms are erected on Broomfield-owned land. A commitment to maintenance will also be required.

# OSPREY NEST PLATFORM







# APPENDIX F - BIRD-FRIENDLY BUILDING GUIDE

Note: This guide was published in 2015 and was current as of the June 2024 publication of the Broomfield Raptor Management Plan. More current information or resources may become available.

# Bird-Friendly Building Design







Exterior glass detail



Glass detail, showing frit pattern

Cover rendering and photo this page: The new Bridge for Laboratory Sciences building at Vassar College, designed by Richard Olcott/Ennead Architects, redefines the identity of the sciences on the College's historic campus and provides technologically advanced facilities for students, faculty, and researchers.

Fundamental to the building's design is its seamless integration with the natural landscape, scale, and campus aesthetic of the College. In this natural wooded setting, the need for strategies to reduce bird collisions with the building was apparent. In response, the building was designed to comply with LEED Pilot Credit 55: Bird Collision Deterrence.

Ennead managing partner Guy Maxwell is a nationally recognized champion of bird-friendly design and has led Ennead's innovative approach to make the building's glazing safer for birds, employing patterned glass, screens and sunshades, and Ornilux glass, a specialty glass product that uses a UV coating visible to birds but not humans.

By framing and showcasing views of the landscape, the building celebrates and connects students with the surrounding environment, while the overall development of the precinct repurposes an underutilized sector of campus.

# Table of Contents

Executive Summary	4
Introduction	6
Why Birds Matter	7
The Legal Landscape	7
Glass: The Invisible Threat	7
Lighting: Exacerbating the Threat	8
Birds and the Built Environment	8
Impact of Collisions on Bird Populations	9
Bird Collisions and Sustainable Architecture	9
Defining What's Good For Birds	11
Problem: Glass	12
Properties of Glass	13
Reflection	13
Transparency	13
Black Hole or Passage Effect	
Factors Affecting Rates of Bird Collisions	14
for a Particular Building	
Building Design	14
Building Size	14
Orientation and Siting	
Time of Day	
Green Roofs and Walls	
Solutions: Glass	18
Netting, Screens, Grilles, Shutters, Exterior Shades	19
Awnings and Overhangs	
Angled Glass	
Patterns on Glass	20
UV Patterned Glass	22
Opaque and Translucent Glass	
Window Films	24
Solutions Applied to Interior Glass	24
Decals and Tape	
Temporary Solutions	
Remediation Case Study: Javits Center	
Light: Problems and Solutions	28
Solutions	
Lights Out Programs	

Solutions: Policy32
Legislation33
Priorities for Policy Directives34
Sustainability Rating Programs34
Model Ordinance35
The Science of Bird Collisions36
Magnitude of Collision Deaths37
Patterns of Mortality38
Species at Risk38
Characteristics of Buildings39
Amount of Glass39
Time of Day40
Local Landscape40
Avian Vision and Collisions41
Avian Orientation and the Earth's Magnetic Field42
Birds and Light Pollution42
Light Color and Avian Orientation44
Research: Deterring Collisions45
The 2 x 4 Rule47
Evaluating Collision Problems48
—A Toolkit for Building Owners
Solutions49
Seasonal Timing50
Weather50
Diurnal Timing50
Location50
Local Bird Populations51
Post-Mitigation Monitoring51
References
Acknowledgments57
Disclaimer57
ABC's Bird-Friendly Building Standard59



The area of glass on a façade is the strongest predictor of threat to birds. There are also other reasons to limit glass. Skidmore Owings Merril's Bronx, New York, Emergency Call Center is a handsome example of creative design with restricted glass, for a building intended to be both secure and blast-resistant. Photo by Chris Sheppard, ABC

For updates and new information, see collisions.abcbirds.org

# **Executive Summary**



A bird, probably a dove, hit the window of an Indiana home hard enough to leave this ghostly image on the glass. Photo by David Fancher

Collision with glass claims the lives of hundreds of millions of birds each year in the United States. It is second only to domestic cats as a source of mortality linked directly to human action. Birds that have successfully flown thousands of miles on migration can die in seconds on a pane of glass; impacts kill fledglings before they can truly fly. Because glass is dangerous for strong, healthy, breeding adults, as well as sick or young birds, it can have a particularly serious impact on populations.

Bird kills occur at buildings across the United States and around the world. We know most about mortality patterns in cities, because that is where most monitoring takes place, but virtually any building with glass poses a threat wherever it is. The dead birds documented by monitoring programs or provided to museums constitute merely a fraction of the birds actually killed. The magnitude of this problem can be discouraging, but there are already effective solutions and an increasing commercial commitment to developing new solutions, if people can be convinced to adopt them.

That artificial lighting at night plays a significant part in mortality from glass is widely accepted, but often misunderstood. The majority of collisions with buildings take place during daylight. There are many well-documented instances of bright lights at night disorienting large numbers of birds—usually night-migrating passerines but also seabirds—some of which may circle in the light, sometimes until dawn. Nocturnal mortality associated with circulation events is caused by collision with guy wires and other structures. Such events were described starting in the late 19th century

at lighthouses, and later at the Washington Monument, Statue of Liberty, and Empire State Building, which were the only brightly lit structures in their areas. Today, such events occur mostly at offshore drilling platforms and communication towers. These situations have in common bright light surrounded by darkness, and their frequency has decreased in cities as areas of darkness around bright structures have also become lit. However, there are strong indications that birds are still being disoriented by urban lights and that lights are linked to mortality, even though mortality patterns have changed.

Advances in glass technology and production since the mid-twentieth century have made it possible to construct skyscrapers with all-glass walls, homes with huge picture windows, and miles of transparent noisebarriers on highways. There has been a general increase in the amount of glass used in construction—and the amount of glass on a building is the best predictor of

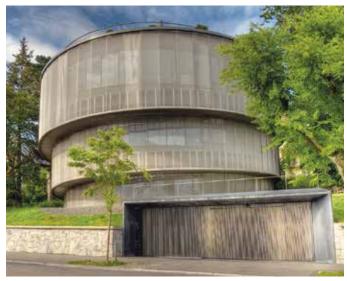


Newhouse III, designed by Polshek Partnership Architects, is part of Syracuse University's S.I. Newhouse School of Public Communications. This building incorporates an undulating, fritted glass façade with the words of the first amendment etched in letters six feet high along the base. Photo by Christine Sheppard, ABC

Item 7B Page 37

the number of birds it will kill. However, while glass is important for bringing light into buildings, a façade with over 30-40% glass dramatically increases energy use for heating and cooling. Bird-friendly design is becoming recognized as part of sustainable design, required increasingly by legislation across North America.

New construction can incorporate from the beginning bird-friendly design strategies that are cost neutral. There are many ways to reduce mortality from existing buildings, with more solutions being developed all the time. Because the science is constantly evolving, and because we will always wish for more information than we have, the temptation is to postpone action in the hope that a panacea is just around the corner. But we can't wait to act. We have the tools and the strategies to make a difference now. Architects, designers, city



The steel mesh enveloping Zurich's Cocoon in Switzerland, designed by Camenzind Evolution, Ltd, provides privacy, reduces heating and cooling costs, and protects birds, but still permits occupants to see out. Photo by Anton Volgger

planners, and legislators are key to solving this problem. They not only have access to the latest building construction materials and concepts; they are also thought leaders and trend setters in the way we build our communities and prioritize building design issues.

This publication aims to provide planners, architects, and designers, bird advocates, and local, municipal, and federal authorities, as well as the general public, with a clear understanding of the nature and magnitude of the threat glass poses to birds. Since the first edition, in 2011, there has been increased awareness of collisions, evidenced by new ordinances and guidelines for bird-friendly construction, new materials to retrofit existing buildings, and promotion by the glass industry of bird-friendly materials.

This edition includes an updated review of the underlying science, examples of solutions that can be applied to both new construction and existing buildings, and an explanation of what information is still needed. We hope it will spur individuals, businesses, communities, scientists, and governments to address this issue and make their buildings safer for birds. Constructing birdfriendly buildings and eliminating the worst existing threats require only imaginative design, effective retrofits, and recognition that birds have intrinsic and cultural as well as economic and ecological value to humanity.

American Bird Conservancy's Collisions Program works at the national level to reduce bird mortality by coordinating with organizations and governments, developing educational programs and tools, evaluating and developing solutions, creating centralized resources, and generating awareness.



The facade of Sauerbruch Hutton's Brandhorst Museum is a brilliant example of mixing glass and non-glass materials. Photo by Tony Brady



## Why Birds Matter

For many people, birds and nature have intrinsic worth. Birds have been important to humans throughout history, often symbolizing cultural values such as peace, freedom, and fidelity. In addition to the pleasure they can bring to people, we depend on them for critical ecological functions. Birds consume vast quantities of insects and control rodent populations, reducing damage to crops and forests and helping limit the transmission of diseases such as West Nile virus, dengue fever, and malaria. Birds play a vital role in regenerating habitats by pollinating plants and dispersing seeds. Birds are also a direct economic resource. According to the U.S. Fish and Wildlife Service, bird watching is one of the fastest growing leisure activities in North America, an over \$40 billion industry accounting for many jobs.

# The Legal Landscape

At the start of the 20th century, following the extinction of the Passenger Pigeon and the near extinction of other bird species due to unregulated hunting, laws were passed to protect bird populations. Among them was the Migratory Bird Treaty Act (MBTA), which made it illegal to kill a migratory bird without a permit. The scope of this law, which is still in effect today, extends beyond hunting, such that anyone causing the death of a migratory bird, even if unintentionally, can be prosecuted if that death is deemed to have been foreseeable. At present, the scope of the MBTA is under challenge in federal court and it is impossible to say whether it will ever be used to curb glass collisions. However, courts in Canada have ruled that building owners are responsible for mortality caused by glass.

Violations of the MBTA can result in fines of up to \$500 per incident and up to six months in prison. The Bald

and Golden Eagle Protection Act (originally the Bald Eagle Protection Act of 1940), the Endangered Species Act (1973), and the Wild Bird Conservation Act (1992) provide further protections for birds that may apply to building collisions. Recent legislation, primarily at the city and state levels, has addressed the problem of mortality from building collisions and light pollution. Starting with Toronto, Canada, in 2009 and San Francisco, California, in 2010 an increasing number of states and municipalities have passed laws mandating bird-friendly design, while other authorities have passed voluntary measures.

#### Glass: The Invisible Threat

Glass is invisible to both birds and humans. Humans learn to see glass through a combination of experience and visual cues like mullions and even dirt, but birds are unable to use these signals. Most birds' first encounters with glass are fatal when they collide with it at full flight speed. Aspects of bird vision contribute to the problem. Whereas humans have eyes in the front of their heads and good depth perception, most birds' eyes are placed at the sides of their heads. Birds thus have little depth perception beyond the range of their bills but extensive fields of view to the side and behind. They judge their flight speed by the passing of objects to their sides, so their focus in flight is not necessarily ahead. Besides simply using designs with less glass, we can protect birds by using screens, shutters, and details that partly obscure glass while still providing a view, or by using two-dimensional patterns that birds perceive as actual barriers. However, birds have poor contrast sensitivity compared to humans: shapes at a distance merge into a blur at closer range for birds. This means that most signals that make glass safe for birds will probably be readily visible to people.



Reflections on home windows are a significant source of bird mortality. The partially opened vertical blinds here may break up the reflection enough to reduce the hazard to birds. Photo by Christine Sheppard, ABC



Birds may try to reach vegetation seen through two or more glass walls or windows; the single decal here is not enough to solve the problem, but two or three could do the trick. Photo by Christine Sheppard, ABC

## Lighting: Exacerbating the Threat

Most birds, with obvious exceptions, are active by day, with eyes best adapted for daylight sight. However, many bird species migrate by night, allowing them to use daylight hours for feeding. We still don't know everything about how night-flying birds navigate. We do know that birds probably have two special senses that allow them to determine location and direction using the Earth's magnetic field. One of these, located in the eye, may allow birds to "see" magnetic lines in the presence of dim blue light. Star maps, landmarks, and other mechanisms are also involved.

Artificial night lighting seemingly disrupts orientation mechanisms evolved to work with dimmer, natural light sources and can cause birds to deviate from their

Light at night can disorient birds, and the problem is not restricted to tall buildings. This scene of Las Vegas by night depicts a threat to any bird migrating nearby at night. Photo by BrendelSignature, Wikipedia



flight paths. The problem is compounded for birds flying in mist or cloud, which can cause them to fly lower and closer to artificial light sources, depriving them of celestial and magnetic cues. As birds fly near light sources, they may become disoriented and eventually land in the built environment.

The majority of collisions with buildings actually take place by day. As birds seek food to fuel their next migratory flight, they face a maze of structures, and many, unable to distinguish between habitat and reflections, hit glass. The amount of light emitted by a building is a strong predictor of the number of collisions it will cause, more so than building height. Patterns of light intensity across a nocturnal landscape may influence the pattern of birds landing in that landscape at the end of migration stages. Thus, reducing light trespass from all levels of buildings and their surroundings is an important part of a strategy to reduce collisions with glass. There is some recent evidence that electromagnetic radiation outside the visible spectrum may also disorient birds.

#### Birds and the Built Environment

Humans first began using glass in Egypt around 3500 BCE. Glass blowing, invented by the Romans in the early first century CE, greatly increased the ways glass could be used, including the first crude glass windows. The 17th century saw the development of the float process, enabling production of large sheets of glass. This technology became more sophisticated, eventually making glass windows available on a large scale by the 1960s. In the 1980s, development of new production and construction technologies culminated in today's glass skyscrapers and increasing use of glass in all types of construction.

Sprawling land-use patterns and intensified urbanization degrade the quality and quantity of bird habitat across

the globe. Cities and towns encroach on riverbanks and shorelines. Suburbs, farms, and recreation areas increasingly infringe upon wetlands and woodlands. Some bird species simply abandon disturbed habitat. For resident species that can tolerate disturbance, glass is a constant threat, as these birds are seldom far from human structures. Migrating birds are often forced to land in trees lining our sidewalks, city parks, waterfront business districts, and other urban green patches that have replaced their traditional stopover sites.

The amount of glass in a building is the strongest predictor of how dangerous it is to birds. However, even small areas of glass can be lethal. While bird kills at homes are estimated at one to 10 birds per home per year, the large number of homes multiplies that loss to millions of birds per year in the United States, representing over 46% of the total problem. Other factors can increase or decrease a building's impact, including the density and species composition of local bird populations; local geography; the type, location, and extent of landscaping and nearby habitat; prevailing wind and weather; and patterns of migration through the area. All must be considered when planning bird-friendly buildings.

