



Bipartisan Policy Center

Implications of Making Ballot Images and Cast Vote Records Public

In the wake of the 2020 presidential election, election offices nationwide have been met with public records requests at a level far outpacing prior years. These requests are critical to journalists', academics', and voters' ability to hold government bodies to account, yet election offices are currently unequipped to process the volume of requests being received.

Cast vote records (CVRs) and ballot images, defined below, are the two types of records most in demand. Proactively releasing these records to the public bolsters transparency and could reduce the volume of public records requests, saving limited resources. Many election jurisdictions already post CVRs or ballot images without issue: Los Angeles began making CVRs available to the public in the 1980s when members of the public could rent tapes with what we now call CVRs; Dane County, WI, offers CVRs as a [Do It Yourself Audit](#); and several Colorado counties [piloted](#) the public release of ballot images in recent elections.

Despite the clear benefits to transparency of releasing CVRs and ballot images, making these records public comes with trade-offs: Voters' privacy might be compromised, and many election offices do not have the resources or technology to undertake this effort. Furthermore, [vote buying](#) becomes feasible when ballot secrecy is violated—an extreme, if less likely, potential ramification of making ballot images public.

These issues raise the question: How can under-resourced election offices meet heightened demands for transparency and accountability?

This explainer provides an overview of ballot images and CVRs and explores how making these files available online would affect privacy, transparency, and

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ELECTIONS

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efficiency. BPC's Task Force on Elections will release an additional report later this year with recommendations on how policymakers can best advance transparency in elections.

DISTINGUISHING BALLOT IMAGES AND CAST VOTE RECORDS

State legislatures, state election offices, courts, and local jurisdictions determine whether CVRs and ballot images are available to the public. How ballot images and CVRs are collected, preserved, and classified differs across election jurisdictions.

Although CVRs and ballot images are often considered in tandem, each has distinct consequences for privacy, transparency, and efficiency. When proposing reforms, policymakers must be careful not to equate the two types of records.

Ballot Images

Ballot images are digital renderings of every paper ballot tabulated in an election, similar to making a photocopy of the ballot and then storing it securely. Ballot images record any information contained on the ballot itself, including the ballot's language; the ballot type (mail, early, Election Day, as well as unique formats for uniformed and overseas voters); the precinct; and the randomly generated unique identifier printed on the ballot as it is scanned.

Because ballot images capture everything on a ballot, including stray marks, write-ins, and visible alterations, they might contain personally identifiable information if election officials do not redact it before posting. Even when voters are instructed not to identify themselves on their ballots, some voters invariably write their name, contact information, and signature on their ballot. This elevates the risk that making ballot images public will violate voters' privacy and enables viewers of ballot images to know how those individuals voted.

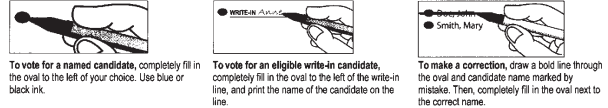
Example ballot image from Pueblo County 2020 general election (pages 1 and 2):

Official General Election Ballot
Pueblo County, Colorado
Tuesday, November 3, 2020

Ballot Style: 207-11
Precinct: 304781207
Ballot Type: 11
UOCAVA

Please vote your mail ballot. Due to COVID-19, help us make this a safe election for everyone by returning this ballot via mail or drop box.

Instructions



To vote for a named candidate, completely fill in the oval to the left of your choice. Use blue or black ink.

To vote for an eligible write-in candidate, completely fill in the oval to the left of the write-in line, and print the name of the candidate on the line.

To make a correction, draw a bold line through the oval and candidate name marked by mistake. Then, completely fill in the oval next to the correct name.

WARNING: Any person who, by use of force or other means, unduly influences an eligible elector to vote in any particular manner or to refrain from voting, or who falsely makes, alters, forges or counterfeits any mail ballot before or after it has been cast, or who destroys, defaces, mutilates, or tampers with a ballot subject, upon conviction, to imprisonment, or to a fine, or both. Section 1-7.5-10(3)(b), C.R.S.

