Preparing for 2024: Election Technology and the Battle Against Disinformation

Verified Voting

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About Verified Voting

Verified Voting’s mission is to strengthen democracy for all voters by promoting the responsible use of technology in elections. We work with election officials, policymakers, and democracy defenders across party lines to help voters vote and to promote policies that support justified public confidence in elections. Our vision is that all voters are able to cast an effective ballot without barriers; that voters can have justified confidence that their votes were counted as cast; and that ultimately, foundational democratic principles are upheld.

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Introduction

As we reflect on the 2022 midterm election and look ahead to the 2024 presidential election, we acknowledge the substantial progress made in how election technology is deployed to support secure, transparent, and accurate elections. However, we remain concerned about the increasing prevalence of false allegations of election equipment fraud and procedural malfeasance by those who seek to undermine the legitimacy of our electoral process. Despite overwhelming evidence to the contrary, these election deniers continue to propagate baseless claims and conspiracy theories that erode public trust in our democracy.

With the 2024 primaries just one year away, our elections face another round of attacks from election deniers, but further action can help withstand these attacks to our democracy. Below, we analyze how U.S. elections have been made more resilient over time, how voting technology issues played out in the 2022 election, and our recommendations for counties, states, and the federal government ahead of the 2024 election. With governments at all levels working to improve election equipment and administration, we can collectively help combat mis- and disinformation and bolster public confidence.

Looking to 2024: A Shift to More Resilient Elections

Resilient elections employ election technology and practices that maximize participation, accessibility, and verifiability. The most secure elections use voter-marked paper ballots and post-election audits to check the election outcome. Robust procedures and backup plans help ensure voters can continue to vote and are not disenfranchised by long lines or equipment failures. Resiliency measures, especially when communicated transparently to voters, can help stem the spread of mis- and disinformation when technology failures and human error inevitably happen.

Election jurisdictions across the U.S. have made significant progress in election administration. In 2002, Congress passed the Help America Vote Act (HAVA), which required all in-person voting locations to supply accessible equipment by 2006. Many jurisdictions deployed direct recording electronic (DRE) voting machines—most of which did not include voter-verified paper

1 52 U.S.C. § 21081 et seq.
audit trail (VVPAT) printers. By 2012, more voters lived in jurisdictions where they could hand mark a paper ballot than before HAVA, and in 2016, more jurisdictions offered ballot marking devices (BMDs) in lieu of DREs as assistive devices.

The 2016 election cycle was a watershed moment for election security in the U.S. The revelation that a nation-state had interfered with our election process thrust election security into the spotlight. Russia targeted election systems in all 50 states. The public and policymakers alike became acutely aware of the need for paper ballots and post-election audits—recommendations strongly encouraged by election security experts—to ensure the accuracy of our elections. Virginia decertified its remaining insecure DRE voting equipment and Colorado became the first state to implement risk-limiting audits (RLAs) statewide—an important step toward greater trustworthiness and transparency in election outcomes.

The 2020 presidential election marked the “most secure in American history.” Not only were the fewest voters to date using insecure DRE voting machines, but, because of the COVID-19 pandemic, more voters were voting at home on paper ballots even in states still deploying DREs for all in-person voters. This led to a drastic increase in the number of voters able to meaningfully review ballots before casting them and, likewise, an increase in the number of paper ballots available for audits and recounts. The 2022 midterm elections were similar to elections in 2020, with even more voters living in jurisdictions offering hand-marked paper ballots and the lowest percentage of voters living in jurisdictions deploying DREs with or without VVPAT.

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8 E.g., Nevada and New Jersey.
In 2024, DREs will be deployed in the lowest numbers since their introduction to the U.S. market and 68.7% of registered voters will live in jurisdictions that allow them to hand mark paper ballots. Further, many COVID-related mail ballot laws remain in place, meaning even voters in jurisdictions still fielding less secure equipment will be able to hand mark their ballots and review them at home before casting them.

