

IS AMERICA READY TO VOTE?  

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STATE PREPARATIONS FOR  

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VOTING MACHINE PROBLEMS  

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IN 2008

EXECUTIVE SUMMARY

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## **ABOUT THE BRENNAN CENTER FOR JUSTICE**

The Brennan Center for Justice at New York University School of Law is a non-partisan public policy and law institute that focuses on fundamental issues of democracy and justice. Our work ranges from voting rights to redistricting reform, from access to the courts to presidential power in the fight against terrorism. A singular institution — part think tank, part public interest law firm, part advocacy group — the Brennan Center combines scholarship, legislative and legal advocacy, and communication to win meaningful, measurable change in the public sector.

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The Common Cause Education Fund is the research and public education affiliate of Common Cause, a non-partisan, non-profit advocacy organization founded in 1970 by John Gardner as a vehicle for citizens to make their voices heard in the political process and to hold their elected leaders accountable to the public interest. With a 38-year track record, chapters in 35 states, and nearly 400,000 members and supporters across the country, Common Cause is one of the nation's oldest, largest and most effective grassroots advocacy organizations dedicated to reforming government and strengthening democracy in America. Together, Common Cause and the Common Cause Education Fund work to ensure honest and verifiable elections, to curb the political influence of big money, and to promote ethical government and also the diverse and accessible media that is essential for our democracy.

## **ABOUT THE VERIFIED VOTING FOUNDATION**

The Verified Voting Foundation is a non-partisan, non-profit organization championing reliable and publicly verifiable elections. Founded by Stanford University Computer Science Professor David Dill, the organization supports a requirement for voter-verified paper ballots (VVPBs) allowing voters to verify individual permanent records of their ballots and election officials to conduct meaningful recounts. The Verified Voting Foundation is the recognized leader of the nationwide grassroots movement for VVPBs and verifiable elections.

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## ABOUT THE AUTHORS

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**Susannah Goodman** directs Common Cause's national campaign for election reform, working with national staff and Common Cause state offices and a wide range of coalition partners and advisors to press for reforms that repair and strengthen our voting system at both state and federal level. She joined Common Cause in 2004 after more than 15 years of working on issues related to shareholder rights, personal finance, and consumer and environmental protection. Ms. Goodman is the author of a personal finance book for women and co-author of numerous reports and articles. She also worked for six years as a lobbyist and organizer for Public Citizen. Ms. Goodman is a graduate of Wesleyan University.

**Sean Flaherty** works as a researcher and writer on electronic voting issues for the Verified Voting Foundation and VerifiedVoting.org. Since 2006 he has co-chaired Iowans for Voting Integrity, a grassroots citizen organization that lobbied successfully for adoption of a statewide paper ballot/optical scan voting system. He is currently serving on an Iowa Task Force studying election audits, at the request of the Secretary of State.

**Pamela Smith** is President of VerifiedVoting.org and the Verified Voting Foundation. Her interest in voting issues includes experience as an election observer, locally and internationally. She provides information and public testimony on verified voting issues on state and local levels. She has co-authored written testimony on several state voting system Requests for Proposals (RFPs) and legislative recommendations, as well as reports on accessibility and auditability issues for voting systems and other research. She has been a small business and marketing consultant and nonprofit executive, and has worked in both public and private sector.

## METHODOLOGY

There were three steps to determining **state practices**: first, attorneys and paralegals at private law firms, Verified Voting staff, and Legal Interns and Research Associates at the Brennan Center reviewed state statutes, regulations, and directives relating to the areas of focus in this report. Second, after this research was complete, staff at all three organizations presented these initial findings to the office of the chief election official in each state to confirm that our analysis of state practice was accurate, and to ascertain any additional information relevant to this report; these exchanges were conducted by telephone and e-mail. We also contacted a representative sampling of county clerks in each state to confirm the state's policies and practices and gain further insight into the elements of voting system preparedness at the local level. Finally, once this information was synthesized into summaries, the three author-organizations sent copies of the summaries to the office of the chief election official in each state for final review. Comments from election officials were incorporated into the final draft of this report.

Recommended **best practices** were based upon actual practices in place in certain counties and states, and were developed in consultation with election officials and election experts, both in and outside the three author-organizations.

The methodology for **scoring states** on their compliance with the best practices for each of the four areas of election system preparedness is described in each section of the report; the “best prepared” and the “least prepared” states are those with the highest and the lowest scores in all four categories, respectively.

## EXECUTIVE SUMMARY

On November 4, 2008, some voting systems will fail in at least a few counties. Unfortunately, we cannot predict where. For this reason, every state must be as prepared as possible for system failures. Vigilance will help ensure that machinery-related problems do not interfere with the right of eligible citizens to vote, or imperil the accuracy of the vote count.

In every national election since 2000, voting systems have failed: machines won't start or fail in the middle of voting,<sup>i</sup> memory cards can't be read,<sup>ii</sup> votes are mistalled<sup>iii</sup> or lost,<sup>iv</sup> and more<sup>v</sup>. The 2008 primaries were similarly plagued with problems. What follows is a list of just some of the more highly publicized problems:

- In the Republican presidential primary in Horry County, South Carolina, touch screen machines in 80% of precincts temporarily failed, and a number of precincts ran out of paper ballots and sent voters to cast provisional ballots at other precincts.<sup>vi</sup>
- In Ohio's March 2008 primary, votes in at least 11 counties were "dropped" when memory cards were uploaded to computer servers due to a software flaw.<sup>vii</sup>
- In the August 26, 2008 primary in Palm Beach County Florida, several votes in a judicial contest disappeared during a recount, then reappeared in a second and third recount, flipping the outcome to a different winner each time.<sup>viii</sup>
- In the September 9 primary in Washington, D.C., three different counts produced three different vote totals, with thousands of "phantom votes" appearing in the first two counts.<sup>ix</sup>

These problems come as no surprise to those who have closely studied election administration in the United States. Our elections are so complex, and involve so many jurisdictions, varying technologies, voters, poll workers, technicians and election workers, that problems are inevitable. And, as the machinery of democracy has become more complicated, the opportunity for error has substantially increased.

