Wisconsin Elections Commission

201 West Washington Avenue | Second Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

DATE: For the March 7, 2025, Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe
Administrator, Wisconsin Elections Commission

SUBJECT: 2024 Post-Election Voting Equipment Audit Final Report

The 2024 Post-Election Voting Equipment Audit was the largest audit of its kind ever administered in Wisconsin. Following the 2024 General Election, local election officials audited over 327,000 ballots by hand to confirm the voting equipment used throughout the state accurately tabulated votes and remained secure. Post-election audits are a critical means by which election officials publicly show the effectiveness of the procedures, policies, and best practices in place, as well as dispel any misinformation or disinformation about the security of electronic voting systems.

This report will provide detailed information about all stages of the post-election audit process. This includes preparations made by Wisconsin Elections Commission (WEC or Commission) staff, communications to local election officials, administration of the audit at the local level, and a broader discussion of the results of the audit, including breakdowns of the equipment audited, human or equipment errors encountered, a summary of the reimbursement paid to municipalities, and implications for future audits.

After an in-depth review of all materials submitted by local election officials, WEC staff found no evidence that any of the voting systems used and audited in Wisconsin changed votes from one candidate to another, incorrectly tabulated votes, or altered the outcome of any audited contest.

There was no evidence of programming errors, unauthorized alterations or "hacking" of voting equipment software or hardware, or any equipment malfunctions that changed the outcome of any contests on the ballot. That said, this report will also highlight certain limitations of electronic voting systems and provide several suggestions as to how to improve the administrative procedures required to ensure the continued effectiveness of those systems.

Post-Election Voting Equipment Audit Introduction and Framework

Wis. Stat. § 7.08(6) is the state embodiment of § 301(a)(5) of the Help America Vote Act of 2002 (HAVA) (52 USC §21081) and requires the WEC to audit each voting system that is used in this state following each General Election:

> **Enforcement of federal voting system standards.** Following each general election audit the performance of each voting system used in this state to determine the error rate of the system in counting ballots that are validly cast by electors. If the error rate exceeds the rate permitted under standards of the federal election commission in effect on October 29, 2002, the commission shall take remedial action and order remedial action to be taken by affected counties and municipalities to ensure compliance with the standards. Each county and municipality shall comply with any order received under this subsection.

To achieve this, the Elections Commission approves the sample size, procedures, and timeline for conducting the post-election voting equipment audit. With limited exceptions, each selected municipality is required to conduct the audit, with some local election officials receiving assistance from their county clerk's office. Wisconsin has conducted a post-election voting equipment audit following each General Election since 2006. Audits are required by state law to ensure that tabulation equipment is performing at the standards set forth in the certification for each electronic voting system.

Equipment is audited to the testing standards set forth in HAVA, which requires all voting tabulation equipment to accurately tabulate ballots and not exceed a predetermined error rate. Sec. 301(a)(5) of HAVA states that the error rate for federal certification is based on the United States Election Assistance Commission's (US EAC or EAC) Voluntary Voting System Guidelines (VVSG 1.0). The current federal maximum acceptable error rate for testing purposes under VVSG 1.0 is 1 in 500,000 ballot positions, with one ballot position representing one properly marked vote in a controlled testing environment.

Please note that the federal standard differs from the error definitions adopted by the Commission in 2022, as shown in Appendix A. Specifically, the Commission directed WEC staff to identify and flag errors that could be attributed to human behavior and not just those entirely attributable to the equipment. None of the 2024 post-election audit findings included an actual or potential error that was solely equipment-based, as opposed to solely human error or a combination of the two**.**

This is an important distinction, as Sec. 301(a)(5) of HAVA states, "The error rate of the voting system in counting ballots (**determined by taking into account only those errors which are attributable to the voting system and not attributable to an act of the voter**) shall comply with the error rate standards established…" by VVSG 1.0 (**Emphasis added**). While HAVA explicitly exempts acts of voters from the overall error rate calculation, the WEC equipment error rate also precludes other forms of human error, e.g., errors made by the clerk, election inspectors, or auditors, from being included in the calculation. This isn't to say that human error can be entirely disregarded from this conversation. Instead, WEC staff have identified and further investigated the human errors reported by local officials, which are further detailed and analyzed in this report.

Per HAVA and past WEC audits, equipment errors are those that are attributable only to the voting system itself. "Voting systems" are defined under Sec. 301(b) of HAVA as the total combination of mechanical, electromechanical, or electronic equipment (including the software, firmware, and documentation required to program, control, and support the equipment) that is used to define ballots, cast and count votes, report or display results, maintain and produce an audit trail, and otherwise include the practices and documentation associated with electronic voting. No human element is

contemplated by the terms "error rate" or "voting system," and VVSG 1.0 includes further definition of related terms:

> Data Accuracy: (1) Data accuracy is defined in terms of ballot position error rate. **This rate applies to the voting functions and supporting equipment that capture, record, store, consolidate and report the specific selections, and absence of selections, made by the voter for each ballot position**. (2) The system's ability to process voting data absent internal errors generated by the system. **It is distinguished from data integrity, which encompasses errors introduced by an outside source**.
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> Data Integrity: Invulnerability of the system to accidental intervention or deliberate, fraudulent manipulation that would result in errors in the processing of data. **It is distinguished from data accuracy that encompasses internal, system-generated errors**. (**Emphasis added**).

The WEC audit process is designed to ensure electronic voting systems meet certification standards and identify any issues that may impact accurate vote tabulation. The acceptable error rate established in HAVA and VVSG 1.0 is intended for equipment certification testing scenarios, which are conducted in lab settings under optimized conditions using test deck ballots that are marked in accordance with ballot instructions. Laboratory testing procedures do not typically include the same variety of conditions that can be found in a polling place. For example, it's difficult to approximate the conditions of ballots that have been sent through the mail, folded multiple times, stained with coffee, etc., and certification staff may have more familiarity with a specific voting system than election inspectors who, while trained on its usage, may only interact with the system two to four times in a given year.

Auditing voting systems to this certification standard as part of a performance audit can complicate the review of the results, as it requires consideration of how the equipment performs during live elections when voter behavior and ballot marking are not scripted. When testing for certification purposes, the results set is predetermined, and all ballots are marked in accordance with testing scripts. While it may be possible to easily identify a discrepancy during certification conditions, that is not always the case when real voter selections on real ballots are being audited.

A performance audit will often require auditors to make their own determinations as to how they believe their voting system may have counted a ballot. A fully completed oval next to a ballot candidate's name will be the most common mark encountered on any ballot. However, there are many ways a voter may complete a ballot. Consequently, one of the most frequent issues seen throughout any performance audit is the consideration of voter intent on a ballot instead of an impartial review of how the voter's marks would be interpreted by the voting system. There were many such instances in this audit.

Auditors must reconcile the results of their audit and the votes recorded by their equipment. In doing so, they may have to consult Inspectors' Statements or incident logs from Election Day to identify and eliminate any potential non-tabulation-related source of error that may lead to a discrepancy in the final audit count. This may include paper jams, other printer malfunctions, unique ways that a voter marked their ballot, e.g., ambiguous marks, erasures, etc., or election official error.

Staff believe that calculating two separate error rates, one for equipment error and one for human error, is still the best way to assess the results of the post-election audit. Identifying equipment errors and calculating an error rate is crucial in the continued use of electronic voting systems. If, at any point, an audit reveals an issue with a voting system or discrepancies that cannot be explained, staff will investigate the issue further and present findings to the Commission. From there, the Commission has various options, including (but not limited to) revisiting the terms of the original certification on a system, ordering additional functional testing, or decertifying the system for sale and use in Wisconsin. In short, there are large-scale consequences should a voting system not meet acceptable standards.

