

2018 Post-Election Tabulation Audit

Report to the Maryland General Assembly



Maryland State Board of Elections

May 6, 2019

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I. Introduction

Following the 2018 General Election, the State Board of Elections conducted an automated software ballot tabulation audit of 100% of the ballot images, while each local board of elections conducted a manual ballot tabulation audit of a sample of ballots. These ballot tabulation audits were conducted in accordance to House Bill 1278 of the 2018 Legislative Session¹, which was codified into the Election Law Article, §11-309.

The purpose of these audits is to verify and confirm the accuracy of the voting system's results. A post-election ballot tabulation audit is not a canvass or a recount; it is used to verify that the voting system accurately tallied votes and that the winners of each contest were called correctly.

II. Post-Election Manual Ballot Tabulation Audit

The post-election manual ballot tabulation audit requires an audit of:

1. At least 2% of precincts statewide, including at least 1 randomly selected precinct in each local jurisdiction and the remainder of precincts to be chosen by the State Board of Elections; and
2. A number of votes equal to at least 1% of the statewide total in the previous comparable general election² of early votes, absentee votes, and provisional votes, including a minimum number in each local jurisdiction, as set by the State Board of Elections. For the 2018 General Election, the State Board of Elections set 15 votes as the minimum number of absentee ballots and 15 votes as the minimum number of provisional ballots for each local jurisdiction.

The manual audit must be completed by each local board within 120 days after the general election. If the manual audit shows a discrepancy, the State Board of Elections can expand the manual audit and take any other actions it considers necessary to resolve the discrepancy.

A. Audit Process

i. Selecting the Ballots and Contest to be Audited

Before the election, the State Board of Elections determined the number of ballots to be audited in each local jurisdiction for early, absentee, and provisional ballots. The chart shown in Document B1,

¹ Text of HB1278 can be found online at: http://mgaleg.maryland.gov/2018RS/chapters_noln/Ch_523_hb1278E.pdf, as well as in the Appendix of this document.

² "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. For the 2018 General Election, the previous comparable general election held was the 2014 General Election.

Appendix B shows a summary of the minimum number of ballots from each local jurisdiction to be audited based on the requirements set forth in §11-309 of the Election Law Article.³

a. Absentee and Provisional Ballots

The number of absentee and provisional ballots in the audit is based on the turnout from the 2014 General Election, the last comparable general election.⁴ The number of absentee ballots and provisional ballots to be audited was calculated by multiplying the 2014 relevant turnout by 0.01, in order to determine 1% of the total. This was repeated for each local jurisdiction for absentee and provisional ballots. If 1% of the 2014 General Election turnout was less than 15 ballots, the local board audited 15 ballots.

Each local board randomly selected the absentee and provisional ballots to be audited, as they prepared for the respective canvasses. These ballots were then kept separate from the remainder of the absentee and provisional ballots and marked as “audit ballots.”

At the start of the first absentee and provisional canvasses, these ballots were presented, reviewed, and tabulated first, and then stored in sealable boxes marked “Absentee Ballots for Manual Audit” or “Provisional Ballots for Manual Audit.” At the completion of each canvass, the sealed boxes containing the ballots to be audited were stored with the remainder of the absentee or provisional ballots.

b. Early Voting Ballots

The formula used to determine the number of absentee and provisional ballots to be audited was also applied to early voting. Using the early voting turnout from the 2014 General Election⁵, 1% of that turnout was calculated to determine the number of early voting ballots for each local jurisdiction to be audited.

Jurisdictions with only one early voting center audited ballots from that early voting center. For jurisdictions with more than one early voting center, the State Board of Elections used a random number generator to select the early voting center to be audited.

By 7 pm on the first day of early voting, the chief judges at the selected early voting centers determined which scanner met the minimum number of ballots to be audited. If neither scanning unit met the minimum, two scanners were selected. At the close of the first day of early voting and after all voters left the building, a local election official ran a results report from that scanner. The election officials secured the ballots from the selected scanner(s) and the report in a sealed box.

³ Chart can also be found online at:

https://elections.maryland.gov/voting_system/documents/2018%20General%20Election_Ballots%20to%20Audit%20Calculation.pdf

⁴ Turnout from the 2014 General Election can be found at:

https://elections.maryland.gov/elections/2014/turnout/general/GG14_Statewide%20Turnout%20by%20County%20and%20Canvass.pdf, as well as in Document B2, Appendix B of this document.

⁵ See previous footnote.

c. Election Day Ballots

Section 11-309 of the Election Law Article requires that 2% of all statewide precincts must be audited, including at least 1 precinct from each local jurisdiction. For the 2018 General Election, there were 2,034 precincts. Forty-one precincts is 2% of the total number of precincts.

A listing of the number of precincts by local jurisdiction⁶ can be found in Document B3, Appendix B of this report. A more detailed listing of the precincts and corresponding polling places⁷, in order of local jurisdiction, can be found on the State Board of Elections website under the “Ballot Audit Plan” heading.

To select the required precinct from each local jurisdiction, each precinct number was printed on paper, folded, and placed in containers, separated by local jurisdictions. The members of the State Board of Elections drew one slip of paper for each local jurisdiction. The remaining slips of paper were combined, and the members of the State Board continued selecting slips of paper until 41 precincts were selected. This occurred at the November 29, 2018 public meeting of the State Board. An extract of the minutes of that meeting can be found in the Document B4, Appendix B of this report, and the full minutes can be found on the State Board of Elections website under the “Board Meeting Info” heading.⁸

In order to maintain the integrity of the ballots and minimize any security risks, the identity of the selected precincts remained confidential until 3 weeks prior to their chosen audit date. Local boards provided on their website notice of the date and time for the audit and the precincts being audited.

A chart showing which precincts were selected for audit can be found in Document B5, Appendix B of this report.

d. Contest to be Audited

Section 11-309 of the Election Law Article does not specify any parameters for the contest to be audited. In order to prevent any unnecessary confusion or complications during the audits, the State Board of Elections decided upon parameters for the contest to be audited. Those parameters were:

- That the same contest would be audited by each local board, and therefore, the contest would be a statewide race.
- That the contest would be a “pick one” contest.

Using these parameters, the eligible contests to be audited were narrowed down to Governor/ Lt. Governor, Comptroller, Attorney General, and U.S. Senator. In the same method described in Section II (A)(i)(c) above, at the November 29, 2018 meeting of the State Board of Elections, the names of the

⁶ A listing of the number of precincts by local jurisdiction can also be found online at:

<https://elections.maryland.gov/elections/2018/numberofprecinctsbycounty.pdf>

⁷ Listing of the precincts and corresponding polling places can be found online directly at:

https://elections.maryland.gov/elections/2018/2018_general_polling_place_and_precincts.pdf

⁸ Full minutes of the November 29, 2018 State Board of Elections meeting can be found at:

https://elections.maryland.gov/pdf/minutes/2018_11.pdf

contests were printed on paper, folded, and placed in a container. The State Board Chairman drew the slip and “Comptroller” was selected as the contest. The extract of the minutes of that meeting found in Document B4, Appendix B of this report apply to the selection of the contest also.

ii. Conducting the Audit

Each local board conducted a manual audit of the required ballots within 120 days of the 2018 General Election, starting with Caroline County on January 8, 2019, and concluding with Washington County on February 28, 2019.

iii. Results of the Audit

A chart showing the numerical results of the post-election manual tabulation audit can be found in Document B6, Appendix B of this report.⁹ As the chart shows, there were **zero** vote differences between the manual audit and the voting system results in any local jurisdiction. **Simply put, these audits showed that the voting system accurately counted votes.**

B. Resources Required

A survey was sent to the director of each local board that they completed, with input from staff, upon the completion of the manual audit. The survey was broken down into sections that correlated with the steps of the manual audit, and then further asked about the resources used for each step—resources of time, staff, supplies, and costs incurred (either in direct purchases or cost of supplies that the local board already owned).

i. Ballot Selection- Absentee and Provisional Voting

a. Staff and Time

As stated in Section A, each local board randomly selected the absentee and provisional ballots to be audited. According to the *Manual Ballot Tabulation Audit Procedures* document, as prepared by the State Board of Elections, absentee ballots from different ballot styles and precincts were to be selected. Provisional ballots were to meet the following criteria:

1. Must be from at least 3 precincts
2. Must have a staff recommendation of “accept in full”
3. Must not be a provisional ballot application generated by the same day registration or address change process

