Audits of the November 3, 2020 General Election

April 21, 2021

In November 2018, Michigan's voters passed a referendum to guarantee citizens of Michigan the right to have the results of statewide election audited, in order to ensure the accuracy and integrity of elections. Michigan's system of statewide post-election audits system, which has been in place for many years, is now enshrined in Article II, Section 4 the Michigan State Constitution.

As the state's chief election officer, the Michigan Election Law provides the Secretary of State with the authority to prescribe the procedures with which audits will be conducted across the state. Statewide audits reflect the decentralized nature of Michigan's election system. Running of elections is a local responsibility held by Michigan's 1,520 city and township clerks, along with their staff, volunteers and poll workers (election inspectors) they have hired to work in polling places and perform other election functions. Auditing of elections, which includes review of the city and township clerks who ran the elections, is performed by county and state officials.

Audits occur following completion of the post-election canvass process and any requested recounts, if applicable. Audits cannot occur until these processes are complete because the materials needed for audits—voting machines, ballots, ballot containers, and other election day materials—are required by the Michigan Election Law to be secured until these processes are complete.

The majority of post-election audits are conducted by Michigan's 83 county clerks. County clerks do not administer elections directly on election day, but they do serve several critical election functions including the programming of election equipment and printing of ballots. The remainder are conducted by the Michigan Bureau of Elections on behalf of the Secretary of State.

The November 3, 2020 election in Michigan involved several competitive statewide contests, including races for U.S. President and U.S. Senate. The general election, which was conducted in the midst of the global COVID-19 pandemic, was also the first general election held following the implementation of Proposal 2018-3 in the state. In addition to the constitutional right to statewide audits described above, the proposal also amended the state constitution to introduce same-day voter registration, automatic voter registration, and no-reason absentee voting in Michigan. Despite the pandemic, 2020 shattered state records for voter turnout, with more than 5.5 million total ballots cast (the previous record was 5 million, set in 2008). Approximately 3.3

million of ballots cast were absentee ballots, also a new state record; by comparison, the 2016 election, with an overall turnout of 4.8 million, saw 1.3 million voters cast absentee ballots.

The combination of the COVID-19 pandemic, a set of new election rules, highly contested elections, record-breaking voter turnout, and a shift from majority in-person voting to majority absentee voting posed an unprecedented set of election administration challenges for local officials. Same-day registration at clerks' offices requires local election officials to ensure that these offices are adequately staffed with experienced workers. The manyfold increase in absentee ballots – more than double the number cast in the 2016 presidential election—required updates to training, procedures, equipment, and staffing allocation to allow for the processing of both absentee applications and ballots, along with tabulation of large numbers of ballots, under the strict timelines required and allowed by law.

Many experienced clerks, staff, temporary staff, and election inspectors—groups that include significant populations in age groups more at risk from COVID-19—were unable to work before and on election day because of health concerns, quarantines, or exposure. In-person and staffing of election offices and polling places was made more difficult because of the need to ensure social distancing and capacity limits on the auditorium or classroom-style settings in which training is typically offered.

In spite of these and many other challenges, Michigan's local election officials administered the November 2020 election exceptionally well. There were few reports of crowding or long lines, either at polling places or at clerk offices used for same-day voter registration. Largescale community spread of COVID-19 connected with the November election was not reported. Despite the massive increase in absentee ballots, none of which could be tabulated until 7:00 a.m. on election day, the vast majority of ballots statewide and within each jurisdiction had been tabulated and reported by Wednesday, November 4, with a small percentage of ballots in some larger jurisdictions completed on Thursday. This was well ahead of the Bureau of Elections' expectation that tabulation and reporting could continue for up to a week after Election Day, as occurred in some states.

The increased strain on the election system caused by COVID-19, high turnout, increased absentee voting, new and inexperienced workers, and the need for clerks to divide their attention among polling places, same day registration, and absent voter counting board locations did contribute to administrative and procedural errors, several of which are discussed in this report.

As has been the case in all recent elections, some election jurisdictions were unsuccessful in "balancing" all of their election precincts—determining that the number of names in the poll book (in a polling place) or list of absentee voters (in a counting board) matched the number of ballots tabulated exactly (or that an explanation could be found for the imbalance). In 2016, this issue was primarily a problem at in-person voting precincts. In 2020, a greater share of balancing problems occurred at absent voter counting boards where AV ballots are tabulated, and fewer problems occurred at in-person precincts.

There were also several instances of errors in the reporting of unofficial "election night results." Election results that are reported shortly after the polls close, or after AV ballots have been

counted on Election Day, are not the official results. Official results are not determined until after county and state canvass and certification (and, if applicable, recounts). In an effort to provide a rapid report of initial results to media and the public, election officials publish unofficial election results based on the election-night canvass of precinct returns. Many members of the public may regard these as the "results," they are often corrected or adjusted after being published or during the county canvass.

Unofficial results can be incorrect because of a variety of human errors that may occur. Unofficial results may fail to report or "double-report" individual precincts, or clerks may make programming errors that lead unofficial results to be incorrectly reported even though ballots were properly counted. These errors are more likely to occur late on election night or after multiple days of continuous work, when election workers are extremely fatigued. Unofficial result reporting errors were not new to 2020 but received substantial attention when they were amplified to support other false claims about election results.

Beginning on Wednesday, November 4, several inaccurate claims were made about the conduct of the 2020 Election. In general, these claims were either entirely fabricated, based upon misunderstanding of election processes, or the result of incorrect inferences that human errors were intentional misconduct. Post-election audits conducted by the Bureau of Elections and county clerks found no examples of fraud or intentional misconduct by election officials and no evidence that equipment used to tabulate or report election results did not function properly when properly programmed and tested.

Post-election audits were not conducted with the goal of disproving the entire myriad of false claims made about the election in Michigan and elsewhere, although one county audit was conducted specifically to provide additional assurance in light of misinformation in that county.[1] Instead, these audits focused on confirming that election procedures were properly followed and election equipment functioned properly, and to identify areas for focus and improvement in future elections. However, in some cases audit findings did provide further confirmation that various false claims about the administration of the 2020 election were without merit.

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[1] Both the Michigan Secretary of State's "SOS Factcheck Page,", available at https://www.michigan.gov/sos/0,4670,7-127-1633_100423_102534_102535---,00.html., and the federal Cybersecurity and Infrastructure Agency's "Rumor Control" page, available at https://www.cisa.gov/rumorcontrol are regularly updated sites that debunk false claims made about the 2020 election.

Post-election audits of the 2020 general election were the most extensive in Michigan's history.[2] Three types of audits were conducted:

- **Precinct Procedural Audits**. These audits were conducted primarily by county clerks and involved the review of more than 200 in-person voting precincts across the state. They are designed to ensure that election officials and poll workers followed the correct procedures in conducting elections in these precincts, that required pre-election requirements were fulfilled, and that required records were maintained. The audits also included a full hand count of paper ballots cast in the U.S. Senate race in each of these precincts.

- **Absent Voter Counting Board Audits**. New for 2020, the Bureau of Elections worked with city and county election officials to review records and procedures in absent voter counting boards in four large jurisdictions. The audits focused on determining how many absent voter counting boards were out of balance and could have been reconciled with additional review, and identifying the reasons why counting boards were out of balance.

- **Risk-Limiting Audits**. The state conducted a risk-limiting audit exercise of the presidential election statewide. Approximately 18,000 ballots were randomly selected from more than 1,300 local jurisdictions statewide, and the results of the randomly selected ballots were compared to the statewide tabulated total. The Bureau of Elections also conducted a full hand-count audit of all presidential election ballots in Antrim County.

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[2] A complete list of 2020 audits is included as an appendix to this report.

I. Precinct Procedural Audits

Procedural audits of precincts are primarily the responsibility of county clerks, although the Bureau of Elections also audits certain precincts each year. Procedural audits are conducted following the canvass and certification of election results (and any recounts, if applicable). They focus on the in-person voting precincts in polling places at which voters cast ballots on election day.

Procedural audits provide an opportunity to conduct an in-depth review of the proper procedures for preparing and using election day equipment and materials. They also include a 100 percent hand count of all the paper ballots cast in one statewide race in each audited precinct, which ensures that the tabulators used in the precinct calculated ballots accurately. Precinct procedural audits provide an additional check and verification by allowing the county or state official who conducts the audit to review the work of the city or township clerk, who conducts the election. Because they are extremely in-depth, it is not practical to conduct an audit of this nature for the entire state, but a substantial number—at least 200 are conducted including at least one in each county, covering roughly 1 in 25 precincts in the entire state.

Selection

Following the election, the Bureau of Elections randomly selects at least 200 precincts to be audited by county clerks in addition to precincts that the Bureau will audit, and selects the statewide contest that will be reviewed during the paper ballot hand count segment of the audit. The selection process ensures that at least one precinct in each county is selected for a procedural audit. Following the selection of precincts for audit, the county clerk or the Bureau, as appropriate, contacts selected jurisdictions to schedule the conduct of the audit.

Although audits are not meetings of public bodies, they are open to the public and jurisdictions may publish audit schedules or a livestream of the audit. For example, Kent County published their audit schedule on the County website,[3] while Ottawa County posted a livestream on the county Facebook page.[4]

Audit Process

Procedural audits verify that pre-election notices were published, proper steps were taken on election day, and correct documents and equipment were used and maintained before, on, and after election day. Auditors review local records and equipment to examine the following issues. More detail on the specific procedures reviewed is in the state audit manual.[5]

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[3] https://www.accesskent.com/Departments/Elections/Results/2020/PostElection_Audits.pdf.
[4] https://www.facebook.com/OCClerkRegister.
[5] https://www.michigan.gov/documents/sos/Post_Election_Audit_Manual_418482_7.pdf.

Posting of Pre-election Notices

- Notice of Registration (MCL 168.498(3))
- Notice of Election (MCL 168.653a)
- Public Logic and Accuracy Test (MCL 168.798(1))
- Weekend hours on which clerk's office is open the Saturday or Sunday prior to the election (MCL 168.761b).
- Election inspectors appointment meeting/appointment/training (MCL 168.674, 677, 683).