## Impact of Collisions on Bird Populations

About 25% of species are now on the U.S. Watch List of birds of conservation concern (abcbirds.org/ birds/watchlist/), and even many common species are in decline. Habitat destruction or alteration of both breeding and wintering grounds remains the most serious man-made problem, but collisions with buildings are second only to domestic cats as direct fatality threats. Nearly one-third of the bird species found in the United States—more than 258 species, from hummingbirds to falcons—are documented as victims of collisions. Unlike natural hazards that predominantly kill

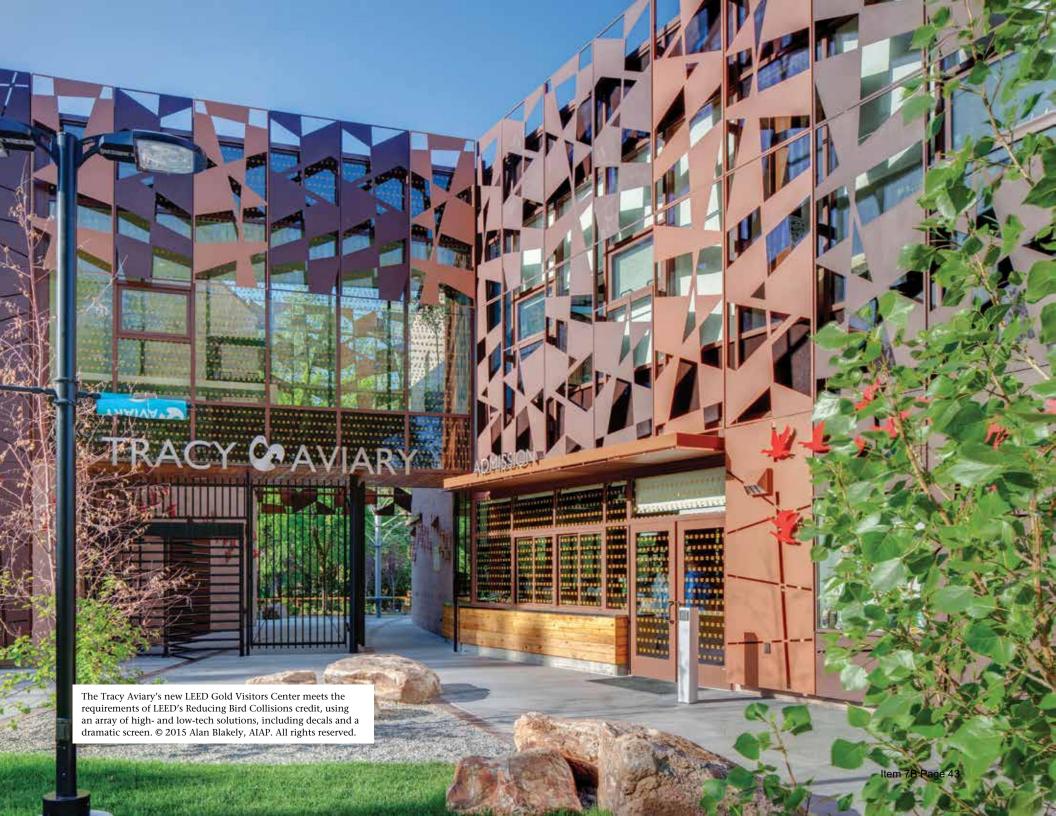
weaker individuals, collisions kill all categories of birds, including some of the strongest, healthiest birds that would otherwise survive to produce offspring. Without action, the cumulative effect of these deaths will result in significant population declines. Most of the mortality is avoidable. This document is one piece of a strategy to keep building collisions from increasing and, ultimately, to reduce them.

#### Bird Collisions and Sustainable Architecture

In recent decades, advances in glass technology and production have made it possible to construct tall buildings with all-glass walls, and we have seen a general increase in the amount of glass used in all types of construction. This is manifest in an increase in picture windows in private homes, glass balconies and railings, bus shelters, and gazebos. New applications for glass are being developed all the time. Unfortunately, as the amount of glass increases, so does the incidence of bird collisions.

The Cape May campus of Atlantic Cape Community College inherited a building with large areas of glass that did not have coatings or film to control temperature and glare—and there were many collisions. The addition of Collidescape has eliminated the threat to birds while reducing heating and cooling costs. Photo by Lisa Apel-Gendron





In recent decades, growing concern for the environment has stimulated the creation of "green" standards and rating systems for development. The best known is the U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design, or LEED. While the USGBC concurred that sustainable buildings should not kill birds, it was initially difficult to create recommendations within the LEED credit system. The solution was based on a technique called "tunnel testing," a non-lethal method using live birds that permits a relative threat score to be assigned to patterned glass and other materials. (The section on Research in Chapter 6 reviews the work underlying the assignment of threat scores.)

On October 14, 2011, USGBC added Pilot Credit 55: Bird Collision Deterrence to its Pilot Credit Library. The credit was drafted by American Bird Conservancy (ABC), members of the Bird-Safe Glass Foundation, and the USGBC Site Subcommittee. Building developers that wish to earn this credit must quantify the threat level to birds posed by various materials and design details. These threat factors are used to calculate an index, or weighted average, representing the building's façade; that index must be below a standard value to earn the credit. The index is intended to provide wide latitude in creating designs that meet the criteria. The credit also requires adopting interior and exterior lighting plans and post-construction monitoring.

Pilot Credit 55 has been the most widely used credit in the pilot library. A revised version of the credit, posted in the fall of 2015, expands its availability to all LEED rating systems except "neighborhoods."

ABC is a registered provider of the American Institute of Architects (AIA) Continuing Education System, offering classes on bird-friendly design and LEED Pilot

Credit 55 in face-to-face and webinar formats. Contact Christine Sheppard, csheppard@abcbirds.org, for more information.

#### Defining What's Good for Birds

It is increasingly common to see the term "bird-friendly" used in a variety of situations to demonstrate that a particular product, building, legislation, etc., is not harmful to birds. All too often, however, this term is unaccompanied by a clear definition and lacks a sound scientific foundation to underpin its use. Ultimately, defining "bird-friendly" is a subjective task. Is birdfriendliness a continuum, and if so, where does friendly become unfriendly? Is "bird-friendly" the same as "birdsafe?" How does the definition change from use to use, situation to situation? It is impossible to know exactly how many birds a particular building will kill before it is built, and so, realistically, we cannot declare a building to be bird-friendly before it has been carefully monitored for several years.

There are factors that can help us predict whether a building will be particularly harmful to birds or generally benign, and we can accordingly define simple "bird-friendly building standards" that, if followed, significantly reduce potential hazard to birds. That said, a 75% reduction of mortality at a structure that kills 400 birds a year means that structure will still kill 100 birds a year. Because window kills affect reproductively active adult birds, the cumulative effect of saving some birds is amplified by their reproductive output. Because a 100% reduction in mortality may be difficult to achieve, ABC takes the position that it is better to take reasonable available actions immediately than to put off taking action until a perfect solution is possible or to take no action at all.



Hariri Pontarini Architects with Robbie/Young + Wright Architects used botanical imagery in 3M laminates to depict the plants that produce many of the compounds used by students at the University of Waterloo School of Pharmacy, Canada. Photo by Christine Sheppard, ABC



# **Properties of Glass**

Glass, as a structural material, can range in appearance from transparent to mirrored to opaque. Its surface can completely reflect light or let virtually 100% of light pass through. A particular piece of glass will change appearance depending on environmental factors, including position relative to the sun, the difference between exterior and interior light levels, what may be reflected, and the angle at which it is viewed. Combinations of these factors can cause glass to look like a mirror or a dark passageway, or be completely invisible. Humans do not actually "see" clear glass, but are cued by context such as



The glass-walled towers of the Time Warner Center in New York City appear to birds as just another piece of the sky. Photo by Christine Sheppard, ABC

mullions, dirt, or window frames. Birds, however, do not perceive right angles and other architectural signals as indicators of obstacles or artificial environments: they take what they see literally. While local birds may become familiar with individual pieces of glass, they do not ever grasp the concept "glass."

#### Reflection

Under the right conditions, even transparent glass on buildings can form a mirror, reflecting sky, clouds, or nearby habitat attractive to birds. When birds try to fly to the reflected habitat, they hit the glass. Reflected vegetation is the most dangerous, but birds also attempt to fly past reflected buildings or through reflected passageways, with fatal results.

#### Transparency

Birds strike transparent windows as they attempt to access potential perches, plants, food or water sources, or other lures seen through the glass, whether inside or outside. Large planted atria are frequent problems, as are glass balcony railings and "skywalks" joining buildings. The increasing trend toward glass used in landscapes, as walls around roof gardens, as handrails or walkway dividers and even gazebos is dangerous because birds perceive an unobstructed route through them to habitat beyond.

# Black Hole or Passage Effect

Birds often fly through small gaps, such as spaces between leaves or branches, into nest cavities, or through other small openings that they encounter. In some light, the space behind glass can appear black, creating the appearance of just such a cavity or "passage" with unobstructed access through which birds try to fly.



Transparent handrails are a dangerous trend for birds, especially when they front vegetation. Photo by Christine Sheppard, ABC



Large facing panes of glass can appear to be a clear pathway. Photo by Christine Sheppard, ABC



The same glass can appear transparent or highly reflective, depending on weather



# **Factors Affecting Rates of Bird Collisions** for a Particular Building

Every site and every building can be characterized as a unique combination of risk factors for collisions. Some of these, particularly aspects of a building's design, are very building-specific. Many problem design features can be readily improved, or, in new construction, avoided. Others of these—for example, a building's location relative to migration stopover sites, regional ecology, and geography—are difficult if not impossible to modify.

## **Building Design**

People like glass and it has become a popular building material. All-glass buildings have become more and more common as glass has become a low-cost material for construction. Glass causes virtually all bird collisions with buildings. Studies based on monitoring data have shown a direct relationship between the amount of glass on a building and the number of collisions at that site the more glass, the more bird deaths.

Mirrored glass is often used intentionally to make a building "blend" into a vegetated area by reflecting its surroundings, making those buildings especially deadly to birds. However, all-glass buildings are coming increasingly into question. According to groups like the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the International Code Council, when there is more than 30-40% glass on a façade, heating and cooling costs begin to increase.

# **Building Size**

Glass skyscrapers, because of their height and visibility, are often the main focus of collision documentation, and they do account for more collisions per building than smaller structures. However, because there are

many more homes and low-rise buildings, the latter account for more total mortality. A study published by scientists at the Smithsonian in 2014 estimated 508,000 annual bird deaths for high-rises, 339 million for low-rises, and 253 million for homes. More collisions probably occur at glass on lower floors, where most bird activity takes place, but when monitors have had access to setbacks and roofs, they have consistently found at least some carcasses, indicating that glass at any level can be a threat.

## **Orientation and Siting**

Because migrating birds are frequent collision victims, it is often assumed that more collisions will occur on north- and south-facing façades. However, most building collisions take place during the day, and building orientation in relation to compass direction has not been implicated as a factor. Siting of buildings with respect to surrounding habitat and landscaping has more



Birds flying from a meadow on the left are channeled toward the glass doors of this building by a rocky outcrop to the right of the path. Photo by Christine Sheppard, ABC

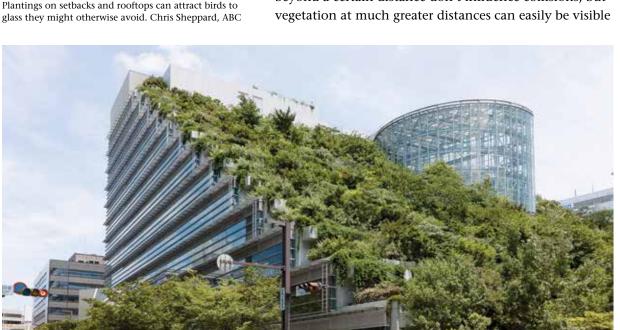




Plantings on setbacks and rooftops can attract birds to

implications. Physical features like walkways that provide an open flight path through vegetated landscape, or obstacles like outcrops of rock or berms, can channel birds toward or away from glass and should be considered early in the design phase. Movement patterns of birds within surrounding habitat may cause unanticipated collisions. Birds often fly between landscape features, for example, between two stands of trees, and may be at risk from structures along their route.

Glass that reflects shrubs and trees causes more collisions than glass that reflects pavement or grass. Studies that measured vegetation within only 15 to 50 feet of a façade have led to the misconception that plantings beyond a certain distance don't influence collisions, but



in reflections. Vegetation around buildings will bring more birds into the vicinity of the building; the reflection of that vegetation brings more birds into the glass. Taller trees and shrubs correlate with more collisions. It should be kept in mind that vegetation on slopes near a building will reflect in windows above ground level. Studies using bird feeders (Klem et al. 1991) have shown that fatal collisions result when birds fly toward glass from more than a few feet away.

## Time of Day

Collisions tend to happen most when birds are most active. Many studies have documented that although collisions peak during the early morning, they can happen at almost any time of day. Most monitoring programs have focused on early morning before cleaning crews have swept sidewalks because of the increased likelihood of finding birds and because it is easier to obtain volunteer searchers in the pre-work hours.

#### **Green Roofs and Walls**

Green roofs bring elements attractive to birds to higher levels, but often they are built in close proximity to glass. However, recent work shows that well-designed green roofs can become functional ecosystems, providing food and even nest sites for birds. Siting of green roofs, as well as green walls and rooftop gardens, should therefore be carefully considered, and glass adjacent to these features should have protection for birds.

Green roofs and walls can provide food and other resources to birds, but they can also attract birds to glass that they might not otherwise encounter. Emilio Ambasz's ACROS building in Fukuoka, Japan, is an interesting example. Photo by Kenta Mobuchi





It is possible to design buildings that can reasonably be expected to kill few or no birds. Numerous examples already exist, not necessarily designed with birds in mind but simply to be functional and attractive. These buildings may have many windows, but their screens, latticework, louvers, and other devices outside, or patterns integrated into the glass, warn birds before they collide. Finding glass treatments that can eliminate or greatly reduce bird mortality, while minimally obscuring the glass itself, has been the goal of several researchers, including Martin Rössler, Daniel Klem, and Christine Sheppard. Their work, discussed in more detail in the Science chapter, has focused primarily on the spacing, length, width, opacity, color, and orientation of elements marked on glass, and has shown that patterns covering as little as 5% of the total glass surface can deter most strikes under experimental conditions. They have shown that as a general rule, most songbirds will not attempt to fly through horizontal spaces less than 2 inches high or through vertical spaces 4 inches wide or less. We refer to this as the 2 x 4 rule, and it is clearly related to the size and shape of birds in flight. (See chart on page 47).