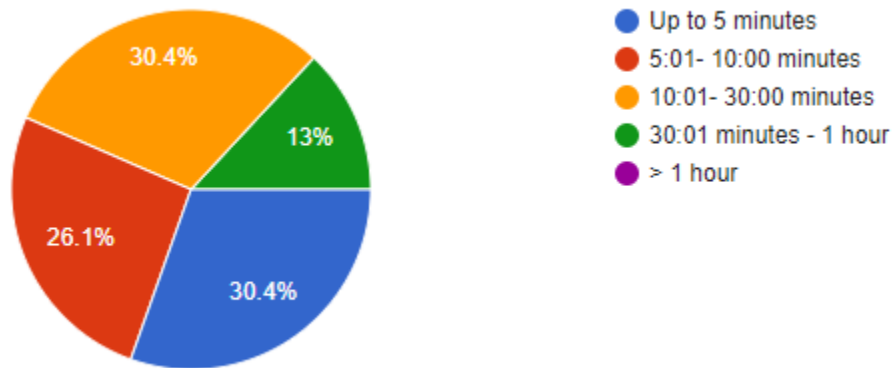
When asked in the post-audit survey to detail how each local board chose the absentee and provisional ballots for the audit, the responses generally came down to one of a few similar methods. Because each local board sorts their ballots for canvassing a little bit differently, there was no singular method used to select the absentee and provisional ballot. The first method involves randomly selecting the required number of ballots while sorting the ballots, prior to canvassing. The second method

⁹ An Excel version of the audit results chart can also be found online here:

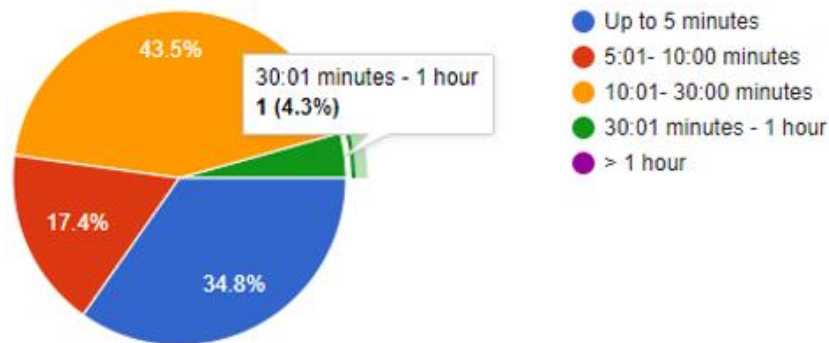
https://elections.maryland.gov/voting_system/documents/2018%20General%20Election%20Manual%20Audit%20Results%201.xlsx

involves randomly selecting an entire batch or batches (a set of 25 ballots that have been prepared for scanning) for auditing. A third method involved simply selecting the first batch(es) scanned as the ballots for audit. Another local board had their board members randomly choose the ballots for audit. In each of these methods, 2-3 staff or board members were needed.

The chart below shows the time that each local board needed to complete the selection of absentee ballots. Only 13%, or 3 local boards, took between 30 minutes and 1 hour to select the absentee ballots for audit and no local boards took more than an hour. Twenty-one of the 24 local boards were able to select the absentee ballots in under 30 minutes. The mean time to select the absentee ballots for audit was 20 minutes.



The chart below shows the time that each local board needed to complete the selection of provisional ballots. Only 1 local board took between 30 minutes and 1 hour to select the provisional ballots for audit and no local boards took more than an hour. Twenty-three of the 24 local boards were able to select the provisional ballots in under 30 minutes. The mean time to select the provisional ballots was 21 minutes.



b. Other Resources and Costs Incurred

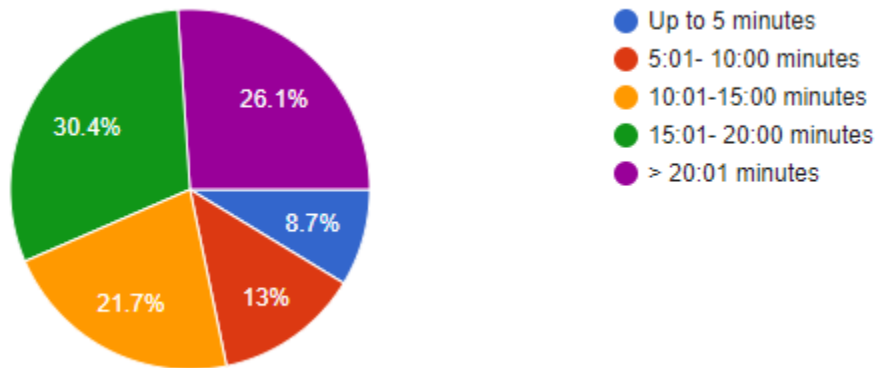
The survey revealed that the most common single item purchased by local boards for the selection of the absentee and provisional ballots was an additional blue ballot bin, which was purchased by 9 local boards at a cost ranging from \$75 to \$271.50. Other costs included basic office supplies (paper for printing forms, paper clips, rubber bands, envelopes, folders, etc.), and common election supplies including tamper tape, and polyvinyl bags. The cost of these materials was minimal and generally was less than \$15 per local board.

ii. Ballot Selection- Early Voting

a. Staff and Time

The tasks involved with selecting the early voting ballots include: collecting signed confidentiality agreements from all present at the early voting center, generating and printing the results from the selected scanning unit(s), collecting the ballots from the selected scanning unit(s), and securing the ballots and results report for the manual audit. The *Manual Ballot Tabulation Audit Procedures* document states that a representative from the local board and the chief judge of the precinct are the persons to conduct these activities, therefore no more than one staff person from each local board was required to complete the early voting ballot selection.

The chart below reflects how long it took the local board staff person at the selected early voting center to complete the above mentioned tasks associated with collecting the early voting ballots for audit.



It took 30.4% (7) of the local boards between 15:01 and 20:00 minutes to complete the early voting tasks, and 26.1% (6) of the local boards needed more than 20 minutes to complete the tasks. The remainder of the local boards (12) needed 15 minutes or less to complete the tasks. The mean time to select the early voting ballots for audit was 18 minutes.

b. Other Resources and Costs Incurred

As was the case with the absentee and provisional ballots, the survey revealed that the most common single item purchased by local boards was an additional blue ballot bin, which was rented or

purchased by 15 local boards at a cost ranging from \$75 to \$271.50. Other costs included basic office supplies (paper for printing forms, paper clips, rubber bands, envelopes, folders, etc.), and common election supplies, including tamper tape and polyvinyl bags. The cost of these materials is minimal and generally was less than \$15 per local board.

iii. Ballot Selection- Election Day

a. Staff and Time

As outlined in Section II (A)(i)(c) of this report, the selection of the precincts to be audited from election day took place at the State Board of Elections, during the State Board meeting held on November 29, 2018. Prior to this meeting, one staff assistant spent approximately 2 hours to make the slips of paper with each precinct listed on them, cut and fold them, and place the slips of paper into sealed plastic bags separated by county. The selection of precincts at the board meeting took approximately 30 minutes and involved all 5 State Board members and 2-3 staff members. Because the local boards were to audit all of the election day ballots from the selected precincts, there was no time spent or staff used from the local boards to select election day ballots for auditing.

b. Other Resources and Costs Incurred

Aside from general office supplies (paper, scissors, zipper-seal plastic baggies, pens, markers) there were no additional resources used or costs incurred by the State Board of Elections. There were no costs incurred by the local boards for this process.

iv. Manual Audit Preparation- Planning

a. State Board of Elections Staff and Time

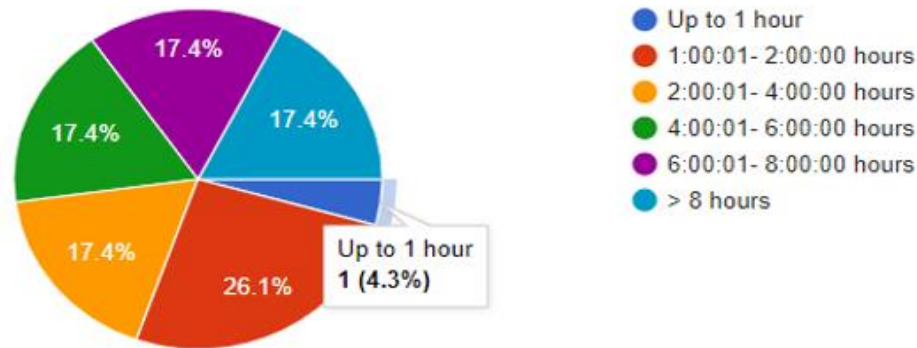
Preparation for the manual audit by State Board of Elections staff generally the drafting and editing of the various audit instructions, tally sheets, and worksheets used by the local boards to prepare for and conduct the audit, as well as the drafting regulations for future manual audits, as allowed in §11-309 of the Election Law Article. The State Board of Elections estimates that its staff spent approximately 50 hours on manual audit preparation.

b. Local Board Staff and Time

Preparation for the manual audit by the local boards can be broken down into five categories: a.) overall planning, b.) notifying required parties, c.) preparing spreadsheets and forms, d.) collecting and sorting ballots for the audit, and e.) room set up.