Federal Offices	State Offices
Presidential Electors (Vote for One Pair) Joseph R. Biden / Kamala D. Harris Democratic <input checked="" type="radio"/> Donald J. Trump / Michael R. Pence Republican Don Blankenship / William Mohr American Constitution Bill Hammons / Eric Bodenstab Unity Party of Colorado Howie Hawkins / Angela Nicole Walker Green Blake Huber / Frank Atwood Approval Voting Jo Jorgensen / Jeremy "Spike" Cohen Libertarian Brian Carroll / Amar Patel American Solidarity Mark Charles / Adrian Wallace Unaffiliated Phil Collins / Billy Joe Parker Prohibition Roque "Rocky" De La Fuente / Darcy G. Richardson Alliance Dario Hunter / Dawn Neptune Adams Progressive Princess Khadijah Maryam Jacob-Fambro / Khadijah Maryam Jacob Sr. Unaffiliated Alyson Kennedy / Malcolm Jarrett Socialist Workers Joseph Kishore / Norissa Santa Cruz Socialist Equality Kyle Kenley Kopitke / Nathan Re Vo Sorenson Independent American Gloria La Riva / Sunil Freeman Socialist and Liberation Joe McHugh / Elizabeth Storm Unaffiliated Brock Pierce / Karla Ballard Unaffiliated Jordan "Cancer" Scott / Jennifer Tepool Unaffiliated Kanye West / Michelle Tidball Unaffiliated Write-in	State Board of Education Member - Congressional District 3 (Vote for One) Mayling Simpson Democratic <input checked="" type="radio"/> Joyce Rankin Republican State Representative - District 47 (Vote for One) <input checked="" type="radio"/> Stephanie Luck Republican Bri Buentello Democratic District Attorney - 10th Judicial District (Vote for One) Jeff Chostner Democratic County Offices County Commissioner - District 1 (Vote for One) <input checked="" type="radio"/> Eppie Griego Democratic <input checked="" type="radio"/> Write-in <u>ADOLPH VIGIL</u> County Commissioner - District 2 (Vote for One) <input checked="" type="radio"/> Garrison Ortiz Democratic Judicial Retention Questions (Vote YES or NO) Colorado Supreme Court Justice Shall Justice Melissa Hart of the Colorado Supreme Court be retained in office? YES <input checked="" type="radio"/> NO <input type="radio"/> Shall Justice Carlos A. Samour Jr. of the Colorado Supreme Court be retained in office? YES <input type="radio"/> NO <input checked="" type="radio"/> Colorado Court of Appeals Justice Shall Judge Ted C. Tow III of the Colorado Court of Appeals be retained in office? YES <input type="radio"/> NO <input checked="" type="radio"/> Shall Judge Craig R. Welling of the Colorado Court of Appeals be retained in office? YES <input type="radio"/> NO <input checked="" type="radio"/> District Court Judge Shall Judge William David Alexander of the 10th Judicial District be retained in office? YES <input type="radio"/> NO <input checked="" type="radio"/> Shall Judge Allison P. Ernst of the 10th Judicial District be retained in office? YES <input type="radio"/> NO <input checked="" type="radio"/>
United States Senator (Vote for One) John W. Hickenlooper Democratic <input checked="" type="radio"/> Cory Gardner Republican Daniel Doyle Approval Voting Stephan "Seku" Evans Unity Raymon Anthony Doane Libertarian (Signed declaration to limit service to no more than 2 terms) Write-in	Representative to the 117th United States Congress - District 3 (Vote for One) <input checked="" type="radio"/> Lauren Boebert Republican Diane E. Mitsch Bush Democratic John Ryan Keil Libertarian Critter Milton Unity (Signed declaration to limit service to no more than 3 terms)

