

Department of Legislative Services  
Maryland General Assembly  
2022 Session

**FISCAL AND POLICY NOTE**  
**First Reader**

Senate Bill 742 (Senator Washington)  
Education, Health, and Environmental Affairs

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**Election Law – Postelection Tabulation Audits – Risk-Limiting Audits**

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This bill requires the State Board of Elections (SBE), in collaboration with the local boards of elections, to conduct a specified risk-limiting audit following each statewide election. In addition, the bill (1) modifies an automated software audit requirement so that it is instead an authorization; (2) reduces the automated software audit's scope; and (3) repeals an existing requirement to conduct a specified manual audit following each statewide general election. The bill also requires pilot risk-limiting audits to be conducted following the 2022 general election. **The bill's provisions requiring the pilot risk-limiting audits take effect July 1, 2022, and the remainder of the bill takes effect January 1, 2023.**

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**Fiscal Summary**

**State Effect:** General fund expenditures may increase by up to \$43,500 in FY 2023, \$53,000 in FY 2024 and 2025, and \$32,000 in FY 2026 and future years; however, expenditures may increase by lesser amounts, or net savings may be realized, due to indeterminate savings discussed below. Revenues are not affected.

**Local Effect:** Local government expenditures may increase annually by an indeterminate amount, beginning in FY 2024; however, the extent of the expenditure increases may be limited, or net savings may be realized, due to indeterminate savings discussed below. **This bill may impose a mandate on a unit of local government.**

**Small Business Effect:** None.

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## Analysis

### Bill Summary:

#### *Risk-limiting Audit*

The bill requires SBE, in collaboration with the local boards of elections, to audit the accuracy of the voting system's tabulation of votes by completing a risk-limiting audit, following each statewide election, of (1) at least one statewide contest; (2) at least one local contest in each county, which may be a countywide contest or a local contest on the ballot in part of a county; and (3) any other contests selected for audit by SBE. SBE must select the specific contests to be audited; however, a contest for an office for which the term begins in the month of December may not be selected for audit unless the election director for the county agrees to audit the contest.

"Risk-limiting audit" is defined as a postelection audit procedure that employs statistical methods to ensure a large, predetermined minimum chance of requiring a full manual count of voter-verifiable paper records in an audited contest if a full manual count of the voter-verifiable paper records would find a different outcome than the outcome determined by the electronic count. "Risk limit" is defined as the small, predetermined maximum chance that a risk-limiting audit will not require a full manual count of vote-verifiable paper records in an audited contest if a full manual count of the voter-verifiable paper records would find a different outcome than the outcome determined by the electronic count. "Electronic count" is defined as the vote totals produced by the voting system, and "manual count" is defined as inspection of voter-verifiable paper records by hand and eye to obtain vote totals in a contest.

A risk-limiting audit must (1) manually examine randomly chosen individual voter-verifiable paper records or batches of voter-verifiable paper records until the maximum chance of a full manual count finding a different outcome than the outcome determined by the electronic count is not larger than the risk limit, or until there has been a full manual count; (2) be completed before certification of the election results; and (3) be observable by the public to the maximum extent practicable.

If a risk-limiting audit finds that the election outcome determined by the electronic count is incorrect, the official result of the election must be altered to match the outcome determined by the risk-limiting audit. Within 10 days after the conclusion of the risk-limiting audit, SBE must post on its website a report that describes the audit process and the results of the audit.

SBE must adopt regulations to carry out the bill, which must include, with respect to risk-limiting audits, (1) criteria for determining the contests to be audited; (2) the risk limit; and (3) the audit method.

#### *Modification of Automated Software Audit Requirement*

The bill modifies a requirement that an automated software audit of all ballots cast in an election be conducted after each statewide election, so that the automated software audit is instead authorized, rather than required, to be conducted after a statewide election. The bill also (1) reduces the scope of the automated software audit by authorizing an automated software audit that includes not more than 25% of the ballot styles used in the election; (2) requires that the audit be conducted in collaboration with the local boards of elections; and (3) defines “automated software audit” as an audit of electronic images of ballots cast in an election using software that is independent of the voting system.

