



Department of the Secretary of State

Bureau of Corporations, Elections and Commissions

Shenna Bellows
Secretary of State

Julie L. Flynn
Deputy Secretary of State

February 1, 2025

The Honorable Craig Hickman, Senate Chair
Joint Standing Committee on Veterans and Legal Affairs
100 State House Station
Augusta, ME 04333-0100

The Honorable Laura Supica, House Chair
Joint Standing Committee on Veterans and Legal Affairs
100 State House Station
Augusta, ME 04333-0100

Dear Senator Hickman, Representative Supica and Members of the Committee,

Pursuant to the requirements of PL 2021, c. 635, Pt. ZZ, §4, we are pleased to provide this report on the activities of the Department's new Division of Election Audits and Training. The Division is staffed by four full-time employees led by the Division Director Emma Burke. Over the past year, we have performed extensive research, data testing, simulations, and mathematical assessments to design Maine's first ever post-election audit program.

Title 21-A, Section 726 states:

“Beginning January 1, 2025, the Secretary of State may conduct post-election audits of selected eligible elections pursuant to this section,” and “[p]ost-election audits must be conducted on the basis of statistical principles designed to limit the risk that certified election returns may produce an incorrect outcome. The risk limit must be established by the Secretary of State prior to each eligible election. Auditors shall visually examine each original, paper ballot selected for the audit and shall review the records documenting the chain of custody and secure storage of ballots as well as any additional documents identified by the Secretary of State by rule.”

The law describes what is commonly referred to as a risk-limiting audit. The purpose of a risk-limiting audit is to reinforce as accurate an originally reported outcome of an election via statistical principles without the burden of performing a full hand-count recount of all paper ballots. This allows for more races and outcomes to be audited in a much shorter period and with fewer individuals involved.

Risk-limiting audits are based on the statistical concept that if you take a small, randomly selected sample of a larger, whole group (the population), whatever the result is for the larger group will be reflected in the result of the smaller group as well. The math then accounts for variables such as the total population (the total number of ballots cast), the size of the difference between the two outcomes (the number of votes between the winner and the loser of the election), and the desired level of confidence. A risk-

limiting audit results in one of two possible outcomes – statistical assurance the original outcome was accurate or a justification to perform a full hand recount.

Department staff participated in a national post-election audit workshop hosted by the Election Assistance Commission in April 2024 to learn about best practices for audits nationwide.

In summary, states are utilizing three main types of risk-limiting audits:

- **Ballot-Level Comparison:** Ballot-level comparison audits are a process by which auditors can pull randomly selected ballots and compare the results with how that specific ballot was read initially.
- **Ballot Polling:** Ballot polling requires the auditors to select a number of randomly identified ballots, tally up the results from those ballots, and compare those results against the overall original results.
- **Batch Comparison:** Batch comparison examines the totals of batches of ballots against the same ballot batches' previous totals.

Each methodology depends upon mathematical calculations to ensure that the sample size is statistically sufficient to ensure that the auditor can have a high level of confidence in the outcome. The math used in risk-limiting audits is easily accessed via free software services and can also be replicated by running the calculations manually, as the formula is always the same regardless of the variables themselves. This allows for further transparency in the process, as anyone who wishes to replicate the math behind a risk-limiting audit can do so without access to the ballots, whose security is protected by law. In evaluating which methodology would best suit Maine, the Department developed the following goals to create a risk-limiting audit process for Maine that:

1. follows sound and recognized statistical and mathematical principles;
2. works with the current tabulating technology being employed in Maine;
3. allows for the auditing of state legislative races, and not just statewide or congressional races;
4. accounts for Maine's unique geography and municipal-based election system;
5. is based upon reasonable criteria so races most warranting an audit are selected automatically without bias or prejudice or the appearance thereof;
6. is accessible to the public and election officials alike, utilizing technology to provide the utmost transparency and security; and
7. is viable to conduct future official audits at a larger scale.

Following extensive research about what audits are conducted in other states and consultation with experts at the federal Election Assistance Commission, the Department set a risk limit of 5% and proceeded with a trial of the ballot polling risk-limiting audit procedure in the fall of 2024. Through that exercise and a subsequent review of a decade of elections returns from state senate and state house races, it became clear that ballot polling of state legislative races would likely always lead to a full hand recount because the number of ballots cast in a state senate or state house race in Maine would almost always be insufficient for ballot polling or batch comparison. Experts suggest that a minimum of approximately 55,000 ballots cast would be required for batch comparison assuming batches of 200. For ballot-polling,

minimum requirements of ballots cast are over 9,000. The only elections in Maine that consistently produce enough ballots cast to successfully run a ballot polling or batch comparison audit are those for presidential, gubernatorial, and congressional offices. That being said, the ranked choice voting tabulation for the Second Congressional District is a vote verification process in and of itself, and the subsequent hand recount has always been essentially a results audit. One of the first principles of post-election audits is to save time, not duplicate efforts. It would be a foolish waste of time to audit a race that has already been verified and recounted by hand.

These findings led the Division to engage in evaluating how a ballot-level comparison audit might be conducted despite the limitations of cost and tabulator technology. Ballot-level comparisons require ballot marking and creation of cast vote records (ballot images) that is not currently possible at the municipal level under our law and utilizing the Election Systems and Software (ES&S) DS-200 tabulator. A ballot-level comparison risk-limiting audit requires a review and comparison of the scanned result from a specific ballot to the result on the paper ballot itself. To be able to do this, the ballots must be imprinted or marked with a ballot identifier when they go through the tabulator, and the results are saved in relation to the ballot identifier. For instance, a tabulator can randomly assign and imprint a bar code onto a ballot as it is initially scanned, and when an audit is being performed, the software can tell an auditor to pull and review the results of ballot “51534.” The cast vote record had recorded ballot “51534” as voting for: Candidate A in Race 1, Candidate B in Race 2, and Candidate C in Race 3. Auditors may then confirm or call into question the results on the “51534” paper ballot to the cast vote record created during scanning. Current tabulators deployed to the municipalities are not equipped to do this. However, we determined that a central audit in Augusta utilizing an ES&S DS-850 would facilitate a ballot-level comparison audit for state house and senate races. With that in mind, we are moving forward with a ballot-level comparison risk-limiting audit pilot.

Resources do not exist to audit every race in the state. Where the original vote margin between the winner and runner up exceeds 4%, it is highly unlikely that an audit would not confirm the original result, especially given the decentralized, paper-based nature of Maine elections. Because a risk-limiting audit is a substitute for a hand recount, races that have been recounted do not require audits. (Such an exercise would be a redundant waste of time.) Therefore, the Department recommends that audits be performed where the margin of victory is less than 4% but the race has not been subject to recount. For the 2024 election, that would lead us to audit seven legislative races. We have scheduled the pilot for those races for the first two weeks of March, 2025 at Department space adjacent to the Department of Public Safety at 45 Commerce Drive and invite members of this committee and the public to join us in that process. We are available to answer any questions the committee may have.

Sincerely,



Shenna Bellows
Secretary of State