The inclusion of a human error rate allows staff to measure different metrics. Certification standards are critically important and voting systems must meet those standards, but a human error rate also provides a view into the real-world side of election administration that may not be immediately obvious in a certification setting. This produces a more thorough understanding of how system certification standards and election administration come together in the polling place. By identifying the common issues reported by local officials, WEC staff may better direct training opportunities or provide additional resources to these officials to prevent similar errors in the future.

Preparation, Criteria, Selection, and Clerk Communications

At its October 4, 2024, meeting, the WEC approved staff recommendations for the parameters and procedures for the 2024 post-election audit. The full list of recommendations is attached to this report as Appendix A.

In the months preceding the audit, staff worked to update all the materials local officials would need to conduct the audit. This included updates to the tally sheets, reporting forms, and public notice templates, all of which were posted to the WEC website and provided to all clerks selected for the audit. Staff also recorded a training webinar that was posted to the same page as the materials. This webinar covered the basics of the audit, provided best practices for tallying and reporting, and gave baseline information on how to conduct the audit without factoring in voter intent.

In addition to improving the audit materials, staff also used this time to update the random selection tool originally created by WEC developers for the 2020 post-election audit (used in both 2020 and 2022) with current equipment data for every municipality in Wisconsin. After validating the equipment information for each municipality, staff imported the list of active reporting units as set by each municipality and conducted several test runs of the selection tool to confirm the resulting data met the approved selection criteria.

The tool used by staff makes random selections based on a seed number. After a seed number is entered, the tool will repeatedly go through the list of all reporting units and their associated voting systems until all selection criteria have been satisfied. Using a seed number to start this process means that the equipment/reporting unit results from that number can be repeatably pulled again and again, while a different seed number will produce an entirely different set of results. It is important to acknowledge that the overall degree of randomness in this process is slightly limited due to the = preset criteria determined by the Commission.

Staff conducted the reporting unit selection at a public meeting on the morning of November 6, 2024. Twenty 10-sided dice were rolled to establish a twenty-digit seed number, from which the selection tool provided a list of 373 reporting units. In total, 336 municipalities were selected to participate in the audit, with 20 municipalities being selected to audit more than one reporting unit. Twelve of the selected reporting units do not have any registered voters residing in them. As such, those reporting units were excused from the audit as no ballots were cast in these reporting units. The full list of reporting units and the voting equipment used in each can be found as Appendix B of this report. Staff also randomly selected the contests subject to the audit during this meeting. The offices selected include:

1. President and Vice President (top-of-ballot contest included by default)
2. Representative in Congress
3. Representative to the Assembly
4. District Attorney

After confirming the list of reporting units met the preset selection criteria, staff contacted all clerks selected to participate in the audit via email. For maximum visibility, the email was also sent to all 72 county clerks. This email included an explanation of the audit process, a link to the section of the WEC website[1] containing the staff webinar and all materials necessary for the audit, and a more detailed explanation of the reporting requirements, e.g., acknowledgement of selection, confirmation of time/place audit is to be conducted, and all necessary documentation needed for an audit submission to be considered complete.

Audit Timeline and Completion

For the 2024 post-election voting equipment audit, the Commission directed that all audits should be completed prior to the state deadline to certify election results on December 1, 2024. The Commission specifically established November 25, 2024, as the deadline to complete and report the results to WEC staff. However, the Commission also approved an automatic extension to the original deadline if any contest on the ballot should fall within the margin where a recount could be requested.

For statewide offices, a recount cannot be requested until the WEC receives all 72 certified canvass statements from the various county boards of canvass. Once the final statement has been received, an aggrieved candidate in any contest within the recount margin then has three business days to request a recount. As the final county canvass statement was not received until November 18, 2024, this meant that no audit could be conducted until November 22, 2024. As the original deadline was no longer tenable, the WEC Chair authorized the Administrator to extend the deadline by which audits were to be completed to December 2, 2024. Staff communicated the extended deadline to all municipal and county clerks via email.

Most municipalities who were selected to participate completed their audits and returned all materials to WEC staff by the December 2, 2024, deadline. However, for a variety of reasons, some municipalities did not meet this deadline. Multiple municipalities reported issues with communications to and from WEC staff, which led to their submissions being late. Other jurisdictions experienced clerk turnover

1 https://elections.wi.gov/2024-voting-equipment-audit

immediately after the election or health issues that made it more difficult to conduct the audit. Staff reached out to all municipalities that had not met the deadline on December 3, 2024. With a few exceptions, the outstanding reports were submitted soon after the deadline.

2024 Voting Equipment Summary

The primary focus of the post-election voting equipment audit is to assess the performance of all certified voting equipment that is capable of tabulation. This includes optical scan tabulators, which are the most used type of equipment in the state, and direct recording electronic equipment (DRE). An optical scan tabulator requires a voter to mark a paper ballot by hand or by using a ballot marking device (BMD). When a voter is satisfied with their choices, they insert the ballot into the tabulator. Conversely, a direct recording electronic device will have a touchscreen on which a voter marks their choices. When they are finished, the ballot is cast and tabulated directly on the same device.

All voting systems certified for use in Wisconsin also include a ballot marking device as part of their hardware offerings. This type of equipment allows a voter to mark their choices, typically on a touchscreen device, print the ballot for review, and then insert the voted ballot into a tabulator. While auditors are instructed to count all BMD-marked ballots as part of the standard audit process, BMDs or the ballot marking functions that are integrated components of certain tabulators are not the focus of the audit because they do not tabulate votes.[2]

Optical Scan Tabulators

As previously noted, the primary focus of the post-election audit is to assess the performance of voting equipment capable of tabulation. Optical scan tabulators are the most common type of equipment used by municipalities in Wisconsin, with approximately 92.7% of all votes in the state being cast on this type of equipment. Table 1 lists each type of optical scan tabulator currently certified for use in Wisconsin, the number of audits that were conducted for each type, and the overall percentage of audits and total audited ballots cast for each.

Table 1: *Summary of Optical Scan Audits by Equipment Type*

Type	Audits Conducted	Percentage of Total Audits	Total Ballots Audited	Percentage of All Ballots Audited
ES&S DS200	178	47.21%	193,229	59.05%
ES&S DS450	11	2.92%	9,335	2.85%
ES&S DS850[3]	4	1.06%	996	0.3%

2 While none of the standalone ballot marking devices included in the scope of this audit are capable of tabulating votes, the ExpressVote Tabulator is a tabulation-capable BMD that is certified for use in Wisconsin. No jurisdictions in the state currently use this device.

3 Per the selection criteria approved by the Commission, a minimum of five reporting units must be selected for each type of equipment certified for use in Wisconsin. However, the City of Milwaukee is the only municipality that currently uses the

Type	Audits Conducted	Percentage of Total Audits	Total Ballots Audited	Percentage of All Ballots Audited
Clear Ballot Clear Cast	16	37.40%	16,011	4.89%
Dominion ImageCast Evolution	141	4.24%	103,968	31.77%

For the 2024 post-election audit, the Commission approved a staff recommendation that any municipality that uses a central count site to canvass absentee ballots selected to participate in the audit would only be responsible for auditing the absentee ballots for the respective reporting unit. Certain types of voting equipment, specifically high-speed scanners such as the DS450 and DS850, are not used in polling places. The only means by which to assess the performance of this equipment is to require the central count municipalities that use them to audit their central count ballots in lieu of ballots cast at the associated polling place for the reporting unit.

Direct Recording Electronic Equipment

DREs are the other type of voting equipment capable of tabulating votes. As described above, these devices typically feature a touchscreen or monitor on which a voter is presented their ballot electronically. DREs (as well as BMDs) satisfy the HAVA requirement that every polling place must have at least one accessible device available for voters with disabilities to cast their votes privately and independently. In most cases, municipalities that only have DREs in their polling places will also offer hand-count paper ballots that are cast in a standalone ballot box and kept separate from the DRE ballot roll. Jurisdictions like this that were selected to participate in the audit were advised not to audit hand-count paper ballots.