1. Overall Planning

Overall planning time consumed the most time of the planning tasks, as the planning category includes the planning of ballot selection, audit preparation, executing the manual audit, and post-audit tasks. The chart below shows how many hours each local board spent planning for the manual audit. More than half of the local boards spent between 2 and 8 hours planning, while 4 local boards spent more than 8 hours planning, and a little over a quarter only needed up to 2 hours planning. The mean time spent planning for the manual audit by the local boards was 5.5 hours.



Within these planning hours, the number of staff meetings held ranged from zero to 3 or more and included 2 to 5 or more staff members.¹⁰



2. Notifying Required Parties

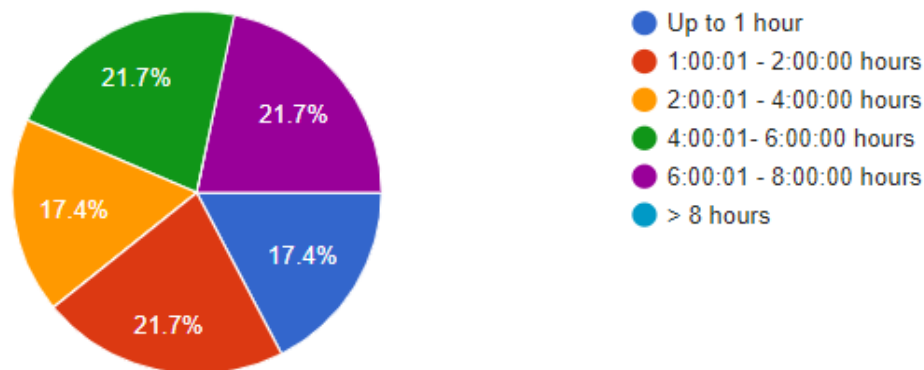
The task of notifying required parties of each local board’s selected manual audit date included mailing a notice to the chair of the county central committee for each recognized political party, each candidate in the contest being audited, and the State Board of Elections, as well as posting notice on each local board’s website and prominently in each office. All local boards were able to complete these tasks under 2 hours, with approximately one third of all the local boards completing the tasks in either under 30 minutes, within 30 minutes to 1 hour, and between 1 and 2 hours. In all but one local board, the tasks of notifying required parties were completed using 3 or fewer staff members. Overall, approximately 30

¹⁰ N/A means that no staff meetings were held with the specified number of staff members.

hours were spent by local boards notifying the required parties for the audits, with 23 of those hours being performed by senior staff (directors or deputy directors), and 7 hours by office staff.

3. Preparing Spreadsheets and Forms

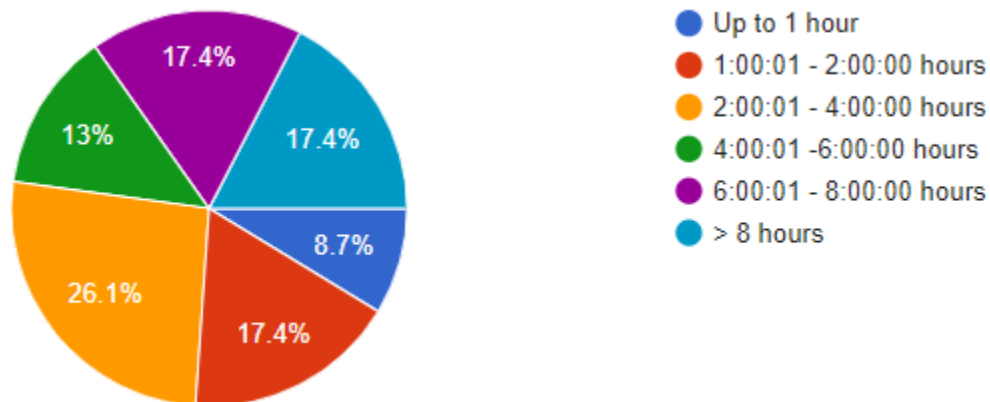
The task of preparing the spreadsheets and forms included editing, printing, and proofreading the various tally and audit worksheets. Each document had to be edited for the voting jurisdiction, location (for early voting ballots), precinct, contest, and batch number. All local boards were able to complete these tasks in under 8 hours, with the time being evenly split between the local boards and the time slots of under 1 hour, 1-2 hours, 2- 4 hours, 4-6 hours, and 6-8 hours.



In 45% (11) of local boards, one person prepared all the spreadsheets and forms, while 30% (7) required 2 people, and approximately 25% (6) required 3 staff members. Two-thirds of the time spent on this time across all local boards was spent by office staff, and one-third of the time was by spent by senior staff.

4. Collecting & Sorting Selected Ballots

The task of collecting and sorting selected ballots included retrieving the ballots to be audited, and sorting the ballots into batches of 25 among the early voting, election day, absentee, and provisional ballots. Some local boards were able to store voted ballots on site, while other local boards used an off-site warehouse. This was the category of audit preparation that varied the most between the local boards in terms of time required. Two local boards only needed up to 1 hour to collect and sort the selected ballots, while 4 local boards needed 1.5 to 3 full working days to sort the ballots.



In the survey of local boards, when asked how many hours were needed if they selected “> 8 hours,” the responses of 2 working days, 12.5 hours, three 8 hour days, and 8.5-9 hours were elicited. The mean time to collect and sort the ballots was approximately 6 hours per local board.

Sixteen local boards required 2-3 people to complete these tasks, 1 local board only required 1 person, and the remainder of the local boards needed 4 people to sort the ballots. Approximately 147 hours was spent by all the local boards collecting and sorting the selected ballots, with 29% of that time being from senior staff and 71% from office staff.

5. Room Setup

The task of room setup included moving any furniture in a shared space, setting up tables, chairs, signs, floor tape, projector, and sorting bins. All but 1 local board were able to complete these tasks in under 4 hours. Eight local boards needed between 2 and 4 hours which was most common amount of time needed. Fifty percent (12) of the local boards needed 2-3 people to set up the room, 25% (6) needed 4-5 people, and the remaining 25% (6) needed either more than 5 people or just 1 person. Overall, 55 hours were spent by all the local boards setting up rooms for the audits. 37% of that time was spent by senior staff, 61% was spent by office staff, and 2% was spent by volunteers.

c. Other Resources and Costs Incurred

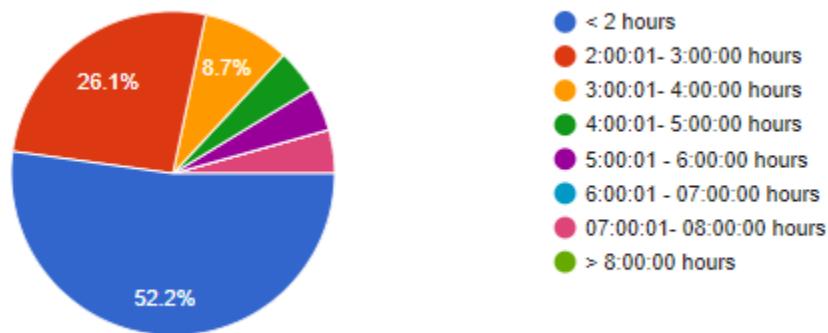
The supplies needed to prepare for the manual audit were generally the same as those needed for the audit itself, as obtaining the proper supplies for the audit was a part of the preparation phase. These resources and costs will be addressed in the next section. Some local boards needed office supplies specifically for preparation but those items generally qualified as common office supplies (paper, paper clips, rubber bands, folders, etc.) and either had a minimal cost (under \$20) or the local board was already in possession of the supplies and therefore no additional costs were incurred.

v. The Manual Audit

a. Staff and Time

The time it took to conduct each manual audit varied depending on how many ballots each local board had to audit, which was widely dependent on how many precincts and which early voting center

in a jurisdiction were selected. However, despite the differences in the number of ballots audited, approximately 75% (18) of the local boards were able to complete the audit in under 3 hours, including 50% (12) who completed the audit in under 2 hours. The remaining 25% (6) needed anywhere from 3-4 hours to more than 8. In the chart below, the green (4-5 hours), purple (5-6 hours), and pink slivers (7-8 hours) of the chart each represent 4.3%, or 1 local board per sliver.



Overall the audits took approximately 70 hours to complete, and used approximately 1,000 hours of staff and volunteer time to complete. Senior staff, office staff, board members, and election judges comprised about 25% of those who had a role in a manual audit, either on an audit team, or another supervisory role. The remaining 75% of the participants were volunteers and staff from other local boards who were participating to help out a different local board. It is worth emphasizing the impact that the staff from other local boards had on the local board conducting the audit. The time to conduct the manual audits would have increased significantly if local board staff had not been there to assist. The visiting local board staff were only able to assist because the manual audits were not required to be completed prior to election certification.