Security and Testing Protocols

- Electronic pollbooks and flash drives were sufficiently encrypted and updated
- Logic and accuracy testing was completed for voting tabulators, and all required records were created and maintained securely
- Voter assist terminals were properly tested and used on election day

Absent Voter Record Maintenance

- Applications for military and overseas voters were retained (review of records and matching poll book)
- Affidavits of voters not in possession of picture ID were recorded
- Posting was made of number AV ballots distributed and received

Election Day Records and Paperwork

- Election day receiving board checklist was properly completed
- Pollbook paperwork was properly completed and maintained
- All items required to be included in the envelopes of election officials were transmitted to receiving boards

Provisional Ballot Forms

- Provisional ballot numbers in poll book and envelopes matched
- Proper procedures were followed in issuing envelope provisional ballots

Ballot Container

- Proper, certified ballot containers were used
- Containers were properly sealed
- Container certificate was completed and retained

Spoiled and Duplicated Ballots

- Number of spoiled ballots matches poll book
- Duplicate and original ballots properly maintained
- Ballots were duplicated properly

<u>Hand Count</u>

Procedural audits also include a hand count of all votes cast in the precinct for a statewide race. In 2020, the U.S. Senate race was selected for hand count. To complete the hand count, auditors review every paper ballot in the precinct and make a hand tally of votes for the selected race (in this case, U.S. Senate). The total is compared to the number tabulated using the voting machine. After hand counts conducted in more than 200 randomly selected precincts, county clerk auditors did not report instances in which hand counts differed substantially from machine-tabulated totals.[6]

<u>Completion Status</u>

The Bureau of Elections received confirmation that all procedural audits were completed by county clerks. There were no reports of intentional misconduct of fraud by election officials. Counties are not required to publish detailed reports on their audits but may choose to do so. Ottawa County released a report detailing the audit process, findings, and recommendations for improvement.[7]

II. Absent Voter Counting Board Audits

The 2020 General Election saw 3.3 million absent voter ballots cast, more than doubling the previous record for absentee ballots cast in an election. The increase in ballots was not accompanied by an increase in time allowed to tabulate ballots, however. Although voters begin returning absent voter ballots more than a month prior to the election, the Michigan Election Law provides that absent voter ballots, regardless of when they are received by a local election jurisdictions, cannot be tabulated until 7 a.m. on election day when the polls open.

In past general election years, the lower number of absent voter ballots meant that it was usually possible to complete tabulating absent voter ballots in roughly the same time frame as polling places were closed. With the more than two-fold increase in AV ballots, this was no longer the case. In other states, such as Florida and Ohio, election officials may begin tabulating AV ballots prior to election day, which allows for reporting election night results much earlier on election day. In August 2020, the Michigan Legislature enacted legislation (for November 2020 only) to allow election jurisdictions to undertake certain "preprocessing" activities for absentee ballots – including removing absent voter ballots from the ballot return envelope (but not secrecy sleeve), but this was allowed only for a 10-hour period on the Monday before election day and tabulation still could not begin until the polls opened on Tuesday.

The volume of absent voter ballots, coupled with the limited time to tabulate ballots and the pressure to count ballots and release totals as quickly as possible, placed considerable strain on

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[6] As explained in more detail in the risk-limiting audit section, it is not unusual for hand count to differ from a machine-tabulated count by a small number of votes.
[7] https://www.miottawa.org/Departments/CountyClerk/Elections/pdf/Audit-Report-November-2020.pdf?utm_medium=email&utm_source=govdelivery.

absent voter ballot counting locations on Election Day. The vast majority of election jurisdictions —especially large cities and townships—count absent voter ballots at absent voter counting boards, which are special precincts created to count only absentee ballots. This is usually the most efficient method of counting absent voter ballots in large jurisdictions, because they must otherwise be tabulated at polling places while voters are casting ballots in person.

Clerks must establish a counting board for each in-person precinct in a jurisdiction (with the exception of Detroit, which is permitted to combine multiple precincts into a single counting board).[8] Counting boards allow shared equipment and space to be used to count AV ballots for multiple precincts. In particular, they may facilitate the use of high-speed ballot scanners, which can be used to count ballots for multiple precincts.

Absent voter ballot counting board processing differs from in person voting in some respects, but still requires the counting board to balance—the number of ballots should match the number of voters who are recorded as having returned absentee ballots for that counting board, unless there is an explanation. If an absent voter counting board does not balance at the end of election night, the board of county canvassers attempt to balance it or find an explanation for the imbalance.

In November 2020, several jurisdictions completed their elections with a substantial percentage of absent voter counting boards out of balance. Conversely, there were relatively few in-person precincts out of balance. This change corresponded with the change in voting patterns between November 2016 and November 2020, when the percentage of votes cast absentee more than doubled.

Precincts out of balance, whether in person or at absent voter counting boards, are typically the result of human error in making or retaining records on election day. They do not necessarily mean that ballots have been improperly counted or improperly tabulated. However, out-of-balance precincts have negative consequences for the ability to recount precincts if a recount is requested. Out-of-balance precincts sometimes cannot be recounted under the Michigan Election Law.[9] Often they can—an out-of-balance precinct can still be recounted if the number of ballots in the ballot container matches the number of ballots tabulated according to the voting machine's tabulator tape—but this often is not determined until the recount begins.

To gain a better understanding of why absent voter counting boards were out of balance and identify areas for improvement and focus to reduce instances of out-of-balance precincts in future elections, the Bureau of Elections examined absent voter counting boards in four cities with a large number of AV ballots and a significant number of AV counting boards out of balance.

Selection

In selecting absent voter counting boards for audit, the Bureau of Elections selected four large cities with a substantial number of absent voter counting boards out of balance. The Bureau also

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[8] MCL 168.765a.
[9] MCL 168.871.

took into account the need to assess absent voter counting boards in different counties to get a better cross section of local voting practices and procedures. The four cities selected for absent voter counting boards were Sterling Heights, Livonia, Detroit, and Grand Rapids.

Audit Process

To attempt to identify explanations for why absent voter counting boards did not balance, Bureau of Elections auditors, with the assistance of municipal and county clerks and their staff, performed a series of reviews.

First, BOE staff reviewed county canvass reports to verify that any issues corrected during the canvass were accurately reflected on the canvass report and that canvass report tallies, from which balancing numbers were determined, were accurate.[10] Next, the auditors spoke with clerks and staff to determine if any issues or explanations for out of balance precincts had been identified by reviewing clerk records following the completion of the canvass.

If counting boards could not be balanced or explained based on review of canvassing or clerk records that were subsequently validated by the Bureau, the auditors proceeded to review ballot containers, absent voter lists, and absent voter ballot envelopes. Auditors reviewed the following records and procedures, as necessary, to determine why a counting board was reported out of balance:

- Review of the AV lists used at the AV counting board and county canvass, to determine if written remarks on the AV list explained any imbalances
- Hand count of all ballots in the ballot container, to determine if the physical count of ballots in the ballot container matched the number of names in the AV list
- Review of duplicated ballots, to determine if errors in ballot duplication or ballot duplication accounting occurred
- Comparison of AV envelopes used for the precinct, to determine if the AV envelopes matched the list of voters or the number of ballots in the ballot container, or contained the names of voters that were not entered correctly into QVF or changed address and were listed on an AV list for the wrong precinct in the jurisdiction
- Comparison of multiple AV counting boards, to determine whether ballots had been stored in the wrong ballot container
- Review of any additional records or materials that may have explained the imbalance

Common Findings

Overall, all four cities reviewed did an excellent job of performing the core function of absent voter counting boards—counting all AV ballots cast by, and only by, eligible voters who timely delivered ballots. In aggregate, the counting boards processed approximately 317,000 ballots

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[10] In some cases county canvass reports contain errors. County boards of canvassers often have little time to complete reports prior to meeting for certification and sending reports to the Bureau of Elections.

with a net difference of 21 more names than ballots cast.[11] The boards also moved with impressive speed and efficiency, completing the vast majority of counting by Wednesday afternoon and all counting by Thursday morning.

This process was completed during an ongoing pandemic, and the need to preserve social distancing complicated election procedures that are typically done in close quarters. Additionally, many new staff members and election inspectors needed to be trained to work in an AV counting board for the first time because of both the increase in AV ballots and the need to replace workers unavailable because of the pandemic.

Many of the challenges identified in the audit started well before the processing of AV ballots on election day, the process of sending out and receiving AV ballots was complicated by the substantial increase in AV voting. Clerk offices needed to process and track two to three times as many AV ballots as they had in past general elections, increasing the possibility that a voter might be sent the wrong ballot, not be sent a ballot, might return a ballot that was not correctly entered into the Qualified Voter File (QVF) as received, or might submit a ballot this was not timely sorted for processing on election day.

Clerks also reported a substantial increase in AV ballots that were "spoiled" and reissued because a voter requested to change their vote or wished to receive an AV ballot at a clerk's office after having been previously mailed a ballot. This occurred at large scale due in part to widespread concerns about mail delivery. Additionally, many voters requested to have their AV ballot "rejected" and not counted so that they could vote in person at a precinct on Election Day.

In light of these challenges, without sufficient and redundant controls to ensure AV applications and ballots were tracked and sorted daily (or with even greater frequency), counting boards were already set up to be in a difficult position to balance completely on election day. Once counting began, the myriad challenges and opportunities for error facing AV counting board election inspectors left little margin for error. The limited time for county canvasses to complete their work and the difficulty in timely reviewing all records needed to balance precincts limited the ability to correct these issues before certification.

As a result, a large number of absent voter counting boards did not balance either on election night or after certification. Auditors identified several reasons that contributed to absent voter counting boards being able to completely balance on election night or during the canvass.

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[11] Although the audit was focused on counting board procedures and balancing rather than debunking misinformation about the conduct of the counting of ballots on election day, the very close correspondence in records—between to the number of voters on each absent voter list, the number of returned AV envelopes, and the number of ballots tabulated—disproves claims that large numbers of ballots were somehow added to tabulators or improperly included in counts. If that had been the case, the number of ballots tabulated would far exceed the number of names on absent voter lists or the number of AV envelopes each jurisdiction received, which was not the case.

AV ballots physically received, but not scanned into QVF

Auditors identified several instances in which the number of ballots did not match the number of names on the absent voter *list* generated from the Qualified Voter File, but did match the number of absent voter *envelopes* for that counting board. When clerks receive absent voter ballot envelopes, they physically mark the envelope to indicate it was received on time and the signature matched the signature on file.[12]

When AV envelopes are hand marked as received by election day, it indicates that the AV envelopes were timely delivered by voters and received by 8 pm on election day and the ballot should be counted. In these scenarios, clerks had appropriately received, delivered, and counted all AV ballots, but had not accurately established the list of voters by entering all envelopes as received in QVF, thereby adding the name to the voter list. If the clerk staff had failed to enter the AV ballot as received in QVF, the voter's name did not appear on the AV list used on election day (which is printed from QVF) and the counting board would appear to have one more ballot than voters on the list.

This error could occur for two reasons. First, the step of entering the ballot as received in QVF could simply be missed, which may have occurred in the rush to transmit ballot envelopes to counting boards on Election Day. In other cases, clerk staff may have attempted to mark a ballot as received in QVF but failed to do so, for example by exiting the software application without clicking "SAVE".

Ensuring consistent QVF entry was complicated by the fact that many clerks received AV ballots on Election Day at multiple locations—for example, a clerk's office, a satellite office, and a drop box—resulting in multiple personnel being needed to perform intake in QVF on these ballots. Although procedures for physically receiving and hand marking the envelopes were effective at all of these locations, QVF entry was less consistent.