#### *Repeal of Existing Manual Audit and Audit Effect Provisions*

The bill repeals an existing requirement enacted under Chapter 523 of 2018 that SBE conduct a specified manual audit of voter-verifiable paper records following each statewide general election, and an authorization for SBE to complete a manual audit of voter-verifiable paper records following each statewide primary election in a manner prescribed by the board. Under the existing manual audit requirement, voter-verifiable paper records are inspected by hand and eye to obtain vote totals in a contest that are compared to the vote totals produced for that contest by the electronic voting system. The manual audit is conducted on at least 2% of precincts statewide and a number of early votes, absentee votes, and provisional votes equal to at least 1% of the statewide total in the previous comparable election for each of those categories of votes.

The bill also repeals a provision enacted under Chapter 523 that establishes that the manual audit and the automated software audit of the electronic images of ballots cast in each statewide election may not have any effect on the certified election results and must be used to improve the voting system and voting process for future elections.

#### *Pilot Risk-limiting Audits Following the 2022 General Election*

The bill requires SBE, following the statewide general election in November 2022, and in collaboration with the appropriate local boards of elections, to conduct pilot risk-limiting audits in at least two counties of at least two contests on the November 2022 general election ballot. SBE must select the contests to be audited and determine how the pilot risk-limiting audits are to be conducted. A pilot risk-limiting audit (1) may be conducted in whole or in part after the election results are certified and (2) may not have any effect on the certified election results. SBE must submit a report on the pilot risk-limiting audits,

by December 1, 2023, to the Senate Education, Health, and Environmental Affairs Committee and the House Ways and Means Committee.

## **Current Law:**

### *Post-election Audit Requirements*

Pursuant to Chapter 523, SBE is required to conduct an audit of the accuracy of the voting system's tabulation of votes, following each statewide general election, by completing (1) an automated software audit of the electronic images of all ballots cast in the election and (2) a specified manual audit of voter-verifiable paper records. Following each statewide primary election, SBE (1) must complete an automated software audit of the electronic images of all ballots cast in the election and (2) may complete a manual audit of voter-verifiable paper records in a manner prescribed by SBE.

### *Manual Audit (Post-general Election) and Reporting*

The manual audit of voter-verifiable paper records required to be conducted following each statewide general election must be of (1) at least 2% of precincts statewide, including at least one randomly chosen precinct in each county and additional precincts selected by SBE and (2) a number of votes equal to at least 1% of the statewide total in the previous comparable general election of early votes, of absentee votes, and of provisional votes, including at least a minimum number of early votes, absentee votes, and provisional votes in each county, as prescribed by SBE. "Previous comparable general election" is defined as (1) in a presidential election year, the presidential election held four years earlier and (2) in a gubernatorial election year, the gubernatorial election held four years earlier.

The manual audit must be completed within 120 days after the general election. If the manual audit shows a discrepancy, SBE is authorized to expand the manual audit and take any other actions it considers necessary to resolve the discrepancy.

Within 14 days after the conclusion of the audit, SBE must post a report on its website that describes (1) the precincts and number of votes selected for the manual audit in each county and the manner in which the precincts and votes were selected; (2) the results of the manual audit; and (3) any discrepancy shown by the manual audit and how the discrepancy was resolved. SBE must allow for public observation of each part of the manual audit process to the extent practicable.

## *SBE Regulations and the Effect of the Audits*

An audit pursuant to the provisions established under Chapter 523 may not have any effect on the certified election results and must be used to improve the voting system and voting process for future elections.

SBE is required to adopt regulations to implement the provisions established under Chapter 523.

**State Fiscal Effect:** General fund expenditures may increase by up to \$43,500 in fiscal 2023, \$53,000 in fiscal 2024 and 2025, and \$32,000 in fiscal 2026 and future years. Expenditures may increase by lesser amounts, or net savings may be realized, due to potential additional savings related to the automated software audit, discussed below. The estimate reflects the net impact of the following costs and savings:

- **Software Costs – \$22,500 in Fiscal 2023** – Software is expected to be needed to coordinate the exchange of audit data between the State and local boards of elections, organize data, and make calculations necessary for the audit. Software that originated from the development of risk-limiting audit software in Colorado, but that has been adapted for use by other states, is available as a hosted software-as-a-service, for a fee. Based on past available costs for the software, the cost is assumed to be \$22,500 in fiscal 2023 (a one-time set up fee of \$5,000 and an annual fee of \$17,500), for the pilot risk-limiting audits required by the bill and \$30,000 annually thereafter for full implementation of risk-limiting audits.
- **Consultant Costs – \$21,000 in Fiscal 2023** – The estimate assumes a consultant is needed to assist SBE and the local boards of elections with (1) development of regulations and (2) implementation and oversight of the pilot audits following the 2022 general election and statewide audits beginning with the 2024 elections. SBE entered into a \$21,000 contract for a legal and election administration support consultant for a 2016 audit pilot program, and this estimate assumes that at least that amount is needed in fiscal 2023, for the pilot audits, and double that amount is needed in each of fiscal 2024 and 2025, when regulations will be developed and the first statewide audits will be implemented in the 2024 primary and general elections. In future years (beyond fiscal 2025), it is assumed that cost decreases to \$21,000 annually, for ongoing assistance with implementation of risk-limiting audits for each statewide election going forward.
- **Automated Software Audit Savings – At least \$19,000 beginning in Fiscal 2024** – It is assumed, for the purposes of this fiscal and policy note, that the automated software audit is still conducted for the 2024 elections and future elections, despite the requirement for the audit being modified in the bill to be an authorization. In

December 2020, the Board of Public Works approved a contract renewal option for automated software audits for the 2022 elections, a total cost of \$870,100 for both the primary and general elections. It is unclear to what extent the bill's reduction of the scope of the automated software audit to not more than 25% of the ballot styles used in the election will reduce the overall cost of the audit. A "ballot style" is a specific configuration of contests and questions on a ballot that is for specific voters based on where they live (what jurisdiction, district, and precinct they live in) and, in a primary election, their party affiliation. A small portion of the automated software audit contract, however, is associated with adjudication of unreadable ballots (12% of the contract cost for the 2020 elections), and it is assumed for the purposes of this fiscal and policy note, that at least that portion of the contract decreases by 75% (savings of an average of \$19,000 per election – reflecting the State's share of savings shared by the State and counties) since the number of ballot styles being audited, and presumably the approximate number of unreadable ballots that need to be adjudicated, decreases by 75%.

### **Local Fiscal Effect:**

#### *Fiscal 2023*

Local board of election expenditures are not expected to be significantly affected in fiscal 2023 if the pilot risk-limiting audits are largely conducted after the election results are certified, as allowed by the bill.

#### *Fiscal 2024 and Future Years*

Local government expenditures may increase annually, beginning in fiscal 2024, primarily for personnel costs related to preparing for and conducting the risk-limiting audits. However, the extent of the expenditure increases may be limited, or net savings may be realized, due to indeterminate savings discussed further below.

As described by the National Conference of State Legislatures (NCSL), statistically based audit techniques, referred to as risk-limiting audits:

...cut down on the number of ballots that need to be audited, while also providing statistical confidence that an incorrect election result is not certified (i.e., made official). As the name suggests, [a risk-limiting audit] is designed to limit the risk that a contest is certified with the wrong winner. It does this by increasing the initial sample when discrepancies are found until either the level of confidence has been met or a full recount has been performed.

[Risk-limiting audits] are an incremental audit system: If the margin of an election is wide, very few ballots must be reviewed. If the margin is narrow, more will be reviewed up to the point that enough evidence is provided to confirm the declared election result.

There are two primary types of risk-limiting audits: ballot-polling audits and ballot-level comparison audits. A ballot-polling audit polls the votes of a random sample of ballots from the audited contest in order to, using statistical calculations, provide sufficiently strong evidence that the outcome of the contest is correct. A ballot-level comparison audit compares a random sample of ballots from the audited contest with the votes recorded by the voting system for each of those ballots in order to, using statistical calculations, provide sufficiently strong evidence that the outcome is correct.

A ballot comparison audit requires fewer ballots to be audited, but a May 2019 Democracy Fund report ([\*Knowing It's Right, Part One: A Practical Guide to Risk-Limiting Audits\*](#), p. 10) indicated that there is no voting system on the market that allows for a ballot scanned on a precinct scanner at a polling place to be checked against the votes recorded by the voting system for the ballot. The ballots are not imprinted with a unique number, and the ballots and/or the vote records associated with each ballot are not maintained in sequential order by a precinct scanner, which helps preserve the secrecy of voters' votes. If ballots are scanned centrally (such as in a vote-by-mail state like Colorado), after the ballots have been separated from voters' identities, there are ways to maintain the association between a ballot and the votes recorded by the voting system for the ballot in order to compare the two in a ballot-level comparison audit.