County Court Judge	State Ballot Measures	School District Ballot Measure	
County Court Judge Shall Judge Roberto A. Silva of Pueblo County Court be retained in Office? YES <input type="radio"/> NO <input checked="" type="radio"/>	Proposition 114 (STATUTORY) Shall there be a change to the Colorado Revised Statutes concerning the restoration of gray wolves through their reintroduction on designated lands in Colorado located west of the continental divide, and, in connection therewith, requiring the Colorado parks and wildlife commission, after holding statewide hearings and using scientific data, to implement a plan to restore and manage gray wolves; prohibiting the commission from imposing any land, water, or resource use restrictions on private landowners to further the plan, and requiring the commission to fairly compensate owners for losses of livestock caused by gray wolves? YES/IFOR <input checked="" type="radio"/> NO/AGAINST <input type="radio"/>	Pueblo County School District 70 Issue 4A SHALL PUEBLO COUNTY SCHOOL DISTRICT 70 DEBT BE INCREASED BY \$75 MILLION WITH A REPAYMENT COST OF NOT TO EXCEED \$125 MILLION AND SCHOOL DISTRICT TAXES BE INCREASED NOT MORE THAN \$9.5 MILLION ANNUALLY, BUT WITH NO EXPECTED INCREASE IN THE DISTRICT'S CURRENT DEBT SERVICE MILL LEVY OF 12.963 MILLS, BY THE ISSUANCE AND PAYMENT OF GENERAL OBLIGATION BONDS TO PROVIDE CAPITAL IMPROVEMENTS FOR DISTRICT PURPOSES INCLUDING FUNDING FOR LOCAL MATCHING MONEY REQUIRED FOR THE DISTRICT TO RECEIVE \$3,762,241.64 IN STATE GRANT FUNDS (WHICH ARE NOT REQUIRED TO BE REPAYED AND THE RECEIPT OF WHICH IS CONTINGENT ON THE DISTRICT'S ABILITY TO PROVIDE THE MATCHING PORTION UNDER THE BUILDING EXCELLENT SCHOOLS TODAY (BEST) PROGRAM ALL FOR PROVIDING CAPITAL ASSETS FOR DISTRICT PURPOSES, INCLUDING: • PROVIDING HEALTH, SAFETY AND SECURITY PURPOSES AND IMPROVEMENTS TO ALL DISTRICT SCHOOLS, INCLUDING VENTILATION AND INDOOR AIR QUALITY UPGRADES, HEATING AND COOLING SYSTEM REPLACEMENTS AND UPGRADES, ENERGY EFFICIENCY IMPROVEMENTS, DISTRICT-WIDE SECURITY CAMERA SYSTEM EXPANSION AND INTERCOM SYSTEM REPLACEMENTS, SECURED ENTRY AND CONTROLLED ACCESS UPGRADES, ROOF REPLACEMENTS AND REPAIRS, PARKING LOT REPLACEMENTS AND ASPHALT REPAIR, TRAFFIC FLOW IMPROVEMENTS, SIGNAGE, SIGNAGE ADDITIONS, AND RENOVATIONS AND REPAIRS, CLASSROOM RENOVATIONS, SPACE RECONFIGURATIONS, RENOVATING AND UPDATING SUCH FACILITIES IN ORDER TO EXTEND THE LIFE OF AGING BUILDINGS, MAKE CRITICAL REPAIRS TO CRITICAL DEFERRED MAINTENANCE ISSUES. • CONSTRUCTING CAPITAL IMPROVEMENTS AT PLEASANT VIEW MIDDLE SCHOOL IN ACCORDANCE WITH THE BEST GRANT FOR THE YEAR 2020 FROM THE STATE OF COLORADO STAFF, INCLUDING UPGRADING ELECTRICAL INFRASTRUCTURE, HVAC SYSTEM REPLACEMENT AND CONTROL, REPLACE FLOORING AND CEILING, REPLACE ROOF AND GUTTERS, REPAIR DRAINAGE AND UPGRADE DOORS, ABATEMENT AND OTHER UPGRADES. AND SHALL THE MILL LEVY BE INCREASED IN ANY YEAR, WITHOUT LIMITATION OF RATE BUT ONLY IN AN AMOUNT NECESSARY TO PAY THE PRINCIPAL OF PREMIUM, IF ANY, AND INTEREST ON SUCH DEBT OR ANY REFUNDING DEBT (OR TO CREATE A RESERVE FUND) TO THE PRINCIPAL OF SUCH SERIES, ON TERMS AND CONDITIONS, AND WITH SUCH MATURITIES AS PERMITTED BY LAW AND AS THE DISTRICT MAY DETERMINE, INCLUDING PROVISIONS FOR REDEMPTION OF THE DEBT PRIOR TO MATURITY WITH OR WITHOUT PAYMENT OF THE PREMIUM OF NOT TO EXCEED THREE PERCENT? YES/IFOR <input type="radio"/> NO/AGAINST <input checked="" type="radio"/>	