**2022 Election Analysis**

Verified Voting is a leading member of the Election Protection coalition, a nonpartisan coalition of more than 300 member organizations working to ensure all voters have an equal opportunity to participate in the political process. Verified Voting connects election equipment experts to 866-OUR-VOTE hotline volunteers, poll workers, and election officials to respond to election equipment failures. For this analysis, we reviewed calls to the hotline, which is administered by the Lawyers Committee for Civil Rights Under Law.

In the 2022 general election, as in previous elections, there were some instances of election equipment failures; however, election officials and poll workers generally responded appropriately and with speed, allowing voters to continue to vote and have confidence their ballots would be counted as cast. Jurisdictions that offered printed paper ballots for most voters were best able to recover from technological failures. In the counties and states that planned ahead for how to deal with malfunctioning equipment, voters were able to continue voting without significant interruption.

**Arizona**

In Maricopa County, AZ, some scanners available to in-person voters on Election Day were unable to immediately scan ballots printed by the county’s ballot-on-demand (BOD) printers. County officials notified the public of the issue, initially reporting that toner settings on the BOD printers caused some scanners to improperly read ballots at some of the county’s vote

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10 Verified Voting team members provided resources and training to coalition partners and hotline volunteers to provide technical support to election officials, poll workers, and voters in at least 35 states.
11 The Election Protection hotline received more than 31,000 calls during the 2022 general election—almost 9,000 calls on Election Day alone. Hotline volunteers answer caller questions and create tickets for followup.
centers.\textsuperscript{12} A subsequent investigation also found that the combination of 100 pound paper, 20 inch ballots, and intermittent print demand pushed some ballot printers to their limit.\textsuperscript{13}

Technicians were able to resolve the problem at many locations by the afternoon on Election Day.\textsuperscript{14} Although voters were not prevented from voting—and long lines did not form at most locations—election deniers seized on this incident, falsely claiming that voters should not trust election officials or the use of the auxiliary bin underneath the county’s scanners.\textsuperscript{15} In fact, the county has been using the auxiliary bins, into which voters deposit ballots using a slot called “door 3,” since 1996 for voters whose ballots—for whatever reason—are incapable of being scanned.\textsuperscript{16} Maricopa County Elections Co-Director Scott Jarrett noted the impact of election denialism and false claims about equipment security: many voters were afraid to use door 3 because “highly influential members of the public” told voters not to.\textsuperscript{17}

\textbf{Michigan}

In Wayne County, MI, where in-person voters are checked in on in-house electronic poll books, a software program incorrectly flagged some voters as having requested absentee ballots.\textsuperscript{18} Importantly, these voters were not prohibited from voting, with the software error quickly noticed and fixed.

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\textsuperscript{12} Reuters Fact Check, \textit{Fact Check-As printing issue affected some tabulators in Maricopa County, officials say backup options were available for voters}, Reuters (Nov. 10, 2022), https://www.reuters.com/article/factcheckmaricopa-voting-machines/fact-check-as-printing-issue-affected-some-tabulators-in-maricopa-county-officials-say-backup-options-were-available-for-voters-idUSL1N3261D8.
\textsuperscript{15} Across the U.S., when scanners cannot immediately scan ballots, it is standard practice to securely store paper ballots in auxiliary bins until they can be scanned later. Auxiliary bins are often housed underneath scanners, but can also be separate containers.
\textsuperscript{16} Caitlin Sievers, \textit{Maricopa County certified the 2022 election amid controversy and complaints}, AZ Mirror (Nov. 28, 2022), https://www.azmirror.com/2022/11/28/maricopa-county-certified-the-2022-election-amid-controversy-and-complaints/. Further, in eight Arizona counties, voters only have the option to put their ballot in a secure box for later tabulation.
\textsuperscript{17} Id.
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New Jersey

