WISCONSIN ELECTIONS COMMISSION

212 EAST WASHINGTON AVENUE, 3RD FLOOR
POST OFFICE BOX 7984
MADISON, WI 53707-7984
(608) 261-2028
ELECTIONS@WI.GOV
ELECTIONS.WI.GOV

ADMINISTRATOR MICHAEL HAAS

COMMISSIONERS

BEVERLY R. GILL
JULIE M. GLANCEY
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DEAN KNUDSON
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MEMORANDUM

DATE: For the December 12, 2017, Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Michael Haas
Administrator

Prepared and Presented by:
Richard Rydecki
Elections Supervisor

Robert Williams
Elections Specialist

SUBJECT: Clear Ballot
Petition for Approval of Electronic Voting System ClearVote 1.4

I. Introduction

Clear Ballot Group is requesting the Wisconsin Elections Commission (WEC or Commission) approve the ClearVote 1.4 voting system for sale and use in the State of Wisconsin. This is the first time this system has been offered for certification in Wisconsin. No electronic voting equipment may be offered for sale or utilized in Wisconsin unless first approved by the WEC based upon the requirements of Wis. Stat. § 5.91 (Appendix A). The WEC has also adopted administrative rules detailing the approval process. Wis. Admin. Code Ch. EL 7 (Appendix B).

A. ClearVote 1.4

ClearVote 1.4 is a paper based, digital scan voting system powered by the ClearDesign and ClearCount software platforms. It consists of four major components: ClearDesign, an election management system (EMS); ClearAccess, an Americans with Disabilities Act compliant vote capture device for a polling place; ClearCast, a polling place scanner and tabulator; and ClearCount, an election results software application that also works in conjunction with commercial off-the-shelf (COTS) high speed scanners as a central count scanning and tabulation system.

The ClearCount system has previously been approved for use in several states where the majority of ballots are returned by mail and centrally counted on the county level. ClearCast, a

precinct scanner and tabulator, is new to the market and has yet to be approved by any other state or jurisdiction. ClearVote 1.4 has yet to receive federal certification from the Election Assistance Commission (EAC), but has undergone testing and review from a federally certified Voting System Testing Laboratory (VSTL). The VSTL report has been provided to the WEC as part of the application materials and staff has reviewed the testing results documented in the report. The VSTL report concludes with a recommendation that the EAC certify ClearVote 1.4. WEC staff has attempted to contact the EAC project manager assigned to the application for ClearVote 1.4 and will continue to follow up to determine when it expects the system to received federal certification.

II. Recommendation

WEC staff is recommending approval of ClearVote 1.4 for sale and use in Wisconsin contingent on the system receiving final certification from the EAC. EAC certification is no longer a required condition for certification in Wisconsin, but all systems recently certified for use in Wisconsin have been approved on the federal level and staff believes that ClearVote 1.4 should also meet this condition. This approach is especially relevant given that the ClearCast precinct scanner and tabulator has not been approved for use in any other state. Detailed recommendations are listed on pages 15 and 16, following the analysis of functional testing performed by WEC staff.

III. Background

On June 29, 2017, WEC staff received an Application for Approval of ClearVote 1.4. Clear Ballot Group submitted specifications for hardware, firmware and software related to the voting system. In addition, Clear Ballot submitted technical manuals, documentation and instruction materials necessary for the operation of ClearVote 1.4. At the same time, Clear Ballot did not submit the required VSTL report as testing of the system had not yet been completed.

WEC staff determined that it could not act on the application from Clear Ballot Group until testing by the VSTL had been completed and the testing lab had issued its report. Clear Ballot Group continued to provide updates to WEC staff regarding the status of the VSTL testing process of ClearVote 1.4. Staff began to plan the test campaign once Clear Ballot Group provided a realistic expected date for the issuance of the VSTL report. Clear Ballot Group provided the testing report to the WEC on November 17, 2017.

A. ClearVote 1.4

The Voting System Test Laboratory (VSTL) responsible for testing ClearVote 1.4, Pro V&V, recommended on November 17, 2017 that the EAC certify ClearVote 1.4. Voting systems submitted to the EAC for testing after December 13, 2007, are tested using the 2005 Voluntary Voting System Guidelines (2005 VVSG). The EAC has received the test report from Clear Ballot but has yet to issue final certification of ClearVote 1.4.