Ballot Measures Ballot questions referred by the general assembly or any political subdivision are listed by letter, and ballot questions initiated by the people are listed numerically. A ballot question listed as an "amendment" proposes a change to the Colorado constitution, and a ballot question listed as a "proposition" proposes a change to the Colorado Revised Statutes. A "yes/no" or "yes/for/against" question is a vote in favor of changing current law or existing circumstances, and a "pro/anti" or "pro/against" question is a vote against changing current law or existing circumstances.	Proposition 115 (STATUTORY) Shall there be a change to the Colorado Revised Statutes concerning prohibiting an abortion when the probable gestational age of the fetus is at least twenty-one weeks and, in connection therewith, making it a misdemeanor punishable by a fine or perform or attempt to perform a prohibited abortion, except when the abortion is immediately required to save the life of the pregnant woman when her life is physically threatened, but not solely by a psychological or emotional condition; defining terms related to the prohibition; specifying that a woman on whom an abortion is performed may not be charged with a crime in relation to a prohibited abortion; and requiring the Colorado medical board to suspend for at least three years the license of a licensee when the board finds performed or attempted to perform a prohibited abortion? YES/IFOR <input type="radio"/> NO/AGAINST <input checked="" type="radio"/>	Proposition 116 (STATUTORY) Shall there be a change to the Colorado Revised Statutes reducing the state income tax rate from 4.63% to 4.55%? <input checked="" type="radio"/> YES/IFOR <input type="radio"/> NO/AGAINST	
State Ballot Measures Amendment B (CONSTITUTIONAL) Without increasing property tax rates, to help preserve funding for local cities that provide fire protection, police, ambulance, hospital, kindergarten through twelfth grade education, and other services, and to avoid automatic mill levy increases, shall there be an amendment to the Colorado constitution to repeal the requirement that the general assembly periodically change the residential assessment rate in order to maintain the statewide proportion of residential property as compared to all other taxable property valued for the purpose of the general assembly periodically change the residential assessment rate in order to maintain the statewide proportion of residential property as compared to all other taxable property valued for property tax purposes and repeal the nonresidential property tax assessment rate of twenty-nine percent?	Proposition 117 (STATUTORY) Shall there be a change to the Colorado Revised Statutes requiring statewide voter approval at the next even-year election of any newly created or qualified state enterprise that is exempt from the Taxpayer's Bill of Rights, Article X, Section 10 of the Colorado constitution, if the projected or actual combined revenue from fees and surcharges of the enterprise, and all other enterprises created within the last five years that serve primarily the same purpose, is greater than \$100 million within the first five fiscal years of the creation or qualification of the new enterprise? <input checked="" type="radio"/> YES/IFOR <input type="radio"/> NO/AGAINST	Proposition 118 (STATUTORY) Shall there be a change to the Colorado Revised Statutes concerning the creation of a paid family and medical leave program in Colorado, and, in connection therewith, authorizing paid family and medical leave for a covered employee who has a serious health condition, is caring for a new child or for a family member with a serious health condition, or has a need for leave related to a family member's military deployment or for safe leave, establishing a maximum of 12 weeks of family and medical leave, with an additional 4 weeks for pregnancy or childbirth complications, with a cap on the weekly benefit amount; requiring job protection for and prohibiting retaliation against an employee who takes paid family and medical leave, allowing a local government to opt out of the program, permitting employees of such a local government and self-employed individuals to participate in the program, exempting employers who offer an approved private paid family and medical leave plan to pay for the program, requiring a premium of 0.9% of each employee's wages, up to a maximum of \$1,000, and an additional 0.5% thereafter, up to 1.2% of each employee's wages, by the director of the division of family and medical leave, if the premium amount from an employee's wages and the employer to pay the remainder of the premium, with an exemption for employers with fewer than 10 employees, creating the division of family and medical leave insurance as an enterprise within the department of labor and employment to administer the program; and establishing an enforcement and appeals process for retaliation and denied claims? YES/IFOR <input type="radio"/> NO/AGAINST <input checked="" type="radio"/>	