In some cases, these errors were corrected on election day; if an AV envelope that had been timely received but not entered into QVF was identified at the counting board, it could be sent to a QVF terminal to be properly entered. These issues were also sometimes identified and corrected during the canvass, but some were not. Those that were not corrected resulted in an apparent imbalance between the number of ballots and AV voters that was actually attributable to data entry error, when the number of ballots tabulated and ballots received actually did match.

Ballots placed in the wrong containers after tabulation

Auditors identified instances in which tabulated ballots were placed in the ballot container for the wrong counting board following tabulation. This can be more likely to occur at counting boards, because the same high-speed scanners are used to count ballots for multiple different counting boards. The scanners are programmed to count the ballot for the correct precinct, so ballots being

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[12] Signatures are verified by the clerk's office before envelopes are delivered to the counting board. Counting board workers verify that the signature has been reviewed by the clerk, but they do not review the signature to determine if it matches because this has already been done by the clerk's office.

mixed between precincts in batches that are scanned through tabulators does not necessarily cause a tabulation error. However, the ballot being placed in the wrong container after tabulation can complicate efforts to balance or resolve the precinct if the precinct was out of balance.

Container-sorting errors were also more likely to occur because jurisdictions experienced a shortage in ballot containers when trying to order equipment for the November 2020 election. The COVID-19 pandemic and increased demand caused stresses on the supply chain, with the result that demand for ballot containers nationwide could not always be met by ballot container vendors. Auditors did find that workers at AV counting boards were diligent in using only approved ballot containers, and ballot containers were properly sealed. This indicates that attention was duly paid to ensuring ballots were securely stored in *an* approved container with a verifiable seal. Errors occurred in some cases in placing ballots in the *correct* approved container for the counting board.

Combining multiple precincts or counting boards in the same ballot container is permitted as long as the ballots are segregated within the container, but combining multiple precincts or counting boards in a container increases the risk of intermingling of ballots, particularly given the time pressure and the need to ensure ballots are stored in a secured location in an active AV counting board environment.

Issuing incorrect ballots

In some instances, AV voters were issued an AV ballot for the wrong precinct. This can occur because of user error in identifying a voter's correct precinct or counting board. For example, clerk staff may accidentally transpose digits and issue a ballot for precinct 23 when a voter should get a ballot for precinct 32. This can cause a mismatch between the tabulator record and the AV list, because the ballot is counted in a precinct that does not correspond with the voter's proper precinct.

Documenting empty ballot envelopes or envelopes with multiple ballots

Sometimes voters mistakenly mail back AV ballot envelopes while failing to include their ballot in the envelope. In other instances, voters may mail back the wrong ballot—for example, a voter may mistakenly return a ballot for an August primary (which they had never returned) for the November election. In still other cases, an AV envelope may contain two ballots—for example, a married couple might place both ballots in one envelope. It is impossible to determine whether a ballot envelope is empty or contains multiple ballots until the envelope is opened on election day. This means that it falls to a more inexperienced election inspector, rather than a clerk, to ensure proper documentation of the issue.

Sometimes, errors related to missing ballots can be identified and balanced out—for example, two envelopes from one address, one with zero ballots and one with two ballots. In other cases, the error will simply cause a mismatch between the number of names on the AV list and the number of ballots tabulated. If this is not identified and recorded in real time, it will likely be impossible to determine later on that it occurred. Once ballots are removed from envelopes and stubs are removed, a ballot can no longer be traced back to an envelope.

If an election inspector does not record on the remarks on the AV list that an envelope is missing a ballot, it cannot be found at a later time. Therefore, these scenarios likely constitute a significant number of out of balance AV counting boards that cannot caught at canvass or explained either at the canvass or during an audit.

Ballot duplication

AV ballots may need to be duplicated onto other ballots and tabulated for several reasons. Ballots that are sent electronically to military and overseas voters, or voters with disabilities, are printed and returned on ordinary printer paper and cannot be scanned in tabulators. In other cases ballots may need to be duplicated because the ballot has been damaged and cannot be run through the tabulator, or because election inspectors determine that the voter has made a stray mark on a ballot that is causing the tabulator to treat the ballot as "overvoted" (too many selections in one race).

When this occurs, it is critical to document both the original and duplicated ballot, store (but do not tabulate) the original ballot, tabulate the duplicate, and properly record that the duplication of that ballot occurred. Auditors identified instances in which a duplicated ballot was not tabulated, both the original and duplicate ballots were tabulated, or the original ballot was properly excluded from tabulation but improperly included in the ballot container with tabulated ballots. Although the numbers are small overall, these errors can result in improper tabulation of ballots and can interfere with proper balancing of ballots and AV lists.

Auditors also identified instances where original ballots that had been duplicated were not stored in a way that allowed them to be easily retrieved and sorted by precinct. This contributed to balancing challenges by requiring additional time to resolve imbalances associated with ballot duplication; a difficult task on election night or during the limited canvass period.

Up to date AV lists on election day and QVF use

An up-to-date and complete list of AV voters is an essential component of balancing the number of voters and the number of ballots. However, there are inherent challenges in maintaining a list of AV voters that is up-to-date in real time, as the list is constantly changing up to and through the end of Election Day.

The challenge of maintaining an accurate and complete list at all times contributed to difficulties in balancing AV counting boards. AV lists used in counting boards are produced at least the day before election day if not earlier, but voters may continue to return AV ballots up to 8 pm on election day. Voters may even register to vote up to 8 pm on election day and submit an AV ballot at the same time—a new election law that was implemented for the first time in a general election in November 2020.

AV counting boards have processes in place to account for AV ballots that are returned after previously printed AV lists used in counting boards have been generated. This process is necessary to ensure all voters are accounted for, but it carries the inherent risk of balancing errors

because the list is constantly changing, or additional lists are being introduced to the process. Either election inspectors must manually add the names of each voter who is not on the AV list but for whom a ballot has been received, or a supplemental list of AV voters must be generated and aggregated with existing lists. Handling multiple lists can also result in record reconciliation challenges.

In addition to voters being added to AV lists, in some cases it is necessary to *remove* voters from AV lists that had previously been generated. A voter may die after returning their ballot but before election day, causing their AV ballot to be rejected. An AV ballot that already been submitted may be spoiled or rejected because a voter chooses to vote through a different method. Additionally, some voters move and re-register after returning AV ballots, which causes their submitted AV ballots to be rejected. Although the QVF automatically rejects ballots when voters have moved in these situations, if AV lists are not updated or updated AV lists are not printed, then voters may still appear on AV lists even if their ballot is not included for tabulation.

Complicating the issue further, there are different rules depending on whether a voter has moved *within* the jurisdiction or *outside* the jurisdiction. If a voter moves outside the jurisdiction, they must apply for a new AV ballot, whereas voters who move within a jurisdiction are automatically issued a new AV ballot within the jurisdiction. If the voter is not reissued or does not return the reissued ballot, the original ballot submitted by the voter must be duplicated onto a new ballot for the proper precinct. If the jurisdiction instead tabulates the original ballot, it can cause both the old and new precinct to be out of balance.

These challenges can contribute to balancing errors in which there are more names on the AV lists than ballots tabulated (if the ballot is removed, but not the name). Conversely, if the name is removed but the ballot that corresponds to the removed name is not removed from the total, the precinct will be out of balance because there will be more ballots than names on the AV list.

Adjustment to High-Speed Ballot Scanners

Large cities used high-speed ballot scanners to count AV ballots. Overall, the use of high-speed scanners significantly improved the function and efficiency of AV counting boards. High-speed scanners count ballots approximately 10 times faster than regular-speed, precinct scanners, and their ability to process more ballots in less time also means fewer scanners must be used, which facilitates greater social distancing in limited space.

However, the widespread use of high-speed scanning equipment for the first time, at broad scale, in a major election contributed to challenges in retaining ballots in proper containers and in recording voters as having cast ballots in the correct precinct for that voter.

High-speed scanners are capable of scanning multiple styles of ballots and allocating the votes to the correct precinct, even if batches of ballots include mixes of different styles in the same batch. For example, if a batch of 50 ballots intended to be for precinct 1 includes one ballot for precinct 2, the scanner can be programmed so that it will scan all the ballots and allocate the precinct 2 ballot's votes to precinct 2.

This is beneficial to the proper counting of ballots, because it ensures that only ballots for the correct precinct are counted in the batch even if the batch is mixed. However, this feature can make it more difficult to identify ballots that are incorrectly issued and then scanned with the correctly issued ballots. If a voter should have been given a ballot for precinct 1 but got a ballot for precinct 2, the voter's name will appear on the precinct 1 list but her ballot will be recorded in the precinct 2 tabulator record. This error can be difficult to identify after the fact without closely examining every single ballot, since ballots in different precincts may be nearly identical aside from a single down-ballot local race.

High speed scanners also increase the importance of proper storage of ballots after tabulation because they are used to count ballots for multiple precincts or counting boards. When a single ballot scanner is used to count ballots for multiple precincts or counting boards, it is critical to ensure that ballots are always returned the proper container after scanning and that batches of ballots scanned are not intermingled after scanning. In some cases, election workers did not properly separate and store ballots into containers corresponding to each counting board following the scanning of ballots.

Continuous updating of QVF information after election day

During county canvasses, canvassers attempted to balance counting boards by generating lists of AV voters after election day, hoping fill in the gaps that might have been missing from the AV lists or supplemental lists that were generated in real time. However, this approach has limitations because QVF is a real-time database. It continues to be updated, even after election day, if voters' status changes.

For example, if a voter moves or dies after election day, a list of AV voters for a given jurisdiction generated after election day will no longer have that voter on the list, even if the voter was alive and eligible in that jurisdiction as of election day. This limited canvassers' ability to reconcile records after the fact because they could not easily generate a "snapshot" of what the AV list looked like on election day.

Jurisdictions Audited

Sterling Heights, Macomb County

The Bureau of Elections conducted an audit of the Sterling Heights on February 1 and 2, 2021. The Sterling Heights city clerk provided workspace and staff to assist in conducting the audit and delivered all requested equipment. The Macomb County clerk's office also provided staff assistance and participated in the audit.

As the first absent voter counting board audit of this type ever conducted in Michigan, the audit served as an opportunity to gain additional insights into the counting board audit process itself, in addition to reviewing issues specific to Sterling Heights.

In the Sterling Heights absent voter counting board system, each counting board corresponds to an individual polling precinct. Approximately 41,000 Absent voter ballots were cast in Sterling

Heights. Following the county canvass, 19 of 45 AV counting boards were out of balance. During the AV counting board audit, staff were able to identify 13 additional counting boards that were in balance, so that a total of 6 counting boards remained out of balance.[13]

Although 6 AV counting boards remained out of balance at the completion of the audit, some had more names than ballots and some had more ballots than names. The net number of ballots for the entire counting board was 4 more ballots than names, out of approximately 41,000 AV votes cast.