WEC staff conducted the voting system testing campaign for ClearVote 1.4 from November 27 to December 1, 2017 in the WEC office. The campaign consisted of functional testing using three different mock election configurations, a meeting of the Wisconsin Voting Equipment

Review Panel (a body that consists of local election officials and voting and advocates for voters with disabilities), and a public demonstration of the system.

i. Hardware Components

Clear Ballot Group submitted the following equipment for testing as part of ClearVote 1.4:

Equipment	***Hardware Version(s)***	***Firmware Version***	***Type***
ClearCast	**Model 1**	**A**	**Polling Place Digital Scanner and Tabulator**
ClearCount			**Central Count Digital Scanner**
Dell Latitude Laptop	5580		
Dell PowerEdge Server	T330		
Dell OptiPlex AIO	7440		
Dell Precision Workstation	T3620		
Fujitsu Scanner	fi-7180		
Fujitsu Scanner	fi-6800		
Fujitsu Scanner	fi-6400		
ClearDesign			**Election Management System**
Dell Latitude Laptop	5580		
Dell PowerEdge Server	T630		
Dell 24-inch Monitor	SE2416H		
Dell 22-inch Monitor	E2216HV		
Dell Mini Tower	T3620		
TP-LINK VPN Router	TL-R600VPN		
Lenovo USB Portable DVD Burner	LN-8A6NH11B		
Brother Printer	HL-L2340DW		
ClearAccess			**Ballot Marking Device**
Dell OptiPlex AIO	5250		
Dell 15” Inspiron	7000 series		
Brother Laser Printer	HL-L2340DW		

Oki Data Laser Printer	B432dn		

The following paragraphs describe the design of the ClearVote 1.4 hardware taken in part from Clear Ballot technical documentation.

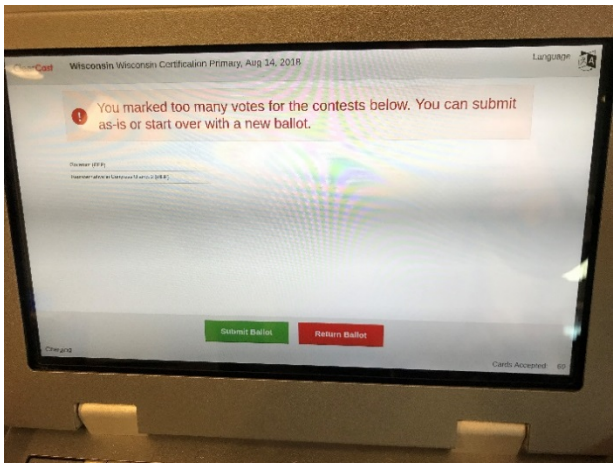
1. ClearCast

ClearCast is a digital scan paper ballot tabulator designed for use at the polling place. After a voter marks a paper ballot, her ballot is inserted into the unit for processing. The tabulator uses high speed, high-resolution, commercial scan engines to simultaneously image the front and back of the ballot. The resulting ballot images are processed by the Intel NUC, an off the shelf miniature PC, which identifies and evaluates marks made by the voter. The system then tabulates any votes cast on each ballot before depositing the ballot into a detachable, secured storage bin. The ballot images and election results are stored on a removable USB flash drive. This USB flash drive may be taken to the municipal clerk's office or other central office where the ballot images and election results may be uploaded into an election results management program or transferred to another memory device or machine to facilitate storage. ClearCast does not store any images or data in its internal memory.

Voter Information Screens: ClearCast features a 16 by 9-inch touchscreen display to provide feedback to the voter regarding the disposition of any ballot inserted into the machine. The screens are designed to alert voters to any errors on their ballot. ClearCast will, depending on the situation, provide details about the error, identify the specific contests where the errors occurred, allow the ballot to be returned to the voter, and provide the option for the voter to cast the ballot with errors on it. ClearCast will automatically reject ballots if a voter attempts to insert multiple ballots into the machine at the same time.

WEC staff provided Clear Ballot Group with standard language for the overvote and crossover vote notification screens and much of that language was included in the programming used for testing. Some prescribed language regarding the consequences of using the 'Submit' button in the event of an overvote or crossover vote was not included in the language that was displayed during testing. Further information related to ClearCast voter notification screens can be found on the following pages.