Amendment C (CONSTITUTIONAL) Shall there be an amendment to the Colorado constitution concerning the conduct of charitable gaming activities, and, in connection therewith, allowing long-term leases to site managers and operators of games and reducing the required period of a charitable organization's continuous existence before obtaining a charitable gaming license?	Proposition 119 (STATUTORY) Shall there be an amendment to the Colorado constitution requiring that to be qualified to run at any election an individual must be a United States citizen? <input checked="" type="radio"/> YES/IFOR <input type="radio"/> NO/AGAINST	Proposition 120 (STATUTORY) SHALL STATE TAXES BE INCREASED BY \$250,000,000 ANNUALLY BY IMPOSING A TAX ON NICOTINE LIQUIDS USED IN E-CIGARETTES AND OTHER VAPING PRODUCTS THAT IS EQUAL TO THE TOTAL STATE TAX ON TOBACCO PRODUCTS WHEN FULLY PHASED IN, INCREMENTALLY INCREASING THE TOBACCO PRODUCTS TAX BY UP TO 22% OF THE MANUFACTURERS LIST PRICE, INCREMENTALLY INCREASING THE CIGARETTE TAX BY UP TO 2 CENTS PER CIGARETTE, EXPANDING THE EXISTING CIGARETTE AND TOBACCO TAXES TO APPLY TO SALES TO CONSUMERS FROM OUTSIDE OF THE STATE, ESTABLISHING A MINIMUM TAX FOR MOST SNIFF TOBACCO PRODUCTS, CREATING AN INVENTORY TAX THAT APPLIES FOR FUTURE CIGARETTE TAX INCREASES, AND INITIALLY USING THE TAX REVENUE PRIMARILY FOR PUBLIC SCHOOL FUNDING TO HELP OFFSET REVENUE THAT HAS BEEN LOST AS A RESULT OF THE ECONOMIC IMPACTS RELATED TO COVID-19 AND THEN FOR PROGRAMS THAT REDUCE THE USE OF TOBACCO AND NICOTINE PRODUCTS, ENHANCE THE VOLUNTARY COLORADO PRESCHOOL PROGRAM AND MAKE IT WIDELY AVAILABLE FOR FREE, AND MAINTAIN THE FUNDING FOR PROGRAMS THAT CURRENTLY RECEIVE REVENUE FROM TOBACCO TAXES, WITH THE STATE KEEPING AND SPENDING ALL OF THE NEW TAX REVENUE AS A VOTER-APPROVED REVENUE CHANGE? YES/IFOR <input type="radio"/> NO/AGAINST <input checked="" type="radio"/>	Pueblo West Metropolitan District Question Pueblo West Metropolitan District Ballot Issue 6A SHALL PUEBLO WEST METROPOLITAN DISTRICTS TAXES BE INCREASED \$2,500,000 ANNUALLY BY LEVYING A TEMPORARY 1% SALES TAX THAT SHALL SUNSET TEN YEARS AFTER ITS IMPLEMENTATION TO BE USED FOR PUEBLO WEST FIRE DEPARTMENT NEEDS SUCH AS: • CONSTRUCTION OF A NEW FIRE STATION IN THE SOUTHWEST PORTION OF PUEBLO WEST • STARTING A NEW FIRE STATION WITH ADDITIONAL FIREFIGHTERS • PROVIDE FUNDING FOR CAPITAL EQUIPMENT AND PROJECTS RELATED TO THE FIRE DEPARTMENT • MAINTENANCE AND UPKEEP OF THE FIRE DEPARTMENT AND FIRE PROTECTION RESOURCES IF APPROVED THESE TAX REVENUES SHALL BE PLACED IN A DEDICATED FUND USED SOLELY FOR THE PURPOSE OF FUNDING THE PUEBLO WEST FIRE DEPARTMENT AND THE DISTRICT SHALL ENSURE ACCOUNTABILITY WITH A CITIZENS OVERSIGHT COMMITTEE WHICH SHALL ANNUALLY REVIEW AND REPORT TO THE PUBLIC ON THE USE OF TAX REVENUES COLLECTED. THE PUEBLO WEST METROPOLITAN DISTRICT SHALL BE AUTHORIZED TO TEMPORARILY ESTABLISH A 1% SALES TAX (1 PENNY ON A \$1 PURCHASE) UPON EVERY TRANSACTION WHICH A SALES TAX IS LEVIED BY THE STATE OF COLORADO AND THIS TEMPORARY SALES TAX SHALL SUNSET ON 12/31/2029. SHALL THE PROCEEDS OF SUCH SALES TAX AND INVESTMENT INCOME THEREFROM BE COLLECTED, RETAINED AND SPENT BY THE DISTRICT AS A VOTER APPROVED REVENUE CHANGE AND AN EXCEPTION TO THE LIMITS WHICH WOULD OTHERWISE APPLY UNDER ARTICLE X, SECTION 20 OF THE COLORADO CONSTITUTION OR ANY OTHER LAW AND BE IN ADDITION TO ANY OTHER TAXES LEVIED BY THE DISTRICT? <input checked="" type="radio"/> YES/IFOR <input type="radio"/> NO/AGAINST