Sterling Heights Absent Voter Counting Boards Out of Balance at Canvass

AVCB #	Audit Balanced/Explained	Over/Under*
10	Y	0
40	Y	0
15	Y	0
24	Y	0
34	Y	0
1	Y	0
2	Y	-1
3	Y	1
33	Y	1
32	Y	-1
42	Y	1
38	Y	0
43	N	2
7	N	3
5	Y	0
8	N	-1
17	N	-1
28	N	-1
14	N	1

*Some absent voter counting board imbalances could be explained but could not be corrected after the fact, such as tabulating a ballot in the wrong precinct. In these cases, the remaining over/under imbalance for the precinct remains with the explained but uncorrected imbalance.

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[13] In Sterling Heights and elsewhere, additional review of audit records identified adjustments from previously reported numbers of balanced precincts and net differences. For the previous totals, see https://www.michigan.gov/sos/0,4670,7-127-1640_9150-553386--,00.html.

Livonia, Wayne County

The Bureau of Elections conducted an audit of the Livonia absent voter counting board on February 3 and 4, 2021. The Livonia City Clerk provided workspace and staff to assist in conducting the audit and delivered all requested equipment. Clerks from neighboring local jurisdictions in Wayne County also participated at the Livonia clerk's invitation. The Wayne County Clerk's office provided requested records and participated in the audit.

In the Livonia absent voter counting board system, each counting board corresponds to an individual polling precinct. Approximately 43,000 absent voter ballots were cast in Livonia. Following the county canvass, 30 of 44 AV counting boards were out of balance. During the AV counting board audit,[14] staff were able to identify 14 additional counting boards that were in balance or explained, so that a total of 10 counting boards remained out of balance.

Although 10 AV counting boards remained out of balance at the completion of the audit, some had more names than ballots and some had more ballots than names. The net number of ballots for the entire counting board was 1 more name than ballots, out of approximately 43,000 AV votes cast.

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[14] The Livonia clerk balanced some of these counting boards prior to the audit, but auditors verified her findings. The clerk's office believed that these records likely would have been identified on election night or during the course of the canvass, but staff absences due to COVID-19 protocols meant less experienced municipal staff and volunteers were involved in the process during the canvass review process.

Livonia Absent Voter Counting Boards Out of Balance at Canvass

AVCB #	Audit Balanced/Explained	Over/Under*
1B	Y	0
2A	Y	0
3A	Y	0
7A	Y	0
12A	Y	0
14A	Y	0
18A	Y	0
19B	Y	1
20A	Y	0
21A	Y	-1
22A	Y	0
24B	Y	0
25A	Y	0
34C	N	-4
35B	Y	0
8B	Y	0
15A	Y	0
35A	N	1
22B	N	2
9A	N	-2
10A	N	-1
19A	Y	0
34A	N	-1
34B	N	3
3B	Y	1
4A	Y	-1
24A	N	4
31B	N	-6
32A	N	3

*Some absent voter counting board imbalances could be explained but could not be corrected after the fact, such as tabulating a ballot in the wrong precinct. In these cases, the remaining over/under imbalance for the precinct remains with the explained but uncorrected imbalance.

Detroit, Wayne County

The Bureau of Elections conducted an audit of the Detroit absent voter counting boards on February 9 through 26.[15] The Detroit City clerk provided workspace and staff to assist in conducting the audit and delivered all requested equipment. The Wayne County clerk's office provided requested records.

In the Detroit absent voter counting board system, there were 134 counting boards, each corresponding to multiple precincts (there are 503 individual in-person voting precincts in the city). In assigning precincts to counting boards, the city considers geography and ballot style, so each counting board does not have a uniform number of ballots or precincts—there can be a substantial disparity in size, with counting boards varying in size from a few hundred ballots to several thousand.

Detroit's absent voter counting board presented distinct issues because of the volume of ballots and structure of the counting board. Combining multiple precincts into counting boards is a more efficient way of processing AV ballots, but it creates additional challenges in balancing counting boards for multiple reasons.

First, the total number of ballots and voters that must be accounted for in each counting board is higher; while an average precinct may have approximately 400 ballots, a combined counting board can have several thousand. Second, if a ballot is placed in the wrong ballot container or sent to the wrong counting board for tabulation, the volume of ballots in each counting board makes the ballot more difficult to retrieve or identify either on Election Day or during the canvass.

To facilitate more efficient processing and recording of AV ballot tabulation, Detroit utilized "electronic AV lists" similar to the electronic pollbooks used at precincts on election day. Like electronic pollbooks, the electronic AV list does not connect to the internet and cannot be updated in real time. However, it did allow for digital entry of remarks—for example, an AV ballot received on election day for a voter who was not on the previously generated list of AV voters—that would otherwise have to be handwritten.

Electronic AV lists proved difficult to use in cases where a large number of AV ballots were received on election day. The electronic list is based on the QVF electronic pollbook software, used for precincts with a few hundred voters. The pollbook software experienced performance issues when trying to process records for the larger number of voters contained in AV counting boards, and Detroit subsequently switched over to supplemental AV lists during the course of the AV counting board, which added a layer of complexity to record retention. Multiple sources of recordkeeping made balancing counting boards and retaining records more difficult.[16]

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[15] The audit was not held continuously through this period as some days were lost due to holidays and weather.
[16] Nonetheless, auditors identified many instances in which remarks had been extensively documented in printed AV lists, including documentation of challenges made and their disposition. This suggests that claims, made by some, that challenges were being ignored were not accurate.

Detroit also encountered an additional risk of assigning incorrect ballots because of the inclusion of multiple precincts within AV counting boards. For example, a voter may be in precinct 25 and AV counting board 10, because AV counting board 10 has multiple precincts (e.g. 24, 25, and 26). Clerk staff attempting to issue a ballot to the voter might mistakenly issue a ballot for *precinct* 10 when the voter should be getting a ballot for precinct 25, which happens to be in *counting board* 10 might mistakenly be issued a ballot for precinct 10. This causes a mismatch between the tabulator record and the AV list, because the ballot is counted in the precinct corresponding to the ballot, not the voter's correct precinct.

Detroit also had a substantial number of locations and which AV ballots could be delivered on election day, including dozens of satellite locations and drop boxes. This may have contributed to the issue, identified above, of ballots being properly physically received but not entered as received in QVF. The counting board received many envelopes that had been marked as received on time by clerk staff but had not yet been entered into QVF. Many of these were fixed on election night or during the canvass, but it was a challenging and time-consuming issue.

Approximately 174,000 Absent voter ballots were cast in Detroit. Following the county canvass, 98 of 134 AV counting boards were out of balance. During the AV counting board audit, staff were able to identify 84 additional counting boards that were in balance or explained, so that a total of 14 counting boards remained out of balance.

Although 14 AV counting boards remained out of balance at the completion of the audit, some had more names than ballots and some had more ballots than names. The net number of ballots for the entire counting board was 21 more names than ballots, out of approximately 174,000 AV votes cast.

Detroit Absent Voter Counting Boards Out of Balance at Canvass

AVCB #	Audit Balanced/Explained	Over/Under*
2	N	-5
4	N	3
5	Y	0
6	N	-4
7	Y	0
8	Y	0
10	N	-2
11	Y	-1
12	Y	-13
13	Y	0
14	Y	0
15	Y	0
16	Y	0
17	Y	0
18	Y	0
19	Y	0
20	N	-1
21	Y	0
22	Y	1
23	Y	0
24	N	5
25	N	-4
26	Y	0
27	Y	0
28	Y	0
30	N	-2
31	Y	0
32	Y	0
33	Y	0
35	Y	0
36	Y	0
37	N	1
38	N	-1
39	Y	0
41	Y	0
43	Y	0
44	Y	0
45	N	4
46	Y	0

AVCB #	Audit Balanced/Explained	Over/Under*
47	Y	0
48	Y	1
49	Y	-1
50	Y	-2
51	Y	0
52	Y	7
53	Y	0
55	Y	-7
56	Y	0
57	Y	0
59	N	1
60	Y	0
61	Y	0
62	Y	0
63	Y	0
64	Y	0
65	Y	0
66	Y	0
67	Y	0
68	Y	0
41	Y	0
72	Y	0
73	Y	0
74	Y	0
77	Y	0
80	Y	0
81	Y	0
82	Y	0
83	Y	0
85	Y	0
86	Y	0
87	Y	0
88	Y	-26
89	Y	26
90	Y	0
94	Y	0
95	Y	0
96	N	-2
97	Y	0
98	Y	0

AVCB #	Audit Balanced/Explained	Over/Under*
100	Y	0
101	Y	0
107	Y	0
108	Y	0
109	N	1
110	Y	0
112	Y	0
114	Y	-1
117	Y	0
119	Y	0
122	Y	0
123	Y	0
124	Y	1
128	Y	0
132	Y	0
133	Y	0

*Some absent voter counting board imbalances could be explained but could not be corrected after the fact, such as tabulating a ballot in the wrong precinct. In these cases, the remaining over/under imbalance for the precinct remains with the explained but uncorrected imbalance.

Grand Rapids, Kent County

The Bureau of Elections conducted an audit of the Grand Rapids AV counting board on February 10 and 11, 2021. The Grand Rapids city clerk provided work space and staff to assist in conducting the audit, and delivered all requested equipment. The Kent County clerk's office also provided staff assistance and participated in the audit, as did the Ottawa County clerk's office with Grand Rapids and Kent County's permission.

In the Grand Rapids absent voter counting board system, each counting board corresponds to an individual polling precinct. A total of 59,000 absent voter ballots were cast in Grand Rapids. Following the county canvass, 29 of 77 AV counting boards were out of balance. During the AV counting board audit, staff were able to identify 36 additional counting boards that were in balance, so that a total of 12 counting boards remained out of balance.

Although 12 AV counting boards remained out of balance at the completion of the audit, some had more names than ballots and some had more ballots than names. Thus, the net number of ballots for the entire counting board was 3 more names than ballots, out of approximately 59,000 absentee votes cast.

Grand Rapids Absent Voter Counting Board Balanced/Explained

AVCB #	Audit Balanced/Explained	Over/Under*
4	N	2
5	Y	
9	N	-1
10	Y	
12	N	1
14	N	-2
18	Y	
25	Y	
26	N	-1
27	Y	
32	Y	
37	Y	
40	Y	
41	N	-2
44	Y	
47	N	-1
48	Y	
49	N	2
50	N	-1
53	Y	
54	Y	
55	Y	
60	N	2
63	Y	
64	N	-1
70	Y	
71	N	-1
72	Y	
77	Y	

*Some absent voter counting board imbalances could be explained but could not be corrected after the fact, such as tabulating a ballot in the wrong precinct. In these cases, the remaining over/under imbalance for the precinct remains with the explained but uncorrected imbalance.

Recommendations for Future Elections

Based on the findings above, the Bureau of Elections recommends a number of procedural changes, training points of emphasis, and legislative changes to improve the efficiency and accuracy of AV processing and increase the likelihood counting boards will be balanced or recountable.