Designing a new structure to be bird-friendly does not require restricting the imagination or adding to the cost of construction. Architects around the globe have created fascinating and important structures that incorporate little or no dangerous glass. In some cases, inspiration has been borne out of functional needs, such as shading in hot climates; in others, from aesthetics. Being bird-friendly usually has been incidental. Now, however, buildings are being designed with birds in mind, and materials designed for this purpose are multiplying. Until recently, retrofitting existing buildings has been more

difficult and costly than it is today. However, new materials are appearing and costs can be controlled by targeting problem areas rather than entire buildings.

Bird-friendly materials and design features often overlap in function with materials to control heat and light, security measures, and decorative design details. Birdfriendly building-design strategies also fall into three general categories, although all three could be combined in a single structure. These are:

- 1. Using minimal glass (Bronx Call Center, U.S. Mission to the United Nations)
- 2. Placing glass behind some type of screening (de Young Museum, Cooper Union)
- 3. Using glass with inherent properties that reduce collisions (Brooklyn Botanic Garden Visitors Center; Student Center at Ryerson University, Toronto; and Cathedral of Christ the Light)

### Netting, Screens, Grilles, Shutters, **Exterior Shades**

There are many ways to combine the benefits of glass with bird-friendly design by incorporating elements that preclude collisions while providing light and views. Some architects have designed decorative façades that wrap entire structures. Decorative grilles are also part of many architectural traditions. Exterior, motorized solar screens and shades are effective at controlling heat and light, increase security, and can be adjusted to maximize view or bird and sun protection at different times. Netting, grilles, and shutters are common elements that can make glass safe for birds on buildings of any scale. They can be used in retrofit or be an integral part of an original design and can significantly reduce bird mortality.



The Brooklyn Botanic Garden's Visitors Center, designed by Weiss/Manfredi, was intended to be bird-friendly from its inception-a challenge, as it makes extensive use of glass. Photo @ Alber Vecerka, ESTO



Glass walls and doors at the Brooklyn Botanic Garden's Visitors Center include a custom fritting pattern that meets bird-friendly criteria. Monitoring for collisions after the building opened indicates that the design was successful. Photo by Christine Sheppard, ABC



Overhangs block viewing of glass from some angles, but do not necessarily eliminate reflections. Photo by Christine Sheppard, ABC



Reflections in this angled façade can be seen clearly over a long distance, and birds can approach the glass from any angle. Photo by Christine Sheppard, ABC

Before the current age of unopenable windows, screens protected birds in addition to serving their primary purpose of keeping bugs out. Screens are still among the most cost-effective methods for protecting birds, and, if insects are not an issue, nearly invisible netting can often be installed. Screens and netting should be installed at some remove from the window so that the impact of a strike does not carry birds into the glass. Several companies sell screens that can be attached with suction cups or eye hooks for small areas of glass. Others specialize in much larger installations. (Find sources at collisions.abcbirds.org).

### **Awnings and Overhangs**

Overhangs have been frequently recommended to reduce collisions. However, there are many situations in which overhangs do not eliminate reflections and only block glass from the view of birds flying above. They are thus of limited effectiveness as a general strategy. Overhangs work best when glass is shadowed from all sides. Functional elements such as balconies and balustrades can block the view of glass, protecting birds while providing an amenity for residents.

### **Angled Glass**

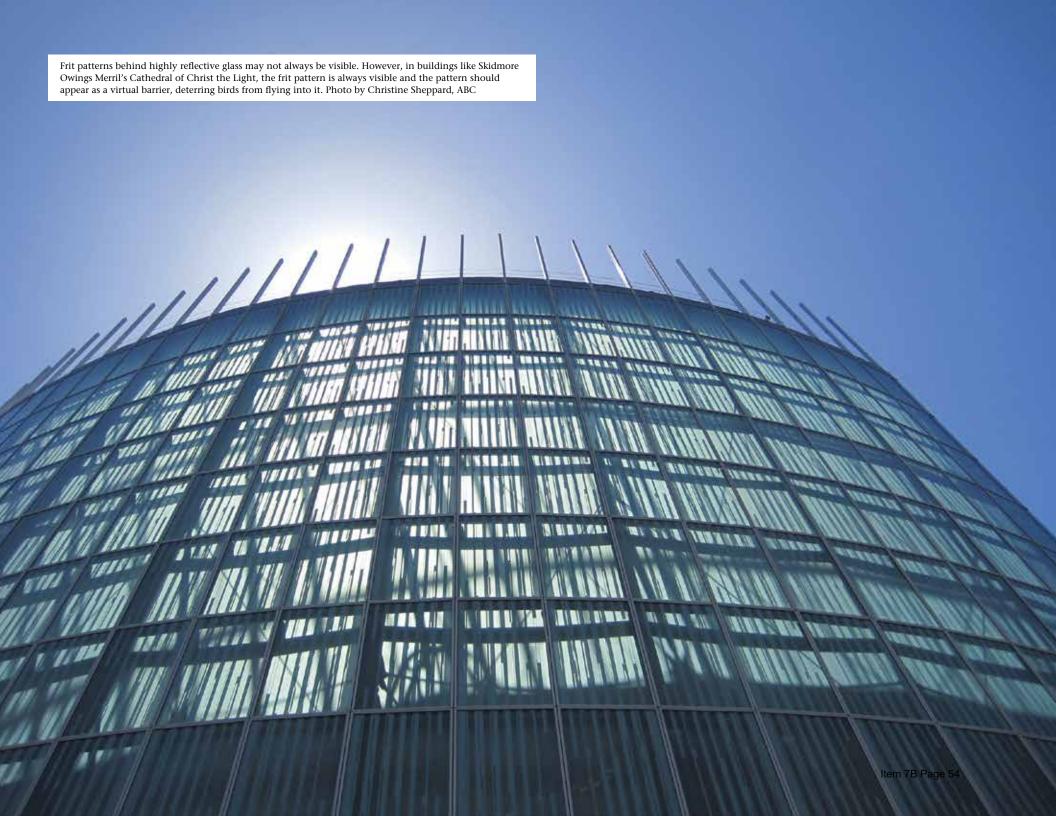
In a study (Klem et al., 2004) comparing bird collisions with vertical panes of glass to those tilted 20 or 40 degrees, the angled glass resulted in less mortality. Klem speculated that this was because the glass reflected the ground, not vegetation. Using angled glass has become a common recommendation as a bird-friendly feature. However, while angled glass may be useful in special circumstances, the birds in the study were flying parallel to the ground from nearby feeders, hitting the glass at acute angles, with less force than a perpendicular strike. In most situations, however, birds may approach glass from any angle.

#### Patterns on Glass

Ceramic dots, other types of "frits," and other materials can be screened, printed, or otherwise applied to glass surfaces. This is often done to reduce the transmission of light and heat and can also provide design detail. In some cases, frit patterns are hardly visible, but when designed according to the 2 x 4 rule (see p. 47), patterns on glass can also prevent bird strikes. Patterns on the outside surface of glass deter collisions most effectively because they are always visible, even with strong reflections. This type of design, useful primarily for new construction, is currently more common in Europe and



A custom frit pattern was designed by Ennead Architects for Vassar College's Bridge for Laboratory Sciences building. Elements of the pattern occur on two separate surfaces, increasing visibility to birds in flight, who will see a constantly changing pattern that may appear to move. Photo by Christine Sheppard, ABC





While some internal fritted glass patterns can be overcome by reflections, Frank Gehry's IAC headquarters in Manhattan is so dense that the glass appears opaque. Photo by Christine Sheppard, ABC



Ornilux Mikado's pattern reflects UV wavelengths. The spiderweb effect is visible only from very limited viewing angles. Photo courtesy of Arnold Glass

Asia, but is being offered by an increasing number of manufacturers in the United States. New technologies allowing printing of ceramic inks on the outside surface of glass may greatly increase options for bird-friendly design in the U.S.

More commonly, frit is applied to an internal surface of insulated glass units. This type of design may not be visible if the amount of light reflected by the frit is insufficient to overcome reflections on the outside surface of the glass or if frit is applied as dots below the visual threshold of birds. Some internal frits may only help break up reflections when viewed from some angles and in certain light conditions. However, with the right combination of surface reflectivity and frit application, a pattern on an inside surface can still be effective. The headquarters of the internet company IAC in New York City, designed by Frank Gehry, is composed entirely of fritted glass, most of high density and always visible. No collision mortalities have been reported at this building after two years of monitoring by New York City Audubon. FXFOWLE's Jacob Javits Center, also in Manhattan, reduced collisions by as much as 90% with a renovation that eliminated some dangerous glass and replaced other glass with a visible frit pattern. Another example of a visible internal frit pattern is seen in Skidmore Owings Merril's Cathedral of Christ the Light in Oakland, California.

### **UV Patterned Glass**

Songbirds, gulls, parrots, and other birds can see into the ultraviolet (UV) spectrum of light, a range largely invisible to humans (see page 41). Other bird types, including raptors, kingfishers, hummingbirds, and pigeons, are less sensitive to UV. Ultraviolet reflective and/or absorbing patterns "invisible to humans but

visible to birds" are frequently suggested as the optimal solution for many bird collision problems, but few such products are available commercially as of 2015. Progress in development of bird-friendly UV glass has been slow, but with legislation in multiple locations mandating bird-friendly design, glass manufacturers and distributors, as well as window-film manufacturers, are taking an active role in developing new solutions for this application. Research indicates that UV patterns need strong contrast to be effective, especially in the early morning and late afternoon, when UV in sunlight is at low levels. However, UV patterns may be ineffective for many species that have been reported as victims of collisions with glass, including hummingbirds, flycatchers, American Woodcock, and woodpeckers.

### **Opaque and Translucent Glass**

Opaque, etched, stained, or frosted glass and glass block are excellent options to reduce or eliminate collisions, and many attractive architectural applications exist. They can be used in retrofits but are more commonly used in new construction. Frosted glass is created by acid etching or sandblasting transparent glass. Frosted areas are translucent, but various finishes are available with differing levels of light transmission. An entire surface can be frosted, or frosted patterns can be applied. Patterns should conform to the 2 x 4 rule described on page 47. For retrofits, glass also can be frosted by sandblasting on site. Stained glass is typically seen in relatively small areas but can be extremely attractive and is not conducive to collisions. Glass block is versatile, can be used as a design detail or primary construction material, and is also unlikely to cause collisions. Another promising material is photovoltaic glass, which has been used in stained-glass windows and highway noise barriers. This solution is especially interesting, because



transparent highway noise barriers can cause collisions, and such barriers are beginning to be installed in the United States.

### Window Films

Most patterned window films were initially intended for use inside structures as design elements or for privacy. Now, outside surface applications intended to reduce



bird collisions are coming onto the market, and some have proved highly effective and popular. The oldest such product creates an opaque white surface on the outside of glass that still permits viewing from the inside. Patterns can be printed on this material, although images of trees and other habitat are not recommended.

A film with a pattern of narrow, horizontal stripes has eliminated collisions at the Philadelphia Zoo Bear Country exhibit for over five years (see photo opposite) and has been similarly successful in other installations when applied to outside surfaces of glass. In these cases, the response has been positive. Another option is to apply vinyl patterns like window film but with the transparent backing removed.

### Solutions Applied to Interior Glass

Light colored shades have been recommended as a way to deter collisions. However, when visible, they do not effectively reduce reflections, and reflections may make them completely invisible. Closed blinds have the same problems, but if visible and partly open, they can produce the appearance of a 2 x 4 pattern. If an exterior solution is not possible and tape or sticky notes are applied to the inside of windows, be sure to check the windows several times a day to ensure that these materials are visible.

### **Decals and Tape**

Decals are probably the most familiar solution to bird collisions, but their effectiveness is widely misunderstood. Birds do not recognize decals as

A Zen Wind Curtain is an inexpensive but extremely effective way to deter collisions. Lengths of parachute cord or similar materials are strung vertically, every four inches, in front of problem glass, creating both a visual and a physical barrier. Photo by Glenn Phillips, ABC



# ABC BirdTape



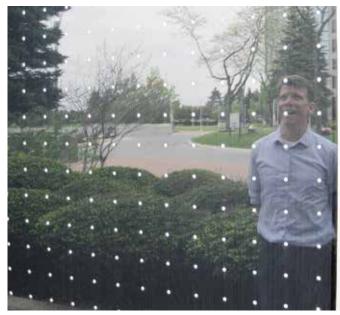
has produced ABC BirdTape to make home windows safer for birds. This easy-to-apply tape lets birds see glass while letting you see out, is easily applied, and lasts up to four years.



Photos by Dariusz Zdziebkowski, ABC

silhouettes of falcons, spiderwebs, or other natural objects, but simply as obstacles that they may try to fly around. Decals can be very effective if applied following the 2 x 4 rule on the outside of glass, but in general, they must be replaced frequently, at least annually. Tape is generally more cost effective and quicker to apply, but most household tapes don't stand up well to the elements. Tape intended to last for several years on the outside of windows has become commercially available and is effective when applied following the 2 x 4 guide.





The Consilium Towers, a mirror-glass complex in Toronto, once killed thousands of birds each year. After being taken to court, its owners retrofitted the lower 60 feet of glass with a Feather Friendly dot pattern that has greatly reduced bird mortality.

Reflected in this glass is Michael Mesure, the founder of Toronto's Fatal Light Awareness Program. Photos by Christine Sheppard, ABC

### **Temporary Solutions**

In some circumstances, especially for homes and small buildings, quick, low-cost, temporary solutions, such as making patterns on glass with paint, stickers, or even post-its, can be very effective in the short term. Even a modest effort can reduce collisions. Such measures can be applied when needed and are most effective following the 2 x 4 rule. (For more information, see ABC's flyer "You Can Save Birds from Flying into Windows" and other sources at collisions.abcbirds.org).

ABC BirdTape was effective at the Forest Beach Migratory Reserve in Wisconsin (left), and also performed well in tunnel tests conducted in Austria. Photo by Christine Sheppard, ABC

# **REMEDIATION CASE STUDY: Javits Center**

In 2009, the New York City Audubon Society identified the Jacob K. Javits Convention Center as having one of the highest bird-collision mortality rates in New York City.

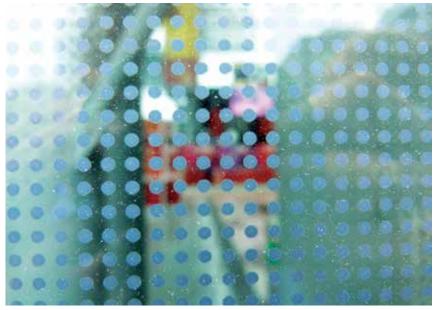
A major renovation and expansion, designed by the bird-friendly architectural firm of FXFOWLE, was completed in 2014. Some especially deadly glass at street level was replaced with opaque panels. Large panes of clear fritted glass with varying surface characteristics were brought to the site and compared to find the right combination for birds and people.