**Exhibit 1** illustrates the number of ballots that would have needed to be audited initially in the 2018 general election gubernatorial contest – if a ballot-polling audit of that contest was conducted, using a 5% risk limit – as well as three hypothetical scenarios of closer margins of victory. The risk limit, as stated by NCSL, is “the largest chance that the audit will fail to detect and correct an incorrectly reported outcome.” A ballot-polling audit takes an initial random sample of ballots from all the ballots cast that contain the audited contest. The size of the initial sample is dependent on the risk limit that is established for the audit and the percentage margin between the winning and second-place candidates in the contest, with the total ballots cast in the contest as the denominator. The initial sample size is intended to be sufficient to satisfy the risk limit and complete the audit, but dependent on the tally of votes within the initial sample of ballots, more randomly selected ballots may need to be tallied to satisfy the risk limit.

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**Exhibit 1**  
**Initial Sample Sizes for Audit of Governor/Lt. Governor Contest – 5% Risk Limit**

<u>Office</u>	<u>Margin of Victory</u>	<u>Initial Sample Size (Statewide)*</u>
Governor/Lt. Governor – <i>2018 General Election Actual</i>	12%	435
Governor/Lt. Governor – <i>Hypothetical 5% Margin of Victory</i>	5%	2,347
Governor/Lt. Governor – <i>Hypothetical 1% Margin of Victory</i>	1%	60,330
Governor/Lt. Governor – <i>Hypothetical 0.5% Margin of Victory</i>	0.5%	221,364

\*The initial sample sizes were calculated using this [ballot-polling audit tool](#), developed by Dr. Philip B. Stark, Associate Dean, Division of Mathematical and Physical Sciences, University of California, Berkeley.

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An estimate provided by Montgomery County illustrates the potential magnitude of costs in the event the contest being audited has a small margin of victory. Based on recount-related costs the county incurred after the 2018 primary election, if the county had to audit a statewide contest and a county contest on approximately 40,000 ballots, it would incur approximately \$115,000 in costs, primarily for overtime of management employees, temporary staff to prepare for and support the audit, and election judges to serve as audit team members conducting the auditing of ballots. As shown in Exhibit 1, the number of ballots included in the initial sample size increases exponentially as the margin of victory narrows, but a circumstance in which Montgomery County’s portion of the statewide initial sample size would approach 40,000 ballots, using a 5% risk limit, would only occur when the margin of victory is rather narrow, such as in the 0.5% margin of victory hypothetical.

In cases where relatively small numbers of ballots need to be audited, there would nonetheless be administrative tasks to undertake to facilitate the audit, including creating a ballot manifest. The ballot manifest is a detailed catalog of the numbers of paper ballots in a county and how they are stored, that facilitates the random sampling of ballots under a risk-limiting audit. Local boards of elections would need a certain amount of resources devoted to the risk-limiting audits (whether permanent staff, temporary staff, or a consultant) regardless of the number of ballots that end up needing to be audited, to ensure the audit process is completed in an accurate and timely manner and to be prepared, on short notice, to adjust to a need to audit a large number of ballots. If large numbers of



ballots need to be audited, due to a small margin of victory in a contest, certain counties may also need to pay for additional space in which to conduct the audits.

Local board of elections costs are partially offset by at least \$19,000 in collective savings, beginning in fiscal 2024, representing the local boards' share of cost savings (shared by the State and the counties) resulting from the bill's reduction of the scope of the automated software audit. The savings from the reduction of the scope of the automated software audit may be greater, as discussed above under the State Fiscal Effect. There may also be a reduction in costs for local boards of elections, during general elections (beginning in fiscal 2025), as a result of the repeal of the existing manual audit, but the costs incurred to implement the manual audit after the 2020 general election appear to have been relatively minimal in a number of counties. The existing manual audit is not required to be completed before certification of election results and provides more flexibility for local boards to complete the audit with existing staff to the extent possible.

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### **Additional Information**

**Prior Introductions:** HB 759 of 2021 passed the House with amendments and received a hearing in the Senate Education, Health, and Environmental Affairs Committee, but no further action was taken. HB 1172 of 2020 received a hearing in the House Ways and Means Committee, but no further action was taken.

**Designated Cross File:** HB 745 (Delegates Kaiser and Wilkins) - Ways and Means.

**Information Source(s):** State Board of Elections; Carroll, Garrett, and Montgomery counties; Department of Legislative Services

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