A staff member from the State Board of Elections also was in attendance at each audit, to oversee the audit and assist if any complications arose. Complications are described in Section II(C) of this report. As the 24 manual audits took approximately 70 hours to perform, the State Board of Elections staff required approximately 70 in-person hours at the audits also, not including travel time and expense to and from the local jurisdictions.

b. Other Resources and Costs Incurred

The supplies needed to prepare and to execute the audit can be broken down into three categories: common office supplies, audit-specific supplies, and food purchases. Common office supplies needed for the audit included white copy paper, paper clips, dry erase markers, rubber bands, pens, clip boards, post-it notes, scotch tape, masking or painters tape, manila envelopes, binder clips, business

envelopes, and postage. While most of the local boards had many of these supplies on hand, if the needed items had been purchased separately, the cost was generally under \$100.

Audit-specific supplies were more costly, although most local boards also already had these supplies, as they are similar to the supplies that would be used for a recount or a canvass. Audit-specific supplies included, but are not limited to the following:

- Overhead projectors used to project the results of the audit in real-time, at a cost of \$250-299.00. This was only listed by two local boards. Every other local board performed the manual audit in a room that had a built in pull-down projector.
- Dry-Erase white board, at a cost of \$156.00. This was only listed by 1 local board.
- Stand-up sign holders, used to display audit team numbers, at a cost of approximately \$40 per case.
- Rubber thumbs, approximately \$4.
- Fingertip moistener (for sorting), approximately \$2 each.
- Ballot bins, at a cost of \$75- 271.50 each
- Table and chair rental: 8 foot tables- Approximately \$1,500 total; Chair rental- Approximately \$350.00 total. Only 1 local board stated that they needed to rent tables and chairs. All other local boards either had tables and chairs already or they came with the space used for the audit (if a shared space).
- Colored paper, sold by the ream at approximately \$12 each.
- Heater rental- 4 rented by 1 local board at a total cost of \$286.

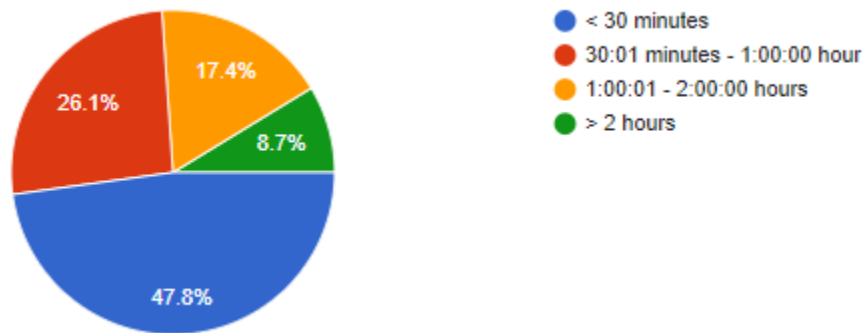
Nine out of the 24 local boards provided food for the staff and volunteers helping with the manual audit. The lowest cost for food was \$60 and the most was \$382.10. The total spent on food was \$1,731.26, with an average of \$192 being spent between the 9 local boards that provided food.

vi. Post-Audit Tasks

a. Local Boards- Staff, Time, and Resources

1. Cleanup

Manual audit cleanup tasks included putting the room used for the audit back to its original order, putting supplies away, storing the ballots, and any other clean up tasks. Nearly half of the local boards were able to clean up in 30 minutes or less, and about 75% (17) were able to clean up in under an hour. Only 2 local boards took more than 2 hours to clean up from the manual audit.

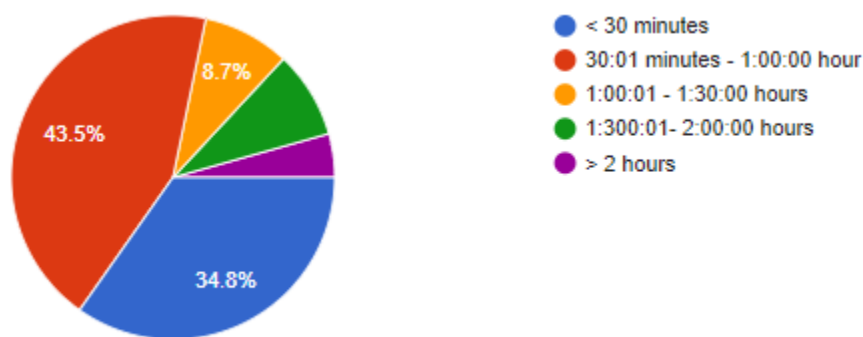


Overall, cleanup took 55 hours across all the local boards. Senior staff time comprised 25% of the cleanup, while staff time was 56% of the cleanup time. The remainder of the time was split between election judges and volunteers who had been present for the audit.

Regarding cleanup supplies, most local boards had cleaning items on hand and did not incur any additional costs for cleanup. A few local boards did have to purchase expected cleaning supplies (Clorox wipes, trash bags, paper towels, etc.) The cost of these items was minor and was generally less than \$10 for those who need to purchase items.

2. Results Notification

The final step in the manual audit was the notification of the results. This included sending signed copies of the audit worksheets to the State Board of Elections, and presenting the results of the audit at the next Local Board of Elections meeting. 75% of local boards completed these tasks in under 1 hour.



Overall, notification of results took a total of 26.5 hours across all local boards. Senior staff completed these tasks 83% of the time and office staff completed them 17% of the time.

b. State Board of Elections- Staff, Time, and Resources

Post-audit tasks for the State Board of Elections staff include collecting the electronic or paper copies of the tally worksheet, viewing the results of each audit, and compiling the results into a single,

readable document. Also, as required by §11-309(d)(4) of the Election Law Article, the State Board of Elections produced a 14 Day Report of the manual audit, which can be viewed on the State Board of Elections website by clicking on “Ballot Plan” and then following the link for the manual audit. The State Board of Elections estimates that its staff spent approximately 40 hours on these tasks.

In addition to the already listed tasks, the State Board of Elections also created a survey of resources used that was completed by each local board. The results of that survey were used for this report. Finally, the State Board of Elections created this report, as required by § 2-1246 of the State Government Article. However, as this report is not a reoccurring requirement, the time spent on both the report and the survey are not reported here.

C. Challenges and Feedback

Overall, feedback from the local boards reflects that the manual audit ran smoothly in all jurisdictions. Preparation for the audit consumed a much greater amount of time than the audit, but this is to be expected. Other items, such as notifying the local boards sooner of the precincts that they are to audit, and double checking the formulas on the audit worksheets prior to starting the audit were also listed by multiple local boards as challenges and items that could be improved upon in the future.

Finally, while none of the manual audits revealed any vote differences from the voting system results, multiple instances of human error almost led to incorrect vote differences being recorded. Errors made by auditors and staff during the audit included incorrect vote interpretation by the audit teams, transposition of numbers in recording on the tally sheet, math errors in adding up the tally sheets, errors in transcribing the results, or a calculation error on the tally worksheet. In all, there were 22 instances of human error during the audits, with the largest example being an error in transcribing the results. In each of these instances though, the audit teams, local board, and State Board of Elections staff were able to backtrack their work to find the discrepancy and determine if a human made an error. Each time, the vote discrepancies were due to human error.

III. Post-Election Automated Software Ballot Tabulation Audit

An independent, automated audit relies solely on the use of independent software to tabulate 100% of the ballot images. The results from the independent tabulation are compared to the tabulation results from the voting system. Any variances between the two tabulations are easily identified and resolved. For the 2018 Primary and General Elections, this office contracted with The Clear Ballot Group (Clear Ballot), a Boston-based elections technology company which offers the ClearAudit software product. ClearAudit is the only currently available, market-ready software product that can perform an independent automated post-election tabulation audit using ballot images from another voting system.

The post-election tabulation audit is conducted using 100% of the ballot images. The use of ballot images allows elections officials to maximize the technological functions of the new voting system while minimizing human error and eliminating chain of custody issues by using securely stored ballot

images, rather than voted paper ballots. The use of ballot images removes the need for election officials to physically handle or count voted ballots unless a petition for recount or other judicial challenge is filed.

The automated software ballot tabulation audit must be completed, and any discrepancies resolved, prior to the election being certified. A discrepancy variance level of 0.5% was established for the post-election tabulation audit.¹¹ If there is a variance between the voting system results and the audit results greater than 0.5% in any given contest and the variance cannot be explained, additional auditing will be performed before the election results are certified.

A. Audit Process

i. Pre-Audit Tasks

To prepare for the post-election tabulation audit, the State Board of Elections provided Clear Ballot with:

- PDF files of all ballot styles for all 24 local jurisdictions (approximately 1,200 files);
- Pre-election reports for all precincts showing no votes cast;
- Information to assign ballot styles to precinct; and
- Files needed to process ballots used with the ExpressVote ballot marking device.