In Mercer County, NJ, where in-person Election Day voters hand mark paper ballots and feed them into optical scanners, an error in preparing ballot definition files caused pre-printed paper ballots not to match their corresponding ballot definition files, meaning the ballots could not be read by the polling place scanners.\(^{19}\) Poll workers instructed voters to use auxiliary bins while county and vendor technicians attempted to fix the problem.\(^{20}\) Voters were able to continue voting and, in a subsequent investigation, the Mercer County Prosecutor’s Office did not find any evidence of tampering.\(^{21}\) Election Day ballots were transported to the county Board of Elections office to be tabulated on batch-fed scanners, which are typically used for mailed ballots. During transportation, some ballots were temporarily unaccounted for; however, the ballots reported missing were found.\(^{22}\)

Rhode Island

During the early voting period in some cities in Providence County, RI, the Spanish-language primary ballots on the state’s new BMDs erroneously showed some 2018 candidates.\(^{23}\) After 55 voters had already cast their ballots in the affected cities, a voter discovered the error and notified poll workers. The following day, the manufacturer performed a manual update to the database. Because BMDs do not store information, election officials do not know how many or which of the 55 voters used the Spanish-language ballots.

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Texas

During early voting in some Texas counties that field only BMDs without offering pre-printed or ballot-on-demand paper ballots for voters to hand mark, long lines formed and some voters left without voting. Voters struggled with mis-touches on BMDs, confusion about two-page ballots, and voting machines not operating.

**Recommendations for 2024**

**States and Counties**

We support the work of election officials, from the state level to the smallest towns, in planning ahead for natural disasters, equipment breakdowns, and foreign—or internal—interference. Officials in many jurisdictions are already employing many of these practices and more widespread use will bolster confidence in elections, fight disinformation, and improve resilience.

**Poll worker training:** Poll workers help administer elections and are often the primary point of contact for voters in the polling place, especially when equipment failures cause delays or confusion for voters. Poll workers should be comprehensively trained on all equipment in use—from electronic poll books to voting machines to scanners—and must be able to execute and effectively communicate backup plans and processes should any equipment malfunction or fail entirely. Disinformation thrives when there is a vacuum of reliable information. Voters can be disenfranchised by poll workers who do not know how to set up equipment, by poll workers who are misinformed about state laws, and by poll workers who turn voters away instead of offering emergency paper ballots in cases of equipment failure. Although not all jurisdictions have the resources, developing and making available online comprehensive and engaging training programs helps poll workers and voters alike. Finally, whenever a jurisdiction changes voting equipment—even when it seems substantially similar—poll workers must be given

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27 E.g., 866-OUR-VOTE hotline, supra note 24.
28 See, e.g., Santa Cruz County Clerk/Elections, Election Officer Manual (Nov. 2022), https://www.votescount.us/Portals/16/nov2022/election%20officers/PP%20for%20binder%20Nov%202022.pptx.pdf?ver=5dfuta_1C5i1OwNxePfRhA%3d%3d.
sufficient opportunities to practice using the new equipment so they are able to assist voters and so that voters trust their instruction.

**Rigorous pre- and post-election testing of equipment:** Logic and accuracy (L&A) testing checks that equipment is working correctly before an election. To foster voter trust, some jurisdictions make these public tests available for online viewing. These tests must be comprehensive to catch ballot printing errors in addition to scanner issues.

**Feasible timelines for implementing new technology:** Poll workers and voters should be given opportunities to familiarize themselves with new equipment in low turnout elections. Many jurisdictions are already rolling out new equipment ahead of the 2024 primaries and some states are also considering upgrades to their voter registration databases; however, the closer to a major election cycle, the less ideal it becomes to roll out a new system. Jurisdictions not already hand counting paper ballots should reject proposals to ban tabulation equipment outright. This disruption makes elections more difficult to run and more expensive, sowing deeper distrust amongst the public.