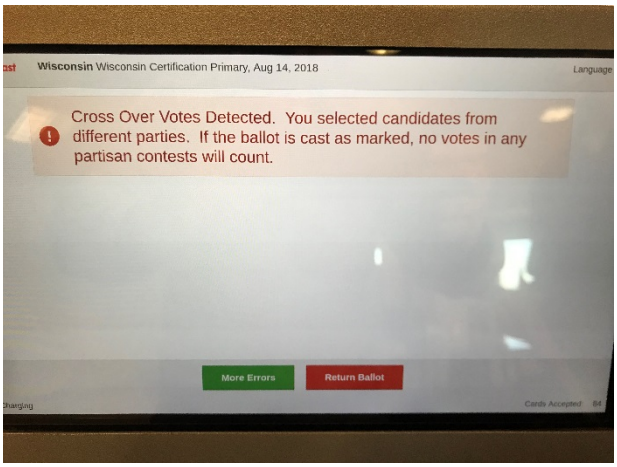
- **Overvote Notification:** If there is a ballot containing an overvote, an error message appears that identifies the contests containing overvotes.



  The voter has the option to return the ballot for review or cast the ballot with overvotes. If there are multiple overvotes, the contests containing errors are listed so that the voter is able to review any errors. An overvote notification at the top of the screen informs the voter that his ballot can be returned and remade or submitted with overvotes.

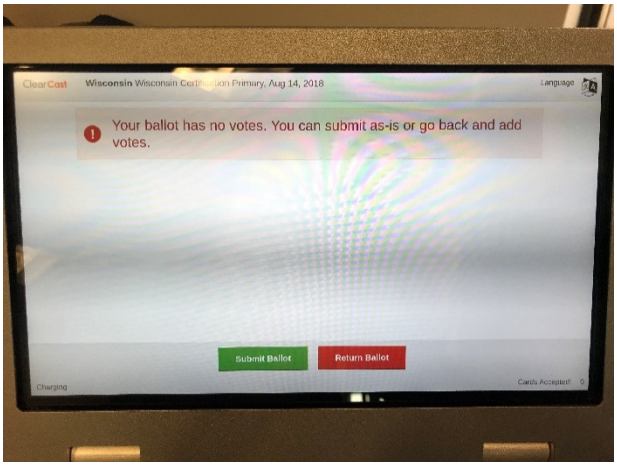
  Voters can press “Return Ballot” if they wish to correct their ballot. Voters are able to press “Submit Ballot” if they wish to submit their ballot with overvotes. Although ClearCast will allow voters to submit a ballot containing overvotes, the system does not inform the voter that no votes will count in contests where overvotes are detected.

- **Crossover Vote Notification:** If a ballot is inserted with votes in more than one party’s primary, a message appears that informs the voter that she is attempting to cast a ballot that contains cross over votes.

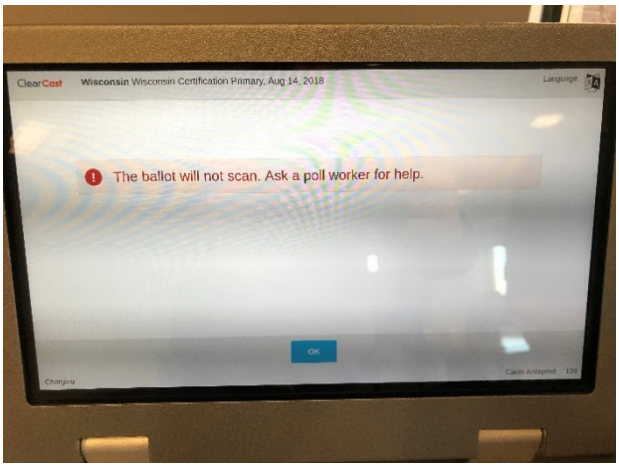


  The voter has the ability to return the ballot for review or cast the ballot. Voters can press “Return Ballot” on the screen if they wish to correct their ballot to reflect their party preference or to correct any crossover votes. Conversely, voters can press the “Submit Ballot" button to cast the crossover-voted ballot. In a crossover vote scenario, ClearCast informs the voter that no votes in partisan contests will count. The crossover vote notification does not, however, notify a voter as to which contests contain crossover votes.