After a voter makes their selections and reviews them on the screen, the device will print the voter's choices onto a roll of paper. At this point, the voter has a final chance to review their ballot before casting it. They may choose to spoil the ballot and vote a new one or they may cast the ballot, which ends the voting session and advances the paper roll. Unlike optical scan tabulators, which process ballots marked by hand or by a BMD, DREs record all votes on these rolls of paper, otherwise known as a voter-verified paper audit trail ("VVPAT"). Auditing DREs requires auditors to review the entirety of the paper roll to review each ballot cast. The paper roll is also finite, so it must be replaced by election officials throughout Election Day. These factors led to several issues in the 2024 post-election audit, which will be further detailed later in this report.

There are currently two DREs certified for sale and use in Wisconsin: the Sequoia AVC Edge and the Dominion ImageCast X. However, all municipalities that previously used the Sequoia AVC Edge have transitioned to other voting equipment since the 2022 post-election audit and no jurisdictions currently

DS850 tabulator and a separate criterion does not allow for more than four reporting units to be selected from the City of Milwaukee.

use this equipment. All DRE audits conducted as part of the 2024 post-election audit were in jurisdictions using the Dominion ImageCast X, as shown in Table 2.

Table 2*: Summary of DRE Audits.*

Type	Audits Conducted	Percentage of Total Audits	Total Ballots Audited	Percentage of All Ballots Audited
Dominion ImageCast X	27	7.16%	3,691	1.13%

Audit Results and Error Rate Calculation

The primary takeaway staff wishes to highlight in this report is that the voting equipment utilized in the 2024 General Election performed in accordance with certification standards. The equipment tabulated votes accurately and staff found no reported errors that would be solely attributable to the electronic voting system.

A total of 327,230 ballots were counted by hand during the 2024 post-election voting equipment audit. This is approximately 9.6 % of all ballots cast statewide in the 2024 General Election. For context, 145,000 ballots were audited as part of the 2020 post-election audit and 222,075 were audited in 2022. It is not an overstatement to say that this was the largest and most comprehensive post-election audit ever conducted in the state of Wisconsin. Local election officials have many responsibilities and, after having just administered a General Election, they were then required to immediately pivot to conduct their audits. The municipal clerks, county clerks, election inspectors, and volunteers who completed these audits should be commended for their work and for their continued dedication to secure and accurate elections.

Each municipality selected to participate was required to provide a summary of each of the four auditable contests in addition to a copy of their voting equipment's final results tape and any materials they used to conduct the audit. These summaries include a comparison between the total votes recorded by the voting equipment and the total votes counted during the audit. WEC staff reviewed every submission and followed up for additional information on discrepancies, missing materials, etc., when necessary. Audits were not considered final, and no reimbursements were paid out, until all reported discrepancies were adequately explained.

Equipment Errors and Issues

As directed by federal law, state statute, and the Commission, staff further analyzed all data received to identify any legitimate voting equipment errors that may have occurred. Using the Commission definition of a voting equipment error as shown below, staff identified five errors in three municipalities that could potentially be attributed to the tabulation equipment, but after review and discussion with the respective municipal clerks it was determined the errors were partially or completely attributed to human factors. Errors are generally produced by one of the factors listed below:

a. Extraneous perforations, smudges, folds

b. Bleed-through of a pen or marking device
c. Dirty/smudged scan or read head
d. Votes attributed to wrong candidate or referendum choice by tabulator
e. Votes not counted due to a certain color of ink being used to mark ballot
f. Foreign bodies such as ink flakes or dust on the ballot
g. Programming issues not present at the public test
h. Anything not explicitly mentioned above that would cause an otherwise empty oval to read as a valid vote or a validly voted oval to not record as a valid vote.

The three municipalities reported errors, and provided explanations for each, as shown in Table 3.

Table 3: *Errors Attributed to Equipment Issues by Local Officials*

Municipality	Equipment Type	Total Errors	Explanation
Town of Mukwonago	ES&S DS200	1	A smudge on the ballot led to the tabulator reading an overvote in one contest. This ballot was recorded as a valid vote for a ballot candidate by auditors.
City of Antigo	Dominion ImageCast Evolution	1	Auditors identified a ballot with smears/smudges from pen. Vote was counted for ballot candidate in audit, but equipment would have read as overvote.
City of Franklin	ES&S DS200	3	Auditors reported two instances of heavy creases through ovals being read by the tabulator as overvotes, as well as a ballot with a tear through an oval that was also counted as an overvote.

The EAC and federal law establish criteria for calculating an acceptable error for tabulation equipment during the federal certification process. This error rate is applied to evaluate technical errors identified in a laboratory environment on new equipment. The acceptable error rate is 1 in 500,000 ballot positions or 0.00002%. As the Commission has previously discussed, the federal error rate contemplates purely technical errors or issues in which the equipment acts contrary to the way it is programed and certified to operate. The federal standard does not account for human errors or discrepancies caused or compounded by human behavior.

Given those constraints of the federal error rate as stipulated in HAVA and VVSG 1.0, the above errors would not be included in the calculation. Each error identified in the audit was attributed to the electronic voting system by the election officials who completed the audit. However, the human element is also a contributory factor in each case. It should be noted that the Commission's September 2022 motion explicitly states, "Any errors attributable to human actions, such as election administration shortcomings or equipment auditors during ballot review, **will not be suggested** for inclusion of the final equipment error rate calculation as they are not attributable to the equipment itself."

Similar errors were reported following the 2022 post-election audit. The Commission was asked to determine whether the errors constituted actual equipment errors and, as such, should be included in the overall error rate calculation. The Commission ultimately found that the errors could be attributable to human actions and determined the equipment error rate in the 2022 post-election audit to be 0.0%. In complying with the Commission's above motion and the process by which the error rate was calculated in 2022, staff do not recommend including these errors as part of the overall equipment error rate. None of the identified errors represent a purely technical issue with the tabulation equipment. Auditing real-world Election Day ballots is an entirely different experience than would be found in a highly controlled environment of a federal voting equipment testing laboratory using test deck ballots. Additionally, these errors were likely avoidable had proper administrative procedures been followed.

Staff have calculated two possible error rates, one that includes the five reported errors and one that does not. The formula used for each is the same: R = e / p where Rate (R) equals errors (e) divided by ballot positions (p). The total number of ballot positions on all audited ballots was 5,604,670. While staff do not recommend inclusion of these five errors in the overall error rate calculation, it's important to note that inclusion of these five errors would still be within the federally allowable error rate of 1 in 500,000 ballot positions (0.000002%).

Error rate with five reported errors: 0.0000009%

Error rate without five reported errors: 0%

As expected, the total number of votes cast on voting equipment and the total number of ballots audited do not match in all reporting units. This has been true of all past post-election audits in Wisconsin as well. There are a number of possible causes that would lead to a discrepancy between the final ballot total as reported by the voting equipment and the final totals tallied during the audit.

Several municipalities using optical scan tabulators reported paper jams on Election Day. While paper jams can be readily cleared and voting can resume with little disruption, it is sometimes unclear as to whether a jammed ballot was tabulated correctly or if the jam occurred nearer to the insertion point, leading to the ballot not being counted. Depending on where the jam occurred, this will often manifest as the final equipment results showing one more or one fewer ballot than the auditors can account for in their review. Standard practice for election inspectors is to record all ballot jams on the Inspectors' Statement as they occur, so jam-based discrepancies are typically resolved very easily.

Municipalities using the ImageCast X DRE device also reported several issues with the VVPAT paper roll throughout Election Day. Depending on turnout, it is not uncommon to have to change the paper roll several times throughout the day to ensure voters can continue to cast their ballot. In limited instances, the paper roll was not loaded correctly or otherwise jammed as a vote was being cast. These cases are also detailed on the Inspectors' Statement and the explanations resolve the discrepancies as reported by auditors.