A 6.75-acre green roof, with adjacent translucent glass, crowns the building and is already providing resources for birds.

Best of all, collisions at the now much larger site have been reduced by 90%.



From a distance, the Javits Center looks like a potential threat to birds.



At close range, a visible pattern of frit dots breaks up reflections, making the glass safe for birds. Photos by Glenn Phillips, ABC



Birds evolved complex complementary systems for orientation and vision long before humans developed artificial light. We still have much more to learn, but recent science has begun to clarify how artificial light poses a threat to birds, especially nocturnal migrants. Although most glass collisions take place during daylight hours, artificial lighting at night plays a role in the number and distribution of collisions across the built environment. Unfortunately, the details of how birds respond to night lighting are less well understood than has been commonly believed.

Many collision victims, especially songbirds, are ordinarily active by day and have eyes specialized for color vision and bright light. But although they migrate at night, these birds have poor night vision. Instead, they have magnetic senses that allow them to navigate using the Earth's magnetic field. One of these is located in the retina and requires dim blue natural light to function. Red wavelengths found in most artificial light have been shown to disrupt that magnetic sense. Studies in Germany and Russia have documented birds flying through beams of light and diverting from their course anywhere from a few degrees to a full circle. Areas with significant light pollution may be completely disorienting to birds.

Birds are attracted to relative brightness, and by day often orient toward the sun. If a songbird flies into a home, darkening the room and opening a bright window is the best way to release it. Birds are thought to be attracted to artificial light at night, but we don't know what light level at what distance is sufficient to cause attraction or other behavioral impacts. Gauthreaux and Belser, discussing impacts of night lighting on birds, speculated that in fact, birds affected by night lighting may simply be on course to pass over the lights, not

necessarily attracted from a distance. Marquenie and Van de Laar, studying birds and lights on a drilling rig in the North Sea, estimated that when all the lights on the platform were lit, they affected birds up to 3 to 5 kilometers away, causing many to circle the platform.

The science is inconclusive: Lights may only impact birds as they end a migratory stage and come down close to the built environment, or lights may divert birds that would ordinarily pass by. Bad weather can cause birds to fly lower and closer to lights, while also eliminating any visual cues. The interactions that produce correlations between building light emissions and collisions may take place at relatively close range. Once birds come close to a light source, the electromagnetic radiation actively interferes with their magnetic orientation mechanism.



Overly lit buildings waste electricity and increase greenhouse gas emissions and air pollution levels. They also pose a threat to birds. Photo by Matthew Haines



Houston skyline at night. Photo by Jeff Woodman

# Examples of Acceptable/Unacceptable Lighting Fixtures



Reprinted courtesy of DarkSkySociety.org

Some combination of attraction and disorientation may result in larger numbers of birds in the vicinity of brighter buildings and thus, by day, in more collisions. Interestingly, there seem to be no reports of lights attracting or disorienting migrants as they take off on a new migratory stage.

There has been a tendency to associate collision events with very tall structures, though published reports clearly document impact from light at all levels. Early reports of this phenomenon came from lighthouses. Contemporary reports of light-associated circling events are common at oceanic drilling rigs, and disoriented birds have been reported at night skiing sites. A study in Toronto, using the number of lighted windows on a series of buildings as an index of emitted light, found that the amount of light emitted, not the height of the building, was the best predictor of bird mortality.

#### **Solutions**

Poorly designed or improperly installed outdoor fixtures add over \$1 billion to electrical costs in the United States every year, according to the International Dark Skies Association. Recent studies estimate that over two-thirds of the world's population can no longer see the Milky Way, just one of the nighttime wonders that connect people with nature. Glare from poorly shielded outdoor light fixtures decreases visibility and can create dangerous conditions, especially for older people, and recent studies suggest that long-term exposure to night lighting can increase the risk of breast cancer, depression, diabetes, obesity, and sleep disorders. Together, the ecological, financial, and cultural impacts of excessive building lighting are compelling reasons to reduce and refine light usage.

Reducing exterior building and site lighting has proven effective at reducing mortality of night migrants at

individual buildings, but achieving overall reduction in collisions will require applying those principles on a wider scale. At the same time, these measures reduce building energy costs and decrease air and light pollution. Efficient design of lighting systems plus operational strategies to reduce light trespass or "spill light" from buildings while maximizing useful light are both important strategies. In addition, an increasing body of evidence shows that red light and white light (which contains red wavelengths) particularly confuse birds, while green and blue light may have far less impact.

Light pollution is largely a result of inefficient exterior lighting, and improving lighting design usually produces savings greater than the cost of changes. For example, globe fixtures permit little control of light, which shines in all directions, resulting in a loss of as much as 50% of energy, as well as poor illumination. Cut-off shields can reduce lighting loss and permit use of lower powered bulbs. Most "vanity lighting" is unnecessary. However, when it is used, down-lighting causes less trespass than up-lighting. Where light is needed for safety and security, reducing the amount of light trespass outside of the needed areas can help by eliminating shadows. Spotlights and searchlights should not be used during bird migration. Communities that have implemented programs to reduce light pollution have not found an increase in crime.

Using automatic controls, including timers, photosensors, and infrared and motion detectors, is far more effective than relying on employees turning off lights. These devices generally pay for themselves in energy savings in less than a year. Workspace lighting should be installed where needed, rather than in large areas. In areas where indoor lights will be on at night, minimize perimeter lighting and/or draw shades after dark.

Switching to daytime cleaning of office buildings is a simple way to reduce lighting while also reducing costs.

## **Lights Out Programs**

Despite the complexity of reducing bird collisions with glass, there is one simple way to decrease mortality: turn lights off. Across the United States and Canada, "Lights Out" programs at the municipal and state levels encourage building owners and occupants to turn out lights visible from outside during spring and fall migration. The first of these, Lights Out Chicago, was started in 1995, followed by Toronto in 1997.

The programs themselves are diverse. Some are directed by environmental groups, others by government departments, and still others by partnerships of organizations. Participation in most, such as Houston's, is voluntary. Minnesota mandates turning off lights in state-owned and leased buildings.

Many jurisdictions have monitoring components. Monitoring programs can provide important information in addition to quantifying collision levels and documenting solutions. Ideally, lights-out programs would be in effect year-round and be applied widely, saving birds and energy costs and reducing emissions of greenhouse gases. ABC stands ready to help develop new programs and to support and expand existing programs.



Powerful beams of light, even in a landscape of urban light pollution, can entrap migrating birds, seen here circling in the beams of the 9/11 Memorial Tribute in Light in New York City. Because birds may circle for hours, monitors watch all night, and the light beams are temporarily turned off to release large accumulations of birds. Photo by Jason Napolitano



## Legislation

Changing human behavior is generally a slow process, even when the change is uncontroversial. Legislation can be a powerful tool for modifying behavior. Conservation legislation has created reserves, reduced pollution, and protected threatened species and ecosystems. Policies that promote bird-friendly design and reduction of light pollution have recently proliferated across the United States and Canada, following the early examples of Toronto and San Francisco. They vary considerably in scope and detail, often reflecting local politics. (A real-time database of ordinances and other instruments mandating or promoting bird-friendly action, including links to source language, can be found at collisions.abcbirds.org).

An early challenge in creating effective legislation was the lack of objective measures that architects could use to accomplish their task. For example, a common recommendation, to "increase visual noise," because it was unquantified and undefined, made it difficult for architects and planners to know whether a particular design complied with requirements. Material testing (see p. 45) has made it possible to assign relative threat factors to various building façade materials and to use those scores to create quantitative guidelines and mandates.

The illustration to the right broadly compares San Francisco's Bird-safe Building Standard with LEED Pilot Credit 55, both based on the use of materials with quantified threat levels. San Francisco's standard applies generally to new construction and is restricted to façades within 300 feet of a two-acre park or pond. The LEED credit is intentionally very flexible. It applies to all building facades and allows for restricted amounts of high-threat glass, or larger amounts of bird-friendly glass. Because birds are found throughout the built environment, ABC

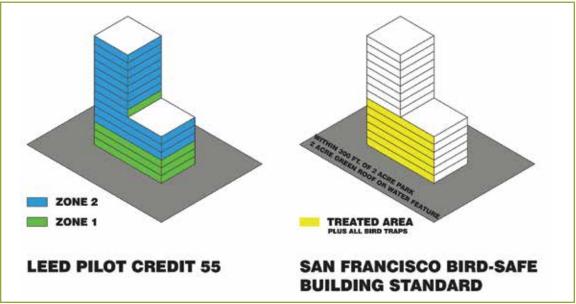
prefers the LEED model. (ABC's model legislation can be found on page 35.)

Bird lovers across the country are proposing bird-friendly design ordinances at both local and state levels. ABC is ready to actively support such efforts. Both mandatory and voluntary instruments can be effective. Voluntary guidelines are easier to modify if they prove to have unintended consequences and can lead to a mandate, but can also be ignored. Generally ABC recommends mandatory guidelines, beginning with a small subset of buildings and expanding as community support increases and resistance decreases.

Incorporating bird-friendly design issues into local sustainability policies is another way to drive change. An interesting example of this is the Fairfax County, Virginia, proffer system. New construction projects are required to address a series of sustainability issues, including potential bird mortality, and either to describe



The design of the Grange Insurance Audubon Center in Columbus, Ohio, includes many panels of glass, fritted with the silhouettes of species of birds in flight. Photo by Christine Sheppard, ABC



courtesy of Deborah Laurel



For its new Visitors Center in Sempach, Ornithological Institute designed a mandala from bird silhouettes (below) that was applied on the inside of all glass using digital printing. The design provides 40-50% coverage and generates much discussion among visitors, an achievement second only to preventing bird collisions.



how these will be addressed by the project or explain why such action is not possible.

### **Priorities for Policy Directives**

ABC generally recommends against attempting to map locations where bird-friendly design is required because birds can be found in almost every environment, even in seemingly inhospitable ones. However, there may be occasions when it is necessary to compromise on the scope of legislation. In such cases, it must be recognized that proximity to undeveloped land, agricultural areas, parks, and water often correspond to increased bird populations and therefore increased risk of collisions. In addition, areas located in between landscape features desirable to birds may also pose higher risks. For example, in New York City some evidence suggests that birds approach Central Park from due south during spring migration, creating a greater risk zone directly south of the park. Also, building features such as green roofs should be considered when determining greater risk zones for policy purposes.

# Sustainability Rating Programs

Another driver of bird-friendly policies consists of sustainability rating programs like the Green Building Council's LEED program, Green Globes, Living Building Challenge, and others. There is general agreement that sustainable buildings should not kill birds. This tenet appears with differing levels of robustness in different systems, with the most specific being the LEED program, which grants Pilot Credit 55: Bird Collision Deterrence. The credit is calculated using a weighted average of the relative threat rating of each material on a building's facade. The credit has attracted a lot of attention, with many projects applying for it. The new Vassar Bridge for Laboratory Sciences on the cover of this publication was

one of the first to be designed with the credit in mind and to earn the credit.

Because a number of glass-walled buildings have been awarded LEED certification at the highest level, at one point there was concern that sustainable design was not compatible with bird-friendly design. This was ironic, as in addition to providing natural light, glass on sustainable buildings is intended to link people inside with the natural world outside. However, according to both ASHRAE and ICC, costs for heating and cooling increase when total glass surface exceeds 30-40% of the total building envelope, depending on climate. This is more than sufficient for providing light and views when glass placement is considered thoughtfully. This is a great place to start the design of a bird-friendly structure.



The façade of the WÜRTH Building in Switzerland is mostly glass, laminated with a fabric that is black on the inside but aluminium-coated outside. The inner surface delivers good visibility, and the fabric provides shade and interesting visual effects outside. Preliminary studies by the Swiss Ornithological Institute suggest that the materials used in this building may also deter bird collisions. Photo by Hans Schmid

# Model Ordinance for Bird-Friendly Construction

[ORDINANCE Name] Sponsored by: [list names]

WHEREAS, birds provide valuable and important ecological services,

WHEREAS, [location] has recorded [ ] species of resident and migratory bird species,

WHEREAS, birding is a hobby enjoyed by 64 million Americans and generates more than \$40 billion a year in economic activity in the United States,

WHEREAS, as many as one billion birds may be killed by collisions with windows every year in the United States,

WHEREAS, reducing light pollution has been shown to reduce bird deaths from collisions with windows,

WHEREAS, new buildings can be designed to reduce bird deaths from collisions without additional cost,

WHEREAS, there exist strategies to mitigate collisions on existing buildings,

WHEREAS, more than 30% glass on a façade usually increases costs for heating and cooling

WHEREAS, bird-friendly practices often go hand-in-hand with energy efficiency improvements,

And WHEREAS [any additions specific to the particular location]

NOW, THEREFORE, BE IT ORDAINED, by [acting agency] [title of legislation and other necessary language]

- (a) In this section the term "Leadership in Energy and Environmental Design (LEED)" means a green building rating system promulgated by the United States Green Building Council (USGBC) that provides specific principles and practices, some mandatory but the majority discretionary, that may be applied during the design, construction, and operation phases, which enable the building to be awarded points from reaching present standards of environmental efficiency so that it may achieve LEED certification from the USGBC as a "green" building.
- b) [acting agency] does hereby order [acting department] to take the steps necessary to assure that all newly constructed buildings and all buildings scheduled for capital improvement are designed, built, and operated in accordance with the standards and requirements of the LEED Green Building Rating System Pilot Credit 55: Bird Collision Deterrence.
- (c) The USGBC releases revised versions of the LEED Green Building Rating System on a regular basis; and [acting department] shall refer to the most current version of the LEED when beginning a new building construction permit project or renovation.

- (d) New construction and major renovation projects shall incorporate bird-friendly building materials and design features, including, but not limited to, those recommended by the American Bird Conservancy publication *Bird-Friendly Building Design*.
- (e) [acting department] shall make existing buildings bird-friendly where practicable.



The Studio Gang's Aqua Tower in Chicago was designed with birds in mind. Strategies included fritted glass and balcony balustrades. Photo by Tim Bloomquist ltem 7B Page 68



Hundreds of species of birds are killed by collisions. These birds were collected by monitors with FLAP in Toronto, Canada. Photo by Kenneth Herdy ltem 7B Page 69

## Magnitude of Collision Deaths

The number of birds killed by collisions with glass every year is astronomical. Quantifying mortality levels and impacts on populations has been difficult, however. Until recently, local mortality studies—despite producing valuable information—aimed more at documenting mortality than quantifying it, and did not follow rigorous protocols. Loss et al. (2012) created methodology and techniques of analysis to determine the magnitude of anthropogenic mortality, using existing data sets. The authors comprehensively acquired published and unpublished data sets on collisions with buildings (Loss et al., 2013). Data sets were filtered using a variety of criteria to ensure that they could be used in single analyses. Loss et al. (2014b) have also comprehensively described how to collect meaningful data on collisions.