Procedures

City and township clerks operating absent voter counting boards should implement several procedures before, during, and after the counting of absent voter ballots. Clerks should have clearer processes to track and balance daily the number of AV applications, ballots sent, and ballots received, with corresponding tracking of spoiled and rejected ballots. Applications and ballots should also be stored physically in way that corresponds to the tracking of each category. Sorting records and materials on a daily basis leading up to election day will set up the counting board to be in a better position to identify and process ballots appropriately. Ballot controls are particularly important; returned ballots should be balanced and sorted to the appropriate precinct or counting board on a daily basis.

Clerk's offices should also establish a uniform method for documenting and retaining ballots that are deemed invalid, for any reason, during processing. It is critical that these ballots be documented and segregated from other ballots; intermingling them with other records makes it much more likely that counting boards will be out of balance without a readily apparent explanation.

Clerks should have more clear, obvious, and regularly used labels and indicators to demonstrate which precinct and counting board ballots are in each container; particularly when multiple precincts and counting board ballots are stored in a container. This will assist election inspectors in identifying the correct container on election day and make it easier for county canvassers to identify the ballots during the canvass.

Clerks should dedicate a sufficient number of experienced staff and election inspectors to handle all aspects of the ballot duplication process. In addition to ensuring that the original and duplicate are properly stored and remarked in the AV list or pollbook, this will also reduce errors in the actual duplication of ballots.

Clerks should take action, as soon as possible after election day, to organize records and prepare to assist county board of canvassers in efforts to balance counting boards and precincts—particularly if a city or township knows it has out of balance precincts that will need to be reconciled. This can be a difficult task for city or township staff who are exhausted in the days immediately following election day; one approach may be to have dedicated staff to organize records after election day. An initial step would be ensuring that all staff who will be handline records on or after election day have revisited receiving board instructions to assist in catching errors sooner.

County boards of canvassers should familiarize themselves with the findings in this audit report and speak with city and township clerks in their jurisdiction to understand the specific procedures those cities and townships use in running their boards. To the extent possible, canvassers should avoid using formats for tracking and receiving records during the canvass that do not correspond to the systems used on election day. As early as possible in the canvass, it is critical to identify the records that will be needed and why, so that the city and county officials can work together to identify all records quickly and in the right format.

Training

Building on prior training surrounding absent voter counting boards, the Bureau will emphasize ballot duplication in training efforts in the coming years. Ballot duplication was a major source of balancing errors and is challenging both in the actual duplication process and the proper retention of all records. Bureau training will also emphasize proper methods of duplicating ballots in addition to retention of original ballots, tabulation of duplicate ballots, and retention of military and overseas ballot materials.

Training will also emphasize the critical importance of identifying and documenting any AV envelopes that are missing ballots or have multiple ballots in real time. Once the opportunity to document these envelopes is lost, it is likely lost forever, and the counting board likely will not be able to be balanced and explained. Election inspectors should understand that they are the only line of defense on this process and it must be top of mind.

Qualified Voter File User Improvements

Based on user experiences reported in the audit, the Bureau will prioritize several improvements to QVF to help clerks more easily identify critical application or ballot records or status changes for absentee voters.

AV lists can be better standardized using report parameters QVF. Currently there are several different formats in which clerks can download and print lists of AV voters; these lists can be sorted by ballot number, name, accepted or rejected status, or other criteria. The Bureau plans to retain these preferences but emphasize the importance of uniform list format printing within jurisdictions and counties. The Bureau will evaluate report settings and reminders to help clerks download lists consistently. For clerks who choose to use an electronic AV list, the Bureau will emphasize improvements in the functionality and performance of the application.

In light of reported instances of clerk staff not properly entering AV ballot envelopes as received in QVF, the Bureau will evaluate the ballot scanning application with an eye toward user experience. The Bureau will evaluate options for warnings, hard-stops, or pop up messages that may prevent a user from inadvertently leaving the application without recording the ballot as received.

Finally, the Bureau will evaluate the messages and reports clerks see when voters with a pending AV application or ballot status move within or across jurisdictions. Improved QVF notifications

and reports may make it easier for clerks to track these moves in real time. In turn, this would reduce the number of election day issues associated with AV voters who move.

Legislative Recommendations

It is likely that the majority of Michigan voters will cast absentee ballots in major elections for the foreseeable future. Although 2020 was a unique election year because of the pandemic, the trend seen in other states is that most voters who start voting by mail continue to do so most of the time. Michigan should follow Florida, Ohio, and several other states' lead and allow clerks to begin tabulating AV ballots prior to election day. In addition to allowing election night results to be reported much earlier, this would also reduce errors in processing AV ballots because clerks could assign fewer, more experienced staff to process ballots. Additionally, ballot processing could proceed on a more orderly, less rushed timetable allowing more safeguards and internal review.

County canvassers need more time to complete canvasses. Currently canvassers have less than two weeks to review and attempt to balance all out-of-balance precincts in the county, in addition to the other work needed for certification. Counties have the same number of canvassers and number of days regardless of the population of the county or the number of local jurisdictions, and county clerks typically have limited election staffs. Particularly in large counties, canvassers need at least another week to complete the canvass. Many of the counting boards the Bureau was able to balance or explain would have been addressed by county boards of canvassers if they had been given more time.

Finally, Michigan's recountability standards are antiquated and should be reevaluated. Currently, if a counting board is out of balance and cannot be explained, precincts and counting boards often cannot be recounted. This makes little sense, particularly if a hand recount would make a difference in the outcome larger than the margin by which the precinct is out of balance. While other requirements for recountability (such as a sealed ballot containers) make good sense, the hyper-strict requirements that counting boards or precincts be perfectly balanced for a recount reduces, rather than increases, the ability to utilize post-election remedies to address election day errors.

III. Risk-Limiting Audits

Michigan first began implementing risk-limiting audits (RLAs) in 2018, starting with pilots of local elections with relatively small turnout. RLAs were first developed in Colorado a decade ago and have come to be regarded as the gold standard of post-election audits. During an RLA, a subset of paper ballots are reviewed to determine if there are disparities between the marking on the paper ballots and the way votes were tabulated using voting tabulators.

Michigan, like most states, uses paper ballots. Voters hand-mark a paper ballot using a pen (or ballot-marking device), and the ballot is counted by tabulators that scan the paper ballot and electronically record the results. Tabulators are tested extensively before they are certified by the federal Election Assistance Commission, as well as the Michigan Board of State Canvassers, for

use in Michigan. Prior to each election clerks also test voting equipment on multiple occasions, including during public logic and accuracy testing.

If there is any reason to think tabulators did not count ballot accurately, the paper ballot allows this to be quickly determined. Losing candidates have the right to request a hand recount, although no statewide candidates chose to do so in 2020. However, counting ballots by hand is not practical at scale; to review every statewide race for accuracy, more than 5.5 million ballots would have to be counted by hand more than a dozen times (for each statewide race).

RLAs are a valuable tool because of their ability to efficiently review the results of an election in which a large number of ballots were cast *without* conducting a full hand recount of the election. Instead, RLAs review a random sample of ballots drawn statewide. RLAs review enough ballots to determine there is a sufficiently minimal risk (the risk limit) that completing a full hand recount of the entire election would not lead to a different result than the result reached in the audit. The more ballots randomly reviewed, the lower the risk limit is and the higher the confidence is in the outcome of the election.

Even prior to the development of RLAs in Michigan, auditors conducted hand counts of paper ballots as part of audits. As described above, procedural audits count all *ballots* in a subset of randomly selected *precincts.* Conversely, RLAs using the polling method *randomly select* ballots but include *all* precincts in the sample from which ballots can randomly be drawn (although ballots will not necessarily be drawn from every precinct in the sample, every precinct is included in the ballot manifest from which ballots are selected). In this way, the ballot review process in procedural and risk-limiting audits complement each other by broadening the scope and specificity of paper ballot review processes.

Audit Type	Procedural	Risk-Limiting (Polling)
Ballots Counted	All	Randomly Selected
Jurisdictions	Randomly Selected	All

In addition to their value in efficiently confirming election results, statewide RLAs provide an additional transparency benefit by ensuring that a large *percentage* of election jurisdictions participate in audits. While procedural audits review a small percentage of local jurisdictions in great detail, RLAs review a large percentage of local jurisdictions in more limited detail.

As has been in the case in other states,[17] Michigan's RLA process continues to evolve. RLAs were implemented statewide in 2020 during the two presidential dates, the March 10 primary and the November 3 general elections. The Bureau of Elections, in cooperation with local and county clerks, developed pilots on increasing scale beginning in 2018 until the first statewide pilot was conducted in March 2020.[18] The Bureau further developed auditing procedures with the advice

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[17] Colorado's RLA process took approximately a decade to develop.
[18] A fuller description of the pilots leading up to March 2020 and the March pilot is available here: https://www.michigan.gov/documents/sos/Michigan_RLA_Report_693501_7.pdf.

of a clerk advisory group and the Election Security Advisory Commission.[19] In both March and November, the statewide RLA process used a ballot polling model to randomly select ballots statewide.[20]

November 2020 Election RLA Process

Random selection of ballots involved a cooperative effort among state, county, and local officials. First, county clerks worked with local clerks to create a "ballot manifest," a list of all ballot containers in the state and how many ballots were in each container after election day. This step is necessary to establish the universe of ballots from which ballots will randomly be drawn. Each county clerk submitted a manifest of all ballot containers in its county.[21] The resulting statewide ballot manifest included 6,262 ballot containers for a total of 5,579,317 ballots cast.[22]

Ballot selection was made beginning on January 11 using the Arlo software program developed by VotingWorks.[23] To determine which ballots would be selected, the Bureau of Elections used a random seed generator. The Bureau first rolled 20 different 10-sided dice to generate a random 20-digit number. The dice roll was livestreamed and included participation by a Republican county clerk and a Democratic township clerk. The 20-digit number was then used as a seed number to randomly generate a list of ballots to be drawn from the universe of ballots in the ballot manifest.

Using a risk-limit target of 10^{24} as the baseline (as was used in March), 18,162 ballots were randomly selected for review in more than 1,300 of Michigan's 1,520 local election jurisdictions. Clerks were then given two weeks to review selected ballots and report the results. Because of the ongoing pandemic, clerks were given the option of either opening and reviewing ballots at a central, county-run audit location, or at individual local clerk offices. To review the selected ballot, clerks were given a precinct number and a ballot or ballots to review. For example, if a Township clerk was instructed to review precinct 3, ballot 255, the clerk would open the ballot container for precinct 3, count through the ballots until the 255th ballot in the stack was retrieved, and record the contents of the ballot.

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[19] The Election Security Advisory Commission's report and recommendations are available here: https://www.michigan.gov/documents/sos/ESAC_Report_Recommendations_706522_7.pdf.