Today, the challenge for election jurisdictions is not how to avoid mistakes entirely. The challenge is to institute procedures that will make it possible for jurisdictions to deal appropriately with mistakes — and malfunctions — when they occur.

That is the focus of this report: In the face of election system problems such as broken machines, damaged voting system cartridges, software glitches, incorrectly programmed tally servers, and other voting system problems we have seen in the past few years, we have attempted to determine which procedures each state has adopted in order to ensure the integrity of every citizen's vote. Our essential question: In the event of voting system failures, how prepared is each state to ensure that every voter can vote and that each vote cast is counted?

This report has two purposes: First, we hope to remind jurisdictions inadequately prepared for election system failure that there are steps they can take to ensure that mechanical failures don't disenfranchise voters — in fact, many jurisdictions across the country are *already* doing these things. We urge states and counties to take steps to improve preparedness before November 4, 2008. Our long-term objective is to prompt states to look at ways to improve rules and procedures that will protect against disenfranchisement. Most jurisdictions will survive November 4<sup>th</sup> without a major system meltdown; however, eventual breakdown or mechanical trouble is inevitable.

Second, we would like this report to serve as a resource for concerned citizens and election observers on Election Day. Some states may have good written procedures, but some counties and precincts may fail to adhere to them. We've tried to make clear what election officials are and are not *obligated to do*, by statute, regulation or directive. Just as importantly, if there are problems with machines registering and counting votes, thoroughly understanding these procedures should give concerned citizens, election observers and election officials a better understanding of what may have happened.

## CATEGORIES OF SYSTEM PREPAREDNESS

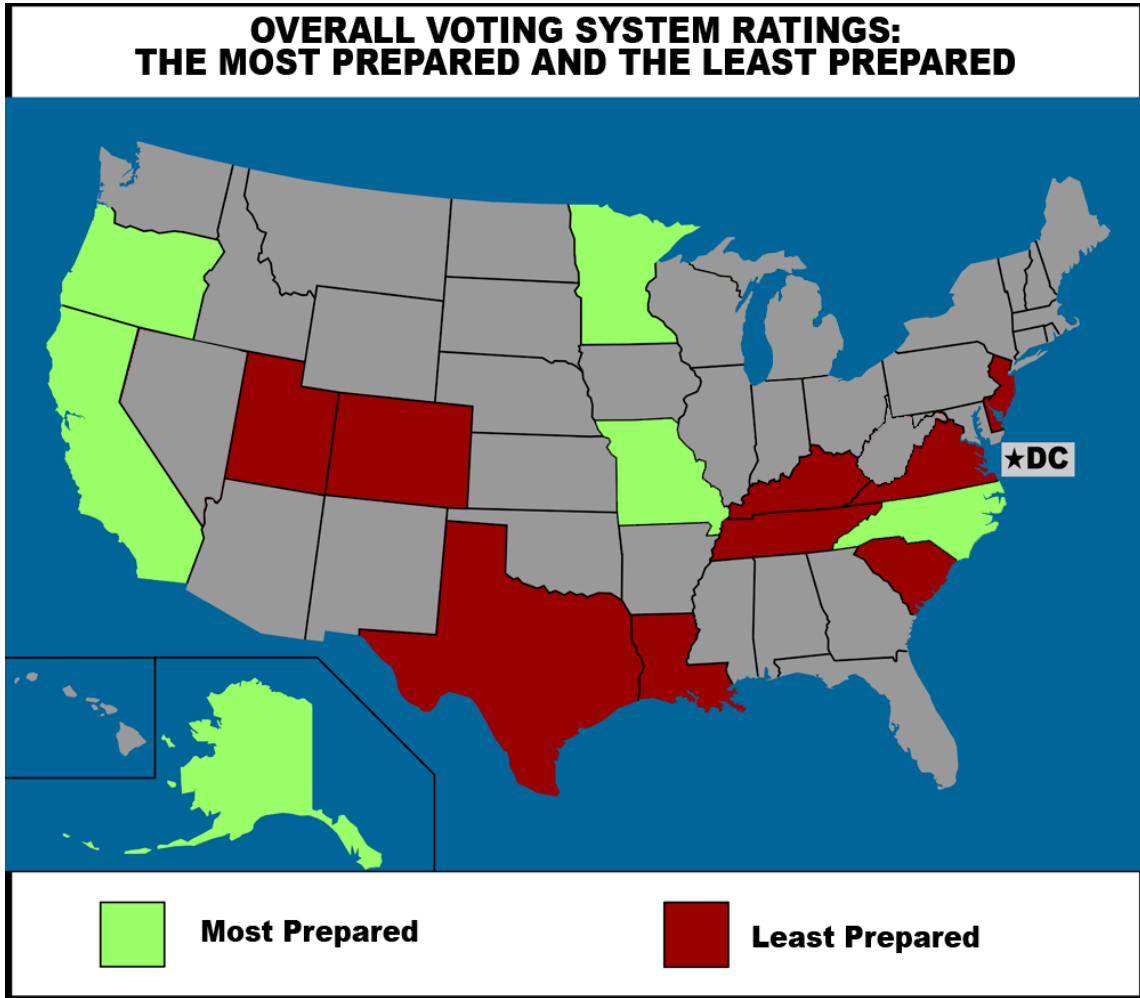
The Brennan Center for Justice at NYU School of Law, Common Cause and Verified Voting have reviewed the laws, regulations and procedures of all 50 states and the District of Columbia in four key areas related to their preparedness for voting system failures:

- **Polling Place Contingency Plans** Twenty-four states have at least some counties that use electronic voting machines or lever machines as their primary voting system on Election Day. In the remaining twenty-six states and the District of Columbia, voters in all precincts may vote on a paper ballot, which can later be read by an electronic scanner. The key difference between these machines and paper scanners is that if machines fail, as they inevitably do, voters may have to wait in long lines while election workers scramble to repair matters. If electronic scanners fail, voters can still vote on paper and their ballots can be read when the scanner is fixed, or after the polls have closed, on another scanner or by hand. The best solution to problems posed by machine failures in machine-only precincts is to repair or replace machines quickly and ensure that polling places have enough emergency paper ballots on hand to provide to voters waiting to vote.
- **Requirements for Sound Ballot Accounting and Reconciliation** Ballot accounting and reconciliation practices help ensure that the number of ballots cast matches the number of voters who have voted, and also insures that no votes are lost. Jurisdictions can catch the kinds of glitches and failures that resulted in incorrect totals in several past elections by checking the number of people who've signed in at the polls against totals reported by the voting machines; double-checking that all absentee votes are counted and that every machine's total is included in the statewide tally; and accounting for all ballots used and unused.
- **Use of a Voting System with a Voter Verifiable Paper Record** Nearly every state in the country counts its votes on some form of electronic voting system. But 19 states use machines that have no voter-verifiable paper record. Such records can be an important check to ensure that corrupt software or a programming error did not result in an incorrect machine total.
- **Conduct Post-Election Audit of Voter Verifiable Paper Record** Mandatory comparison of some percentage of the paper ballots to electronic totals is one of the best ways to ensure that the electronic totals reported by voting machines are accurate.

We measure each state against best practices — developed in consultation with leading election officials and security experts — in each of these areas. We rate each state on a five-grade scale — from inadequate to excellent — based on how well their laws and procedures match up to these best practices.

State	Polling Place Contingency Plans	Ballot Reconciliation	Paper Records	Post-Election Audits
Alabama	N/A	Needs Improvement	Good	Inadequate
Alaska	N/A	Generally Good*	Good	Good
Arizona	N/A	Generally Good*	Good	Needs Improvement
Arkansas	Generally Good*	Generally Good*	Inadequate	Inadequate
California	Excellent	Good	Good	Good
Colorado	Needs Improvement	Generally Good*	Inadequate	Needs Improvement
Connecticut	N/A	Generally Good*	Good	Needs Improvement
D.C.	N/A	Generally Good*	Inadequate	Needs Improvement
Delaware	Needs Improvement	Generally Good*	Inadequate	Inadequate
Florida	N/A	Good	Inadequate	Needs Improvement
Georgia	Good	Generally Good*	Inadequate	Inadequate
Hawaii	N/A	Good	Good	Needs Improvement
Idaho	N/A	Generally Good*	Good	Inadequate
Illinois	Good	Needs Improvement	Good	Needs Improvement
Indiana	Excellent	Generally Good*	Inadequate	Inadequate
Iowa	N/A	Good	Good	Inadequate
Kansas	Good	Good	Inadequate	Inadequate
Kentucky	Good	Needs Improvement	Inadequate	Needs Improvement
Louisiana	Needs Improvement	Generally Good*	Inadequate	Inadequate
Maine	N/A	Needs Improvement	Good	Inadequate
Maryland	Generally Good*	Generally Good*	Inadequate	Inadequate
Massachusetts	N/A	Generally Good*	Good	Inadequate
Michigan	N/A	Generally Good*	Good	Inadequate
Minnesota	N/A	Generally Good*	Good	Good
Mississippi	Good	Generally Good*	Inadequate	Inadequate
Missouri	N/A	Generally Good*	Good	Generally Good*
Montana	N/A	Generally Good*	Good	Inadequate
Nebraska	N/A	Generally Good*	Good	Inadequate
Nevada	Needs Improvement	Generally Good*	Good	Generally Good*
New Hampshire	N/A	Good	Good	Inadequate
New Jersey	Good	Needs Improvement	Inadequate	Inadequate
New Mexico	N/A	Generally Good*	Good	Needs Improvement
New York	Good	Generally Good*	Inadequate	Inadequate
North Carolina	Good	Good	Good	Generally Good*
North Dakota	N/A	Good	Good	Inadequate
Ohio	Excellent	Generally Good*	Good	Needs Improvement
Oklahoma	N/A	Generally Good*	Good	Inadequate
Oregon	N/A	Generally Good*	Good	Generally Good*
Pennsylvania	Generally Good*	Good	Inadequate	Needs Improvement
Rhode Island	N/A	Generally Good*	Good	Inadequate
South Carolina	Generally Good*	Needs Improvement	Inadequate	Inadequate
South Dakota	N/A	Generally Good*	Good	Inadequate
Tennessee	Good	Needs Improvement	Inadequate	Inadequate
Texas	Needs Improvement	Needs Improvement	Inadequate	Needs Improvement
Utah	Needs Improvement	Needs Improvement	Good	Needs Improvement
Vermont	N/A	Generally Good*	Good	Needs Improvement
Virginia	Needs Improvement	Needs Improvement	Inadequate	Inadequate
Washington	N/A	Generally Good*	Good	Needs Improvement
West Virginia	Needs Improvement	Generally Good*	Good	Good
Wisconsin	N/A	Generally Good*	Good	Generally Good*
Wyoming	N/A	Good	Good	Inadequate