In all cases, the incidents that led to minor discrepancies between the final audit tallies and the equipment result tapes were documented, either by election inspectors on Election Day or by auditors throughout the course of conducting the audit.

Human Error Rate Calculation

In addition to the base equipment error rate, the Commission has also directed staff to calculate an error rate for all issues attributable to human error. Highlighting these errors is not intended to shame local election officials for their actions. Rather, it is a means of identifying common issues to provide the context necessary to improve training materials and general administrative practices. There are a variety of ways human error may lead to discrepancies between voting equipment totals and the totals reported by auditors. In an attempt to categorize them, staff will present these issues as parts of two larger wholes: errors in the audit process, and errors in election administration on Election Day.

The most common type of human errors seen in this, and past post-election audits, happen during the audit process itself. These range from auditors tallying incorrectly to the incorrect contest being audited. While not exhaustive, staff has prepared a list of the most prevalent issues as reported by officials conducting the audit:

Unclear or incorrect tally marks

Staff provides a template tally sheet that auditors are recommended to use to count votes. In some cases, tally marks are made incorrectly or votes for specific ballot candidates are inadvertently tallied for another candidate. These issues will often snowball and lead to the auditors' independent counts not matching one another or the equipment results tapes.

Some municipalities did not originally tally undervotes or write-ins during their initial audits. These municipalities were asked to conduct the audit again to correctly tally all votes in all contests. However, these original omissions were still recorded as procedural human errors.

Interpretation of voter intent

This is likely the most common issue seen in post-election audits. Auditors are instructed to count votes as the equipment would have during an election. This is a departure from typical end-of-night vote counting performed by election inspectors, which does require taking voter intent into account.

Many audits saw discrepancies based on the auditors counting votes as valid in situations where it would be impossible for the voting equipment to do so. For example, voters will sometimes circle an oval on an optical scan ballot instead of filling it in completely. As these marks are not within the target area of the oval, they would not have been counted by the voting equipment.

Ambiguous and marginal marks

Different types of voting equipment have different minimum thresholds at which the unit will recognize a mark within an oval as a valid vote. There were several instances in which auditors were unsure of whether an oval was darkened sufficiently to count as a valid vote. Conversely, other municipalities found very light or accidental marks within one oval and a fully filled oval under the same contest. While not immediately evident to the human eye during the audit, these small marks are often enough to trigger the minimum threshold on a tabulator. This will typically lead to a valid vote being tallied by an auditor on a ballot that was read as an undervote by the voting equipment.

Incorrect contests/not auditing all contests

The original email and audit materials sent to all municipalities selected to participate in the audit included the list of contests that were to be audited. In a very small number of cases, local officials either audited a completely different contest or didn't audit all four contests. These jurisdictions were required to reconvene their audits to resolve these issues.

VVPAT paper roll issues

Many municipalities using the ImageCast X DRE initially reported large discrepancies between the auditors' totals and the equipment results. The primary cause here was the nature of the ballot roll itself. As the roll contains not only the cast ballots, but also any ballots that were spoiled or otherwise not read by the equipment, auditors often counted every ballot on the roll instead of those that were actually cast and recorded votes.

Ballot jams

Unless a ballot is purposefully misfed into a tabulator, most paper jams are not completely attributable to human error. However, issues can arise when a jam is not properly cleared or if it is unclear to the election worker if the ballot causing the jam was or was not tabulated prior to the jam. This can lead to a ballot being reinserted into the tabulator and being counted twice or to a ballot not being counted at all.

Improper retention/storage of ballots

Municipalities will often have multiple reporting units active in the same polling place or central count location. This can lead to ballots from other reporting units inadvertently being sealed in the ballot bags for a reporting unit selected for an audit.

Improper procedures

When processing damaged or heavily creased ballots, it is standard practice for poll workers to remake a ballot when its condition may affect how a tabulator will interpret that ballot. This can be seen in ballots in which a tear or fold causes an unintentional mark in an oval, which will typically lead to an overvote on a ballot where a voter marked a valid vote. If election inspectors do not review these ballots, do not remake them, or override an overvote notification, it may result in a voter's choices not being counted. This will later affect the ability of auditors to correctly tally votes.

<u>Summary of human errors and implications for future audits</u>

In total, 593 human errors were recorded in the administration of the 2024 post-election voting equipment audit. While human factors may not be relevant to the federal definition of an error, they still inform the WEC of opportunities for improvement through additional training, procedural changes, or other actions. Staff used the same formula for both equipment and human error rates ($R = e / p$).

Human Error Rate: 0.011%

Following past audits, staff have taken the lessons learned and applied them to improving audit materials and expanding on the content of agency trainings covering voting equipment. Staff will again use the experience from this audit to drive future improvements to the process but, given the number of human errors, additional paths forward are also being considered. These include discussions with voting equipment vendors to better understand what training they offer jurisdictions that purchase their equipment, surveying local election officials to identify the areas on which they would like additional training, updating existing WEC guidance, and the development of a standalone manual specific to post-election audits.

Many municipalities selected for the audit expressed an uneasiness with the audit process and others stated that trying to get up to speed to conduct the audit correctly felt like an overwhelming imposition. Staff believe that a dedicated audit manual that describes the entire audit process, provides a glossary of terms, and contains a number of potential troubleshooting tips would be extremely beneficial to those who will be selected to participate in future audits. WEC staff plan to review and update current materials, and to create an audit-specific manual to better facilitate future audits.

Finally, in an effort to gain even more context, WEC staff conducted a review of the ImageCast X ballot tapes from the Town of Muscoda in Grant County. The primary purpose was to better familiarize staff with VVPAT ballot rolls and to use that gained experience to inform guidance and materials for future audits. As many of the reported human errors were related to difficulty tallying votes on this type of ballot, having better instructions and context for future audits will be beneficial for both municipalities participating in the audit and WEC staff.

Post-Audit Municipal Reimbursement

As part of its October 4, 2024, meeting, the WEC approved a continuation of the reimbursement process that was used in the 2020 and 2022 post-election audits. Each selected reporting unit is eligible for a flat $50 setup fee and an additional $.035 per ballot audited. If a municipality has multiple reporting units selected, they may submit a reimbursement request for each. If a municipality has a zero-population reporting unit selected for the audit, they may not submit a reimbursement request.

Currently, staff have received 350 reimbursement requests totaling $121,241.65. No deadline has been set to request reimbursement, so any municipality that participated in the audit but has not yet submitted a request may still do so. By comparison, the WEC reimbursed municipalities $55,360.15 for the 2020 post-election audit and $91,753.90 for the 2022 post-election audit.

Conclusion

The 2024 post-election voting equipment audit was the largest and most comprehensive audit of its kind ever administered in the state of Wisconsin. Local election officials in over 300 municipalities representing every county in the state audited 327,230 ballots to definitively prove the tabulation equipment used in Wisconsin is accurate and safe.

Given the Commission's directive that any reported equipment errors that could otherwise be attributable to human errors not be included in the statutorily required calculation of an error rate, staff contends that the overall equipment error rate for the 2024 post-election audit is 0.0%.

As with any post-election audit, a larger conversation must be had as to how to reduce the number of human errors committed throughout the process. Identifying and examining these errors is a vital way to assess practices and procedures, and the lessons learned from this audit will inform future staff guidance on future audits and election administration processes. These errors are not intentional and in highlighting them, staff in no way wishes to minimize the efforts and dedication of the local election officials who participated in these audits under a tight timeline and after already having administered an enormous General Election.

Recommended Motions

1. The Commission accepts this as the final report of the 2024 Post-Election Voting Equipment Audit.

2. The Commission determines the effective equipment error rate of the 2024 Post-Election Voting Equipment Audit as 0.0% and directs staff to develop additional training and audit resources to mitigate the likelihood of human error in future audits.