Upon receipt of the data, Clear Ballot:

- Created a Ballot Definition File for each local jurisdiction;
- Validated each Ballot Definition File; and
- Created a ClearAudit database for each local jurisdiction.

ii. Conducting the Audit

Each local board sent to Clear Ballot the images of ballots cast during early voting and election day. Once Clear Ballot received the ballot images, Clear Ballot:

- Transferred the ballot images from each local jurisdiction into its corresponding audit database;
- Tabulated the ballot images from election day and early voting;
- Resolved unreadable ballots;
- Performed an audit database review; and
- Sent a Preliminary Statement of Votes Cast to the State Board of Elections.¹²

¹¹ This is calculated as the percentage of the absolute sum of all discrepancies in a contest of total number of votes in a contest.

¹² The Preliminary Statement of Votes Cast is a report produced by Clear Ballot that states Clear Ballot's initial count of votes cast in each contest by precinct and counter group using the Clear Audit software, prior to having received any vote counts from the voting system.

Once the State Board of Elections received the Preliminary Statement of Votes Cast, the State Board of Elections provided Clear Ballot with election results from early voting and precinct-level elections results from election day. This delay in sending the precinct-level results to Clear Ballot was intentional. It created a “blind” audit, meaning that Clear Ballot provided its results without knowing the results from the voting system. Clear Ballot used the results from early voting and election day to create various reports comparing the sets of results.

After absentee and provisional ballots have been counted, the local boards sent to Clear Ballot images of counted absentee and provisional ballots. Clear Ballot added these ballot images into the appropriate database, tabulated these ballot images, resolved unreadable ballots, and generated a Comparison of Votes Cast for the absentee and provisional ballot canvasses.

iii. Reports Produced by Clear Ballot

With this audit solution, election officials and other interested individuals can sort contest, ballot and precinct reports, see images of contests and ballots, and provide detailed information about how each ballot image was adjudicated. Clear Ballot produces for each local jurisdiction four audit reports. A sample of each report is provided in Documents C1-C4, Appendix C, while all four reports for each local board are provided on the State Board of Elections website, under the “Ballot Audit Plan” heading.¹³

- Comparison of Cards Cast for each canvass: This report compares the number of ballots counted during early voting, on election day, during both absentee canvasses, and during the provisional canvass against the number of ballots tabulated by Clear Ballot. This ensures that the same number of ballots were tabulated by both systems.
- Comparison of Ballots Cast by Precinct: This report compares the number of ballots cast in each precinct¹⁴ against the number of ballots tabulated during the audit. This is another way to ensure that the same number of ballots are tabulated by both systems.
- Comparison of Votes Cast: This report compares the results from the voting system against the audit results and identifies possible discrepancies by candidate or choice.
- Contest Vote Discrepancy Threshold Report: This report shows - by contest - the number of vote differences between the two systems and the vote difference as a percentage. Before the audit was performed, the State Board of Elections determined that a percentage of 0.5% or higher would trigger an additional review, which could include a manual review of voted paper ballots.

¹³ The full reports for each local board for both the 2018 Primary and General Election can be found at https://elections.maryland.gov/voting_system/ballot_audit_plan_automated.html, and clicking on the subheadings under the 2018 Primary or 2018 General Phase 1 or Phase 2 Election Results.

¹⁴ For canvassing purposes, each early voting center is a separate “precinct.” Each absentee canvass and provisional canvass is a separate precinct.

iv. 2018 Primary and General Election Audit Portal

Clear Ballot also maintains a web portal that contains interactive versions of the reports listed above, where interested persons can view ballot images and ovals that make up the results of these reports. The portal is located at <http://maryland.clearballot.com/> and contains audit results from both the 2018 Primary and General Elections.

v. Results and Benefits of the Audit

There were **zero** vote differences greater than 0.5% between the independent tabulation audit and the voting system results in any local jurisdiction. In fact, out of 693 contests¹⁵ and 11.5 million ballot images throughout the 24 local jurisdictions, only 18 contests had a vote difference greater than 0.2%. **Simply stated, the ClearAudit software showed that the voting system accurately counted votes.**

The independent, automated ballot tabulation audit provides a realistic balance between those who want a comprehensive tabulation audit- one where all or most ballots are re-tallied- and an audit that is able to take place prior to election certification. There are numerous tasks for local boards to accomplish prior to election certification- namely preparing for and conducting the absentee 1, provisional, and absentee 2 canvasses, and other pre-certification audit activities. The preparation involved for the canvasses is tremendous, as is the effort to pull off these events. Canvasses and a pre-certification manual audit both require volunteers- usually elections judges- to be present in order for the event to be completed successfully. If a manual audit had to take place, in each local jurisdiction, prior to certification, the ability of local board staff to help their neighboring jurisdictions would be eliminated. Because of the time of the year of a general election (right before the Thanksgiving holiday), the longer a canvass or recount goes on, the harder it can be for local boards to have adequate help. Adding a manual audit into the list of requirements prior to certification would complicate this even further. Because the automated audit is independent and does not require many resources from the local boards, there is no question that an independent, automated ballot tabulation audit is the best way to provide a comprehensive audit prior to election certification.

B. Resources Required

i. Time & Personnel

The majority of the time spent on the automated audit was by staff of Clear Ballot, as ballot comparison and manual adjudication of certain ballots, when needed, was the most time-consuming task of the automated audit. This report does not include the amount of time spent by Clear Ballot, as they are not State of Maryland personnel.

¹⁵ The 693 contests equals the number of contests that were on the ballot in each local jurisdiction. Therefore, contests that encompass more than one jurisdictions are counted more than once. A statewide race is counted 24 times. This is because the Clear Ballot audit is done by local jurisdiction, not statewide, by state legislative district, or Congressional District.

Second to Clear Ballot, the most time spent on the automated audit came from State Board of Elections staff. One staff member served as the project lead for the 2018 General Election who coordinated all audit activities with the local boards and gave online demonstrations on how to use the audit to candidates who were considering a recount, so that they could look at the ballot images and decide for themselves. These webinars usually lasted 1-2 hours each. Another staff member was the voting system expert who designed the ballots and was responsible for completing the pre-audit tasks listed in Section III(A)(i) of this report and supported the local boards with providing Clear Ballot with the ballot images. These two staff members participated in bi-weekly conference calls with Clear Ballot from October 3, 2018 through November 28, 2018, as well as numerous calls and emails regarding hard drive shipment status, Preliminary Statement of Votes Cast status, and comparison report status beginning the day after the general election until December 10, 2018, the day prior to Maryland certifying the election. Other State Board of Elections staff assisted as needed.

The local boards spent time on the automated audit by completing the following tasks:

- Receiving and testing of credentials from Clear Ballot for the audit database.
- Receiving the hard drives from Clear Ballot that would be used for the ballot image transfers, and recording the serial numbers in a password-protected spreadsheet.
- Transferring of ballot images from the voting system thumb drives to the hard drives provided by Clear Ballot for Phase 1 of the audit (Early Voting and Election Day).
- Packaging and shipping the Phase 1 hard drive back to Clear Ballot, and recording the tracking number in a password-protected spreadsheet.
- Transferring of ballot images from the voting system thumb drives to the hard drives provided by Clear Ballot for Phase 2 of the audit (All Ballots).
- Packaging and shipping the Phase 1 hard drive back to Clear Ballot, and recording the tracking number in a password-protected spreadsheet.
- Logging in to the Clear Ballot audit database to read audit comparison reports for Phase 1 and 2.

The bulk of local board time spent on this audit was during the ballot image transfer. The speed of the transfers depended largely on the number of images to transfer and the processing speed of the workstations where the image transfer was taking place. As would be expected, the more images that a local board had to transfer, the longer the process took. Larger jurisdictions typically took longer to transfer images. However, in a survey to election directors, most responded that the file transfer process (for both Phase 1 and 2) either did not take too long, or took “a while” but was expected due to the number of ballot images to transfer. About 75% of local boards were able to transfer all files (for each phase) in under 2 hours. One local board responded that the process took

“several” hours, and another that it took 2 days. The remainder of the tasks completed by the local boards typically took approximately 10-15 minutes per task.

ii. Costs & Other Resources Incurred

Outside of the cost of the contract with Clear Ballot, there were no costs incurred by the State Board of Elections or the local boards during the course of the automated audit, as all materials needed (the hard drives, the packaging for the hard drives, and the cost of shipping the hard drives) were provided by Clear Ballot. Aside from copy paper for printing of comparison reports as needed, there were no other costs or resources incurred.

C. Challenges and Feedback

Generally, feedback regarding the automated audit has been very positive, especially from candidates who are able to use the audit database as a way to look at images and determine if they wanted to proceed with a recount. Feedback from the local boards and among the State Board of Elections staff has revealed a few challenges that can be improved upon in future automated audits, such as:

- Ballot image transfer speed: Planned technology upgrades and enhancements will speed up this process in future elections.
- Communication between local boards, the State Board of Elections, and the audit vendor. There were multiple instances of people at the State Board of Elections or Clear Ballot being emailed or called about an issue in duplicate that a local board was having. In future elections, the communication can be streamlined better so that no one is being contacted unnecessarily.