Overall Voting System Preparedness: The Best Prepared and the Least Prepared



## SUMMARY OF BEST PRACTICES AND STATE RATINGS

Most states have not adopted laws and procedures that would allow them to effectively address all of the most common election system meltdowns. As can be seen from the map on the previous page, six states – Alaska, California, Minnesota, Missouri, North Carolina, and Oregon — rate “generally good,” “good,” or “excellent” in a majority of the categories in which they were rated. Ten states — Colorado, Delaware, Kentucky, Louisiana, New Jersey, South Carolina, Tennessee, Texas, Utah and Virginia — rate “inadequate” or “needs improvement” in at least three of the four categories. This is not to say that all states in this list received the same score. For example, Kentucky and Utah each received one “good” score and one and zero “inadequate” scores, respectively, while Texas and Virginia received exclusively “needs improvement” and “inadequate” scores.

We have every reason to expect all fifty states to adopt all of the best practices detailed in this report; our elections are simply too important to risk another meltdown that further shakes the confidence of the American public in our democratic system. Obviously, however, some of these recommendations will have to be instituted after this November’s elections. In particular, at this late date, it is impossible for jurisdictions to change or modify their current voting systems.

Nevertheless, in the weeks before the election, there is still time for states to take several crucial measures to ensure that they are prepared for the possibility of voting system failure:

- In precincts that use voting machines, officials can ensure that there are adequate emergency paper ballots available on Election Day in the event of machine failures or long lines caused by poor machine allocation.
- Authorities can make sure that at the close of polls on election night, all polling places and county offices comply with the best practice Ballot Accounting and Reconciliation Checklist listed in this report on pages 44–45 of the full report to ensure that a software malfunction or poll worker error did not leave some votes uncounted or mistallied.
- There is still time to conduct audits, after the election but before final certification of election results, to make sure that the unofficial totals reported by the machines are accurate.

Below is a summary of best practices in each of the five categories we have reviewed, as well as an analysis of how closely state requirements adhere to these best practices.

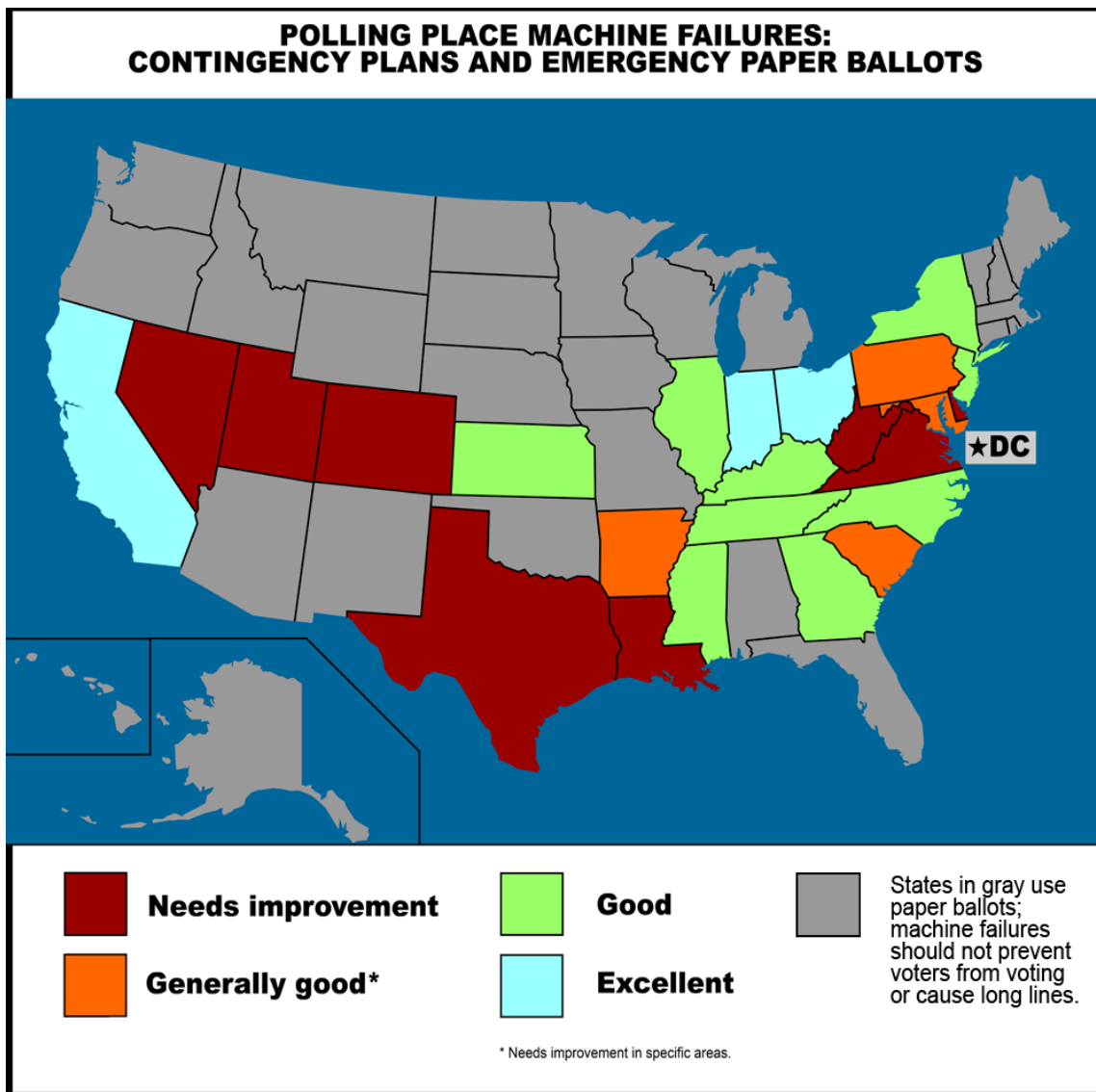
### **Summary of Best Practices for Polling Place Contingency Plans: Repair of Machines and Emergency Paper Ballots**