- **Blank Ballot Notification:** If the ballot contains no votes, a message appears that states the ballot is blank. The voter is allowed to press "Return Ballot" to correct their ballot and see a poll worker for help. The voter is can press "Submit Ballot" to submit his ballot without any selections.



- **Unreadable Marks:** If a ballot is inserted that includes marks that cannot be read by the machine, ClearCast will not accept that ballot and will return it to the voter without an option to cast the problematic ballot. The voter is instructed to see a poll worker for help.



The screen shots above illustrate some of the configurations prescribed by the WEC that were developed as part of the certification for Elections Systems and Software EVS 5.2.2.0 that was approved by the WEC at its June 20, 2017 meeting. Depending on permissions granted by the system administrator, the county or municipal clerk may also set the configuration to automatically reject all ballots with overvotes or crossover votes, which requires the voter to correct the error by remaking his or her ballot. This ensures that voters do not mistakenly process a ballot on which a vote for one candidate or all candidates will not count.

Reading Ballots: ClearCast uses the Intel Next Unit of Computing (NUC) CPU as well as non-proprietary, commercially available software to identify properly marked votes on a ballot. Ballots used in conjunction with this system are designed with an oval next to the candidate name or ballot choice that a voter would fill in to indicate their choice. A digital image of both sides of the ballot is captured by the machine when the ballot is inserted and ClearCast scans the ballot images to determine and record the voter's choices. Clear Ballot recommends that voters use a specific marking device, such as a black roller ball pen, to mark ballots processed on ClearCast. As part of ClearVote 1.4 testing, red, blue, and green pens were also used to mark ballots, all of which were tabulated by ClearCast as valid votes.

Printing Reports: ClearCast includes an internal thermal printer for the printing of the zero reports, log reports, polling place totals and write-in reports upon the official closing of the polls.

2. ClearCount

ClearCount is a central, high speed, optical scan ballot tabulator coupled with ballot processing applications. The ClearCount system is capable of processing between 50 and 60 ballots per minute, or roughly 3,400 ballots per hour when using an 18-inch ballot. ClearCount software runs on unmodified COTS laptop or desktop computers and can be programmed to run either Windows 10 or Ubuntu Linux operating systems and supports specific models of Fujitsu scanners. All the components are connected via a wired, closed, and isolated network not connected to any other systems or the internet. ClearCount utilizes existing, off the shelf, Fujitsu scanner technology to capture an image of both sides of the ballot. All files that make up the ClearCount software reside on a single scan server that is shared by all the municipality's scan stations. The only software programs installed on the scan stations are the Windows operating system, the Fujitsu ScandAll Pro software and drivers required by the scanner hardware.

ClearCount also includes software features that support central count tabulation, election results consolidation and election results reporting. This system also includes ballot and vote adjudication features that allow for the review of each ballot cast on the ClearVote 1.4 system. Both the precinct scanner and central count system create an image of both sides of each ballot processed by those components. The ballot images can be reviewed by ClearCount and a report is available that indicates which votes on each ballot were counted. The adjudication component allows for the review of how the system treated each vote on a ballot and the user can alter the disposition of votes on a ballot if he or she feels the system did not tabulate votes on a ballot in accordance with the intent of the voter. Election officials are also able to adjudicate and reconcile problem ballots by locating individual errant marks, overvotes and crossover votes.

To tabulate and consolidate election results, the ballot style definition files are created by ClearDesign, imported into ClearCount and used to tabulate results in the election database. The ClearCount system then produces a suite of election reports that election officials can use to track and analyze results. The election reports in the system are browser-based and provide election results and analysis, allowing election officials to review individual ballot images. ClearCount results can be printed or exported in a variety of formats.

3. ClearAccess

ClearAccess is an accessible touchscreen ballot marking device primarily designed for use by voters who have visual, auditory or physical limitations or disabilities. ClearAccess printers create paper ballots that can be scanned and tabulated by ClearCast and ClearCount. Like other components of the ClearVote 1.4 voting system, ClearAccess uses unmodified, commercially available off the shelf hardware such as laptop and desktop computers, combined with personal assistive devices and printers to form a ballot marking device.