VOTE BOTH SIDES

VOTE BOTH SIDES

Cast Vote Records

CVRs are electronic records of how the marks on the ballot are tabulated as votes for candidates and on other ballot questions. They come in a variety of formats, some much easier for the public to examine than others. Some CVRs are in spreadsheet files that list the votes cast, with ballots in the rows and offices in the columns. Others are in less user-friendly formats, such as .json files, that require basic computer programming knowledge to analyze.

The specifics of what is included depend on the scanning device, state election policies, and individual precinct processes. Nevertheless, CVRs can indicate the ballot style (including mail, early, Election Day, or uniformed and overseas); political party for primary elections; and ballot language. They can also indicate precinct, candidate options, tabulator equipment utilized, and a randomly generated unique identifier printed on the ballot as it is scanned. CVRs might identify cases of over-, under-, or straight-party voting.

Vote-capture devices are programmed according to statutory requirements and the specific needs of a jurisdiction. Because there is no common standard for the format of CVRs, even if all jurisdictions were to release CVRs publicly there would still be barriers to the kind of comprehensive, cross-jurisdictional analysis proponents hope for.

Example Cast Vote Record from Leon County, FL, as included in [Kurikawi et al.](#):

```
{election: 2022 Democratic Primary,
ballot: {
  ballot_id: 111111
  precinct_id: 111,
  method: mail,
  choice: {
    United States Senator: Ricardo De La Fuente,
    Governor: Nicole "Nikki" Fried,
    Attorney General: Jim Lewis,
    Commissioner Agriculture: Ryan Morales,
    County Judge Group 1: Mario R. Theodore
    Board County Commissioners AL: Rudy Ferguson Sr
    Board County Commissioners 3: Rick Minor
    School Board Member 1: Alva Swafford Striplin
    Mayor: Kristin Dozier
    City Commissioner Seat 3: David Bellamy
    City Commissioner Seat 5: UNDERVOTE
  }
}
```

Options for How to Make Ballot Images and CVRs Public

There are several levels at which election offices could make records available: unavailable to the public, available via public record request, available online to registered voters or other limited groups, and available online to any member of the public.

What is available varies as well. Some offices opt to release both CVRs and ballot images online, while others release one or neither. [Some election offices](#) lack the technology to extract and release a CVR or to capture and store a ballot image.

Some states subject CVRs and ballot images to state or federal records retention requirements, but others do not.¹ Additionally, some states have [different rules](#) for how CVRs and ballot images are handled for ballots cast by mail and in-person. Rules on records retention and whether CVRs and ballot images qualify as voted ballots can affect whether they can be used as evidence in litigation over election results.

BALANCING TRANSPARENCY, PRIVACY, AND EFFICIENCY

Both privacy and transparency can promote the public good and, when balanced, may increase the legitimacy of electoral institutions. Although it may be in the public interest for CVRs and ballot images to be shared, the benefits of transparency do not automatically supersede the right to privacy, or vice versa – one must always be weighed against the other. Different policymakers will weigh these trade-offs differently; the goal of this explainer is to help that decision be as informed as possible.

Privacy

The public release of ballot images and CVRs poses different types of risk to the privacy of individual voters. In different ways and to different degrees, the release risks enabling viewers of the records to tie a voter's identity to their vote. These risks are especially heightened when precincts are small and write-ins are recorded.

That said, many of these privacy risks are already present when reporting election results in small units, and policy options exist to minimize the risk of privacy violations. And while voters' identities should stay anonymous to the public, they should stay anonymous to the authority that is processing ballots, too. In this light, shielding CVRs or ballot images from public record requests because of privacy concerns alone is still an incomplete implementation of the secret ballot.

Ballot Images

Despite instructions not to mark anything on their ballot other than their vote choices, a handful of voters sign their ballot or leave other personally identifiable information on their ballot. An example is when a voter changes their mind and

crosses out their initial choice and marks another; this voter might leave their name or phone number in case an election official has questions about their choice. (Election officials are not permitted to act on this information and contact voters about their choices in any state.)

When ballot images are posted online in their original form, any voter who has inadvertently added personal information to their ballot might no longer have a secret ballot, subject to the type of information disclosed and the assumption that the personal information present on a ballot image is always reflective of the voter's identity. Although anecdotal evidence from election officials and academic research suggests that the number of voters who disclose personally identifiable information on their ballots is low, one cannot dismiss even a small number of privacy violations without a thoughtful and comprehensive assessment of trade-offs—an assessment that does not exist today.