States that use direct recording electronic (DRE) machines or lever machines as a primary voting system on Election Day should require immediate repair or addition of machines if *any* of them fail. Emergency paper ballots should be available at the polling place if long lines are caused by failure of any of the voting machines, or because there are not enough

machines in the precinct. In developing procedures for emergency paper ballots, states should take steps to ensure that emergency paper ballots are treated as regular ballots (rather than absentee or provisional ballots), and that there are sufficient numbers of them to distribute in the event of long lines.

**State ratings on Polling Place Contingency Plans**

Of the twenty-four states that use voting machines (as opposed to paper ballots and optical scanners) as a primary voting system in at least some precincts, only California, Indiana and Ohio have state-mandated requirements which satisfy most of the best practices listed above. Colorado, Delaware, Louisiana, Nevada, Texas, Utah, Virginia, and West Virginia have no state-mandated requirement for emergency paper ballots to be available in precincts that use voting machines.



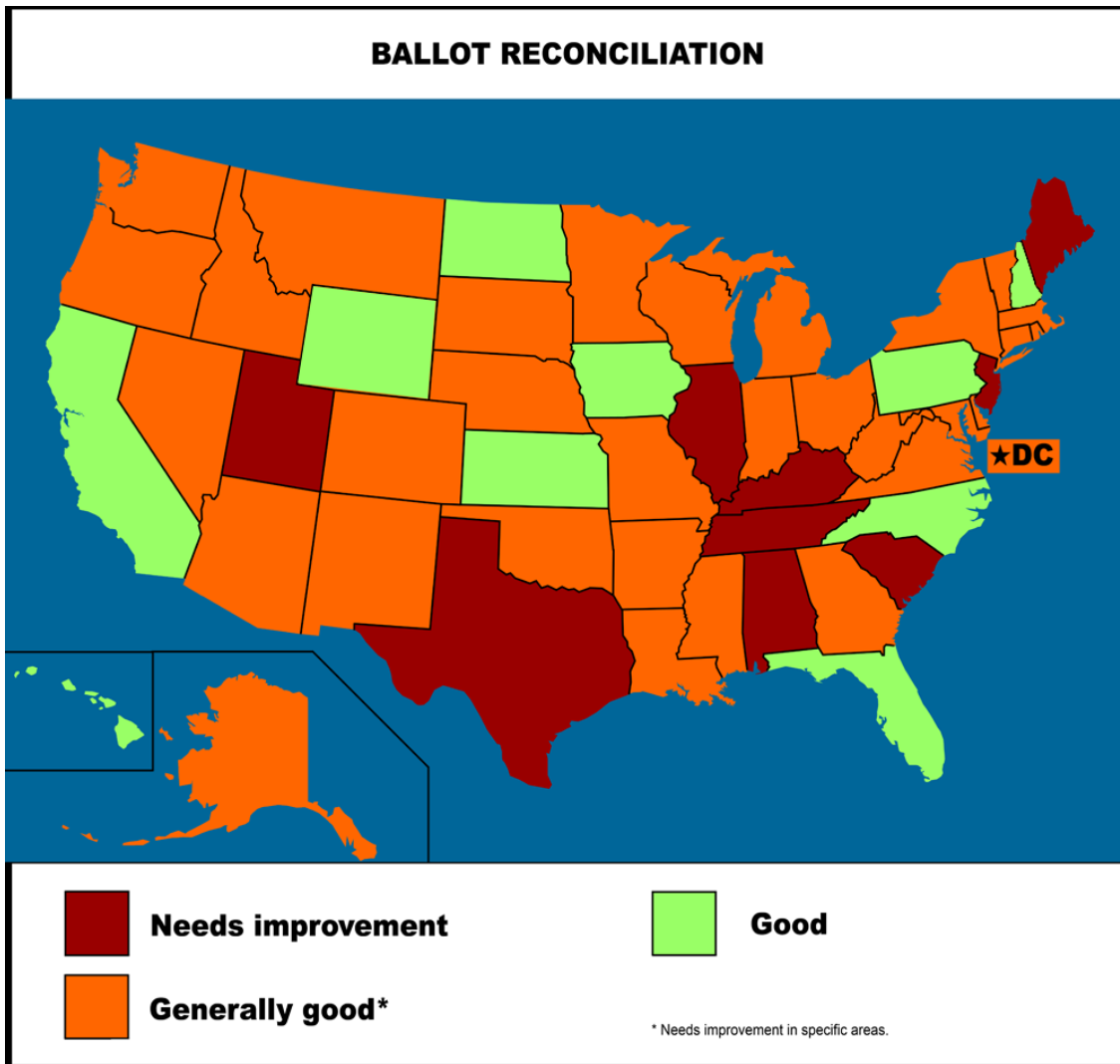
A more detailed explanation of state ratings in this category can be found on pages 19–42 of the full report.