Aside from these challenges, feedback from the local boards has been favorable. Many have found the ability to log into the audit database to view the reports and ballot images in be both fascinating and educational.

IV. Conclusions

The State Board of Elections is happy to report that both audits did what they were supposed to do, which was verify the accuracy of the voting system in used in the 2018 General Election. The automated audit did not show any contests with a discrepancy greater than 0.5%, and the manual audit did not show any vote differences in any of the audits performed.

Appendix A- Text of HB 1278

Document A1- Text of HB 1278

LAWRENCE J. HOGAN, JR., Governor

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Chapter 523

(House Bill 1278)

AN ACT concerning

Election Law – Postelection Tabulation Audit

FOR the purpose of requiring the State Board of Elections to conduct an audit of the accuracy of the voting system's tabulation of votes by completing a certain audit of electronic ballot images and a certain manual audit after each statewide general election; requiring the State Board to complete a certain audit of electronic ballot images after each statewide primary election; authorizing the State Board to complete a certain manual audit after each statewide primary election; requiring the State Board to complete a manual audit of certain precincts and certain early, absentee, and provisional votes following each statewide general election; requiring a manual audit to be completed within a certain period of time; authorizing the State Board to take certain actions if a manual audit shows a discrepancy; requiring the State Board to post a certain report on its website within a certain period of time after the conclusion of a manual audit; requiring the State Board to allow for public observation of a manual audit to the extent practicable; prohibiting an audit under this Act from affecting the certified election results; requiring an audit under this Act to be used to improve the voting system and voting process for future elections; requiring the State Board to adopt certain regulations; requiring the State Board to submit a certain report to certain committees of the General Assembly on or before a certain date; defining certain terms; and generally relating to a postelection audit of the voting system's tabulation of votes.

BY adding to

Article – Election Law

Section 11–309

Annotated Code of Maryland

(2017 Replacement Volume and 2017 Supplement)

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF MARYLAND,
That the Laws of Maryland read as follows:

Article – Election Law**11–309.**

(A) (1) IN THIS SECTION THE FOLLOWING WORDS HAVE THE MEANINGS INDICATED.

(2) “MANUAL AUDIT” MEANS INSPECTION OF VOTER-VERIFIABLE PAPER RECORDS BY HAND AND EYE TO OBTAIN VOTE TOTALS IN A CONTEST THAT

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ARE COMPARED TO THE VOTE TOTALS PRODUCED FOR THAT CONTEST BY THE ELECTRONIC VOTING SYSTEM.

(3) "PREVIOUS COMPARABLE GENERAL ELECTION" MEANS:

(I) IN A PRESIDENTIAL ELECTION YEAR, THE PRESIDENTIAL ELECTION HELD 4 YEARS EARLIER; AND

(II) IN A GUBERNATORIAL ELECTION YEAR, THE GUBERNATORIAL ELECTION HELD 4 YEARS EARLIER.

~~(3)~~ **(4) "VOTER-VERIFIABLE PAPER RECORD" HAS THE MEANING STATED IN § 9-102 OF THIS ARTICLE.**

(B) FOLLOWING EACH STATEWIDE GENERAL ELECTION, THE STATE BOARD SHALL CONDUCT AN AUDIT OF THE ACCURACY OF THE VOTING SYSTEM'S TABULATION OF VOTES BY COMPLETING:

(1) AN AUTOMATED SOFTWARE AUDIT OF THE ELECTRONIC IMAGES OF ALL BALLOTS CAST IN THE ELECTION; AND

(2) A MANUAL AUDIT OF VOTER-VERIFIABLE PAPER RECORDS IN ACCORDANCE WITH SUBSECTION (D) OF THIS SECTION.

(C) FOLLOWING EACH STATEWIDE PRIMARY ELECTION, THE STATE BOARD:

(1) SHALL 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 THE STATE BOARD.

(D) (1) FOLLOWING EACH STATEWIDE GENERAL ELECTION, THE STATE BOARD SHALL COMPLETE A MANUAL AUDIT OF:

(I) AT LEAST 2% OF PRECINCTS STATEWIDE, INCLUDING:

1. AT LEAST ONE RANDOMLY CHOSEN PRECINCT IN EACH COUNTY; AND

2. ADDITIONAL PRECINCTS SELECTED BY THE STATE BOARD; ~~AND AND~~

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~~(II) AT LEAST 1% OF THE STATEWIDE TOTAL OF EACH OF THE FOLLOWING, INCLUDING AT LEAST A MINIMUM NUMBER OF EACH OF THE FOLLOWING IN EACH COUNTY, AS PRESCRIBED BY THE STATE BOARD:~~

- ~~1. EARLY VOTES;~~
- ~~2. ABSENTEE VOTES; AND~~
- ~~3. PROVISIONAL VOTES.~~

~~(II) AT LEAST 1% OF THE STATEWIDE TOTAL OF EARLY VOTES, INCLUDING AT LEAST A MINIMUM NUMBER OF EARLY VOTES IN EACH COUNTY, AS PRESCRIBED BY THE STATE BOARD; AND~~

~~(II) (II) A NUMBER OF VOTES EQUAL TO AT LEAST 1% OF THE STATEWIDE TOTAL IN THE PREVIOUS COMPARABLE GENERAL ELECTION OF EACH OF THE FOLLOWING, INCLUDING AT LEAST A MINIMUM NUMBER OF EACH OF THE FOLLOWING IN EACH COUNTY, AS PRESCRIBED BY THE STATE BOARD:~~

- 1. EARLY VOTES;
- 2. ABSENTEE VOTES; AND
- 3. PROVISIONAL VOTES.

(2) THE MANUAL AUDIT SHALL BE COMPLETED WITHIN 120 DAYS AFTER THE GENERAL ELECTION.

(3) IF THE MANUAL AUDIT SHOWS A DISCREPANCY, THE STATE BOARD MAY:

- (I) EXPAND THE MANUAL AUDIT; AND
- (II) TAKE ANY OTHER ACTIONS IT CONSIDERS NECESSARY TO RESOLVE THE DISCREPANCY.

(4) WITHIN 14 DAYS AFTER THE CONCLUSION OF THE AUDIT, THE STATE BOARD SHALL POST ON ITS WEBSITE A REPORT THAT DESCRIBES:

- (I) 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;
- (II) THE RESULTS OF THE MANUAL AUDIT; AND

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(III) ANY DISCREPANCY SHOWN BY THE MANUAL AUDIT AND HOW THE DISCREPANCY WAS RESOLVED.

(5) THE STATE BOARD SHALL ALLOW FOR PUBLIC OBSERVATION OF EACH PART OF THE MANUAL AUDIT PROCESS TO THE EXTENT PRACTICABLE.

(E) AN AUDIT UNDER THIS SECTION:

(1) MAY NOT HAVE ANY EFFECT ON THE CERTIFIED ELECTION RESULTS; AND

(2) SHALL BE USED TO IMPROVE THE VOTING SYSTEM AND VOTING PROCESS FOR FUTURE ELECTIONS.

(F) THE STATE BOARD SHALL ADOPT REGULATIONS TO CARRY OUT THIS SECTION.

SECTION 2. AND BE IT FURTHER ENACTED, That on or before May 1, 2019, the State Board of Elections shall submit a report, in accordance with § 2-1246 of the State Government Article, to the Senate Education, Health, and Environmental Affairs Committee and the House Ways and Means Committee that describes the resources required to complete the audit required under this Act following the 2018 general election. The report shall include the amount of time needed to complete the audit, the number of personnel required to complete the audit, any other costs incurred by the State Board or the local boards of elections to complete the audit, and any other administrative obstacles to completing the audit.

SECTION 3. AND BE IT FURTHER ENACTED, That this Act shall take effect June 1, 2018.

Approved by the Governor, May 8, 2018.

Appendix B- Manual Tabulation Audit Documents

Document B1- Summary of the minimum number of ballots from each jurisdiction to be audited

2018 General Election
Manual Audit Tabulation

This spreadsheet defines the number of early voting, absentee, and provisional ballots that must be manually counted during the post-election manual audit. This audit is required by House Bill 1331 of the 2018 Legislative Session (codified in §11-309 of the Election Law Article).