An election inspector must assist the voter to access the correct ballot style for the election. Once that has been completed, the voter is left to navigate the ballot and cast her votes privately. Voters have the option to use the touchscreen or an integrated tactile keypad to navigate the ballot and make ballot selections. Instructions that guide the voter through the process appear on the screen or can be accessed via the audio ballot function. Voters have the option to adjust the text display contrast and text size to suit their preferences. Each button on the tactile keypad has both Braille and printed text labels designed to indicate function and a related shape to help the voter determine its use. In addition, voters may also use headphones to access the audio ballot function that provides a recording of the ballot instructions and lists candidates and options for each contest. The volume and tempo of the audio can be adjusted by voters, who can use the touchscreen, tactile keypad or other assistive technology to make their selections.

ClearAccess provides a ballot summary screen on which voters can review their selections before the ballot is marked by the attached printer. A party preference selection on partisan primary ballots is required to be made by the voter before viewing contests so that crossover votes cannot occur. Once voters confirm their selections, those selections are sent to an attached printer which utilizes blank ballot stock to produce a marked ballot containing all of the voters' selections. This system includes two types of COTS printers that will work with ClearAccess, however, only one of these units can accommodate 16-inch ballots that are common for partisan primaries. The two units included in this system are the Brother Laser Printer model HL-L2340DW and the Oki Data Laser Printer model B432dn.

After the voter completes the process, the paper ballot is the only record of the voting selections made. ClearAccess does not save any vote or ballot information to its internal memory. Ballots marked using ClearAccess can be processed by ClearCast or deposited into a secured ballot box to be hand tabulated by election inspectors after the polls have closed. Ballots marked using ClearAccess also may be tabulated using the ClearCount central count scanner units.

4. ClearDesign

ClearDesign is an Election Management System consisting of an interactive set of applications which are responsible for all pre-voting activities necessary for defining and managing elections. This includes ballot design, ballot proofing, ballot layout and ballot production. The ClearDesign system consists of a laptop or desktop computer running ClearDesign software and connected to the DesignServer, and a router used to connect the computers to the DesignServer using a wired, closed connection. All the components used for the generation of voting machine election definitions are unmodified, off-the-shelf products that are connected via a wired, closed and isolated network not connected to any other systems or the internet.

ii. Software

ClearVote 1.4 supports election administration functions through the use of three main software programs. ClearDesign is used to create the ballot layout and the programming definitions for an election and to create the files used by ClearCast, ClearCount and ClearAccess. ClearCount provides for vote tabulation, and results consolidation and reporting, while the ClearAccess software powers the ADA-compliant ballot marking device.

The software components used during this test campaign were as follows:

Software	***Version***
ClearDesign	1.4.3
ClearCount	1.4.2
ClearAccess	1.4.1

WEC staff visually verified the software version numbers for each component of the ClearVote 1.4 by checking the component's configuration display.

In addition to the verification of software version numbers, WEC staff also had the opportunity to interact with several functionalities of the software components of ClearVote 1.4. Clear Ballot Group staff provided a demonstration of the ClearDesign functionality and WEC staff were able to interact with several aspects of the ClearCount software, including the ballot auditing and vote adjudication functionalities. The functionality of the tabulator system that captures digital ballot images increases the ability of groups requesting to conduct post-election audits of the vote. The images could be provided, or made publicly available via a county or municipal website, in lieu of copies of paper ballots.

These ballot images can be exported to ClearCount and a report listing the disposition of each vote on a ballot can be viewed. This feature can be used to verify how a tabulator treated a vote or ballot if questions arise as to how the machine counted votes for a contest or on a specific ballot, or ballots. The ballot image files serve as a reliable backup in the event that original ballot images are lost or damaged.

IV. Functional Testing

A. ClearVote 1.4

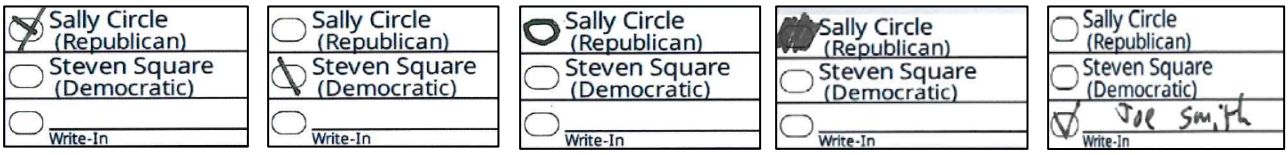
As required by Wis. Admin. Code EL s. 7.02(1), WEC staff conducted three mock elections with each component of ClearVote 1.4 to ensure the voting system conforms to all Wisconsin requirements: a Partisan Primary, a General Election with both a presidential and gubernatorial vote, and a Presidential Preference vote combined with a nonpartisan election.