### **Summary of Best Practices for Ballot Accounting and Reconciliation**

There are four main steps to ensuring that all ballots are accounted for after the polls have closed: accounting for all ballots, votes and voters at the polling place (including counting and recording the total number of votes cast); reconciling vote and ballot totals at the polling place (including checking the number of votes recorded against the number of voters who have signed the polling books); reconciling redundancies as votes from each precinct are totaled at the county level (including ensuring that all absentee ballots and every voting machine total is accounted for in the county totals); and making all results public, so that candidates and members of the public can double-check all totals. A detailed checklist of these steps can be found on pages 44–45 of the full report.

### **State Ratings on Requirements for Ballot Accounting and Reconciliation**

While all states do some form of ballot accounting and reconciliation, we found that ten states (Alabama, Illinois, Kentucky, Maine, New Jersey, South Carolina, Tennessee, Texas, Utah, and Virginia) have requirements that fall far short of our recommended best practices, and are therefore rated “needs improvement.” By contrast, ten states (California, Florida, Hawaii, Iowa, Kansas, New Hampshire, North Carolina, North Dakota, Pennsylvania, and Wyoming) report that they require enough in the way of ballot accounting and reconciliation, and we rate their requirements as “good.”



A more detailed explanation of state ratings in this category can be found on pages 48–137 of the full report.

### Summary of Best Practices on Voter Verifiable Paper Records.

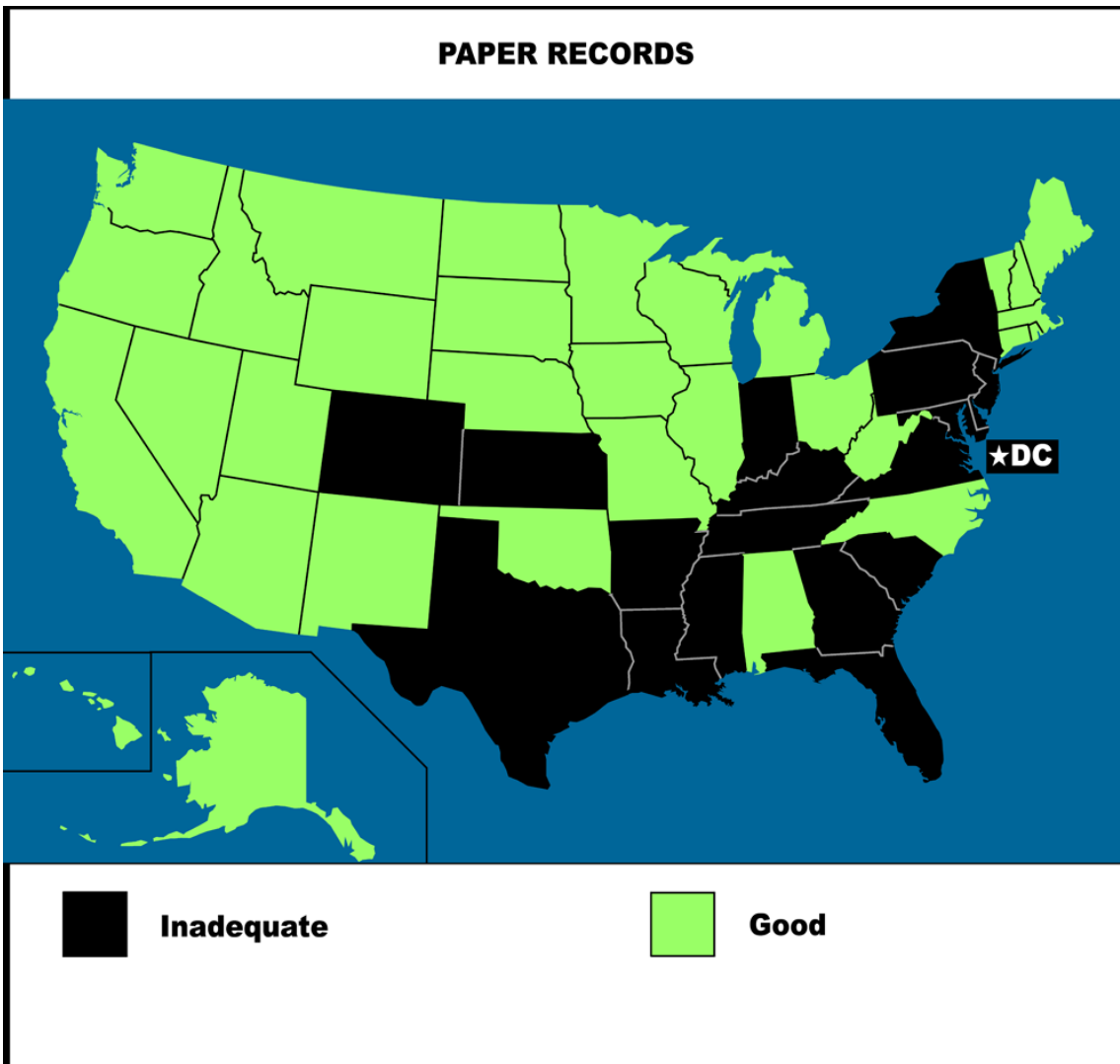
There is widespread agreement among security experts that some form of independent voter-verified record is critical for voting system security, and as a check against potential electronic miscounts.<sup>x</sup> Currently, the only two forms of these records are optical scan ballots, which are filled out by the voter and read by a scanner, and “paper trails” which are printed and used with touch-screen machines. Voters who use touch screen machines with paper trails have the opportunity to review a paper record of their vote before casting it. All three organizations involved in writing this report support accessible voter-verifiable paper ballots.