The authors calculated the median annual mortality at homes at 253 million, or 2.1 birds per structure. Urban residences without feeders account for 33% of this mortality cumulatively, as there are more such residences, even though residences with feeders produce more collisions individually. Rural residences without feeders account for 31% of residential mortality, followed by urban residences with feeders (19%) and rural residences with feeders (17%). Median mortality at low-rise buildings (4 to 11 stories), calculated from two data sets, was averaged as 339 million, or 21.7 birds per building. High-rises, although collectively causing the least mortality (508,000), individually had the highest median rate of 24.3 bird collisions per building. Combining all building classes produces an estimate of 365 and 988 (median 599) million birds killed annually in the United States.

Machtans, et al. (2013) estimated that about 25 million (ranging from 16 to 42 million) birds are killed by colliding with windows in Canada annually, with 90% of building-related mortalities caused by houses, slightly less than 10% by low-rise buildings, and approximately 1% by tall buildings. In both cases, the total mortality caused by houses is a function of their large number compared to the two other classes of buildings.

Previously, Dunn (1993) surveyed 5,500 people who fed birds at their homes and recorded window collisions. She derived an estimate of 0.65-7.7 bird deaths per home per year for North America. Klem (1990) estimated that each building in the United States kills one to 10 birds per year. Using 1986 U.S. census data, he combined numbers of homes, schools, and commercial buildings for a maximum total of 97,563,626 buildings, producing an estimate of 100 million to one billion birds killed annually.

Klem et al. (2009a) used data from New York City Audubon's monitoring of 73 Manhattan building façades to estimate 0.5 collision deaths per acre per year in urban environments, for a total of about 34 million migratory birds annually colliding with city buildings in the



This Barn Swallow illustrates the type of acrobatic flying that may keep swallows from being frequent collision victims. If birds do identify glass as a barrier at close range, perhaps by sound or air movements, most species may be unable to react fast enough to avoid striking the surface. Photo by Keith Ringland





Sharp-shinned Hawk. Photo by Ted Ardley

United States. However, there could be major differences in collision patterns in cities across the United States, and these numbers should be confirmed using data from additional locations.

In The American Bird Conservancy Guide to Bird Conservation (Lebbin et al., 2010) the authors state "...we have reached a point in history when the impacts of human activities are so profound and far-reaching that from now on, it will always be impossible to untangle the completely natural declines from those that are partially or completely anthropogenic. From a conservation standpoint, it is largely irrelevant, anyway. Any human-caused stress that we can alleviate from a declining species can potentially benefit its population, and we should take action to lessen that stress if we can." This is abundantly true for bird mortality from glass because there are actions that many, if not most, individuals can take themselves, directly, to reduce the toll taken by existing glass.

## Patterns of Mortality

It is difficult to get a complete and accurate picture of avian mortality from collisions with glass. Collision deaths can occur at any time of day or year. Monitoring programs focus on cities, and even intensive monitoring programs cover only a portion of a city, usually visiting the ground level of a given site at most once a day and often only during migration seasons. Many city buildings have stepped roof setbacks that are inaccessible to monitoring teams. Some studies have focused on reports from homeowners on backyard birds (Klem, 1989; Dunn, 1993) or on mortality of migrants in an urban environment (Gelb and Delacretaz, 2009; Klem et al., 2009a; Newton, 1999). Others have analyzed collision victims produced by single, large-magnitude incidents (Sealy,

1985) or that have become part of museum collections (Snyder, 1946; Blem et al., 1998; Codoner, 1995). There is general support for the fact that birds killed in collisions are not distinguished by age, sex, size, or health (for example: Blem and Willis, 1998; Codoner, 1995; Fink and French, 1971; Hager *et al.*, 2008; Klem, 1989), but the majority of work has focused on data taken during migratory periods, primarily east of the Mississippi River.

### Species at Risk

Snyder (1946), examining window collision fatalities at the Royal Ontario Museum, noted that the majority were migrants and "tunnel flyers"—species that frequently fly through small spaces in dense, understory habitat. Conversely, resident species well adapted to and common in urban areas, such as the House Sparrow and European Starling, are not prominent on lists of fatalities, possibly because individuals surviving their first collision may teach offspring to avoid windows.

It is well known that zoo birds in exhibits with glass walls can and do learn about specific pieces of glass, but birds do not learn about glass as a general concept.

Dr. Daniel Klem maintains running totals of the number of species reported in collision events in countries around the world. (This information can be found at http://tinyurl.com/ob3nc4s). In 2015, the site identifies 868 species globally, with 274 from the United States. The intensity of monitoring and reporting programs varies widely from country to country, however.

Hager et al. (2008) compared the number of species and individual birds killed at buildings at Augustana College in Illinois with the density and diversity of bird species in the surrounding area. The authors concluded that the

total window area, the habitat immediately adjacent to windows, and behavioral differences among species were the best predictors of mortality patterns, rather than the mere size and composition of the local bird population. Kahle et al. (2015) reached similar conclusions in an analysis of five years of data at the California Academy of Sciences, also finding that migrants do not make up the preponderance of birds killed and that males are overrepresented relative to their abundance in habitats adjacent to the museum. Dunn (1993), analyzing winter data from homes with bird feeders, found that the frequency distribution of birds at the feeders closely paralleled the distribution of species killed by nearby windows. Dunn found few collisions on windows of less than one square meter, and an increase in collisions with an increase in window size.

Species such as the White-throated Sparrow, Ovenbird, and Common Yellowthroat appear consistently on top 10 lists from urban areas. It is possible that these species respond more readily to light and thus are more likely to



Common Yellowthroat. Photo by Owen Deutsch

end migratory stages in the built environment, but this needs to be confirmed. Additionally, Loss et al. (2013) noted that Golden-winged Warbler, Painted Bunting, Canada Warbler, Wood Thrush), Kentucky Warbler, and Worm-eating Warbler—species identified as birds of conservation concern—were also disproportionately represented in building kills. Hager (2009) noted that window-strike mortality was reported for 45% of raptor species found frequently in urban areas of the United States and was the leading source of mortality for Sharpshinned Hawks, Cooper's Hawks, Merlins, and Peregrine Falcons. Because most data on glass collisions are from the eastern half of the United States, these lists are presumably biased toward species occurring in that range.

# Characteristics of Buildings

### Amount of Glass

From a study of multiple buildings in Manhattan, Klem et al. (2009a) concluded that both the proportion and absolute amount of glass on a building façade best predict mortality rates, calculating that every increase of 10% in the expanse of glass correlates to a 19% increase in bird mortality in spring and 32% in fall. How well these equations predict mortality in other cities remains to be tested. Collins and Horn (2008), studying collisions at Millikin University in Illinois, concluded that total glass area and the presence/absence of large expanses of glass predicted mortality level. Hager et al. (2008, 2014) came to the same conclusion, as did Dunn (1993) and Kahle et al. (2015). However, the "patchiness" of glass across a façade—how many pieces, their size, how they are separated, etc. (another way of saying "visual noise")—has not yet been explored in detail but could be important.



The façade of the New York Times building, by FXFOWLE and Renzo Piano, is composed of ceramic rods, spaced to let occupants see out while minimizing the extent of exposed glass—good for controlling heat and light, and safe for birds. Photo by Christine Sheppard, ABC



Snohetta's Student Learning Centre at Ryerson University is one of the first constructed under Toronto's design law. Photo by Rick Ligthelm

## Time of Day

Most monitoring programs focus on early morning hours to document mortality during migration, often starting monitoring routes at dawn, before sidewalks are cleared. This can, however, lead to the misperception that night-flying migrants are crashing into lighted buildings at night, or only in early morning, whereas in fact most collisions take place during the day. It should be noted that "dawn" is a time that varies among species (Thomas et al. (2002), with some bird species active before humans start to see light in the sky.

Hager and Craig (2014), in a study of resident population collisions in northwestern Illinois between June and early August, found that 66% of birds died between sunrise and 4:00 p.m., with no collisions between 4:00 p.m. and sunset. Delacretaz and Gelb (2006) found collisions from early morning until mid-afternoon, but with a peak during morning hours. This finding is confirmed by monitoring programs like that of Pennsylvania Audubon, where routes were followed three times in succession early each day, with birds found at each pass (Keith Russell, pers. comm.) and where people living or working in buildings report window strikes through afternoon hours (Olson, pers. comm).

# Local Landscape

Gelb and Delacretaz (2006, 2009) evaluated data from collision mortality at Manhattan building façades. They found that sites where glass reflected extensive vegetation were associated with more collisions than glass reflecting little or no vegetation. Of the 10 buildings responsible for the most collisions, four were "low-rise." Klem (2009) measured variables in the space immediately associated with building façades in Manhattan as risk factors for collisions. Both increased height of trees

and increased height of vegetation increased the risk of collisions in fall. Ten percent increases in tree height and the height of vegetation corresponded to 30% and 13% increases in collisions in fall. In spring, only tree height had a significant influence, with a 10% increase corresponding to a 22% increase in collisions. Confusingly, increasing "facing area," defined as the distance to the nearest structure, corresponded strongly with increased collisions in spring and with reduced collisions in fall. Presumably, vegetation increases risk both by attracting more birds to an area and by being reflected in glass.

Bayne et al. (2012) confirmed that the risk of bird-window collisions varies according to location (urban versus rural, home versus apartment, with or without feeders, and age of neighborhood). They used online surveys and determined that rural residences had more collisions than urban ones and residences with feeders had almost twice as many collisions as those without feeders. For urban dwellings, incidence of collisions increased with age of neighborhood, associated with presence of mature trees. Frequency of collisions varied seasonally: 24% in fall, 35% summer, 25% spring, 16% winter. Mortality patterns were similar: 26% fall, 31% summer, 26% spring, 17% winter. Forty-eight species were reported.

Hager et al. (2013) noted that estimates of bird-collision mortality often postulate a relatively constant range of collisions at all buildings (for example, Klem, 1990). However, they suggested that each building in a landscape has its own mortality "signature," based not only on characteristics of the structure but also on the distribution of resources throughout the local landscape, including land cover, habitat type, water, and pavement. Their protocol selected buildings at random and has recently been expanded to multiple other sites across North America.

#### **Avian Vision and Collisions**

Bird species like falcons are famous for their acute vision, but taking a "bird's-eye view" is much more complicated than it sounds. To start with, where human color vision relies on three types of sensors, birds have four, plus an array of color filters that together allow birds to discriminate between many more colors than people (Varela et al. 1993) (see figure this page).

There is also variation in vision among different groups of birds. While some birds see only into the violet range of light, many birds, including most passerines (Ödeen and Håstad, 2003, 2013) see into the ultraviolet spectrum (UVS species).

Ultraviolet can be a component of any color (Cuthill et al. 2000). Whereas humans see red, yellow, or red + yellow, birds may see red + yellow, but also red + ultraviolet, yellow + ultraviolet, and red + yellow + ultraviolet—colors for which we have no names. Every object absorbs, reflects, and transmits ultraviolet light along with the other wavelengths in the visible spectrum. UV patterns on glass are often cited as desirable solutions to collisions—visible to birds but not to humans. However. aside from manufacturing complexities, many bird taxa that collide frequently with glass, including raptors, pigeons, woodpeckers, and hummingbirds, may not be able to perceive UV patterns (Håstad and Ödeen, 2014). Additionally, birds are often active in early morning, when UV light levels are low.

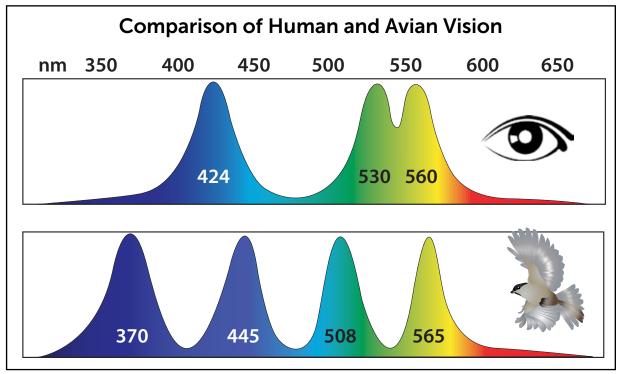
Humans and other primates have relatively flat faces, with eyes close together. The overlap of visual fields means that humans have good depth perception and a tendency to focus on what is ahead. Most birds have eyes at the sides of their heads, giving them excellent peripheral vision but poor depth perception, often

limited to the length of their beaks, presumably to judge potential food items. They may be much less intent on what is in front of them (Martin 2011, 2012) but able to watch for potential predators to the side or behind them. Many species' most acute vision is to the side. Without much 3D vision, birds use a mechanism called "visual flow fields" to judge their speed and rate of progress in flight by the passage of environmental features to their sides (Bhagavatula et al. 2011). Collisions with glass may be partly a result of birds expecting open air ahead, combined with relatively poor forward vision.

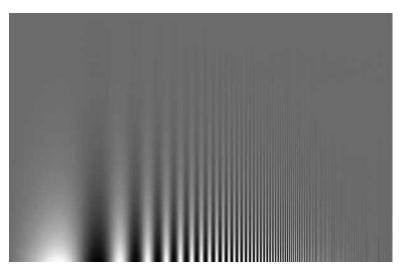
Birds process images faster than humans; where we see continuous motion in a movie, birds would see flickering images (D'Eath, 1998; Greenwood et al. 2004; Evans et al. 2006). This speed helps many birds maneuver quickly in



Painted Bunting. Photo by Ted Ardley



Based on artwork by Sheri Williamson



Contrast sensitivity is a measure of the limit of visibility for low-contrast patterns. Each person's contrast sensitivity can be measured by the extent to which he or she can see the bars that form an arch in this photograph. The exact location of the peak of the curve varies with one's distance from the image; the area within the arch is larger when one is closer. For a given distance, the area under the arch is smaller for birds. Image courtesy of Izumi Ozawa, Berkeley Neuroscience Laboratory

response to unexpected obstacles as they fly through complex habitats. In one respect however spatial contrast sensitivity—human vision outperforms avian (Ghim and Hodos, 2006). Contrast sensitivity is "the ability of the observer to discriminate between adjacent stimuli on the basis of their differences in relative luminosity (contrast) rather than their absolute luminances." Birds' lack of contrast sensitivity may be an impediment to creating signals to prevent collisions that are

effective for birds but not visually intrusive to humans.

## Avian Orientation and the Earth's Magnetic Field

In the 1960s, it was discovered that migrating birds possess the ability to orient themselves using cues from the sun, polarized light, stars, the Earth's magnetic field, visual landmarks, and possibly even odors to find their way. Exactly how this works—and it likely varies among species—is still being investigated. (For a comprehensive review of the mechanisms involved in avian orientation, see Wiltschko and Wiltschko, 2009).