**Paper backups for electronic poll books:** Jurisdictions using electronic poll books to check in voters should supply pre-printed paper copies of voter rolls at in-person voting locations as a failsafe should there be a software issue, syncing issue, power outage, or other malfunction. A robust backup plan can prevent long lines from forming, meaning voters are less likely to leave without voting. Having an open line to the county and/or IT staff available are also reasonable mitigation measures.

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30 Jen Fifield, *Too big of a job: Why Maricopa County’s ballot printers failed on Election Day*, Votebeat Arizona (Dec. 8, 2022) https://arizona.votebeat.org/2022/12/8/23500457/maricopa-county-ballot-printer-tabulator-voting-problems-phoenix; see also McGregor supra note 13, at 25 (suggesting robust stress testing, including interval printing, of BOD printers, but noting that there was no clear indication that the problems Maricopa County experienced should have been anticipated).
34 See, e.g., Marcello, *supra* note 18.
Emergency paper ballots: Emergency paper ballots must be offered to voters in jurisdictions fielding only voting machines for in-person voters. This ensures that eligible voters are not turned away at the polls when voting technology fails. Emergency paper ballots are different from provisional ballots, which should only be offered in unique circumstances when they are required.\textsuperscript{35} Election officials should clearly tell voters why emergency paper ballots are being used, how they will be stored, and how they will be counted.

Hand-marked paper ballots for most voters: We discourage jurisdictions from deploying BMDs for all voters and encourage jurisdictions to use them primarily as assistive devices.\textsuperscript{36} BMD-produced ballots require voters to catch and correct not only their own errors, but also software errors or alterations made by the BMD. Without intervention, very few voters check BMD-produced ballots with enough attention to catch errors.\textsuperscript{37} Jurisdictions that field only BMDs typically spend more money than those relying on BMDs primarily as assistive devices.\textsuperscript{38} Importantly, voters in BMD-only jurisdictions are faced with waiting in line for failing equipment to be fixed or replaced, and sometimes leave without voting.

Use of human-readable text: Some BMDs and remote accessible vote-by-mail systems encode voter choices in bar or QR codes on ballots\textsuperscript{39} and systems using QR codes continue to be targets for disinformation campaigns.\textsuperscript{40} We support state policies that require human-readable text, which voters can verify before casting their ballots, to be used by election workers in audits and recounts.

\textsuperscript{35} 42 U.S.C. 15482 § 302.
\textsuperscript{39} E.g., Voting Equipment Database: Dominion ImageCast X, Verified Voting, https://verifiedvoting.org/election-system/dominion-imagecast-x/ (last visited Apr. 17, 2023). In 2019, Colorado prohibited the encoding of voter selections in such codes, prompting Dominion Voting Systems to undertake work on a BMD and scanner that print and read human-readable voter marks. See Andrew Westrope, Colorado the First State to Remove Bar Codes from Ballots, Government Technology (Sept. 20, 2019), https://www.govtech.com/civic/colorado-the-first-state-to-remove-bar-codes-from-ballots.html. Other states (e.g., New Mexico) already banned such encoding; Dominion’s new system is under test in New York.
\textsuperscript{40} Lisa Hagen, Election deniers in Georgia are calling for voting machines to be scrapped, National Public Radio (Oct. 19, 2022), https://www.npr.org/2022/10/19/1130026639/election-deniers-in-georgia-are-calling-for-voting-machines-to-be-scrapped.
Reminders to voters to check their ballots: Voters should be reminded to check their ballots after marking them and again after printing, if using BMDs. When voters do notice errors, they should immediately notify poll workers and call the 866-OUR-VOTE hotline. Poll workers should be trained to remind voters at several stages of the voting experience—most importantly at the scanner or ballot box.