[20] Ballot polling involves comparing a random sample of individual ballots selected statewide with the official results statewide. In previous pilots, BOE and local clerks practiced ballot comparison audits, in which ballots are compared to how individual tabulators tabulated the ballot. Because in Michigan tabulators do not currently store a "cast vote record" for individual ballots, some pilots utilized a batch comparison method in which a large number of ballots from individual tabulators are compared to how the tabulator counted that group of pilots. This method has not yet been attempted statewide in Michigan.

[21] In some cases the state worked directly with local jurisdictions to establish the ballot manifest.

[22] The total number of ballots cast exceeds the number of votes for president because some voters did not cast a vote for any presidential candidate. Ballots without votes for president were included in the random selection.

[23] An explanation of the Arlo Software and RLAs is available here: https://voting.works/risk-limiting-audits/.

[24] For an explanation of risk limits and how they are used in audits, see *Knowing It's Right, Part One* (Morell), available at https://democracyfund.org/wp-content/uploads/2020/06/2019_DF_KnowingItsRight_Part1.pdf.

Local clerks recorded ballot contents using a tally sheet. Clerks could indicate if the ballot included a vote for Biden, Trump, another candidate, or no candidate; alternatively, clerks could indicate that the ballot could not be retrieved. Clerks then either entered the ballot contents on the Arlo software or submitted their tally sheet to a county clerk or the Bureau of Elections, who would enter the tally sheet into the Arlo software. Ballot retrieval began on XXX date. Clerks were instructed to retrieve and report ballots by January 22; clerks who needed time extensions (for example, if a clerk was out of town) were given additional time.

More than 99 percent of ballots were retrieved. [25] Out of 18,162 ballots selected for review, 18,804 were either retrieved or randomly selected for review multiple times.[26] The following 21 local jurisdictions failed to retrieve ballots after receiving multiple reminders and offers of assistance:

Township	County
Maple Ridge	Alpena
Blue Lake	Kalkaska
Boardman	Kalkaska
Clearwater	Kalkaska
Coldsprings	Kalkaska
Excelsior	Kalkaska
Garfield	Kalkaska
Kalkaska	Kalkaska
Yates	Lake
Ellsworth	Lake
Larkin	Midland
Greenwood	Oscoda
Bridgehampton	Sanilac
Elmer	Sanilac
Flynn	Sanilac
Moore	Sanilac
Watertown	Sanilac
Berlin	St Clair
Grant	St Clair
Kenockee	St Clair
Lynn	St Clair

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[25] The full results are available here: http://michigan.gov/documents/sos/audit-report-November-3-2020-General-Election-2021-04-21T11_51+00_00_722796_7.csv

[26] The random selection ballot selection process involved ballots being selected one-by-one, meaning that some ballots could be selected multiple times in the random sample. The total number of distinct ballots reviewed was 18,051 ballots out of 18,129 unique ballots selected for review.

Despite the overwhelming participation of local clerks statewide, nonparticipation in the audit by these jurisdictions interfered with the ability to calculate the risk limit; therefore, the risk limit was not calculated and the RLA is considered an exercise.[27]

Although the data collected could not be used to calculate a risk limit, it nevertheless provides strong evidence that the result of the presidential election as calculated by tabulators was correct. In the sample of ballots reviewed, President Biden received 50 percent of ballots cast while former President Trump received votes in 48 percent of ballots cast, closely corresponding to their percentages of votes received in the official results calculated by voting tabulators.[28]

On a percentage point basis, the ballots reviewed in the sample were 49.7/48.0 percent in favor of Biden, compared with 50.3/47.5 percent in the tabulated total. The closer margin on a percentage point basis corresponds to the fact that the random sample included a relatively high percentage of ballots from counties that voted in favor of Trump (in other words, the random sample pulled more ballots from Trump-leaning counties, as opposed to Biden-leaning counties, than the median random sample would). On a county-by-county basis, the margins in the ballots retrieved corresponded extremely closely with the tabulated totals, especially in the largest counties which had the highest number of ballots retrieved.

County	Ballots Sampled	Official Biden	Sample Biden	Official Trump	Sample Trump
Wayne	2,789	68.0	67.8	30.1	30.7
Oakland	2,484	56.0	56.6	42.0	41.3
Macomb	1,601	45.1	44.1	53.1	53.7
Kent	1,230	51.7	51.5	45.6	46.3

Smaller counties had larger differences in percentages between sampled and tabulated results, as would be expected with a small number of ballots sampled. For example, Keweenaw County only had 5 ballots retrieved, making it impossible for percentages to be particularly close to the county's 55/43 official margin in favor of Trump (all 5 ballots retrieved happened to be for Biden). In the 20 counties with the highest number of 2020 voters, none saw substantial differences in the margins between the sampled and official ballots given the number of ballots retrieved. Ballot retrieval in these counties ranged from 212 to 721 ballots, with no county having a percentage difference of greater than 5 percent and most with 2 percent or less.

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[27] Under the RLA process, is necessary to have a complete sample to accurately calculate the risk limit. Non-retrieved ballots can be treated as a vote for the "losing" candidate, but this distorts the sample. Depending on the result of the initial review of ballots, it may be necessary to retrieve additional ballots to get a larger sample as necessary to reach the risk limit. However, without 100 percent participation, this number could not be accurately calculated; treating missing ballots as votes for the "losing" candidate would artificially inflate the number of additional ballots needed for retrieval and the Bureau decided not to pursue this approach.

[28] Biden received 2,804,040 votes (50.3 percent) and Trump received 2,649,852 votes (47.5 percent), respectively, out of 5,579,317 total ballots cast. When calculated as percentage of ballots cast with a valid voter for president (5,539,302), Biden received 50.6 percent and Trump 47.8 percent, respectively.

Antrim County Full Ballot Tally

The Bureau of Elections also worked with the Antrim County clerk and local clerks to conduct a full hand tally of all ballots cast for president in the County. The Bureau decided to count all ballots in Antrim County to help safeguard public confidence following false information that was circulating regarding presidential results in the county. Because of human errors in programming election equipment, Antrim County initially *reported* erroneous unofficial results with incorrect results for the presidential race, even though ballot tabulators had *counted* the votes for President accurately. Although this could be explained, and was explained, at a technical level,[29] the Bureau took the additional step of demonstrating that ballots had been counted properly by conducting a full hand count.

The full hand count was structured as a risk-limiting audit with a risk limit of zero.[30] Bureau of Elections staff travelled to Antrim County to conduct the audit. The county clerk arranged for city and township clerks to deliver their ballot containers and reserved space at the Kearney Township Hall. The event was open to the public and livestreamed.

The hand count audit used some procedures similar to those used in hand recounts. The process, however, was an audit rather than a recount because it did not impact official results. Teams of two individuals for each precinct counted the number of votes cast for president in each of the precincts in Antrim County. The hand-counted numbers showed a total of 9,759 votes for Donald Trump and 5,959 for Joe Biden—a net change of 12 votes from the tabulated results.[31] Slight differences between hand counts and tabulator counts are not unusual and can be explained by different interpretations of stray marks on ballots by tabulators and individuals; closer review of write-in votes; and human error in hand counting.[32]

RLA Process and Future Elections

The RLA process included overwhelming participation and provided strong evidence that the outcome of the presidential election was correct. Given the extremely high percentage of ballots that were retrieved and the high number of jurisdictions that participated, the Bureau of Elections will consider future adjustments to audit procedures to allow the risk limit to be more efficiently calculated when there is a small amount of nonparticipation. Overall, the RLA exercise successfully provided visible affirmation, based on a large random sample of ballots, that the outcome of the Presidential election was correct. The willingness of the vast majority of

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[29] The initial source of the unofficial reporting error was quickly identified. It was more fully explained in a subsequent expert review by University of Michigan Computer Science & engineering Professor J. Alex Halderman: https://www.michigan.gov/documents/sos/Antrim_720623_7.pdf.

[30] At statewide scale, setting the risk limit at zero is often impractical and undermines the efficiency value of an RLA because of the large number of ballots that have to be counted. To review one county with a relatively smaller number of voters, however, this could be accomplished in one day.

[31] The full results are available here: https://www.michigan.gov/documents/sos/AntrimCounty_Presidential_Race_Full_Hand_Count_November2020_71 1027_7.pdf.

[32] One precinct (Star Township, precinct 1) accounted for a net gain of 5 votes for Biden and 6 votes for Trump, larger differences than were seen in other precincts. This may have been a result of human error in counting ballots.

jurisdictions to open ballot containers and review ballots demonstrates that clerks are transparent and open to having their elections reviewed. Between the RLA exercise and other audits, more than 1,300 of Michigan's 1,520 local clerks participated in at least one type of post-election audit.

The Bureau will explore additional methods of both ensuring 100 percent compliance or adjusting auditing methodologies to account for the small minority of clerks that did not participate. In the absence of a pandemic and the need for social distancing, it may be easier to enforce 100 percent participation at a county-by-county level. The complete hand count of all ballots in Antrim County provides additional confidence in the presidential election, even if the process is not easily replicable statewide; for Antrim County alone, a full hand count took a full day.[33]

Additional options that will be explored in future RLAs include:

- Sampling a larger number of ballots in initial rounds of ballot polling audits.
- Reevaluating ballot comparison or batch comparison methods that are more likely to result in a complete sample even if a small number of jurisdictions do not participate.
- Incorporating risk-limiting audits into other audit procedures or county canvass processes (the latter would require a legislative change), to allow ballots to be retrieved more efficiently when containers are already open and unsealed.
- Additional consequences for nonparticipation.

Ultimately, the RLA exercise provided strong evidence that the outcome of the presidential election was correct and that claims that tabulators did count ballots properly were without basis. If any widespread issues involving ballot tabulators existed (despite the extensive pre-election testing tabulators undergo), a random sample of 18,000 ballots would likely have differed significantly from the tabulated total, and it did not.

Conclusion

Election officials successfully conducted the November 2020 election, a remarkable achievement given the many challenges officials across the state faced in conducting the election. After the most extensive audits in state history, no evidence of intentional misconduct of fraud by election officials was discovered. Election officials should improve training and procedures to ensure better documentation of ballots received and tabulated, particularly in absent voter counting boards to reduce the number of precincts out of balance. Improvements in training, as well as use of the Qualified Voter File applications, requires a joint effort with local, county, and state officials, and will be a point of emphasis in training and application design for the Bureau of Elections in the current election cycle.

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[33] Conducting a full hand recount or full hand count audit statewide would require thousands of staff members. The fee for requesting a statewide recount (more than 5,000 precincts) of the presidential or U.S. Senate elections would have exceeded $600,000. MCL 168.827(2).

Several statutory requirements hinder the ability of election officials to conduct elections efficiently and in a way that allows full documentation and review of election conduct, particularly with regard to absent voter ballots. Strict "recountability" requirements hinder the ability of out-of-balance precincts to be reviewed during recounts, and should be reconsidered. Elections would be run more efficiently and smoothly, with more opportunity to review, if clerks were given more time to tabulate absent voter ballots and boards of county canvassers were given more time to complete the canvass.