Appendix A: Approved Recommendations/Audit Framework

1. Maintain the audit sample as a fixed percentage of all reporting units statewide.
    a. The final sample size will be 10% of all active reporting units used on Election Day
    b. The Cities of Milwaukee and Madison may have up to four (4) reporting units selected.
    c. The next 20 largest municipalities by registered voter population may have up to three (3) reporting unit selected.
    d. All other municipalities may have up to one (1) reporting unit selected.
2. Ensure that at least one (1) reporting unit is selected for audit in each of Wisconsin's 72 counties.
3. Ensure that at least five (5) reporting units are selected for each type of equipment that tabulates or records votes certified for use in Wisconsin.
4. Randomly select a total of four (4) contests to be audited from the list of eligible contests. The President and Vice President contest will be included by default.
5. Define a voting equipment error as any of the following should any such discrepancy result in a difference between the equipment total and the hand count tally:
    a. Extraneous perforations, smudges, folds
    b. Bleed-through of a pen or marking device
    c. Dirty/smudged scan or read head
    d. Votes attributed to wrong candidate or referendum choice by tabulator
    e. Votes not counted due to a certain color of ink being used to mark ballot
    f. Foreign bodies such as ink flakes or dust on the ballot
    g. Programming issues not present at the public test
    h. Anything not explicitly mentioned above that would cause an otherwise empty oval to read as a valid vote or a validly voted oval to not record as a valid vote.
6. Calculate an overall equipment error rate for all equipment audited as well as a specific error rate for each voting system, pursuant to Wis. Stat. § 7.08(6).
7. Calculate a separate error rate for human error or election administration issues that led to any discrepancy reported throughout conducting the audit.
8. Continue to require audit completion prior to the certification of General Election results. All materials must be received by the deadline, which is to be set by the Commission.
9. Reimburse municipalities at a $50 base setup rate per reporting unit plus an additional $0.35 per ballot audited.
10. Offer counties the option to participate in voluntary post-election audits to be conducted concurrently with the county-level canvass and to have the reimbursement structure of this voluntary audit mirror the same reimbursement structure detailed above. Counties may only request reimbursement for up to two (2) reporting units that are voluntarily audited.
11. Postpone voting equipment audit until any applicable recount deadline has passed in statewide contests where a recount is possible.
12. Any municipality utilizing central count for absentee ballots are to audit ballots processed at central count for any selected reporting unit(s) to ensure high-speed scanners that are only used at central count sites are included in the audit selection.

Appendix B: Reporting Units Selected for Audit

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Adams	T. Adams	Wards 1-3	ES&S DS200	800
Adams	T. Jackson	Wards 1-2	ES&S DS200	775
Adams	T. New Haven	Ward 1	ES&S DS200	420
Adams	T. Strongs Prairie	Wards 1-2	ES&S DS200	816
Ashland	T. Sanborn	Wards 1-2	ES&S DS200	535
Barron	T. Arland	Ward 1	ES&S DS200	366
Barron	T. Chetek	Wards 1-3	ES&S DS200	1263
Barron	T. Doyle	Wards 1-2	ES&S DS200	354
Barron	T. Sumner	Ward 1	ES&S DS200	474
Barron	T. Vance Creek	Ward 1	ES&S DS200	423
Barron	V. Dallas	Ward 1	ES&S DS200	189
Bayfield	T. Iron River	Wards 1-2	ES&S DS200	867
Bayfield	T. Orienta	Ward 1	ES&S DS200	107
Bayfield	T. Tripp	Ward 1	ES&S DS200	156
Brown	C. De Pere	Wards 10-16	ES&S DS200	1404
Brown	C. Green Bay	Ward 46	ES&S DS200/ES&S DS450	521
Brown	C. Green Bay	Ward 14	ES&S DS200/ES&S DS450	561
Brown	C. Green Bay	Ward 15	ES&S DS200/ES&S DS450	697
Brown	V. Allouez	Wards 5-6	ES&S DS200	1572
Brown	V. Ashwaubenon	Wards 11-12	ES&S DS200	1224
Brown	V. Bellevue	Ward 11	ES&S DS200	0
Brown	V. Hobart	Wards 8-11	ES&S DS200	1308
Brown	V. Suamico	Wards 1-3	ES&S DS200	1498
Buffalo	T. Dover	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	261
Buffalo	T. Nelson	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	351
Burnett	T. Anderson	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	290
Burnett	T. Roosevelt	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	145
Burnett	V. Grantsburg	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	722

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Burnett	V. Webster	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	338
Calumet	C. Brillion	Wards 1-6	ES&S DS200	1878
Calumet	C. New Holstein	Wards 1-5	ES&S DS200	1894
Calumet	T. Brothertown	Wards 1-2	ES&S DS200	869
Calumet	T. Woodville	Ward 1	ES&S DS200	570
Calumet	V. Sherwood	Wards 1-5	ES&S DS200	2319
Chippewa	C. Chippewa Falls	Wards 1-2,9-10	Clear Ballot ClearCast	1929
Chippewa	T. Auburn	Ward 1	Clear Ballot ClearCast	455
Chippewa	T. Cooks Valley	Ward 1	Clear Ballot ClearCast	471
Chippewa	T. Goetz	Ward 1	Clear Ballot ClearCast	472
Chippewa	V. Cadott	Wards 1-2	Clear Ballot ClearCast	761
Chippewa	V. New Auburn	Ward 1	Clear Ballot ClearCast	263
Clark	C. Neillsville	Ward 2	ES&S DS200	375
Clark	T. Eaton	Wards 1-2	ES&S DS200	281
Clark	T. Hendren	Ward 1	ES&S DS200	257
Clark	T. Hixon	Wards 1-2	ES&S DS200	260
Clark	T. Warner	Wards 1-2	ES&S DS200	236
Clark	V. Dorchester	Ward 2	ES&S DS200	342
Columbia	T. Newport	Ward 1	ES&S DS200	414
Columbia	T. Pacific	Wards 1-4	ES&S DS200	1901
Columbia	T. West Point	Wards 1-3	ES&S DS200	1533
Columbia	V. Doylestown	Ward 1	ES&S DS200	162
Columbia	V. Pardeeville	Wards 1-4	ES&S DS200	1182
Columbia	V. Wyocena	Ward 1	ES&S DS200	372
Crawford	C. Prairie Du Chien	Ward 6	Dominion Voting - ImageCast Evolution (ICE)	453
Crawford	T. Clayton	Wards 1-3	Dominion Voting - ImageCast Evolution (ICE)	597
Crawford	T. Utica	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	382
Crawford	T. Wauzeka	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	258

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Crawford	V. Bell Center	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	30
Crawford	V. Steuben	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	41
Crawford	V. Wauzeka	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	348
Dane	C. Madison	Ward 95	ES&S DS200	803
Dane	C. Madison	Ward 24	ES&S DS200	1196
Dane	C. Madison	Ward 87	ES&S DS200	1709
Dane	C. Madison	Ward 107	ES&S DS200	2005
Dane	C. Sun Prairie	Ward 5	ES&S DS200	626
Dane	C. Sun Prairie	Ward 9	ES&S DS200	1207
Dane	C. Verona	Wards 1-3,13	ES&S DS200	2323
Dane	T. Albion	Wards 1,4	ES&S DS200	759
Dane	T. Burke	Wards 1-4,7	ES&S DS200	1783
Dane	T. Dunkirk	Wards 1-6	ES&S DS200	1349
Dane	T. Middleton	Wards 1,3-4	ES&S DS200	1840
Dane	T. Springdale	Wards 1-3	ES&S DS200	1526
Dane	V. Dane	Ward 1	ES&S DS200	667
Dane	V. Deforest	Wards 1-5,11,18-19	ES&S DS200	3147
Dane	V. Mount Horeb	Ward 12	ES&S DS200	0
Dodge	C. Beaver Dam	Ward 25	ES&S DS200	55
Dodge	C. Juneau	Wards 1-3	ES&S DS200	1145
Dodge	T. Lomira	Ward 3	ES&S DS200	2
Dodge	T. Westford	Ward 4	ES&S DS200	8
Dodge	V. Lomira	Wards 1-3	ES&S DS200	1484
Door	T. Gardner	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	885
Douglas	C. Superior	Wards 1-5	ES&S DS200	1182
Douglas	T. Cloverland	Ward 1	ES&S DS200	139
Dunn	C. Menomonie	Wards 5,7	Dominion Voting - ImageCast Evolution (ICE)	1163
Dunn	T. Lucas	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	475
Dunn	T. Otter Creek	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	323