Risks that Apply to Both Cast Vote Records and Ballot Images

When a ballot image includes write-ins, voters could lose their anonymity if someone recognizes their handwriting. Alternatively, when write-ins are included on cast vote records or ballot images, voters could illegally “sell” their vote choice by including an agreed upon write-in, enabling the vote-buyer to identify the ballot and confirm other choices were marked as intended.

Unique vote patterns also carry a risk of facilitating vote buying: A malicious actor invested in the outcome of one or two races could illegally instruct voters to fill their ballot out in a particular way, essentially creating a unique identifier for the ballot.² This risk applies to both ballot images and CVRs.

The Challenge of Small Precincts and Voting Methods with Low Utilization

When a precinct has a small number of voters, or when a small number of voters use a specific method of voting, it can be possible to infer an individual voter's choices by joining information from a CVR or ballot image with a voter history file, which lists everyone who voted in a given precinct. This danger also exists when officials release election results at the precinct level, even when CVRs or ballot images are not included. Some states have addressed this problem by excluding these precincts from detailed reporting requirements.

In the [first empirical study](#) of how often election results identify voters, Shiro Kuriwaki, Jeffrey B. Lewis, and Michael Morse studied individual-level CVRs, which are publicly available in Maricopa County, AZ.³ They found that the public disclosure of CVRs could reveal less than 0.2% of any voters' choices in the 2020 general election in Maricopa County. The authors ultimately support public disclosure, arguing that privacy concerns can be addressed without withholding *all* CVRs.

The authors also argue that releasing CVRs coded by precinct and vote method are no more revelatory than releasing aggregate vote tallies for each precinct and vote method—undermining the argument that CVRs and ballot images pose new and disproportionate risks to voter privacy. Thus, if policymakers consider making data releases less granular to eliminate privacy vulnerabilities, they must do so across the board for CVRs, ballot images, and aggregate results.

Transparency

The justification for providing access to CVRs and ballot images is that doing so would allow voters, civil society groups, journalists, and others to independently verify final counts, increasing the legitimacy of elections. Scholars have used cast vote records and granular data to explain surprising election results with ballot design or true voter behavior, as opposed to fraud.^{4,5,6}

Although transparency around election processes such as tabulation audits can foster public trust in elections, accurate interpretations of CVRs and ballot images require a sophisticated understanding of electoral infrastructure and procedures, not to mention the technical skill to be able to process the raw data. Particularly when data are not easily interpretable, the risk is heightened that—intentionally or not—someone could misrepresent the information to sow distrust in election results. That said, shielding records from the public also makes election offices vulnerable to claims of fraud and secrecy.

CVRs are not user-friendly for the average voter due to their highly technical nature and the varying collection and formatting practices across states. Similarly, ballot images pose challenges for manual audits due to the high number of files needing to be processed. Although the files might not provide immediate, tangible takeaways for the general public, making them more accessible would enable researchers, journalists, and others to process the files into more digestible takeaways—thereby providing third-party validity to official reported results.⁷

Efficiency

Election offices are chronically under-resourced. Making CVRs and ballot images public has the potential to increase efficiency, but only when an office has a baseline level of operation that would enable it to make the records public and perform necessary steps to protect voters' privacy.

Ballot Images

Storing and publishing ballot images can be time consuming, both on Election Day and after:

- Activating the image capture capability of tabulators can slow tabulation, affecting both the efficiency of in-person voting sites and the speed of unofficial results reporting. Some jurisdictions do not have tabulators capable of capturing ballot images, and it is not an option for jurisdictions that count ballots by hand.

- Redacting personally identifiable information from ballot images before they are posted (essential to preserving voter privacy) also takes technology to process the images and labor to review and redact information.
- Images need additional data storage relative to cast vote records or other simple files.

Cast Vote Records

Some election offices lack the technology to extract and release CVRs, creating a barrier to public release. If the office does possess the technology to extract CVRs, adding the data to the election office website would likely entail some minimal labor costs, making the release a comparatively lighter lift than posting ballot images. Furthermore, CVRs would not require the manual redaction necessary for ballot images and have relatively smaller file sizes, resulting in lower data storage needs.

Time Spent Responding to Public Records Requests

The public availability of these records could reduce the time spent by election officials responding to public records requests and free them to focus on other essential components of their job. Yet while CVRs and ballot images are in demand right now, it is unclear how long this trend will last, or what the next in-demand record will be. Fully funding election administration enables officials to be agile in response to shifting demands for transparency.