The Earth's magnetic field can provide both directional and positional information. It appears that night-flying migrants, and perhaps all bird species, have magnetic field-detecting structures in the retina of the eye that depend on light for function and provide compass orientation. This magnetic sense is wavelengthdependent. Experiments have shown that the compass is disrupted by long wavelength light but requires

low-intensity short wavelength light (Wiltschko et al. 2007). This research has taken place only in laboratories, and it is important to determine how it translates to the real world.

In addition, anthropogenic electronic noise, found throughout urban environments, has recently been shown to disrupt magnetic compass orientation in European Robins at very low intensities (Engels et al. 2014). This finding may have serious implications for strategies aimed at reducing collisions by reducing artificial night lighting alone and should be a priority for additional work.

A second magnetic mechanism, providing birds with positional information, has been postulated, but its details have not been determined. (For a review of magnetoreception and its use in avian migration, see Mouritsen, 2015.)

## **Birds and Light Pollution**

The earliest reports of mass avian mortality caused by lights were from lighthouses, but this source of mortality essentially disappeared when steady-burning lights were replaced by rotating beams (Jones and Francis, 2003). Flashing or interrupted beams apparently allowed birds to continue to navigate, which has also been found more recently at cell towers with strobe lighting (Gehring et al. 2009). The emphasis on tall structures by Lights Out programs ignores the fact that light from many sources, from urban sprawl to parking lots, can affect bird behavior and potentially strand birds in the built environment (Gauthreaux and Belser, 2006). Evans-Ogden (2002) showed that light emission levels of 16 buildings, ranging in height from 8 to 72 floors and indexed by the number of lighted windows observed at night, correlated directly with bird mortality, and

that the amount of light emitted by a structure was a better predictor of mortality level than building height, although height was a factor. Parkins et al. (2015) made similar findings.

Mass collision events of migrants associated with light and often with fog or storms have been frequently reported (Weir, 1976; Avery et al. 1977; Avery et al. 1978; Crawford, 1981a, 1981b; Gauthreaux and Belser, 2006; Newton, 2007). But these are no longer the predominant sources of mortality, possibly because the night landscape has changed radically since early reports of mass collision events at tall structures like the Washington Monument and Statue of Liberty. These and other structures were once beacons in areas of relative darkness, but are now surrounded by square miles of light pollution. While collisions at structures like cell towers continue to take place at night, the majority of collisions with buildings now take place during the day. (Hager, 2014; Kahle et al., 2015; Olson, pers. comm.)

Patterns of light intensity seem to play a role in the distribution of collisions in the built environment, however. Birds may land in patterns dictated by the pattern of light intensity in an area, so the brightest buildings are the most likely to cause collisions early in the day. As birds move through the landscape seeking food, patterns related to distribution of vegetation appear. Studies using radar to map movement of birds through the built environment are starting to appear, but we need information at the level of species and individuals to truly understand how light is impacting birds.

It is often said that birds are attracted to lights at night (Gauthreaux and Belser, 2006; Poot et al. 2008). However, we do not have direct evidence that birds are, in fact, attracted to lights; they may simply respond

to lights they encounter. Gauthreaux and Belser quote Verheijen as suggesting that "capture" might be a better word for birds' response to night lighting. While "capture" does seem appropriate to describe the phenomenon of birds circling drilling platforms, or in the lights of the 9/11 Memorial's Tribute in Light in Manhattan, "disorientation" is a term that covers more of the spectrum of behaviors seen when birds interact with light at night. Gauthreaux and Belser (2006), reporting unpublished data, stated that "exposure to a light field causes alteration of a straight flight path (for example hovering, slowing down, shifting direction, or circling)," and this has been reported by other authors.

Larkin and Frase (1988, in Gauthreaux and Belser, 2006) used portable tracking radar to record flight paths of birds near a broadcast tower in Michigan. Birds showed a range of response, from circling to arcs to linear flight. Haupt and Schillemeit (2011) described the paths of 213 birds flying through up-lighting from several different outdoor lighting schemes. Only 7.5% showed no change in behavior, while the remainder deviated from their courses by varying degrees, from minimal course deviation through circling. It is not known whether response differences are species related.

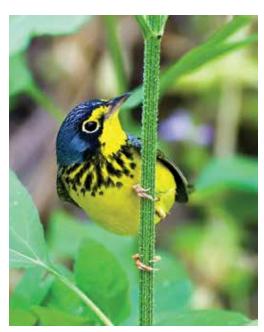
Bolshakov et al. (2010) developed the Optical-Electronic Device to study nocturnal migration behaviors of songbirds. Inspired by the more limited techniques of moon watching and watching birds cross ceilometer light beams, the device uses searchlights to illuminate birds from the ground, while a recording unit documents the birds' movements. With this technique, they can study 1) ground- and airspeed; 2) compensation for wind drift on the basis of direct measurements of headings and track directions of individual birds; 3) wing-beat pattern and its variation depending on



Swainson's Thrush. Photo by Owen Deutsch



The glass walls of this atrium, coupled with nighttime illumination, create an extreme collision hazard for birds. Photo courtesy of New York City Audubon



Canada Warbler. Photo by Ted Ardley

wind direction and velocity. In some cases, species can be identified. Bolshakov *et al.* (2013) examined the effects of wind conditions on numbers of birds aloft and flight trajectories of birds crossing the light beam from the apparatus. They determined that numbers of birds do differ with wind strength, but that birds may be attracted to the light beam under calm conditions. They also found that the light beam disturbs straight flight trajectories, especially in calm wind conditions. Regression models suggest that the probability of curved flight trajectories is greater for small birds, especially when there is little or no moon.

Bulyuk *et al.* (2014) used the same device to compare behaviors of night-migrating passerines under natural nocturnal illumination (at the Courish Spit of the Baltic Sea) with birds passing through an urban light environment (inside the city limits of St. Petersburg, Russia). Songbirds were distinguished as either small passerines or thrushes. The illuminated background caused a decrease in image quality. The shape of flight tracks was compared for the two groups, and a larger proportion of small songbirds changed flight path while crossing the light. This could be explained by flight type or flight speed. The proportion of songbirds changing flight trajectory in the lighted condition was much smaller than under the dark condition.

To understand exactly how light affects birds and what actions must be taken to reduce those effects, we need to know much more. For example, at what range (horizontal and vertical) and under what conditions do birds feel disruption from light, and of what intensity and wavelength composition? How do these factors change their behavior? Does night lighting have any effect on birds departing at the beginning of migratory stages? Do we ever actually see birds changing course to move toward a bright light source?

### **Light Color and Avian Orientation**

Starting in the 1940s, ceilometers—powerful beams of light used to measure the height of cloud cover—came into use and were associated with significant bird kills. Filtering out long (red) wavelengths and using the blue/ green range greatly reduced mortality, although we don't know whether the intensities of these two colors of lights were equal. Later, replacement of fixed-beam ceilometers with rotating beams essentially eliminated the impact on migrating birds (Laskey, 1960). A complex series of laboratory studies in the 1990s demonstrated that birds required light in order to sense the Earth's magnetic field. Birds could orient correctly under monochromatic blue or green light, but longer wavelengths (yellow and red) caused disorientation (Rappli et al., 2000; Wiltschko et al., 1993, 2003, 2007). Wiltschko et al. (2007) showed that above intensity thresholds that decrease from green to UV, birds showed disorientation. Disorientation occurs at light levels that are still relatively low, equivalent to less than half an hour before sunrise under clear sky.

Poot *et al.* (2008) demonstrated that migrating birds exposed to various colored lights in the field responded the same way as they do in the laboratory. Birds responded strongly to white and red lights and appeared disoriented by them, especially under overcast skies. Green light provoked less response and minimal disorientation; blue light attracted few birds and did not disorient those that it did attract. Birds were not attracted to infrared light. Evans *et al.* (2007) also tested different light colors but did not see aggregation under red light. However, they subsequently determined that the intensity of red light used was less than for other wavelengths, and when they repeated the trial with higher intensity red, they did see aggregation (Evans, pers. comm. 2011).

Scientists working in the Gulf of Mexico (Russell, 2005), the North Atlantic (Wiese et al. 2001), and the North Sea (Poot et al. 2008) report that bright lights of oceanic drilling rigs induce circling behavior and mortality in birds at night. Working on a rig in the North Sea, Marquenie et al. (2013), estimated that birds were affected up to five kilometers away. Replacing about half the lights with new bulbs emitting minimal red light reduced circling behavior by about 50%. The authors speculate that completely re-lamping the platform would reduce bird aggregation by 90%. Gehring et al. (2009) demonstrated that mortality at communication towers was greatly reduced if strobe lighting was used as opposed to steady-burning white, or especially red lights. At the 9/11 Memorial Tribute in Light in Manhattan, when birds aggregate and circle in the beams, monitors turn the lights out briefly, releasing the birds (Elbin, 2015, pers. comm.). Regular, short intervals of darkness, or replacement of steady-burning warning

lights with intermittent lights, are excellent options for protecting birds, and manipulating light color also has promise, although additional field trials for colored lights are needed.

### **Research: Deterring Collisions**

Systematic efforts to identify signals that can be used to make glass visible to birds began with the work of Dr. Daniel Klem in 1989. Testing glass panes in the field and using a dichotomous choice protocol in an aviary, Klem (1990) demonstrated that popular devices like "diving falcon" silhouettes were effective only if they were applied densely, spaced two to four inches apart. Owl decoys, blinking holiday lights, and pictures of vertebrate eyes were among items found to be ineffective. Grid and stripe patterns made from white material, one inch wide, were tested at different spacing intervals. Only three were effective: a 3 x 4-inch grid; vertical stripes spaced four inches apart; and horizontal



Glass panes are being tested at the Powdermill Tunnel, as seen from the outside. Photo by Christine Sheppard, ABC



Susan Elbin tests a bird in the tunnel at the Carnegie Museum's Powdermill Banding Station in southwestern Pennsylvania. Photo by Christine Sheppard, ABC



The tunnel: an apparatus for safely testing effectiveness of materials and designs for deterring bird collisions. Photo by Christine Sheppard, ABC



A bird's-eye view of glass in the tunnel. Photo by Christine Sheppard, ABC

stripes spaced about an inch apart across the entire surface. (A summary of Klem's results can be found at collisions.abcbirds.org).

Building on Klem's findings, Rössler developed a testing program in Austria starting in 2004 and continuing to the present (Rössler and Zuna-Kratky, 2004; Rössler, 2005; Rössler, et al., 2007; Rössler and Laube, 2008; Rössler, 2010; Rössler, 2012; Rössler, 2013). The banding center at the Hohenau Ringelsdorf Biological Station outside Vienna, Austria, offered a large sampling of birds for each test, in some instances permitting comparisons of a particular pattern under differing intensities of lighting. This program has focused primarily on geometric patterns, evaluating the impact of spacing, orientation, and dimensions. Birds are placed in a "tunnel," where they can view two pieces of glass: one unmodified (the control) and the other with the pattern to be tested. Birds fly down the tunnel and are scored according to whether they try to exit through the control

> or the patterned glass. A mist net keeps the bird from hitting the glass, and it is then released. The project focuses not only on finding patterns effective for deterring collisions, but also on effective patterns that cover a minimal part of the glass surface. To date, some patterns that cover only 5% of the glass have been found to be highly effective. (A summary of Rössler's results can be found at collisions. abcbirds.org).

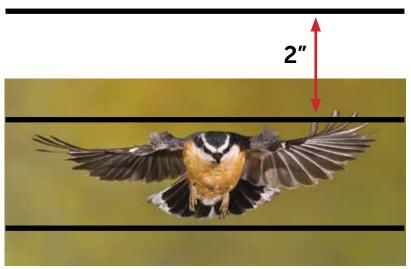
Building on Rössler's work, ABC collaborated with the Wildlife Conservation Society, New York City Audubon, and the Carnegie Museum to construct a tunnel at Powdermill Nature Reserve's banding station, primarily to test commercially available materials. Results from the first season showed that making an entire surface UVreflective was not an effective way to deter birds. With UV materials, contrast seems to be important. Glass fritted in patterns conforming to the 2 x 4 rule, however, scored well as deterrents. (A summary of results from Powdermill can be found at collisions.abcbirds.org).

Most clear glass made in the United States transmits about 96% and reflects about 4% of light falling perpendicular to the outside surface. The amount of light reflected increases at sharper angles: clear glass reflects about 50% of incident light at angles over 70 degrees. Light on the inside of the glass is also partly reflected and partly transmitted. The relative intensities of light transmitted from the inside and reflected from the outside surfaces of glass combined with the viewing angle determine whether the glass appears transparent or mirrors the surrounding environment. Patterns on the inside surfaces of glass and objects inside the glass may not always be visible. These changeable optical properties support the argument that patterns applied to the outer surface of glass are more effective than patterns applied to the inner surface. Efforts have been made to model freestanding glass, glass installed on a building, and reflections on glass in some trials. (The testing protocol for freestanding glass, developed at Hohenau, and the testing protocols used at Powdermill can be found at collisions.abcbirds.org).

The tunnel at Powdermill, showing the framework where the background will be mounted. Photo by Christine Sheppard, ABC

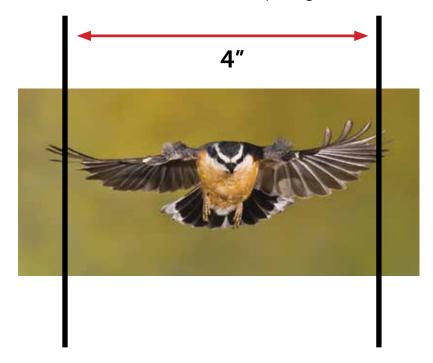


### Horizontal lines with a maximum spacing of 2 inches



Red-breasted Nuthatch. Photo by Roy Hancliff

### Vertical lines with a maximum spacing of 4 inches



# The 2 x 4 Rule

Research on songbirds, the most numerous victims of collisions, has shown that horizontal lines must be two or fewer inches apart to deter the majority of birds. Vertical spaces must be four or fewer inches apart. This difference presumably has to do with the shape of a flying bird. (Narrower spacing is required to deter collisions by hummingbirds.) Schiffner et al. (2014) showed that budgies have a very precise understanding of their own physical dimensions. Trained to fly in a tunnel, the birds were then challenged to pass through ever narrowing gaps. They were able to assess the

width of the gaps relative to their body size and adjust their flight behavior accordingly. It seems likely that this is a general avian trait, useful for navigating complex environments at flight speed. Bhagavatula et al. (2011) used the same tunnel setup to investigate how optical flow cues guide flight. It appears that birds balance the speeds of images perceived by both eyes, in this case, images to the birds' sides. This reinforces the suggestion of Martin (2011) that humans experience the world as something ahead of them, while for birds in flight, what is ahead of them is not necessarily their primary focus.