While no voting system is perfect, the Verified Voting Foundation believes that a paper optical scan ballot system, used with an accessible ballot-marking system, offers significant advantages over DRE systems (with or without voter-verified paper audit trail printers), including reliability, auditability, and ease of use for voters and poll workers alike, and that

these systems should replace DREs. All three organizations agree that if DRE systems are in use, they should not be used without (1) a software-independent, voter-verifiable paper audit trail printer; (2) guidance to help voters check the paper records for accuracy when voting; and (3) sufficient emergency paper ballots on hand in case of machine malfunctions.

### State Ratings on Voter-Verifiable Paper Records

States were given a simple binary score of “good” or “inadequate” based on whether or not their voting systems included paper records. Nineteen states do not mandate paper records as a part of their voting system.



A more detailed explanation of state ratings in this category can be found on pages 141–142 of the full report.

## Summary of Best Practices for Post-Election Audits of Voter Verifiable Paper Records

In the last several years, most of the public debate on electronic voting has concerned whether voting machines should include a voter-verifiable paper record. As detailed above, in much of the country, that debate is over. Thirty-two states currently have either voter-verifiable paper ballots, or have added voter-verifiable paper record printers to voting machines statewide.<sup>xi</sup> Another four states (Maryland, New Jersey, New York and Tennessee) have passed laws to require voter-verifiable paper ballots or records, which take effect in 2009 or 2010. Three states — Arkansas, Colorado and Mississippi — have paper in most counties. The District of Columbia and Florida have paper ballot systems in all counties, along with paperless DREs, and Florida will eliminate paperless systems altogether by 2012.

Unfortunately, the widespread adoption of voter-verifiable paper records does not mean jurisdictions will catch software problems that can cause lost or mistallied votes. On the contrary, as the Brennan Center noted in its June 2006 comprehensive study of electronic voting system security *The Machinery of Democracy: Protecting Elections in an Electronic World*,<sup>xii</sup> voter-verifiable paper records by themselves are “of questionable security value.” Paper records will not prevent programming errors, software bugs or the introduction of malicious software into voting systems. If paper is to maximize the security and reliability of voting systems, it must be used to check, or “audit,” the voting system’s electronic records.

### State Ratings on Post-Election Audits

States that conducted audits received points for conducting audits that are (1) robust (examining more than just one or two contests) (2) comprehensive (auditing all types of systems/ballots), (3) timely (selection starts after initial count is published, and completed before results are finalized), and (4) transparent and random (there is an observably random selection of units to be audited, and audit count itself is transparent). States were also given credit for statutory provisions that trigger expansion of the audit if unexplained discrepancies are found. To achieve an “excellent” grade a state would have to require all of the foregoing, plus use of risk-limiting or statistical audits. No states currently do so.

Four states — Alaska, California, Minnesota, and West Virginia received “good” ratings. The vast majority of states in the country do not perform audits — they received an “inadequate” rating.



## SCOPE OF ANALYSIS

This report reviews and ranks state laws and procedures that jurisdictions are required to follow in the event of *voting machine and voting system failures*. We do not examine how states have prepared to deal with other election administration issues that could cause serious problems on Election Day: problems with the voter registration rolls, ballot design, voter ID requirements, deceptive practices, caging and voter challenges, or the use and counting of provisional ballots, for instance. Both the Brennan Center and Common Cause have published separate reports related to these other issues.<sup>xiii</sup>

Nor do we examine the critical steps that jurisdictions should take to *avoid* voting system failures, including ensuring that there has been rigorous certification testing of all machines, and that each machine receives a thorough “logic and accuracy test” before voting begins. Pre-election logic and accuracy testing is critical to minimizing voting system failures on Election Day; such tests help jurisdictions ensure that their machines are functioning properly, and should record all votes, before they are deployed in the polling place. Professor Douglas Jones and John Washburn, among others, have provided guidance for jurisdictions on how to conduct logic and accuracy testing.<sup>xiv</sup> Unfortunately, even with the best logic and accuracy testing, system failures sometimes happen. This report only addresses the steps that jurisdictions should take to make sure such failures do not disenfranchise voters or result in lost votes.

Our analysis in this report is also limited by what jurisdictions *report* their procedures to be, through written laws, regulations and directives, and interviews we conducted with each state’s election officials. Of course, having these policies in place will be of little value unless they are executed successfully. For instance, the fact that a state requires emergency paper ballots to be distributed to every polling place does not mean that such ballots will actually be distributed, or that poll workers will make them available to voters when appropriate. The analysis that follows *assumes* that jurisdictions will carry out their policies as written, and evaluates the likelihood that jurisdictions will successfully navigate a voting system meltdown based on that assumption.

Finally, and related to the previous point, there are many items that we were not able to evaluate that will be critical to handling election system failures, mostly related to staffing: whether jurisdictions have well-trained poll workers, available technical staff, and sufficient election office staff.