WEC staff designed a test deck of more than 1,200 ballots using various configurations of votes over the three mock elections to verify the accuracy and functional capabilities of the ClearVote 1.4. A three-person team of WEC staff transferred the markings on the test deck spreadsheet for each mock election to blank ballots provided by Clear Ballot. WEC staff fed these ballots through ClearCast and three different COTS scanners that work in conjunction with the ClearCount software. The functionality of ClearAccess was tested by marking 300 ballots with the equipment across the three mock elections. The votes captured on the ballots created by ClearAccess were verified by WEC staff before being scanned and counted by the ClearCast and ClearCount. WEC staff determined the results produced by the two tabulator components were accurate and matched the test deck script.

Votes were recorded on test deck ballots in a variety of configurations in all contests to ensure that the programming of the tabulation equipment was compatible with Wisconsin election law, and that the equipment processed ballot markings in accordance with statutory requirements. Ballots were purposefully marked with overvoted contests and the equipment was able to consistently identify those scenarios and inform the voter about the specific contest, or contests, that were problematic. Ballots for both the Partisan Primary and Presidential Preference mock elections were also marked with votes that crossed party lines and, in each instance, the machines were able to identify those crossover votes and display the warning screen to the voter. Two different ballot styles were used for each mock election and one ballot style in each election had a special election contest included on the ballot. This inclusion was used to determine if the equipment could be programmed to accommodate multiple election definitions on the same ballot style and produce accurate results. In all instances, the equipment was found to have accurately tabulated votes and correctly reflected Wisconsin election law in the programming.

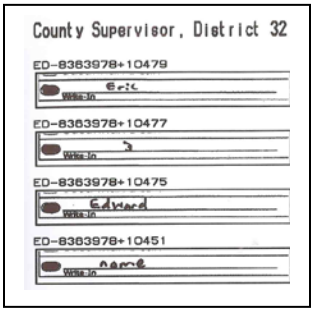
The test decks used for this campaign were also designed to determine what constitutes a readable mark by each piece of tabulation equipment included in this system. A subset of ballots in the test deck were marked using “special marks,” ambiguous marks and hesitation marks. These ballots were processed by the tabulation equipment and WEC staff reviewed the results to determine which of the special marks were read by the different pieces of voting equipment. The chart below illustrates actual marks from test deck ballots that were successfully read and counted as “good marks” by the ClearCast precinct scanner and tabulator and the three different COTS scanners that work in conjunction with ClearCount as a central count scanning and tabulation system.

Examples of Marginal Marks Read by the ClearVote 1.4 Components During Testing



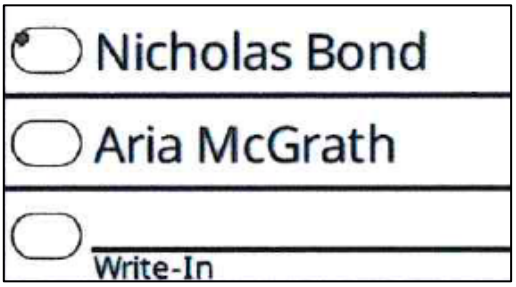
All four pieces of equipment were able to correctly read marks in pencil, black pen, blue pen, red pen and green pen as well as those made by markers recommended for use by the vendor. The test decks also included ballots folded to simulate absentee ballots and ballots with slight tears in them. Blank ballots and voted photocopies of ballots were also included to determine how each of the three different tabulators would treat these ballots. Folded ballots were able to be processed without issue on the ClearCast and the central count scanners, while these pieces of equipment also processed the slightly torn ballots without incident. The ClearCast tabulator was able to identify the blank ballots and provide a warning message to the voter that indicated the ballot was blank and provide options to return the ballot or cast it as is. This functionality is not available with the ClearCount system used at central count locations where voters are not present to correct ballot errors.