POLICY CONSIDERATIONS

The secret ballot protects against vote buying and voter intimidation and is fundamental to a free and fair democracy. Certain policy interventions can safeguard privacy by preventing those with access to CVRs and ballot images from being able to tie vote choices to a voter.

By implementing safeguards, policymakers and election officials can mitigate many of the privacy concerns associated with making CVRs and ballot images publicly available. That said, each requires technological or personnel resources—resources many election offices do not have. For privacy measures to be successful, states must pair requirements with funding.

With these trade-offs in mind, we offer several key considerations for policymakers:

- Establish a **clear and uniform definition** of CVRs and ballot images, ideally in coordination with other states and jurisdictions.
- Clarify **which records are available** via public record request and which are published online.
- Consider whether those attempting to access records posted online

should have to **verify their identity** or be a registered voter in that jurisdiction.

- Consider which approach to **privacy** is best for each state: suppression, aggregation, or random noise.
- Kuriwaki, Lewis, and Morse offer helpful context [in their paper](#), explaining: “Broadly, there are three types of privacy policies currently used by election officials to reduce or eliminate vote revelation: some jurisdictions *suppress* certain election results that might be vulnerable to revelation, others *aggregate* small reporting units into larger reporting units, and one adds random noise to election results based on ideas related to differential privacy.”
- Recognize that many administrative concerns are a result of **inadequate resources**, and proactively work to sufficiently fund election administration.

Many of these considerations would be aided by collaboration with the U.S. Election Assistance Commission. The commission could aid in establishing industry standards for the content, preservation, and presentation of CVRs and ballot images, improving their usefulness in building legitimacy, trust, and transparency.

LOOKING AHEAD

As we approach the 2024 elections, interest in ballot images and CVRs is likely to persist. Policymakers must weigh the tensions between privacy, transparency, and efficiency as they devise solutions to meet the growing demand for access to these records.

Public confidence in elections hinges on the accessibility of information at each stage of the process. Citizens have a right to participate in elections and to trust that the electoral process is valid. This legitimacy forms the foundation for accepting election outcomes as reflective of the people’s will.

ACKNOWLEDGMENTS

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Endnotes

- 1 The California Elections Division [interprets](#) digital ballot images to be covered under the 22-month preservation rule. North Carolina's [statute](#) on the preservation of ballots refers explicitly to "voted ballots and paper and electronic records of individual voted ballots." The Colorado statute clarifies that a "ballot includes any digital image or electronic representation of votes cast." Unlike California and North Carolina, Colorado designates CVRs as open record.
- 2 Jack Williams, Samuel Baltz, and Charles Stewart III, "Administering Instant Runoff Voting Elections: What Could Go Wrong?" As presented at the 2023 Election Science Reform and Administration Conference. Available at: <https://esra-conference.org/2023-conference/program>
- 3 Shiro Kuriwaki, Jeffrey B. Lewis, and Michael Morse, "The Still Secret Ballot: The Limited Privacy Cost of Transparent Election Results," arXiv:2308.04100v1, Available at: <https://arxiv.org/pdf/2308.04100.pdf>
- 4 Joseph Bafumi, Michael C. Herron, et al., "Alvin Greene? Who? How Did He Win the United States Senate Nomination in South Carolina?" *Election Law Journal: Rules, Politics, and Policy*, 358-379, December 2012. Available at: <http://doi.org/10.1089/elj.2011.0137>.
- 5 Jonathan N. Wand, Kenneth W. Shotts, et al., "The Butterfly Did It: The Aberrant Vote for Buchanan in Palm Beach County, Florida," *American Political Science Review* 95(4): 793–810, 2001. Available at: <http://www.jstor.org/stable/3117714>.
- 6 Andrew C. Eggers, Haritz Garro, and Justin Grimmer, "No evidence for systematic voter fraud: A guide to statistical claims about the 2020 election," *Proceedings of the National Academy of Sciences* 118(45): e2103619118, 2021. Available at: <https://doi.org/10.1073/pnas.2103619118>.
- 7 Lonna Atkeson, Lisa A. Bryant, et al., "Auditing the Audit: An Examination of the 100% Independent Retabulation of the 2022 Primary Election Audit in Leon County." As presented at the 2023 Election Science Reform and Administration Conference. Available at: <https://esra-conference.org/2023-conference/program>