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Dunn	T. Stanton	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	530
Dunn	V. Boyceville	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	540
Dunn	V. Wheeler	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	139
Eau Claire	C. Eau Claire	Ward 67	ES&S DS200	0
Eau Claire	C. Eau Claire	Ward 43	ES&S DS200	475
Eau Claire	C. Eau Claire	Ward 4	ES&S DS200	618
Eau Claire	T. Seymour	Wards 1-5	ES&S DS200	2260
Eau Claire	T. Washington	Wards 1,6-7,9-10,12,14-15,17-18	ES&S DS200	2203
Florence	T. Commonwealth	Wards 1-4	Dominion Voting - ImageCast Evolution (ICE)	275
Florence	T. Fern	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	142
Florence	T. Long Lake	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	135
Fond Du Lac	C. Fond Du Lac	Ward 13	Dominion Voting - ImageCast Evolution (ICE)	604
Fond Du Lac	C. Fond Du Lac	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	705
Fond Du Lac	C. Fond Du Lac	Ward 6	Dominion Voting - ImageCast Evolution (ICE)	739
Fond Du Lac	C. Ripon	Wards 4-6	Dominion Voting - ImageCast Evolution (ICE)	952
Fond Du Lac	T. Rosendale	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	442
Fond Du Lac	T. Taycheedah	Wards 1-6	Dominion Voting - ImageCast Evolution (ICE)	3377
Fond Du Lac	V. Brandon	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	506
Fond Du Lac	V. ST. Cloud	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	317

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Forest	T. Blackwell	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	107
Forest	T. Hiles	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	93
Forest	T. Lincoln	Wards 1-5	Dominion Voting - ImageCast X (ICX) VVPAT	379
Grant	C. Fennimore	Wards 1-4	Dominion Voting - ImageCast Evolution (ICE)	1312
Grant	T. Harrison	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	327
Grant	T. Muscoda	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	287
Grant	T. Patch Grove	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	181
Grant	V. Dickeyville	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	621
Grant	V. Tennyson	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	215
Green	T. Albany	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	803
Green	T. Brooklyn	Wards 1-3	Dominion Voting - ImageCast Evolution (ICE)	822
Green	T. Washington	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	527
Green Lake	C. Green Lake	Wards 1-6	Dominion Voting - ImageCast Evolution (ICE)	690
Green Lake	C. Princeton	Wards 1-4	Dominion Voting - ImageCast Evolution (ICE)	689
Green Lake	T. Green Lake	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	823
Green Lake	T. Manchester	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	419
Iowa	T. Arena	Wards 1-3	ES&S DS200	975
Iowa	T. Pulaski	Ward 1	ES&S DS200	202
Iowa	T. Waldwick	Wards 1-3	ES&S DS200	307

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Iowa	V. Livingston	Ward 2	Dominion Voting - ImageCast Evolution (ICE)	3
Iowa	V. Rewey	Ward 1	ES&S DS200	121
Iron	C. Hurley	Ward 3	Dominion Voting - ImageCast Evolution (ICE)	152
Iron	T. Sherman	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	111
Jackson	C. Black River Falls	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	490
Jackson	T. Albion	Wards 1-4	Dominion Voting - ImageCast Evolution (ICE)	687
Jackson	T. Komensky	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	168
Jefferson	C. Lake Mills	Wards 1-8	ES&S DS200	4128
Jefferson	C. Watertown	Wards 16-17	ES&S DS200	1424
Jefferson	T. Milford	Wards 1-2	ES&S DS200	757
Juneau	T. Kildare	Wards 1-3	Dominion Voting - ImageCast X (ICX) VVPAT	218
Juneau	T. Kingston	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	2
Juneau	T. Lisbon	Ward 2	Dominion Voting - ImageCast Evolution (ICE)	4
Juneau	T. Wonewoc	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	397
Kenosha	C. Kenosha	Ward 54	ES&S DS200	0
Kenosha	C. Kenosha	Ward 80	ES&S DS200	0
Kenosha	C. Kenosha	Ward 29	ES&S DS200	73
Kenosha	T. Somers	Wards 1-4	ES&S DS200	328
Kenosha	V. Bristol	Wards 4-7	ES&S DS200	1881
Kewaunee	C. Kewaunee	Wards 1-6	Dominion Voting - ImageCast Evolution (ICE)	1582
Kewaunee	T. Ahnapee	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	552
Kewaunee	T. Pierce	Wards 1-3	Dominion Voting - ImageCast Evolution (ICE)	483

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Kewaunee	T. Red River	Wards 1-4	Dominion Voting - ImageCast Evolution (ICE)	939
La Crosse	C. La Crosse	Ward 16	ES&S DS200	990
La Crosse	C. La Crosse	Ward 24	ES&S DS200	1100
La Crosse	C. La Crosse	Ward 23	ES&S DS200	1255
La Crosse	T. Campbell	Wards 1-5	ES&S DS200	2679
Lafayette	T. Elk Grove	Wards 1-3	Dominion Voting - ImageCast X (ICX) VVPAT	193
Lafayette	T. Lamont	Wards 1-2	Dominion Voting - ImageCast X (ICX) VVPAT	165
Lafayette	T. Shullsburg	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	106
Lafayette	V. Blanchardville	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	370
Langlade	C. Antigo	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	423
Langlade	T. Langlade	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	330
Langlade	T. Peck	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	220
Langlade	T. Polar	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	671
Langlade	T. Rolling	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	916
Lincoln	C. Merrill	Wards 7,9	ES&S DS200	608
Lincoln	C. Tomahawk	Wards 1-2	ES&S DS200	597
Lincoln	T. Corning	Wards 1-2	ES&S DS200	550
Lincoln	T. Harrison	Wards 1-3	ES&S DS200	645
Lincoln	T. Scott	Wards 1-2	ES&S DS200	891
Manitowoc	C. Kiel	Wards 1-6,8	ES&S DS200	2236
Manitowoc	C. Manitowoc	Wards 19-20	ES&S DS200	1276
Manitowoc	T. Cooperstown	Wards 1-2	ES&S DS200	828
Manitowoc	T. Mishicot	Wards 1-2	ES&S DS200	813
Manitowoc	V. Cleveland	Wards 1-2	ES&S DS200	870
Manitowoc	V. Francis Creek	Ward 1	ES&S DS200	418
Manitowoc	V. Mishicot	Wards 1-4	ES&S DS200	864