Appendix: List of Jurisdictions and Precincts Audited (November 2020 Election)

COUNTY	JURISDICTION	PRECINCT	STATUS
ALCONA COUNTY	HAWES TOWNSHIP	1	Complete
ALGER COUNTY	MUNISING CITY	1	Complete
ALLEGAN COUNTY	LEIGHTON TOWNSHIP	2	Complete
ALLEGAN COUNTY	SALEM TOWNSHIP	2	Complete
ALLEGAN COUNTY	OTSEGO TOWNSHIP	1	Complete
ALPENA COUNTY	LONG RAPIDS TOWNSHIP	1	Complete
ANTRIM COUNTY	CUSTER TOWNSHIP	1	Complete
ANTRIM COUNTY	ALL JURISDICTIONS	All (Ballot Audit)	Complete
ARENAC COUNTY	ARENAC TOWNSHIP	1	Complete
BARAGA COUNTY	LANSE TOWNSHIP	1	Complete
BARRY COUNTY	CASTLETON TOWNSHIP	1	Complete
BARRY COUNTY	HASTINGS CITY	3	Complete
BARRY COUNTY	WOODLAND TOWNSHIP	1	Complete
BAY COUNTY	BAY CITY CITY	4-1	Complete
BAY COUNTY	MONITOR TOWNSHIP	6	Complete
BAY COUNTY	PINCONNING TOWNSHIP	1	Complete
BENZIE COUNTY	JOYFIELD TOWNSHIP	1	Complete
BERRIEN COUNTY	BENTON CHARTER TOWNSHIP	1	Complete
BERRIEN COUNTY	BRIDGMAN CITY	1	Complete
BERRIEN COUNTY	BUCHANAN CITY	1	Complete
BERRIEN COUNTY	PIPESTONE TOWNSHIP	1	Complete
BERRIEN COUNTY	ST JOSEPH CHARTER TOWNSHIP	4	Complete
BRANCH COUNTY	BRONSON TOWNSHIP	1	Complete
BRANCH COUNTY	CALIFORNIA TOWNSHIP	1	Complete
BRANCH COUNTY	COLDWATER CITY	4-1	Complete
CALHOUN COUNTY	BATTLE CREEK CITY	4-8	Complete
CALHOUN COUNTY	CLARENDON TOWNSHIP	1	Complete
CALHOUN COUNTY	BURLINGTON TOWNSHIP	1	Complete
CALHOUN COUNTY	EMMETT TOWNSHIP	3	Complete
CALHOUN COUNTY	MARSHALL CITY	1	Complete
CASS COUNTY	CALVIN TOWNSHIP	1	Complete
CASS COUNTY	DOWAGIAC CITY	2	Complete
CASS COUNTY	LA GRANGE TOWNSHIP	1	Complete
CHARLEVOIX COUNTY	EVANGELINE TOWNSHIP	5	Complete
CHEBOYGAN COUNTY	BEAUGRAND TOWNSHIP	1	Complete

CHEBOYGAN COUNTY	NUNDA TOWNSHIP	1	Complete
CHEBOYGAN COUNTY	WILMOT TOWNSHIP	1	Complete
CHIPPEWA COUNTY	RUDYARD TOWNSHIP	1	Complete
CLARE COUNTY	WINTERFIELD TOWNSHIP	1	Complete
CLINTON COUNTY	EAGLE TOWNSHIP	1	Complete
CLINTON COUNTY	GREENBUSH TOWNSHIP	1	Complete
CLINTON COUNTY	ST JOHNS CITY	2	Complete
CRAWFORD COUNTY	GRAYLING CITY	1	Complete
DELTA COUNTY	BRAMPTON TOWNSHIP	1	Complete
DELTA COUNTY	ESCANABA TOWNSHIP	1	Complete
DELTA COUNTY	FORD RIVER TOWNSHIP	1	Complete
DICKINSON COUNTY	BREITUNG TOWNSHIP	1	Complete
EATON COUNTY	CHARLOTTE CITY	1-1	Complete
EATON COUNTY	CHESTER TOWNSHIP	1	Complete
EATON COUNTY	DELTA CHARTER TOWNSHIP	6	Complete
EATON COUNTY	GRAND LEDGE CITY	3	Complete
EATON COUNTY	ROXAND TOWNSHIP	1	Complete
EMMET COUNTY	HARBOR SPRINGS CITY	1	Complete
EMMET COUNTY	PETOSKEY CITY	1-1	Complete
EMMET COUNTY	WEST TRAVERSE TOWNSHIP	1	Complete
GENESEE COUNTY	CLAYTON TOWNSHIP	2	Complete
GENESEE COUNTY	CLIO CITY	1	Complete
GENESEE COUNTY	DAVISON TOWNSHIP	1	Complete
GENESEE COUNTY	FENTON CITY	5	Complete
GENESEE COUNTY	FLINT CITY	1-3 (State Precinct Audit)	Complete
GENESEE COUNTY	FLINT TOWNSHIP	5	Complete
GENESEE COUNTY	GAINES TOWNSHIP	1	Complete
GENESEE COUNTY	GENESEE TOWNSHIP	6	Complete
GENESEE COUNTY	GRAND BLANC TOWNSHIP	6	Complete
GENESEE COUNTY	MOUNT MORRIS TOWNSHIP	9	Complete
GENESEE COUNTY	THETFORD TOWNSHIP	1 (State Precinct Audit)	Complete
GENESEE COUNTY	VIENNA TOWNSHIP	4	Complete
GLADWIN COUNTY	GRIM TOWNSHIP	1	Complete
GOGEBIC COUNTY	BESSEMER TOWNSHIP	1	Complete
GRAND TRAVERSE COUNTY	BLAIR TOWNSHIP	3	Complete
GRAND TRAVERSE COUNTY	GARFIELD TOWNSHIP	4	Complete
GRAND TRAVERSE COUNTY	GREEN LAKE TOWNSHIP	1	Complete
GRATIOT COUNTY	ARCADA TOWNSHIP	1	Complete
GRATIOT COUNTY	HAMILTON TOWNSHIP	1	Complete

GRATIOT COUNTY	NORTH STAR TOWNSHIP	1	Complete
HILLSDALE COUNTY	AMBOY TOWNSHIP	1	Complete
HILLSDALE COUNTY	LITCHFIELD TOWNSHIP	1	Complete
HILLSDALE COUNTY	READING CITY	1	Complete
HOUGHTON COUNTY	CALUMET TOWNSHIP	9	Complete
HOUGHTON COUNTY	HANCOCK CITY	1	Complete
HOUGHTON COUNTY	HANCOCK TOWNSHIP	1	Complete
HURON COUNTY	HURON TOWNSHIP	1	Complete
HURON COUNTY	SHERIDAN TOWNSHIP	1	Complete
HURON COUNTY	SHERMAN TOWNSHIP	1	Complete
INGHAM COUNTY	ALAIEDON TOWNSHIP	1	Complete
INGHAM COUNTY	AURELIUS TOWNSHIP	1	Complete
INGHAM COUNTY	DELHI CHARTER TOWNSHIP	3	Complete
INGHAM COUNTY	EAST LANSING CITY	12	Complete
INGHAM COUNTY	LANSING CITY	4-33	Complete
INGHAM COUNTY	LANSING TOWNSHIP	2	Complete
INGHAM COUNTY	LESLIE CITY	1	Complete
INGHAM COUNTY	MERIDIAN TOWNSHIP	6	Complete
INGHAM COUNTY	VEVAY TOWNSHIP	1	Complete
INGHAM COUNTY	WILLIAMSTON CITY	1	Complete
IONIA COUNTY	EASTON TOWNSHIP	1	Complete
IONIA COUNTY	KEENE TOWNSHIP	1	Complete
IONIA COUNTY	ODESSA TOWNSHIP	1	Complete
IOSCO COUNTY	TAWAS TOWNSHIP	1	Complete
IRON COUNTY	CRYSTAL FALLS CITY	1	Complete
ISABELLA COUNTY	BROOMFIELD TOWNSHIP	1	Complete
ISABELLA COUNTY	ROLLAND TOWNSHIP	1	Complete
ISABELLA COUNTY	UNION TOWNSHIP	1	Complete
JACKSON COUNTY	LEONI TOWNSHIP	1	Complete
JACKSON COUNTY	RIVES TOWNSHIP	2	Complete
JACKSON COUNTY	SANDSTONE TOWNSHIP	3	Complete
JACKSON COUNTY	SPRING ARBOR TOWNSHIP	1	Complete
JACKSON COUNTY	SUMMIT TOWNSHIP	8	Complete
KALAMAZOO COUNTY	BRADY TOWNSHIP	2	Complete
KALAMAZOO COUNTY	CHARLESTON TOWNSHIP	1	Complete
KALAMAZOO COUNTY	COOPER TOWNSHIP	4	Complete
KALAMAZOO COUNTY	GALESBURG CITY	1	Complete
KALAMAZOO COUNTY	KALAMAZOO CITY	14	Complete
KALAMAZOO COUNTY	OSHTEMO TOWNSHIP	8	Complete
KALAMAZOO COUNTY	PAVILION TOWNSHIP	3	Complete

KALAMAZOO COUNTY	PORTAGE CITY	4	Complete
KALAMAZOO COUNTY	RICHLAND TOWNSHIP	3	Complete
KALAMAZOO COUNTY	TEXAS TOWNSHIP	4	Complete
KALKASKA COUNTY	OLIVER TOWNSHIP	1	Complete
KENT COUNTY	BYRON TOWNSHIP	1	Complete
KENT COUNTY	CALEDONIA TOWNSHIP	6	Complete
KENT COUNTY	CANNON TOWNSHIP	6	Complete
KENT COUNTY	CASCADE TOWNSHIP	10	Complete
KENT COUNTY	EAST GRAND RAPIDS CITY	3-5	Complete
KENT COUNTY	GRAND RAPIDS CHARTER TOWNSHIP	1	Complete
KENT COUNTY	GRAND RAPIDS CITY	AVCB	Complete
KENT COUNTY	GRANDVILLE CITY	5	Complete
KENT COUNTY	OAKFIELD TOWNSHIP	3	Complete
KENT COUNTY	PLAINFIELD TOWNSHIP	4	Complete
KENT COUNTY	WYOMING CITY	3-26	Complete
KEWEENAW COUNTY	HOUGHTON TOWNSHIP	1	Complete
LAKE COUNTY	PEACOCK TOWNSHIP	10	Complete
LAKE COUNTY	YATES TOWNSHIP	19 (State Precinct Audit)	Complete
LAPEER COUNTY	LAPEER CITY	1-2	Complete
LAPEER COUNTY	MAYFIELD TOWNSHIP	2	Complete
LAPEER COUNTY	NORTH BRANCH TOWNSHIP	1	Complete
LEELANAU COUNTY	SUTTONS BAY TOWNSHIP	1	Complete
LENAWEE COUNTY	ADRIAN CITY	3	Complete
LENAWEE COUNTY	BLISSFIELD TOWNSHIP	1	Complete
LENAWEE COUNTY	TECUMSEH CITY	1-4	Complete
LIVINGSTON COUNTY	BRIGHTON CHARTER TOWNSHIP	3	Complete
LIVINGSTON COUNTY	MARION TOWNSHIP	2	Complete
LIVINGSTON COUNTY	OCEOLA TOWNSHIP	5	Complete
LIVINGSTON COUNTY	PUTNAM TOWNSHIP	3	Complete
LIVINGSTON COUNTY	TYRONE TOWNSHIP	2	Complete
LUCE COUNTY	LAKEFIELD TOWNSHIP	1	Complete
MACKINAC COUNTY	HENDRICKS TOWNSHIP	1	Complete
MACOMB COUNTY	CENTER LINE CITY	5	Complete
MACOMB COUNTY	CHESTERFIELD TOWNSHIP	7	Complete
MACOMB COUNTY	CLINTON TOWNSHIP	11	Complete
MACOMB COUNTY	HARRISON TOWNSHIP	2	Complete
MACOMB COUNTY	MACOMB TOWNSHIP	23	Complete
MACOMB COUNTY	NEW BALTIMORE CITY	5	Complete