County	Manual Audit of Absentee Ballots			Manual Audit of Provisional Ballots			Manual Audit of Ballots Cast During Early Voting		
	2014 General Election: Absentee Ballots Cast	1% of Absentee Ballots Cast in 2014 of Absentee General Election	Minimum Number of Absentee Ballots to Audit*	2014 General Election: Provisional Ballots Cast	1% of Provisional Ballots Cast in 2014 General Election	Minimum Number of Provisional Ballots to Audit**	2014 General Election: Est. Early Voting Turnout	1% of Ballots Cast during Early Voting in 2014 General Election	Minimum Number of Early Voting Ballots to Audit***
Allegany	688	6.88	15	222	2.22	15	1,504	15.04	15
Anne Arundel	5,784	57.84	58	3913	39.13	39	38,656	386.56	387
Baltimore City	3,828	38.28	38	4650	46.50	47	25,924	259.24	259
Baltimore	7,092	70.92	71	4419	44.19	44	51,814	518.14	518
Calvert	954	9.54	15	461	4.61	15	4,751	47.51	48
Caroline	183	1.83	15	121	1.21	15	1,606	16.06	16
Carroll	1,533	15.33	15	587	5.87	15	8,016	80.16	80
Cecil	572	5.72	15	241	2.41	15	4,123	41.23	41
Charles	1,091	10.91	15	877	8.77	15	6,880	68.80	69
Dorchester	620	6.20	15	144	1.44	15	1,608	16.08	16
Frederick	2,355	23.55	24	989	9.89	15	10,713	107.13	107
Garrett	405	4.05	15	83	0.83	15	1,357	13.57	14
Harford	1,627	16.27	16	1470	14.70	15	17,965	179.65	180
Howard	2,481	24.81	25	1718	17.18	17	21,432	214.32	214
Kent	318	3.18	15	37	0.37	15	1,969	19.69	20
Montgomery	13,717	137.17	137	6554	65.54	66	35,444	354.44	354
Prince George's	5,895	58.95	59	6676	66.76	67	46,236	462.36	462
Queen Anne's	464	4.64	15	166	1.66	15	5,157	51.57	52
St. Mary's	976	9.76	15	412	4.12	15	4,471	44.71	45
Somerset	254	2.54	15	172	1.72	15	1,263	12.63	13
Talbot	594	5.94	15	193	1.93	15	4,869	48.69	49
Washington	1,246	12.46	15	433	4.33	15	3,504	35.04	35
Wicomico	1,033	10.33	15	336	3.36	15	4,945	49.45	49
Worcester	955	9.55	15	190	1.90	15	3,439	34.39	34
Statewide	54,665	547	668	35,064	351	550	307,646	3,076.46	3,076

* If 1% of absentee ballots cast in 2014 General Election is less than 15, the minimum number of absentee ballots to audit is 15.

** If 1% of provisional ballots cast in the 2014 General Election is less than 15, the minimum number of provisional ballots to audit is 15.

*** This column represents the minimum number of early voting ballots to be audited. The actual number of early voting ballots to be audited will be greater than these numbers.

Document B2- 2014 General Election Total Voter Turnout2014 General Election
Total Voter Turnout

County	Early Voting		Polling Place (Election Day)		Absentee		Provisional		Total
Allegany	1,504	7.2%	18,476	88.4%	688	3.3%	222	1.1%	20,890
Anne Arundel	38,656	21.3%	133,038	73.3%	5,784	3.2%	3,913	2.2%	181,391
Baltimore City	25,924	18.4%	106,816	75.6%	3,828	2.7%	4,650	3.3%	141,218
Baltimore	51,814	19.5%	202,882	76.2%	7,092	2.7%	4,419	1.7%	266,207
Calvert	4,751	14.3%	27,081	81.5%	954	2.9%	461	1.4%	33,247
Caroline	1,606	17.3%	7,395	79.5%	183	2.0%	121	1.3%	9,305
Carroll	8,016	12.4%	54,605	84.3%	1,533	2.4%	587	0.9%	64,741
Cecil	4,123	15.3%	22,029	81.7%	572	2.1%	241	0.9%	26,965
Charles	6,880	14.4%	38,989	81.5%	1,091	2.3%	877	1.8%	47,837
Dorchester	1,608	14.9%	8,454	78.1%	620	5.7%	144	1.3%	10,826
Frederick	10,713	13.3%	66,792	82.6%	2,355	2.9%	989	1.2%	80,849
Garrett	1,357	14.4%	7,565	80.4%	405	4.3%	83	0.9%	9,410
Harford	17,965	19.5%	70,906	77.1%	1,627	1.8%	1,470	1.6%	91,968
Howard	21,432	20.2%	80,516	75.9%	2,481	2.3%	1,718	1.6%	106,147
Kent	1,969	25.1%	5,527	70.4%	318	4.1%	37	0.5%	7,851
Montgomery	35,444	13.3%	211,534	79.2%	13,717	5.1%	6,554	2.5%	267,249
Prince George's	46,236	21.0%	160,895	73.2%	5,895	2.7%	6,676	3.0%	219,702
Queen Anne's	5,157	26.4%	13,755	70.4%	464	2.4%	166	0.8%	19,542
St. Mary's	4,471	13.6%	26,986	82.2%	976	3.0%	412	1.3%	32,845
Somerset	1,263	18.6%	5,109	75.2%	254	3.7%	172	2.5%	6,798
Talbot	4,869	31.7%	9,683	63.1%	594	3.9%	193	1.3%	15,339
Washington	3,504	8.9%	34,015	86.8%	1,246	3.2%	433	1.1%	39,198
Wicomico	4,945	18.9%	19,866	75.9%	1,033	3.9%	336	1.3%	26,180
Worcester	3,439	17.7%	14,815	76.4%	955	4.9%	190	1.0%	19,399
State Totals	307,646	17.6%	1,347,729	77.2%	54,665	3.1%	35,064	2.0%	1,745,104

Turnout includes all voters who voted in the 2014 General Election, regardless of whether their absentee or provisional ballots were counted and included in the election results.

Source: Statewide voter registration system

Document B3- Number of Precincts by Local Jurisdiction**MARYLAND STATE BOARD OF ELECTIONS**
Number of Precincts and Polling Places By County

Run Date : 5/29/2018

County	Precincts	- Ghost Precincts	Total (No Ghosts)	Polling Places
Allegany County	37	0	37	36
Anne Arundel County	195	0	195	152
Baltimore City	299	3	296	206
Baltimore County	236	0	236	186
Calvert County	23	0	23	23
Caroline County	8	0	8	8
Carroll County	36	0	36	33
Cecil County	28	0	28	19
Charles County	43	0	43	43
Dorchester County	40	1	39	22
Frederick County	84	5	79	66
Garrett County	19	0	19	16
Harford County	89	3	86	63
Howard County	118	0	118	70
Kent County	10	0	10	9
Montgomery County	258	3	255	236
Prince George's County	302	28	274	234
Queen Anne's County	11	0	11	11
St. Mary's County	36	0	36	29
Somerset County	23	0	23	11
Talbot County	12	0	12	11
Washington County	53	0	53	47
Wicomico County	54	0	54	31
Worcester County	20	0	20	17
	2034	43	1991	1579

**Document B4- State Board of Elections- November 29, 2018 Meeting-
Section of minutes that refer to the selection of precincts and contest for audit.**

State of Maryland 
State Board of Elections – November 29, 2018 Meeting

Attendees: David McManus, Chair
Patrick J. Hogan, Vice Chair
Michael R. Cogan, Member
Kelley A. Howells, Member
Malcolm L. Funn, Member
Linda Lamone, Administrator
Andrea Trento, Assistant Attorney General
Nikki Charlson, Deputy Administrator
Donna Duncan, Assistant Deputy, Election Policy
Keith Ross, Assistant Deputy, Project Management
Jared DeMarinis, Director, Candidacy and Campaign Finance
Mary Wagner, Director, Voter Registration
Erin Perrone, Director, Election Reform and Management
Tracey Hartman, Director of Special Projects
Paul Aumayr, Voting Systems Director
Janey Hegarty, Information Technology Division

Also Present: Katherine Berry, Carroll County Board of Elections
Ralph Watkins, League of Women Voters – Maryland
Rebecca Wilson, SAVE our Votes
Damon Effingham, Common Cause
Brian Witte, Associated Press
Lynn Garland, Citizen
Denisha Gingles, Citizen

DECLARATION OF QUORUM PRESENT

Mr. McManus called the meeting to order at 2:05 pm and stated that there was a quorum of five present. Mr. McManus stated that the meeting was being recorded.

**2018 GENERAL ELECTION: SELECT CONTEST & PRECINCTS FOR POST-ELECTION MANUAL
TABULATION AUDIT**

Ms. Charlson stated that the board would be selecting at random the contest and precincts for the Post-Election Manual Tabulation Audit by drawing pieces of paper out of a hat. Ms. Charlson explained that the selected contest must be a vote-for-one state contest and that the board would first choose the contest, followed by the precincts.

Mr. McManus drew “Comptroller” as the selected contest.

Ms. Charlson stated that the legislation requires that we audit two percent of the precincts for the post-election manual tabulation audit, which is 36 precincts. She explained that since there are 24 counties, the board would select one precinct from each of the 24 counties and then select the 12 additional precincts at random. The board members took turns drawing precincts from the hat until 36 precincts were selected.

Ms. Charlson placed the non-selected contests and precincts into an envelope and sealed it with tamper tape.