This system included a write-in report feature that captures digital images of all write in votes where the write-in oval was filled in on the ballot. A write-in report can be printed along with the results tapes that includes images of the actual write-in lines and organizes all write-in votes by office. However, this would not replace the need for inspectors to manually inspect each ballot to detect write-in votes where the voter did not fill in the target area next to the write-in line, but still used the write-in line.



The majority of ballots in the test deck were processed without incident during the campaign, but several anomalies and inconsistencies were also identified. One inconsistency was that ballots marked in pencil with erasure marks were not read the same by the precinct tabulator and the central count scanners. In multiple instances, a ballot with an erasure mark that was not counted by one piece of equipment was treated as a "good mark" by a different piece of equipment in the system. Other test ballots that contained lighter erasure marks were treated uniformly by all pieces of equipment.

In addition, ballots that were purposefully marked with slight resting marks were also not treated consistently across all machines. In the example provided at right, the ClearCount central count system scanners did not read the resting mark in the oval for the candidate as a vote, but the ClearCast precinct tabulator read the hesitation mark as a good mark and counted the vote for that candidate. Additional test ballots that were marked with lighter resting marks within an oval, or with resting marks touching the edge or outside of the oval were all treated the same by the different machines and these marks did not negatively impact the counting of votes on those ballots.



Anomalies such as these are common during a testing campaign and are identified by the purposeful inclusion of ambiguous marks on test deck ballots. In both of these instances, voter behavior in marking the ballot (dark erasure smudge and resting mark within an oval) played a significant role in the disposition of those ballots by the voting equipment. Testing results and staff observation of the system indicate that ClearVote 1.4 consistently identifies and tabulates correctly marked votes in a uniform fashion. The system is also flexible enough to correctly interpret special marks made within an oval while not considering resting or stray marks made outside of an oval.

In addition, staff found that the weight of the paper used by the ClearAccess printers impacted the quality of the ballot that was printed. Ballots printed on certain weight paper had a lower print quality and were able to be smudged in a way that would not allow them to be processed by the ClearCast and ClearCount systems. Once a different weight of paper was loaded into the printers, staff did not experience the same printing and tabulation issues.

V. Public Demonstration

A public demonstration of the ClearVote 1.4 was held on November 29, 2017, from 4:00 p.m. to 5:30 p.m. in Madison at the WEC office. The public meeting is designed to allow members of the public the opportunity to use the voting system and provide comment. There were two attendees at the public demonstration who were provided with a demonstration of all components of the system and discussed the ClearCount election results and adjudication software with representatives from Clear Ballot Group and WEC staff.

VI. Wisconsin Elections Commission Voting Equipment Review Panel Meeting

In an effort to continue to receive valuable feedback from election officials and community advocates during the voting equipment approval process, the Wisconsin Elections Commission formed a Voting Equipment Review Panel that serves in a similar capacity as the former Wisconsin Election Administration Council which was eliminated as part of the 2016 legislation that created the Wisconsin Elections Commission. Wis. Admin. Code EL s. 7.02(2), permits the agency to use a panel of local election officials and electors to assist in the review of voting systems.

Ten of the 25 invited participants attended the Voting Equipment Review Panel Meeting which is composed of municipal and county clerks, advocates for voters with disabilities and advocates for the interests of the voting public. The meeting took place at the WEC office in Madison on November 29, 2017, from 2:00 p.m. to 3:30 p.m., and representatives from Clear Ballot Group provided a demonstration of the ClearVote 1.4 with attendees encouraged to test the equipment. In addition to the Review Panel participants, one member of the public and WEC staff attended the meeting. Comments and feedback from the Voting Equipment Review Panel meeting are included in Appendix C.

VII. Statutory Compliance

Wis. Stat. §5.91 provides the following requirements voting systems must meet to be approved for use in Wisconsin. Please see the below text of each requirement and staff's analysis of the ClearVote 1.4 compliance with the standards.

§ 5.91 (1)
The voting system enables an elector to vote in secret.
Staff Analysis
The Clear Ballot voting systems meet this requirement by allowing a voter to vote a paper ballot in the privacy of a voting booth or at the accessible voting station without assistance.

§ 5.91 (3)
The voting system enables the elector, for all elections, except primary elections, to vote for a ticket selected in part from the nominees of one party, and in part from nominees from other parties and write-in candidates
Staff Analysis
The Clear Ballot voting system allows electors to split their ballot among as many parties as they wish during any election that is not a partisan primary. It also allows the elector to write in the allowable number of candidates for each office on the ballot.