## ENDNOTES

- <sup>i</sup> See, e.g., Cameron W. Barr, *Md. Election Problems Fuel Push for Paper Records*, WASH. POST, Sept. 17, 2006, at A4; Michael Scherer, *Electronic Voting Machine Problems in Myrtle Beach*, TIME, SwampLand Blog, Jan. 19, 2008, available at [http://www.time-blog.com/swampLand/2008/01/electronic\\_voting\\_machine\\_prob.html](http://www.time-blog.com/swampLand/2008/01/electronic_voting_machine_prob.html)
- <sup>ii</sup> See, e.g., Brian C. Mooney, *Voting errors tallied nationwide*, BOSTON GLOBE, Dec. 1, 2004; Mary Pat Flaherty, *Ohio Voting Machines Contained Programming Error That Dropped Votes*, WASH. POST, Aug. 23, 2008. See also Josh Sweigart, *Ohio Officials Prepare for Voting-Machine Breakdowns*, HAMILTON JOURNAL-NEWS, Aug. 28, 2008.
- <sup>iii</sup> See, e.g., John Archibald & Brett J. Blackenridge, *Early Printout Was Only Source of Wrong Tally*, BIRMINGHAM NEWS, Nov. 10, 2002; Nedra Linsey, *McComish's District 20 2<sup>nd</sup>-place Finish Confirmed*, ARIZ. REPUBLIC, Sept. 24, 2004; Ben Cunningham, *Malfunction Delays Hasting Results*, GRAND RAPIDS PRESS, May 4, 2006.
- <sup>iv</sup> See, e.g., *More than 4,500 North Carolina votes lost because of mistake in voting machine capacity*, USA TODAY, Nov. 4, 2004; Tim O'Meilia, *State faults elections office for lost votes*, PALM BEACH POST, July 2, 2008.
- <sup>v</sup> See, e.g., Cecil Bothwell, *Buncombe Machines Disenfranchise Voters*, MOUNTAIN XPRESS, Nov. 10, 2004; David Cho, *Fairfax Judge Orders Logs of Voting Machines Inspected*, WASH. POST, Nov. 6, 2003; Susan Kuzca, *Returns Are In: Software Goofed – Lake County Tally Misled 15 Hopefuls*, CHICAGO TRIB., Apr. 4, 2003, at 1.
- <sup>vi</sup> Domenico Montanaro, *SC Voting Problems*, FIRST READ, Jan. 19, 2008, available at <http://firstread.msnbc.msn.com/archive/2008/01/19/592019.aspx>.
- <sup>vii</sup> Josh Sweigart, *Ohio Officials Prepare for Voting-Machine Breakdowns*, HAMILTON JOURNAL-NEWS, Aug. 28, 2008. Editorial, *Dropped, then caught*, COLUMBUS DISPATCH, Aug. 24, 2008, at G4. See also Lynn Hulsey, *Local counties join vote machine suit: Boards of elections are parties to claim filed by Ohio Secretary of State Jennifer Brunner*, DAYTON DAILY NEWS, Aug. 7, 2008, at A4. See also Mark Niquette, *Missing votes spark lawsuit*, COLUMBUS DISPATCH, Aug. 7, 2008.
- <sup>viii</sup> Susan Spencer-Wendel, *Wennet's thin lead in judicial race prompts manual recount of votes*, PALM BEACH POST, Aug. 30, 2008.
- <sup>ix</sup> See Nikita Stewart & Elissa Silverman, *D.C. Election Glitch Blamed On Equipment*, WASH. POST, Sept. 11, 2008, at A1.
- <sup>x</sup> Ronald Rivest & John P. Wack, *On the Notion of "Software Independence" in Voting Systems* (Draft, July 28, 2006), available at <http://vote.nist.gov/SI-in-voting.pdf>.
- <sup>xi</sup> The thirty-two states are AL, AK, AZ, CA, CT, HI, ID, IA, IL, MA, ME, MO, MN, MI, MT, NE, NV, NM, NH, ND, NC, OH, OK, OR, RI, SD, UT, VT, WA, WV, WI and WY.
- <sup>xii</sup> Lawrence Norden *et al.*, THE MACHINERY OF DEMOCRACY: PROTECTING ELECTIONS IN AN ELECTRONIC WORLD (Brennan Center for Justice ed., 2006), available at [http://www.brennancenter.org/dynamic/subpages/download\\_file\\_39288.pdf](http://www.brennancenter.org/dynamic/subpages/download_file_39288.pdf).
- <sup>xiii</sup> Myrna Perez, VOTER PURGES (Brennan Center for Justice ed., 2008), available at [http://www.brennancenter.org/content/resource/voter\\_purges](http://www.brennancenter.org/content/resource/voter_purges); Lawrence Norden *et al.*, *Better Ballots* (Brennan Center for Justice ed., 2008), available at [http://www.brennancenter.org/content/resource/better\\_ballots/](http://www.brennancenter.org/content/resource/better_ballots/); Lawrence Norden *et al.*, THE MACHINERY OF DEMOCRACY: PROTECTING ELECTIONS IN AN ELECTRONIC WORLD (Brennan Center for Justice ed., 2006), available at [http://www.brennancenter.org/dynamic/subpages/download\\_file\\_39288.pdf](http://www.brennancenter.org/dynamic/subpages/download_file_39288.pdf). Lawrence Norden *et al.*, THE MACHINERY OF DEMOCRACY: VOTING SYSTEM SECURITY, ACCESSIBILITY, USABILITY, AND COST (Brennan Center for Justice ed., 2006), available at [http://www.brennancenter.org/content/section/category/voting\\_technology/](http://www.brennancenter.org/content/section/category/voting_technology/)
- <sup>xiv</sup> Douglas W. Jones, Dep't of Computer Science, Univ. of Iowa, *Voting and Elections*, <http://www.cs.uiowa.edu/~jones/voting/> (last visited Oct. 15, 2008); John Washburn, *Guidelines for Creating a Deck of Test Ballots*, available at <http://www.washburnresearch.org/archive/TestingGuidelines/GuidelinesForCreatingTestBallots.pdf>.

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