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Manitowoc	V. Reedsville	Wards 1-2	ES&S DS200	624
Marathon	C. Wausau	Ward 5	ES&S DS200	951
Marathon	T. Brighton	Wards 1-2	ES&S DS200	284
Marathon	T. Johnson	Ward 1	ES&S DS200	393
Marathon	T. Texas	Wards 1-2	ES&S DS200	1,110
Marathon	T. Wausau	Wards 1-3	ES&S DS200	1474
Marathon	T. Weston	Ward 1	ES&S DS200	419
Marathon	V. Birnamwood	Ward 2	Dominion Voting - ImageCast X (ICX) VVPAT	117
Marathon	V. Kronenwetter	Wards 6-11	ES&S DS200	2966
Marathon	V. Stratford	Wards 1-2	ES&S DS200	938
Marinette	C. Marinette	Wards 1-8	Dominion Voting - ImageCast Evolution (ICE)	4954
Marinette	T. Stephenson	Wards 1-3	Dominion Voting - ImageCast Evolution (ICE)	1377
Marquette	T. Mecan	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	510
Marquette	T. Oxford	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	592
Marquette	V. Oxford	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	315
Marquette	V. Westfield	Wards 1-3	Dominion Voting - ImageCast Evolution (ICE)	602
Menominee	T. Menominee	Wards 1,3-5	ES&S DS200	1347
Milwaukee	C. Franklin	Ward 9	ES&S DS200	355
Milwaukee	C. Franklin	Ward 5	ES&S DS200	804
Milwaukee	C. Franklin	Ward 11	ES&S DS200	883
Milwaukee	C. Glendale	Wards 2,8	ES&S DS200	1682
Milwaukee	C. Greenfield	Ward 26	ES&S DS200	147
Milwaukee	C. Greenfield	Ward 25	ES&S DS200	866
Milwaukee	C. Greenfield	Ward 2	ES&S DS200	926
Milwaukee	C. Milwaukee	Ward 354	ES&S DS200/ES&S DS450/ES&S DS850	0
Milwaukee	C. Milwaukee	Ward 356	ES&S DS200/ES&S DS450/ES&S DS850	87
Milwaukee	C. Milwaukee	Ward 302	ES&S DS200/ES&S DS450/ES&S DS850	351
Milwaukee	C. Milwaukee	Ward 289	ES&S DS200/ES&S DS450/ES&S DS850	558

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Milwaukee	C. Oak Creek	Ward 14	ES&S DS200	780
Milwaukee	C. Oak Creek	Ward 4	ES&S DS200	909
Milwaukee	C. Wauwatosa	Ward 7A	ES&S DS200/ES&S DS450	575
Milwaukee	C. Wauwatosa	Ward 15	ES&S DS200/ES&S DS450	865
Milwaukee	C. Wauwatosa	Ward 11	ES&S DS200/ES&S DS450	956
Milwaukee	C. West Allis	Ward 4	ES&S DS200/ES&S DS450	1491
Milwaukee	C. West Allis	Ward 14	ES&S DS200/ES&S DS450	1824
Milwaukee	V. Hales Corners	Wards 1-3	ES&S DS200	1661
Milwaukee	V. Whitefish Bay	Wards 1-2	ES&S DS200	1610
Monroe	T. Angelo	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	797
Monroe	T. La Grange	Wards 3-4	Dominion Voting - ImageCast Evolution (ICE)/ Dominion Voting - ImageCast X (ICX) VVPAT	88
Monroe	T. Leon	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	695
Monroe	T. Little Falls	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	884
Monroe	T. Sheldon	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	285
Monroe	V. Kendall	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	237
Monroe	V. Norwalk	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	216
Monroe	V. Oakdale	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	153
Monroe	V. Rockland	Ward 2	ES&S DS200	0
Monroe	V. Wilton	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	252
Oconto	T. Riverview	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	647
Oconto	T. Underhill	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	277

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Oneida	T. Lake Tomahawk	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	784
Oneida	T. Lynne	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	61
Oneida	T. Pelican	Wards 1-4	Dominion Voting - ImageCast Evolution (ICE)	1780
Outagamie	C. Appleton	Ward 47	ES&S DS200	0
Outagamie	C. Appleton	Ward 35	ES&S DS200	1232
Outagamie	C. Appleton	Ward 43	ES&S DS200	1295
Outagamie	C. Seymour	Wards 1-7	ES&S DS200	1995
Outagamie	T. Bovina	Wards 1-2	ES&S DS200	803
Outagamie	T. Ellington	Wards 1-5	ES&S DS200	2165
Outagamie	T. Freedom	Wards 1-8	ES&S DS200	4002
Outagamie	T. Grand Chute	Wards 15,17,20	ES&S DS200	1191
Outagamie	T. Osborn	Wards 1-2	ES&S DS200	846
Outagamie	T. Seymour	Wards 1-2	ES&S DS200	791
Outagamie	V. Greenville	Wards 1-10	ES&S DS200	4794
Ozaukee	C. Cedarburg	Ward 4	Dominion Voting - ImageCast Evolution (ICE)	1112
Ozaukee	C. Mequon	Wards 1-3	Dominion Voting - ImageCast Evolution (ICE)	2236
Ozaukee	C. Port Washington	Wards 4,8	Dominion Voting - ImageCast Evolution (ICE)	1330
Ozaukee	T. Cedarburg	Wards 5-6,10	Dominion Voting - ImageCast Evolution (ICE)	1400
Ozaukee	V. Grafton	Wards 9-10	Dominion Voting - ImageCast Evolution (ICE)	1267
Ozaukee	V. Saukville	Wards 1,6-7	Dominion Voting - ImageCast Evolution (ICE)	1379
Pepin	T. Stockholm	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	125
Pepin	T. Waterville	Wards 1-2	Dominion Voting - ImageCast X (ICX) VVPAT	432
Pierce	C. Prescott	Wards 1-5	ES&S DS200	2613
Pierce	C. River Falls	Wards 6-9	ES&S DS200	1,329
Pierce	T. Ellsworth	Wards 1-2	ES&S DS200	781

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Pierce	T. Gilman	Ward 1	ES&S DS200	684
Pierce	T. River Falls	Wards 1-5	ES&S DS200	1,609
Pierce	T. Trimbelle	Wards 1-2	ES&S DS200	1106
Pierce	V. Bay City	Ward 1	ES&S DS200	234
Pierce	V. Plum City	Ward 1	ES&S DS200	328
Polk	T. Clam Falls	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	339
Polk	T. Eureka	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	1139
Polk	T. Laketown	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	692
Polk	T. Mckinley	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	256
Portage	C. Stevens Point	Wards 16-18	ES&S DS200	1562
Portage	T. Belmont	Ward 1	ES&S DS200	416
Portage	T. Plover	Wards 1-3	ES&S DS200	966
Price	T. Spirit	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	236
Price	V. Kennan	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	87
Racine	C. Racine	Ward 47	Dominion Voting - ImageCast Evolution (ICE)	211
Racine	C. Racine	Ward 28	Dominion Voting - ImageCast Evolution (ICE)	628
Racine	C. Racine	Ward 4	Dominion Voting - ImageCast Evolution (ICE)	700
Racine	V. Mount Pleasant	Wards 5-6,25	Dominion Voting - ImageCast Evolution (ICE)	1593
Racine	V. Waterford	Wards 1-10	Dominion Voting - ImageCast Evolution (ICE)	3855
Richland	T. Bloom	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	271
Richland	T. Orion	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	320

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Richland	T. Willow	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	303
Richland	V. Viola	Ward 2	Dominion Voting - ImageCast Evolution (ICE)	234
Rock	C. Beloit	Ward 14	ES&S DS200	225
Rock	C. Janesville	Ward 4	ES&S DS200/ES&S DS450	330
Rock	C. Janesville	Ward 10	ES&S DS200/ES&S DS450	692
Rock	C. Janesville	Ward 26	ES&S DS200/ES&S DS450	823
Rock	T. Beloit	Ward 5	ES&S DS200	6
Rock	T. La Prairie	Ward 2	ES&S DS200	150
Rock	T. Milton	Wards 1-5	ES&S DS200	2104
Rock	T. Newark	Wards 1-2	ES&S DS200	1048
Rusk	T. Grant	Wards 1-6	Dominion Voting - ImageCast Evolution (ICE)	457
Rusk	T. Marshall	Wards 1-3	Dominion Voting - ImageCast Evolution (ICE)	257
Rusk	T. Rusk	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	396
Rusk	T. Stubbs	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	360
Sauk	C. Baraboo	Wards 1-19	ES&S DS200	6856
Sauk	T. Baraboo	Wards 1-5	ES&S DS200	1,163
Sauk	T. Bear Creek	Ward 1	ES&S DS200	388
Sauk	T. Excelsior	Wards 2-3	ES&S DS200	1090
Sauk	T. Fairfield	Wards 1-2	ES&S DS200	748
Sauk	T. Ironton	Ward 2	ES&S DS200	58
Sauk	T. Prairie Du Sac	Wards 1-2	ES&S DS200	707
Sauk	T. Sumpter	Wards 1,3	ES&S DS200	324
Sauk	V. Cazenovia	Ward 2	Dominion Voting - ImageCast Evolution (ICE)	0
Sawyer	T. Couderay	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	44
Sawyer	T. Weirgor	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	107