Often, only part of a building is responsible for causing most of the collisions. Evaluation and documentation can help in the development of a program of remediation targeting that area. Remediation can be almost as effective as modifying the entire building, as well as less expensive. Documentation of patterns of mortality and environmental features that may be contributing to collisions is essential. Operations personnel are often good sources of information for commercial buildings, as they may come across bird carcasses while performing regular maintenance activities. People who work near windows are often aware of birds hitting them.

Regular monitoring not only produces data on the magnitude and patterns of mortality, but also provides a baseline for demonstrating improvement. The best monitoring programs feature consistent effort, careful documentation of collision locations, and accurate identification of victims. Effective monitoring should document at least 18 months of collisions before

mitigation is attempted, unless collision rates are especially high. (Resources for monitoring, from simple to sophisticated, can be found at collisions.abcbirds.org).

### **Solutions**

Many factors come into play in selecting how to make glass safe for birds. The table below compares common solutions according to their effectiveness, appearance, relative cost, ease of application, longevity, and required maintenance. Effective patterns on the exterior surface of glass will combat reflection, transparency, and passage effect. Within the 2 x 4 guidelines, however, considerable variation is possible when devising bird-friendly patterns. We recommend that lines be at least 1/4-inch wide, but it is not necessary that they be only vertical or horizontal. Contrast between pattern and background is important, however, and designers should be aware that the background—building interior, sky, vegetation may change in appearance throughout the day.

Material	Effectiveness	Cost	Application	Appearance	Longevity	Upkeep
Seasonal, temporary solutior	**** 1S	\$			na	na
Netting		\$\$				
Window film		\$\$\$				
Screens		\$\$				
Shutters		\$\$\$				
Grilles		\$\$\$				
Replace glass		\$\$\$\$\$				



This security grille creates a pattern that will deter birds from flying to reflections. Photo by Christine Sheppard,

The following questions can guide the evaluation and documentation process by helping to identify features likely to cause collisions and other important factors.

### Seasonal Timing

Do collisions happen mostly during migration or fledging periods, in winter, or year round? If collisions happen only during a short time period, it may be possible to apply inexpensive, temporary solutions during that time and remove them for the rest of the year. Some birds will attack their own reflections, especially in spring. This is not a true collision. Territorial males, especially American Robins and Northern Cardinals, perceive their reflection as a rival male. They are unlikely to injure themselves, and temporarily blocking reflections in the offending window (and those nearby) from the outside should resolve the problem. Taping up paper and smearing a soap paste can both be effective.

#### Weather

Do collisions coincide with particular weather conditions, such as foggy or overcast days? Such collisions may be light-related, in which case an email notification system, asking building personnel to turn off lights when bad weather is forecast, is advisable.

## **Diurnal Timing**

Do collisions happen at a particular time of day? The appearance of glass can change significantly with different light levels, direct or indirect illumination, and sun angles. It may be possible to simply use shades or shutters during critical times.



Lower-floor windows are thought to be more dangerous to birds because they are more likely to reflect vegetation. Photo by Christine Sheppard, ABC

#### Location

Are there particular windows, groups of windows, or building façades that account for most collisions? If so, it may be cost effective to modify only those sections of glass. Is glass located where birds fly between roosting or nesting and feeding sites? Are there areas where plants can be seen through glass—for example, an atrium, courtyard, or glass building connectors?

Are there architectural or landscaping features that tend to direct birds toward glass? Such features might include a wall or rock outcropping or a pathway bordered by dense vegetation. Solutions include using a screen or trellis to divert flight paths. Are there fruit trees, berry bushes, or other plants near windows that are likely to attract birds closer to glass? These windows should be a high priority for remediation. The glass itself can be modified, but it may also be possible to use live or inanimate landscaping elements to block the view between food sources and windows.



Fog increases the danger of light both by causing birds to fly lower and by refracting light so it is visible over a larger area. Photo by Christine Sheppard, ABC

### **Local Bird Populations**

What types of birds are usually found in an area? Local bird groups or volunteers may be able to help characterize local and transitory bird populations, as well as the most likely routes for birds making short flights around the area. The American Birding Association, Bird Watchers Digest, Audubon chapters, and Birding.com are good places to start finding such resources. Universities, colleges, and museums may also be helpful.

## **Post-Mitigation Monitoring**

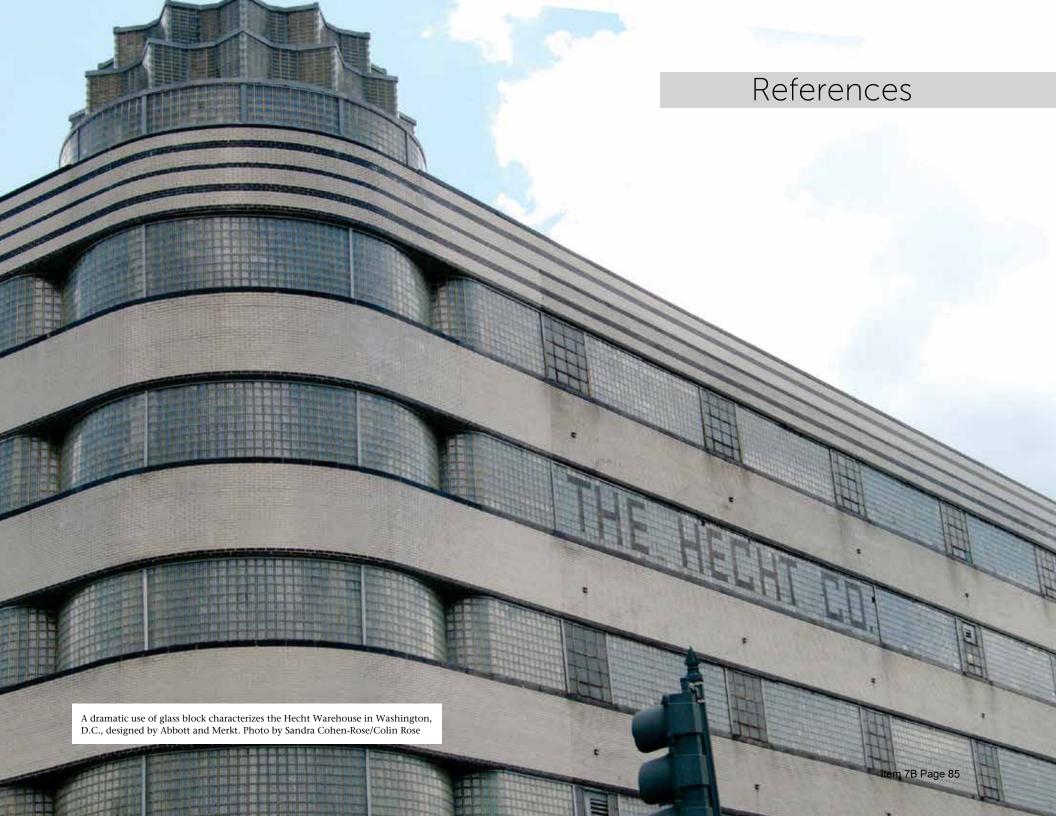
Monitoring efforts should continue for at least 18 months after mitigation efforts are made, and for at least two peak collision seasons (often the fall in urban areas, but spring and summer may also be peak seasons in more rural locations). Collision rates vary along with local bird populations, so a year of high population and high collisions may be followed by a year of low populations and low collisions, regardless of the effectiveness of any mitigation.



Use of glass with a highly effective horizontal frit pattern, together with sunshades, earned this retrofitted building on the SUNY Brockport campus the LEED "collision deterrence" credit. Photo by Paul Tankel



This Ovenbird survived a collision and was recovered alive during a Lights Out monitoring effort in Baltimore, Maryland. Photo by Daniel J. Lebbin, ABC



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The World Trade Center of New Orleans, designed by Edward Durrell Stone, uses a simple bird-friendly strategy; almost all windows have exterior shutters. Photo by Christine Sheppard, ABC

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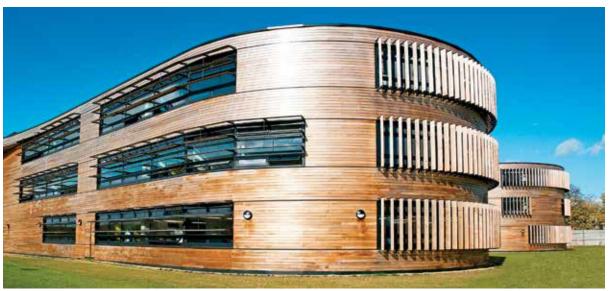
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For the Langley Academy in Berkshire, U.K., Foster + Partners used louvers to control light and ventilation, also making the building safe for birds. Photo by Chris Phippen Ofis

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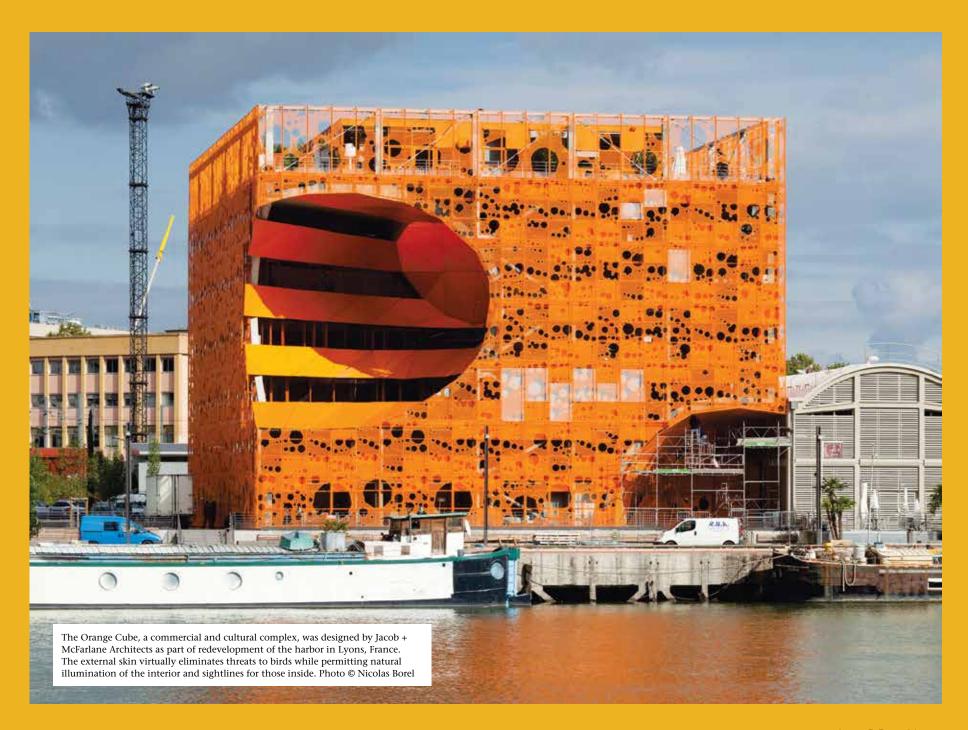


The Institut Arabe du Monde in Paris, France, provides light to the building interior without using glass. Photo by Joseph Radko, Jr.

American Bird Conservancy is the Western Hemisphere's bird conservation specialist—the only organization with a single and steadfast commitment to achieving conservation results for native birds and their habitats throughout the Americas. With a focus on efficiency and working in partnership, we take on the toughest problems facing birds today, innovating and building on sound science to halt extinctions, protect habitats, eliminate threats, and build capacity for bird conservation.



**American Bird Conservancy** 4249 Loudoun Avenue, P.O. Box 249 The Plains, VA 20198 540-253-5780 abcbirds.org



# American Bird Conservancy's Bird-Friendly Building Standard

The U.S. Green Building Council's LEED Pilot Credit 55 represents the best current understanding of what constitutes a bird-friendly building. Briefly, a bird-friendly building is one where:

- At least 90% of the material in the exposed façade from ground level to 40 feet (the primary bird collision zone) has a threat score of 30 or less, derived from controlled experiments.
- At least 60% of material in the exposed façade above the collision zone meets the above standard.
- All glass surrounding atria or courtyards meets the above standard.
- There are no "see through" passageways or corners.
- Outside lighting is appropriately shielded and directed to minimize attraction to night migrating or nocturnal birds.
- Interior lighting is turned off at night if not in use and designed to minimize light escaping through windows during night operation.
- Landscaping is designed without features known to increase collisions.
- Actual bird mortality is monitored and compensated for (for example, in the form of habitat preserved or created elsewhere, mortality from other sources reduced, etc.).



The Burj Qatar, designed by Jean Nouvel, was named Best Tall Building Worldwide in 2012. The façade, created with multi-layered screens, expresses local culture while providing protection from high temperatures and sand. Photo by Marc Desbordes

Printing costs for this publication have been kindly covered by an anonymous donor



# APPENDIX G - RECOMMENDATIONS FOR BIRD-FRIENDLY BACKYARDS

# 1. Make your yard a bird oasis

Start by providing the five basics: clean water, plants with flowers for nectar and insects, fruit-bearing plants to provide fuel for migration and winter, layers of plants for cover and thermal protection, and nesting habitat and materials. Reducing lawn and planting native plants, particularly pollinators, is another positive action. Native plants are key—their architecture, flowers, fruits, and scents are ideal for restoring the communities and relationships birds depend on.

## 2. Become a scientist

Everyday bird observations provide crucial data for scientists studying the big and small questions about bird lives, from migration to the effects of global climate change. You can help by becoming a citizen scientist, observing and noting the kinds of birds you see. Join the **Great Backyard Bird Count** or a local **Christmas Bird Count**. Visit **audubon.org/citizenscience** for more. Track your sightings on eBird, a website developed by **Audubon** and the **Cornell Lab of Ornithology**.

### 3. Create communities

Share your passion for birds with family and friends. And expand your patch of bird habitat into a larger urban oasis by working with neighbors and managers of nearby parks, golf courses, and farms. You will help restore habitat in linked corridors, multiplying the effectiveness of each patch. Restoring bird habitat can also help mitigate a city's "heat island effect," absorb stormwater runoff, and combat the spread of invasive plants.

# 4. Forgo pesticides

One particular lawn-care pesticide, diazinon, has been implicated in more than 150 mass bird die-offs. Pesticides also cause longer-term, potentially lethal effects ranging from eggshell thinning to neurological damage.

# 5. Shop for the birds

Conventionally produced beef comes from animals fed corn and soybeans, crops grown on what used to be the great American prairie. Buying grass-fed meat supports grassland birds, which, because of habitat loss, are showing the most sustained declines of any bird group in the United States. Switch to shade-grown coffee. Each cup preserves roughly two square feet of rainforest. Even lumber can be bird-friendly; woodlands certified by the Forest Stewardship Council aim to conserve biological diversity by protecting old-growth stands, monitoring clear-cutting, and limiting pesticide use.