Rigorous post-election audits: Post-election audits check the unofficial election outcome against voters’ ballots. They provide solid evidence to support the outcome or detect errors, whether accidental or intentional. Well-designed post-election audits give voters justified confidence in elections.41 Risk-limiting audits (RLAs) are the most rigorous and efficient type of post-election audits. An RLA can stop as soon as it finds strong evidence to support the reported outcome. Or, if the reported outcome was incorrect because ballots were miscounted, an RLA is very likely to lead to a full hand count. Voters should not conflate real audits with sham reviews, which are designed to undermine legitimate election results and mislead the public.42

Reliable, transparent information for the public: Voters should turn to their local election offices for accurate information about polling times and locations, election equipment, and voter eligibility. Election workers can help reduce mis- and disinformation about voting by communicating clearly and transparently to voters on multiple platforms. Likewise, election officials need adequate resources to combat mis- and disinformation.43 Election offices are often understaffed and overburdened with tracking and responding to disinformation,44 and federal and state agencies have an obligation to supply election offices with funding, communications tools, and information sharing.45

**Protections for election workers:** In recent years, there has been a dramatic rise in threats to election officials and poll workers, despite their administration of safe and secure elections, particularly during a pandemic. More than 75% of election officials say that threats against them and their staff have recently increased and one in five election officials plan to leave their job before the 2024 election. States should protect election workers by passing protective laws, like those increasing penalties for harassing election workers and permitting election workers to withhold their home addresses from public disclosure.

**State and Federal Funding**

Election administrators can only do as much as funding allows. Federal elections are costly for local election officials to administer, due in part to their higher turnout and longer ballots. We urge Congress to increase funding for election officials. Smaller jurisdictions are often the least well-funded and thus struggle to upgrade their systems, choosing between basic supplies, full-time staff, and security improvements. We encourage states and the federal government to provide increased funding and accessible grants.

Funding is critically important for upgrading election equipment, protecting our election officials and poll workers, and combating mis- and disinformation. Harassment of election officials and their staff has increased at an alarming rate and is causing high turnover in the field, resulting in less institutional knowledge and the possibility—and actuality—that election deniers take office. Some states have passed legislation that not only puts election officials who make mistakes at risk of fines or jail time, but poll workers as well, likely causing a chilling effect. Further, poll workers, who are typically older individuals, were less likely to work during the pandemic in 2020, and election officials continue to struggle to fill these spots. Congress should provide states and local election officials with funding they can use to monitor for threats and upgrade physical security systems.

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48 See, e.g., H.B. 4144, 2022 Leg., 81st Sess. (Or. 2022); see also H.F. 635, 2023 Leg., 93rd Sess. (Mn. 2023) (Introduced).
50 National Task Force on Election Crises, Lessons from the 2022 General Election: How to Prevent Election Crises, and Emerging Issues for 2023, 2024, and Beyond 4, 19–20 (Feb. 9, 2023), [https://static1.squarespace.com/static/5e70e52c7c72720ed714313f/t/63ebd7de17df7c1ecaf31726/1676400608352/2022NTFEC+Post+Election+Report.pdf](https://static1.squarespace.com/static/5e70e52c7c72720ed714313f/t/63ebd7de17df7c1ecaf31726/1676400608352/2022NTFEC+Post+Election+Report.pdf).
Conclusion

In 2024, U.S. elections are on track for the most secure and resilient use of election equipment yet. Fewer jurisdictions will deploy insecure DREs for in-person voters than since before these voting machines were invented, allowing the largest number of voters to vote using paper ballots. More states than ever before will employ post-election audits, further bolstering trust in election outcomes.

While it is likely that efforts to undermine trust in our elections will continue apace, these baseless claims and conspiracy theories are simply that: unfounded. As election deniers prepare to challenge the legitimacy of the 2024 elections, improving mitigation plans is all the more important. With more funding from Congress, election offices can make basic purchases and upgrades, enabling them to focus their efforts on how to best secure their elections. Election workers are part of this critical infrastructure—they must have needed protections to safely do their jobs.

Voters have a part to play too: they should educate themselves about how U.S. elections run, turning to their local election offices for accurate information, and which voting equipment their jurisdiction offers—and remember to check their deadlines, registration, and polling location. Together, we can fight back against those who seek to erode public trust in our democracy.