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Sawyer	V. Exeland	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	74
Shawano	T. Bartelme	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	349
Shawano	T. Green Valley	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	629
Shawano	T. Herman	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	320
Shawano	T. Lessor	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	827
Shawano	V. Wittenberg	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	461
Sheboygan	C. Sheboygan	Ward 21	Clear Ballot ClearCast	596
Sheboygan	C. Sheboygan	Ward 11	Clear Ballot ClearCast	890
Sheboygan	C. Sheboygan	Ward 8	Clear Ballot ClearCast	962
Sheboygan	T. Holland	Ward 4	Clear Ballot ClearCast	0
Sheboygan	T. Lima	Wards 1-4	Clear Ballot ClearCast	1949
Sheboygan	T. Lyndon	Wards 1-3	Clear Ballot ClearCast	1057
Sheboygan	T. Mosel	Ward 1	Clear Ballot ClearCast	512
Sheboygan	T. Plymouth	Wards 1-4	Clear Ballot ClearCast	2138
Sheboygan	V. Cedar Grove	Wards 1-3	Clear Ballot ClearCast	1394
Sheboygan	V. Howards Grove	Wards 1-4	Clear Ballot ClearCast	2,162
St. Croix	C. Hudson	Wards 7-8	ES&S DS200	943
St. Croix	T. Baldwin	Wards 1-2	ES&S DS200	677
St. Croix	T. Cady	Ward 1	ES&S DS200	554
St. Croix	T. Emerald	Ward 1	ES&S DS200	528
St. Croix	T. Glenwood	Ward 1	ES&S DS200	469
St. Croix	T. Hammond	Wards 1-3	ES&S DS200	1669
St. Croix	V. Somerset	Wards 1-4	ES&S DS200	1830
Taylor	T. Greenwood	Ward 1	ES&S DS200	400
Taylor	T. Roosevelt	Ward 1	ES&S DS200	198
Taylor	T. Taft	Ward 1	ES&S DS200	166

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Trempealeau	T. Arcadia	Wards 1-4	Dominion Voting - ImageCast Evolution (ICE)	1026
Trempealeau	T. Caledonia	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	582
Trempealeau	T. Dodge	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	263
Trempealeau	T. Hale	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	646
Trempealeau	T. Sumner	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	568
Vernon	T. Hamburg	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	611
Vernon	T. Union	Wards 1-3	Dominion Voting - ImageCast Evolution (ICE)	245
Vernon	V. Genoa	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	134
Vilas	C. Eagle River	Wards 1-5	Dominion Voting - ImageCast Evolution (ICE)	936
Vilas	T. Manitowish Waters	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	568
Walworth	C. Whitewater	Wards 8-10	Dominion Voting - ImageCast Evolution (ICE)	193
Walworth	T. Geneva	Wards 1-7,9-10	Dominion Voting - ImageCast Evolution (ICE)	3076
Walworth	T. Linn	Ward 5	Dominion Voting - ImageCast Evolution (ICE)	319
Walworth	T. Spring Prairie	Wards 1-4	Dominion Voting - ImageCast Evolution (ICE)	1562
Walworth	T. Sugar Creek	Wards 1-7	Dominion Voting - ImageCast Evolution (ICE)	2593
Walworth	V. Genoa City	Wards 1-5	Dominion Voting - ImageCast Evolution (ICE)	1602
Walworth	V. Sharon	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	776

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Washburn	C. Spooner	Wards 1-4	Dominion Voting - ImageCast Evolution (ICE)/ Dominion Voting - ImageCast X (ICX) VVPAT	1239
Washburn	T. Bashaw	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)/ Dominion Voting - ImageCast X (ICX) VVPAT	172
Washburn	T. Bass Lake	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	397
Washburn	T. Madge	Ward 1	Dominion Voting - ImageCast Evolution (ICE)/ Dominion Voting - ImageCast X (ICX) VVPAT	186
Washburn	T. Stone Lake	Ward 1	Dominion Voting - ImageCast X (ICX) VVPAT	158
Washington	C. West Bend	Wards 9-10	Dominion Voting - ImageCast Evolution (ICE)	1398
Washington	T. Barton	Wards 1-4	Dominion Voting - ImageCast Evolution (ICE)	2,000
Washington	T. Farmington	Wards 1-5	Dominion Voting - ImageCast Evolution (ICE)	2576
Washington	T. Hartford	Ward 5	Dominion Voting - ImageCast Evolution (ICE)	575
Washington	V. Germantown	Wards 12-14	Dominion Voting - ImageCast Evolution (ICE)	2015
Waukesha	V. Mukwonago	Wards 1-10	ES&S DS200	5296
Waukesha	C. Brookfield	Ward 21	ES&S DS200	1429
Waukesha	C. Brookfield	Ward 9	ES&S DS200	1470
Waukesha	C. Waukesha	Wards 2, 24, 51	ES&S DS200	2537
Waukesha	T. Mukwonago	Wards 1,4-10,12	ES&S DS200	2722
Waukesha	V. Lisbon	Wards 1,6-7	ES&S DS200	3152
Waukesha	V. Menomonee Falls	Ward 20	ES&S DS200	875
Waukesha	V. Menomonee Falls	Ward 8	ES&S DS200	1037
Waukesha	V. Merton	Wards 1-4	ES&S DS200	2467
Waukesha	V. North Prairie	Wards 1-3	ES&S DS200	1547
Waukesha	V. Wales	Wards 1-4	ES&S DS200	2016
Waukesha	V. Waukesha	Wards 6-11	ES&S DS200	3572

County	Municipality	Reporting Unit	Auditable Equipment	Ballots Audited
Waupaca	C. New London	Wards 10-12	Dominion Voting - ImageCast Evolution (ICE)	222
Waupaca	T. Wyoming	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	210
Waushara	C. Wautoma	Wards 1-3	Dominion Voting - ImageCast Evolution (ICE)	938
Waushara	T. Deerfield	Ward 1	Dominion Voting - ImageCast Evolution (ICE)	511
Winnebago	C. Oshkosh	Ward 26	Dominion Voting - ImageCast Evolution (ICE)	0
Winnebago	C. Oshkosh	Ward 27	Dominion Voting - ImageCast Evolution (ICE)	0
Winnebago	C. Oshkosh	Ward 18	Dominion Voting - ImageCast Evolution (ICE)	740
Winnebago	T. Black Wolf	Wards 1-3	Dominion Voting - ImageCast Evolution (ICE)	1769
Winnebago	T. Omro	Wards 1-4	Dominion Voting - ImageCast Evolution (ICE)	1758
Winnebago	T. Rushford	Wards 1-2	Dominion Voting - ImageCast Evolution (ICE)	1104
Wood	C. Marshfield	Ward 6	ES&S DS200	931
Wood	T. Arpin	Wards 1-2	ES&S DS200	569
Wood	T. Port Edwards	Wards 1-4	ES&S DS200	824
Wood	T. Rudolph	Wards 1-2	ES&S DS200	656
Wood	T. Sigel	Wards 1-2	ES&S DS200	689
Wood	V. Auburndale	Ward 1	ES&S DS200	383
Wood	V. Milladore	Ward 1	ES&S DS200	162