# 6. Join "lights out"

Glass-fronted buildings with bright nighttime lighting may be architecturally pleasing, but they're deadly. Up to a billion birds—mostly migrants—are killed in building collisions in North America each year. The U.S. Lights Out movement began in Chicago, where bird deaths at one building dropped by roughly 83 percent after the lights were turned off. Researchers estimate Chicago's program saves 10,000 birds each year.





# 7. Save energy, cut carbon emissions

The average American is responsible for 22 tons of carbon dioxide each year, more than six times that of the average person globally. Make conservation a family challenge. Keep a journal and award points for conservation activities, including miles walked, biked, or covered on mass transit instead of driving; each time lights are turned off when leaving the room; and unplugging electronic devices overnight.

# 8. Part with plastics

The first plastic bags were produced in 1957, according to Worldwatch Institute, and we now throw away 100 billion a year. Many eventually wash into the ocean to join oceanic garbage patches, drifting gyres of trash that spread over huge sea areas. Every year the floating "bladders" of these bags kill hundreds of thousands of seabirds—along with sea turtles and marine mammals—which mistake them for jellyfish and squid, and then starve to death after filling their guts with plastic.

# 9. Curb your cats

Keep your felines inside or in outdoor "kitty condos." America's estimated 150 million outdoor cats kill serious numbers of birds—up to 3.7 billion a year, according to a new report from the U.S. Fish and Wildlife Service and Smithsonian's Migratory Bird Center. House cats in the so-called "kittycam" study by University of Georgia and National Geographic Society averaged one kill every 17 hours outdoors.

# 10. Adopt a species

Pick a bird species from your flyway (choose from a list at audm.ag/AudPlan. Become an advocate for that species: work to protect and restore its habitat, educate your community, talk with school kids, or volunteer at a preserve or nature center. Learning about "your" species will enrich your connection with nature and give you a new understanding of the region where you live.

# 11. Window decals

Especially during migration season birds will often fly into windows causing injury and even death. To prevent this, use window decals on the outside of your windows. Studies have shown placing stickers or window decals on the inside of windows is ineffective. When placed on the outside bird window collisions reduce by almost 50%. The most effective deterrents involve patterns.

For more information visit:

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# **APPENDIX H - DARK SKIES AND LIGHTING GUIDELINES**

### **Dark Skies and Lighting Information Guidelines**

Recommended Best Practices from DarkSky Colorado:

### LIGHT TO PROTECT THE NIGHT

Five Principles for Responsible Outdoor Lighting





**USEFUL** 



### ALL LIGHT SHOULD HAVE A CLEAR PURPOSE

Before installing or replacing a light, determine if light is needed. Consider how the use of light will impact the area, including wildlife and the environment. Consider using reflective paints or self-luminous markers for signs, curbs, and steps to reduce the need for permanently installed outdoor lighting.

**TARGETED** 



### LIGHT SHOULD BE DIRECTED ONLY TO WHERE NEEDED

Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.

LOW LIGHT LEVELS



### LIGHT SHOULD BE NO BRIGHTER THAN NECESSARY

Use the lowest light level required. Be mindful of surface conditions as some surfaces may reflect more light into the night sky than intended.

**CONTROLLED** 



### LIGHT SHOULD BE USED ONLY WHEN IT IS USEFUL

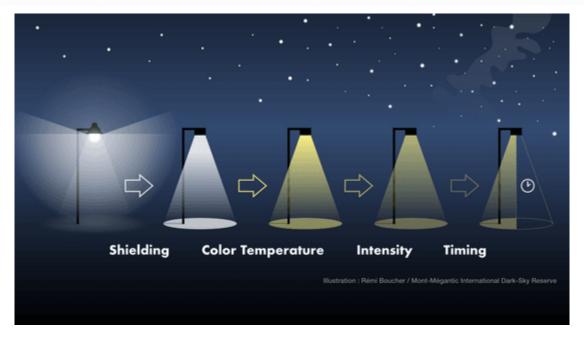
Use controls such as timers or motion detectors to ensure that light is available when it is needed, dimmed when possible, and turned off when not needed.

**COLOR** 



### **USE WARMER COLOR LIGHTS WHERE POSSIBLE**

Limit the amount of shorter wavelength (blue-violet) light to the least amount needed.



### IS YOUR PROPERTY DARK SKY FRIENDLY?

An outdoor lighting guide by the International Dark-Sky Association (IDA)



For every outdoor light on your property, ask the following questions.



Does the light reach beyond where it is needed?

#### Yes

Direct the light down, not up into the sky, and target your fixtures so that light does not spill beyond where it is needed. Can you change the mounting height or adjust how the light is aimed? If neither of those options work, you may need to replace the fixture.

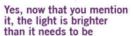


Bull's-eye! Your light is on target.

Remember, electricity can be a BUZZZZ-kill. Hire an electrician if you are not familiar with the work.



Can the light be dimmer and still perform the needed task?



Good catch! Replace the bulb or fixture with the lowest lighting level needed to perform the task. Use the lowest number of lumens needed.



# No, the light is just right

OK. Move along to the next question.

### FIND DARK SKY FRIENDLY LIGHTING

IDA works with lighting manufacturers and home retail stores so that you can easily source IDA approved Dark Sky Friendly lighting.

Visit www.darksky.org/homelighting to learn more.





# Does the light serve a clear and necessary purpose?

Yes

Light is useful for safe wayfinding and to help perform specific tasks. You've decided the light is needed, so let's make sure it's used responsibly.

Great work! You've found unnecessary light. Protect the night by disabling the fixture.

No



Is the light connected to active controls?

#### Huh?

All outdoor lighting should be connected to timers or motion sensors so that they are used only when they are needed. Avoid dusk to dawn photocell controls as they leave the light on whether it is needed or not.

### Oh! Yes, my light is controlled

Perfect. Advance to the next question.

### No, my light is not controlled

Easy fix! Motion sensing controls and timers can be inexpensive and usually take just minutes to install. Test the sensor to be sure it doesn't trigger inappropriately, and set a time limit so that the light is extinguished when it is not needed.



Is the light source warm in color?

### How can I tell?

Most lightbulbs manufactured today have a Kelvin rating printed on the bulb. Low Kelvin ratings (3000 Kelvin or less) are considered warm and generally emit less harmful blue light than high Kelvin. For home lighting, we recommend 2700 Kelvin or less.

### Yes, the light is warm in color

You're a hero! Limiting blue light at night minimizes harm to the night sky and wildlife.

### No, The light is cool white

If you can access the bulb, replace it with a warm white or amber light. If the light source is part of the fixture, you may need to replace the unit.

# Examples of Acceptable / Unacceptable Lighting Fixtures



# **City of Broomfield**



# **City Council Regular Meeting**

### Proposed Resolution Withdrawal from the Rocky Flats Stewardship Council

Meeting	Agenda Group	
Tuesday, August 27, 2024, 6:00 PM	Action Items Item: 7C	
Presented By		
Nancy Rodgers, City and County Attorney		
Community Goals		

# Overview

View Correspondence

Broomfield has been a member of the Rocky Flats Stewardship Council (RFSC) since 2006 through an intergovernmental agreement with neighboring cities and counties. The proposed resolution would serve as Broomfield's Notice of Intent to withdraw from the RFSC, and would indicate support for the dissolution of the RFSC.

### **Attachments**

Memo.for Proposed Resolution No. 2024-119 - Notice of Intent to Withdraw from the Rocky Flats Stewardship Council .pdf

Resolution 2024-119- Broomfield Withdrawal Rocky Flats Stewardship Council.pdf

Memo for Resolution No. 2024-119 - Withdrawal from the Rocky Flats Stewardship Council Prepared By: Nancy Rodgers, City and County Attorney

# **Summary**

### View Correspondence

On February 13, 2006, the City and County of Broomfield, the Counties of Boulder and Jefferson, the Cities of Arvada, Boulder, Golden, Northglenn, Thornton, and Westminster, and the Town of Superior (collectively, the "Parties"), entered into an <u>intergovernmental agreement ("IGA")</u> establishing the Rocky Flats Stewardship Council, as permitted by Colorado Constitution Article XIV and section 18(2), part 2 of article 1, title 29, C.R.S. ("Stewardship Council").

The Stewardship Council is a separate legal entity that provides engagement on all post-closure Rocky Flats activities and serves as the U.S. Department of Energy Office of Legacy Management's "local stakeholder organization" ("LSO") for Rocky Flats as required by Section 3120 of the 2005 National Defense Authorization Act, Public Law No. 108-375.

Pursuant to the terms of the IGA, the Stewardship Council shall terminate upon the earliest of the following events:

- Termination or rescission by the unanimous written agreement of all the Parties, or
- Decrease of the number of Parties to fewer than six, or
- Lack of a unanimous triennial determination by all Parties that the Stewardship Council should continue for another three years.

Additionally, any Party may withdraw from the Stewardship Council upon thirty days' written notice to the Board of its intent to withdraw, contingent on a plan for the payment of any outstanding debt or other obligations.

The Stewardship Council Board of Directors has discussed organizational planning, including engaging a facilitator and conducting a survey to assess Parties' views on the function and general vision of the Stewardship Council. To date, the Stewardship Council Board of Direction has not made a decision on the future direction of the Stewardship Council.

City Council seeks to issue a notice of intent to withdraw from the Stewardship Council, and authorize support for the dissolution of the Stewardship Council should fewer than six parties to the IGA remain in the Stewardship Council. Resolution No. 2024-119 would serve as this notice and would be effective upon dissolution of the Stewardship Council.

The next meeting of the Stewardship Council is September 9, 2024. Other members of the Stewardship Council are considering issuing similar notices of intent to withdraw that would also be effective upon dissolution of the Stewardship Council. "Dissolution" as provided in the notice, are the steps needed to formally close the organization including payment of all bills and distribution of assets. Dissolution is a critical step; and it is important the Board of Directors of the Stewardship Council are retained until all steps have been completed. At this time, staff and counsel to the Stewardship Council anticipate all dissolution actions will be completed in the first quarter of calendar year 2025.

### **Financial Considerations**

N/A. Since 2021, the budget has included a \$1,000 line item for Broomfield's local government contribution to the Rocky Flats Stewardship Council. The Stewardship Council does not have any outstanding debt, nor are there any payment obligations owed to the Stewardship Council by the City and County of Broomfield.

### **Prior Council or Other Entity Actions**

January 24, 2006 - Resolution No. 2006-6 approving the Rocky Flats Stewardship Council IGA.

November 15, 2011 - Resolution No. 2011-185 approving the continuation of the RFSC for an additional three years, and Resolution No. 2011-186 approving the first amendment to the 2006 IGA, which added the City of Thornton as a new party and established the cities of Northglenn and Golden as permanent parties to the RFSC.

December 9, 2014 - Resolution No. 2014-187 approving the continuation of the RFSC for an additional three years.

December 5, 2017 - <u>Resolution Nos. 2017-206 and 2017-207</u> approving the continuation of the RFSC for an additional three years, and approving the second amendment to the 2006 IGA.

December 1, 2020 - Resolution No. 2020-271 approving the continuation of the RFSC for an additional three years.

January 23, 2024 - Resolution No. 2024-02 approving the continuation of the RFSC for an additional three years.

### Boards and Commissions Prior Actions and Recommendations

N/A

# **Proposed Actions / Recommendations**

If City Council desires to move forward the notice of intent to withdraw from the Rocky Flats Stewardship Council and authorize support for the dissolution of the Council, the appropriate motion is...

That Resolution 2024-119 be adopted.

### **Alternatives**

Do not approve the resolution and remain a member of the Rocky Flats Stewardship Council.

# RESOLUTION NO. 2024-119

A Resolution approving Broomfield's Notice of Intent to Withdraw from the Rocky Flats Stewardship Council

### Section 1. Recitals.

- 1.1 The City and County of Broomfield is a party to the Rocky Flats Stewardship Council ("Stewardship Council"), established by Intergovernmental Agreement dated February 13, 2006, as amended in 2012 and in 2018, pursuant to Colo. Const. Art. XIV, Section 18(2), part 2 of article 1, title 29, C.R.S. ("IGA").
- 1.2 Other parties include the Counties of Boulder and Jefferson, the Cities of Arvada, Boulder, Golden, Northglenn, Thornton, and Westminster, and the Town of Superior.
- 1.3 Pursuant to paragraph 10 of the IGA, "Any Party may withdraw from participation in this IGA upon thirty days' written notice to the Board of its intent to withdraw, and contingent upon adequate provision for satisfaction of its outstanding debt or other obligations of the withdrawing Party which such Party had previously agreed to pay."
- 1.4 The Stewardship Council does not have any outstanding debt, nor are there any payment obligations owed to the Stewardship Council by the City and County of Broomfield.
- 1.5 Pursuant to the terms of the IGA, the Stewardship Council shall terminate upon the earliest of the following events:
  - a. Termination or rescission by the unanimous written agreement of all the Parties, or
  - b. Decrease of the number of Parties to fewer than six, or
  - c. Lack of a unanimous triennial determination by all Parties that the Stewardship Council should continue for another three years.
- 1.6 The City Council for the City and County of Broomfield wishes to provide notice of its intent to withdraw from the Stewardship Council. Additionally, the City Council wishes to indicate its support for the dissolution of the Stewardship Council so long as there are necessary staff and commitments to close out the organization.

Now, therefore, be it resolved by the City Council of the City and County of Broomfield, Colorado:

### Section 2. Action.

2.1 Notice is hereby given that the City and County of Broomfield intends to withdraw from the Stewardship Council and the IGA. Such withdrawal shall take place no earlier than 30 days from the date of this notice, and shall be effective as set forth herein.

- 2.2 Broomfield's notice of intent to withdraw may be invoked upon receipt for purposes of calculating the number of Parties to the IGA and permitting steps to dissolve the Stewardship Council should the number of Parties to the IGA decrease to fewer than six, as applicable pursuant to paragraph 10.b. of the IGA.
- 2.3 Broomfield authorizes and directs the Stewardship Council's consultants, including its executive director and legal counsel, to take all actions reasonably necessary to initiate and facilitate the dissolution of the Stewardship Council as soon as practicable following a finding that there are fewer than six Parties to the IGA, in accordance with paragraph 10 of the IGA.
- 2.4 Broomfield's withdrawal from participation in the IGA shall be completed and effective upon the dissolution of the Stewardship Council.

### Section 4.

This resolution is effective on the date of approval by the City Council.

Approved on August 27, 2024.

	The City And County Of Broom Colorado	field,
	Mayor	
Attest:		
Office of the City and County Clerk	Approved As To Form:	NCR
	City and County Attorney	