Document B5- Precincts selected for the Manual Audit

2	2018 General Election			
3	Post-Election Manual Ballot Tabulation Audit			
4	Selected Contest: Comptroller			
5	Local Board	Selected Precinct	Polling Place	Ballots Cast
6	Allegany	29-02	Parkside Elementary School	839
7	Anne Arundel	04-22	Crofton Community Library	648
8	Anne Arundel	06-12	West Annapolis Elementary School	822
9	Anne Arundel	07-23	South County Senior Activity Center	908
10	Baltimore City	16-13	St. Bernardine's Hall	341
11	Baltimore City	06-01	School No. 83	323
12	Baltimore City	26-25	Furley Recreation Center	359
13	Baltimore	11-14	Perry Hall Middle School Auditorium	921
14	Baltimore	13-02	Arbutus Fire Hall	686
15	Calvert	03-07	Mt. Harmony Elementary School	1393
16	Caroline	07-01	Ridgely Fire Hall	1089
17	Carroll	05-03	Oklahoma Road MS Cafeteria	1370
18	Cecil	06-02	Rising Sun Elementary School	1423
19	Charles	06-14	Robert D. Stethem Educational Center	1615
20	Dorchester	07-09	St. Paul's Church Hall	722
21	Frederick	21-02	Whittier Elementary School	888
22	Garrett	08-01	Pleasant Valley Community Center Right	188
23	Harford	01-09	Abingdon Elementary School Gym	2118
24	Harford	04-06	Jarrettsville Library	723
25	Harford	01-41	Riverside Elementary School	889
26	Howard	06-05	Oakland Mills Middle School Cafeteria	655
27	Kent	01-01	Millington Fire House	542
28	Montgomery	13-33	Kemp Mill Elementary School	864
29	Montgomery	05-18	Burtonsville Elementary School	610
30	Prince George's	13-14	Charles Herbert Flowers High School Cafeteria	1467
31	Prince George's	09-09	Melwood Elementary School	530
32	Prince George's	03-02	Pautuxent Elementary School	1163
33	Prince George's	09-14	Precinct with no voters	0
34	Prince George's	13-10	Phyllis E. Williams Elementary School	1583
35	Queen Anne's	04-06	United Communities V. F. D.	1031
36	St. Mary's	08-02	Town Creek Elementary School	672
37	Somerset	12-01	Woodson Elementary School	269
38	Talbot	01-01	Easton Fire House	977
39	Washington	17-01	Bester Elementary School Gym	1005
40	Wicomico	11-01	New Dimensions Ministries	74
41	Wicomico	07-01	Allen Community Center	605
42	Worcester	03-01	Ocean City Elementary School	1307

Appendix C- Automated Software Tabulation Audit Documents

Document C1- Comparison of Cards Cast with Counter Groups: Sample- Allegany County

Allegany County, MD, General Election, Nov 6, 2018

Comparison of Cards Cast with Counter Groups

Precinct: Counter Group:

Counter Group ID	Counter Group	Cards		
		Comparison System	This System	Difference
AB1	Absentee 1	1,190	1,190	0
AB2	Absentee 2	118	118	0
ED	Election Day	19,279	19,279	0
EV	Early Voting	2,671	2,671	0
PROV	Provisional	735	735	0

1 to 5 of 5

Document C2- Comparison of Cards Cast with Precincts: Sample- Carroll County

Caroline County, MD, Primary Election, June 26, 2018
Comparison of Cards Cast with Precincts

Precinct: Counter Group:

Precinct	Cards			# Boxes
	Comparison System	This System	Difference	
001-001	215	215	0	1
002-001	620	620	0	1
003-001	633	633	0	1
004-001	476	476	0	1
005-001	422	422	0	1
006-001	275	275	0	1
007-001	443	443	0	1
008-001	273	273	0	1
Absentee 1	60	60	0	1
Absentee 2	20	20	0	1
EVC-1	1,143	1,143	0	1
Provisional	48	48	0	1

1 to 12 of 12

Document C3- Comparison of Votes Cast: Sample- Washington County

(Only showing page 1 of 3)

Washington County, MD, General Election, Nov 6, 2018

Comparison of Votes Cast

Precinct: Counter Group: Contest:

Choice	Ballots With Contest			Votes			Overvoted With Vote for this Choice	Undervoted Without Vote for this Choice
	Comparison System	This System	Difference	Comparison System	This System	Difference		
Governor / Lt. Governor (Vote for 1)								
Hogan-Rutherford	51,495	51,495	0	38,765	38,765	0	31	998
Jealous-Turnbull	51,495	51,495	0	10,894	10,894	0	27	998
Quinn-Smith	51,495	51,495	0	491	491	0	13	998
Schlakman-Chambers	51,495	51,495	0	268	268	0	9	998
Write-In	51,495	51,495	0	43	43	0	0	998
Comptroller (Vote for 1)								
Anjali Reed Phukan	51,495	51,495	0	24,510	24,511	+1	9	3,063
Peter Franchot	51,495	51,495	0	23,868	23,869	+1	10	3,063
Write-In	51,495	51,495	0	42	42	0	2	3,063
Attorney General (Vote for 1)								
Craig Wolf	51,495	51,495	0	30,161	30,161	0	13	2,035
Brian E. Frosh	51,495	51,495	0	19,248	19,248	0	14	2,035
Write-In	51,495	51,495	0	37	37	0	1	2,035
U.S. Senator (Vote for 1)								
Tony Campbell	51,495	51,495	0	28,319	28,319	0	17	1,058
Ben Cardin	51,495	51,495	0	19,956	19,956	0	22	1,058
Neal Simon	51,495	51,495	0	1,598	1,598	0	16	1,058
Arvin Vohra	51,495	51,495	0	507	507	0	7	1,058
Write-In	51,495	51,495	0	26	26	0	2	1,058
Representative In Congress - 6 Congressional District 6 (Vote for 1)								
Amie Hoerber	51,495	51,495	0	29,360	29,360	0	15	1,187
David Trone	51,495	51,495	0	19,068	19,068	0	16	1,187
Kevin T. Caldwell	51,495	51,495	0	1,188	1,188	0	4	1,187
George Gluck	51,495	51,495	0	629	629	0	5	1,187
Write-In	51,495	51,495	0	43	43	0	1	1,187
State Senator - 2 Legislative District 2 (Vote for 1)								
Andrew A. Serafini	44,792	44,792	0	29,798	29,798	0	16	3,188
Jenna L. Roland	44,792	44,792	0	11,631	11,631	0	16	3,188
Write-In	44,792	44,792	0	158	158	0	2	3,188
House Of Delegates - 2a Legislative Subdistrict 2a (Vote for 2)								
Neil C. Parrott	34,020	34,020	0	22,422	22,422	0	6	5,748
William Joseph Wivell	34,020	34,020	0	19,453	19,453	0	5	8,429
Andrew J. Barnhart	34,020	34,020	0	7,371	7,372	+1	6	8,695
Charlotte Mcbrearty	34,020	34,020	0	6,683	6,683	0	4	8,819
Write-In	34,020	34,020	0	141	120	-21	2	9,789

Document C4- Contest Vote Discrepancy Threshold Report: Sample- Garrett County

Garrett County Audit Threshold Report Nov. 6, 2018 General Election



Audit Stage Filter	Write-ins Eliminated	Report Created:
All Ballots	No	11/26/2018 8:06

Contest Name	Sum of Vote Differences (ABS Value) [1]	Sum of Votes Cast in Contest	Audit Ratio [2]
1 Governor / Lt. Governor	0	11,008	0.000%
2 Comptroller	0	10,509	0.000%
3 Attorney General	0	10,804	0.000%
4 U.s. Senator	0	10,939	0.000%
5 Representative In Congress - 6 Congressional District 6	1	10,894	0.009%
6 State Senator - 1 Legislative District 1	0	9,848	0.000%
7 House Of Delegates - 1a Legislative Subdistrict 1a	0	10,916	0.000%
8 County Commissioner - 1	0	10,965	0.000%
9 County Commissioner - 2	0	9,651	0.000%
10 County Commissioner - 3	1	9,762	0.010%
11 Judge Court Of Appeals Appellate Circuit 3	0	9,264	0.000%
12 Judge Special Appeals At Large	0	17,941	0.000%
13 State's Attorney	1	9,251	0.011%
14 Clerk Circuit Court	0	9,633	0.000%
15 Register Of Wills	0	9,835	0.000%
16 Judge Orphans Court	31	20,426	0.152%
17 Sheriff	0	9,688	0.000%
18 Board Of Education - 1	0	8,774	0.000%
19 Board Of Education - 2	0	9,381	0.000%
20 Board Of Education - 3	2	9,791	0.020%
21 Question 1	0	9,774	0.000%
22 Question 2	0	9,965	0.000%
23			
24 Garrett County	36	239,019	0.015%
25			

26 Note 1: Using the absolute value prevents positive and negative discrepancies from cancelling each other.

27 Note 2: Values of the Audit Threshold Ratio exceeding 0.5% would trigger an examination.