MACOMB COUNTY	ROSEVILLE CITY	12	Complete
MACOMB COUNTY	ST CLAIR SHORES CITY	4	Complete
MACOMB COUNTY	SHELBY CHARTER TOWNSHIP	24	Complete
MACOMB COUNTY	STERLING HEIGHTS CITY	20	Complete
MACOMB COUNTY	STERLING HEIGHTS CITY	AVCB	Complete
MANISTEE COUNTY	ONEKAMA TOWNSHIP	1	Complete
MARQUETTE COUNTY	MARQUETTE CITY	1	Complete
MARQUETTE COUNTY	REPUBLIC TOWNSHIP	1	Complete
MARQUETTE COUNTY	SANDS TOWNSHIP	1	Complete
MASON COUNTY	BRANCH TOWNSHIP	1	Complete
MASON COUNTY	RIVERTON TOWNSHIP	1	Complete
MASON COUNTY	VICTORY TOWNSHIP	1	Complete
MECOSTA COUNTY	MECOSTA TOWNSHIP	1	Complete
MENOMINEE COUNTY	HOLMES TOWNSHIP	1	Complete
MIDLAND COUNTY	HOPE TOWNSHIP	1	Complete
MIDLAND COUNTY	JEROME TOWNSHIP	4	Complete
MIDLAND COUNTY	LEE TOWNSHIP	2	Complete
MISSAUKEE COUNTY	MCBAIN CITY	1	Complete
MONROE COUNTY	BEDFORD TOWNSHIP	1	Complete
MONROE COUNTY	FRENCHTOWN TOWNSHIP	1	Complete
MONROE COUNTY	MILAN CITY	1	Complete
MONROE COUNTY	PETERSBURG CITY	1	Complete
MONROE COUNTY	RAISINVILLE TOWNSHIP	1	Complete
MONTCALM COUNTY	CRYSTAL TOWNSHIP	1	Complete
MONTCALM COUNTY	FAIRPLAIN TOWNSHIP	1	Complete
MONTCALM COUNTY	MONTCALM TOWNSHIP	1	Complete
MONTMORENCY COUNTY	ALBERT TOWNSHIP	1	Complete
MUSKEGON COUNTY	FRUITPORT TOWNSHIP	1	Complete
MUSKEGON COUNTY	MONTAGUE TOWNSHIP	1	Complete
MUSKEGON COUNTY	MUSKEGON TOWNSHIP	4	Complete
MUSKEGON COUNTY	NORTON SHORES CITY	1-1	Complete
MUSKEGON COUNTY	WHITEHALL TOWNSHIP	1	Complete
NEWAYGO COUNTY	BIG PRAIRIE TOWNSHIP	1	Complete
NEWAYGO COUNTY	CROTON TOWNSHIP	1	Complete
NEWAYGO COUNTY	GRANT TOWNSHIP	1	Complete
OAKLAND COUNTY	BLOOMFIELD TOWNSHIP	8	Complete
OAKLAND COUNTY	CLAWSON CITY	1	Complete
OAKLAND COUNTY	FARMINGTON HILLS CITY	20	Complete
OAKLAND COUNTY	FERNDALE CITY	4	Complete

OAKLAND COUNTY	NOVI CITY	2	Complete
OAKLAND COUNTY	OAKLAND CHARTER TOWNSHIP	3	Complete
OAKLAND COUNTY	OAK PARK CITY	15	Complete
OAKLAND COUNTY	OXFORD TOWNSHIP	2	Complete
OAKLAND COUNTY	PONTIAC CITY	5-13	Complete
OAKLAND COUNTY	TROY CITY	5	Complete
OCEANA COUNTY	WEARE TOWNSHIP	1	Complete
OGEMAW COUNTY	LOGAN TOWNSHIP	1	Complete
ONTONAGON COUNTY	HAIGHT TOWNSHIP	1	Complete
OSCEOLA COUNTY	BURDELL TOWNSHIP	1	Complete
OSCODA COUNTY	ELMER TOWNSHIP	1	Complete
OTSEGO COUNTY	HAYES TOWNSHIP	1	Complete
OTTAWA COUNTY	ALLENDALE TOWNSHIP	4	Complete
OTTAWA COUNTY	CROCKERY TOWNSHIP	1	Complete
OTTAWA COUNTY	FERRYSBURG CITY	1	Complete
OTTAWA COUNTY	GEORGETOWN TOWNSHIP	3	Complete
OTTAWA COUNTY	GRAND HAVEN TOWNSHIP	4	Complete
OTTAWA COUNTY	HOLLAND CITY	4-10	Complete
OTTAWA COUNTY	HOLLAND TOWNSHIP	11	Complete
OTTAWA COUNTY	HUDSONVILLE CITY	3-1	Complete
OTTAWA COUNTY	PARK TOWNSHIP	6	Complete
OTTAWA COUNTY	TALLMADGE TOWNSHIP	3	Complete
PRESQUE ISLE COUNTY	BEARINGER TOWNSHIP	1	Complete
ROSCOMMON COUNTY	NESTER TOWNSHIP	1	Complete
SAGINAW COUNTY	BIRCH RUN TOWNSHIP	2	Complete
SAGINAW COUNTY	FRANKENMUTH TOWNSHIP	1	Complete
SAGINAW COUNTY	JAMES TOWNSHIP	1	Complete
SAGINAW COUNTY	RICHLAND TOWNSHIP	1	Complete
SAGINAW COUNTY	SAGINAW CITY	10	Complete
ST CLAIR COUNTY	BURTCHVILLE TOWNSHIP	3	Complete
ST CLAIR COUNTY	FORT GRATIOT TOWNSHIP	2	Complete
ST CLAIR COUNTY	GREENWOOD TOWNSHIP	1	Complete
ST CLAIR COUNTY	KENOCKEE TOWNSHIP	1	Complete
ST CLAIR COUNTY	ST CLAIR CITY	2	Complete
ST JOSEPH COUNTY	COLON TOWNSHIP	1	Complete
ST JOSEPH COUNTY	MENDON TOWNSHIP	1	Complete
ST JOSEPH COUNTY	STURGIS CITY	1	Complete
SANILAC COUNTY	DELAWARE TOWNSHIP	1	Complete
SANILAC COUNTY	LEXINGTON TOWNSHIP	1	Complete

SANILAC COUNTY	WASHINGTON TOWNSHIP	1	Complete
SCHOOLCRAFT COUNTY	GERMFASK TOWNSHIP	1	Complete
SHIAWASSEE COUNTY	DURAND CITY	1	Complete
SHIAWASSEE COUNTY	NEW HAVEN TOWNSHIP	1	Complete
SHIAWASSEE COUNTY	PERRY TOWNSHIP	2	Complete
SHIAWASSEE COUNTY	VERNON TOWNSHIP	1 (State Precinct Audit)	Complete
TUSCOLA COUNTY	AKRON TOWNSHIP	1	Complete
TUSCOLA COUNTY	VASSAR TOWNSHIP	1	Complete
TUSCOLA COUNTY	WISNER TOWNSHIP	1	Complete
VAN BUREN COUNTY	ANTWERP TOWNSHIP	3	Complete
VAN BUREN COUNTY	PAW PAW TOWNSHIP	1	Complete
VAN BUREN COUNTY	SOUTH HAVEN TOWNSHIP	1	Complete
WASHTENAW COUNTY	ANN ARBOR CITY	2-8	Complete
WASHTENAW COUNTY	LYNDON TOWNSHIP	1	Complete
WASHTENAW COUNTY	MANCHESTER TOWNSHIP	1	Complete
WASHTENAW COUNTY	NORTHFIELD TOWNSHIP	1	Complete
WASHTENAW COUNTY	PITTSFIELD CHARTER TOWNSHIP	1	Complete
WASHTENAW COUNTY	SCIO TOWNSHIP	8	Complete
WASHTENAW COUNTY	SUPERIOR TOWNSHIP	5	Complete
WASHTENAW COUNTY	YORK TOWNSHIP	1	Complete
WASHTENAW COUNTY	YPSILANTI CITY	1-3	Complete
WASHTENAW COUNTY	YPSILANTI TOWNSHIP	1	Complete
WAYNE COUNTY	CANTON TOWNSHIP	10	Complete
WAYNE COUNTY	DEARBORN CITY	43	Complete
WAYNE COUNTY	DETROIT CITY	3-177	Complete
WAYNE COUNTY	DETROIT CITY	AVCB	Complete
WAYNE COUNTY	GROSSE POINTE FARMS CITY	3	Complete
WAYNE COUNTY	GROSSE POINTE PARK CITY	7	Complete
WAYNE COUNTY	LINCOLN PARK CITY	6	Complete
WAYNE COUNTY	LIVONIA CITY	AVCB	Complete
WAYNE COUNTY	MELVINDALE CITY	3	Complete
WAYNE COUNTY	NORTHVILLE TOWNSHIP	6	Complete
WAYNE COUNTY	PLYMOUTH TOWNSHIP	6	Complete
WAYNE COUNTY	REDFORD TOWNSHIP	19 (State Precinct Audit)	Complete
WAYNE COUNTY	ROMULUS	11	Complete
WEXFORD COUNTY	CADILLAC CITY	3	Complete
WEXFORD COUNTY	CHERRY GROVE TOWNSHIP	1	Complete
WEXFORD COUNTY	LIBERTY TOWNSHIP	1	Complete
STATEWIDE	STATEWIDE	RISK-LIMITING AUDIT	Complete