§ 5.91 (4)
The voting system enables an elector to vote for a ticket of his or her own selection for any person for any office for whom he or she may desire to vote whenever write-in votes are permitted.
Staff Analysis
The Clear Ballot voting system allows write-in votes where permitted.

§ 5.91 (5)
The voting systems accommodate all referenda to be submitted to electors in the form provided by law.
Staff Analysis
The Clear Ballot voting system meets this requirement. Referenda were included on several different ballot styles used during this test campaign.

§ 5.91 (6)
The voting system permits an elector in a primary election to vote for the candidates of the recognized political party of his or her choice, and the system rejects any ballot on which votes are cast in the primary of more than one recognized political party, except where a party designation is made or where an elector casts write-in votes for candidates of more than one party on a ballot that is distributed to the elector.
Staff Analysis
The Clear Ballot voting system can be configured to always reject crossover votes without providing an opportunity for the voter to override. The system can also be programmed to provide a warning screen to the voter that identifies any contest with crossover votes. Either one of these programming options allows this system to meet this requirement. The warning screen provides options where the elector can choose to have the ballot returned to them or they can cast the ballot without correcting the crossover vote. The use of the override function was previously prohibited by statute, but Wis. Stats. §5.85(2)(b) expressly allows for the optional

use of the override function in event of an overvote and the WEC has applied the same standard to the use of the override function in the event of crossover vote.

§ 5.91 (7)
The voting system enables the elector to vote at an election for all persons and offices for whom and for which the elector is lawfully entitled to vote; to vote for as many persons for an office as the elector is entitled to vote for; to vote for or against any question upon which the elector is entitled to vote; and it rejects all choices recorded on a ballot for an office or a measure if the number of choices exceeds the number which an elector is entitled to vote for on such office or on such measure, except where an elector casts excess write-in votes upon a ballot that is distributed to the elector.
Staff Analysis
The Clear Ballot voting system can be configured to always reject overvotes without providing an opportunity for the elector to override. The system can also be programmed to provide a warning screen to the elector that identifies any contest with an overvote. Either one of these programming options allows these systems to meet this requirement. The warning screen provides options where the elector can choose to have their ballot returned to them or they can cast the ballot without correcting the overvote. The use of the override function was previously prohibited by statute, but Wis. Stats. §5.85(2)(b) expressly allows for the optional use of the override function in event of an overvote.

§ 5.91 (8)
The voting system permits an elector at a General Election by one action to vote for the candidates of a party for President and Vice President or for Governor and Lieutenant Governor.
Staff Analysis
The Clear Ballot voting system meets this requirement.

§ 5.91 (9)
The voting system prevents an elector from voting for the same person more than once, except for excess write-in votes upon a ballot that is distributed to the elector.
Staff Analysis
The Clear Ballot voting system meets this requirement.

§ 5.91 (10)
The voting system is suitably designed for the purpose used, of durable construction, and is usable safely, securely, efficiently and accurately in the conduct of elections and counting of ballots.
Staff Analysis
The Clear Ballot voting system meets this requirement.

§ 5.91 (11)
The voting system records and counts accurately every vote and maintains a cumulative tally of the total votes cast that is retrievable in the event of a power outage, evacuation or malfunction so that the records of votes cast prior to the time that the problem occurs is preserved.
Staff Analysis
The Clear Ballot voting system meets this requirement.

§ 5.91 (12)
The voting system minimizes the possibility of disenfranchisement of electors as the result of failure to understand the method of operation or utilization or malfunction of the ballot, voting system or other related equipment or materials.
Staff Analysis
The Clear Ballot voting system can be programmed to provide warning screens to the voter that identifies any problem with their ballot. The warning screens provide an explanation of the problem and allow the voter to have their ballot returned to them to review and correct the error. The systems can be configured to always reject overvotes and crossover votes without providing an opportunity for the voter to override. The language on the warning screens can be customized to a format prescribed by the WEC.

§ 5.91 (13)
The automatic tabulating equipment authorized for use in connection with the system includes a mechanism which makes the operator aware of whether the equipment is malfunctioning in such a way that an inaccurate tabulation of the votes could be obtained.
Staff Analysis
The Clear Ballot voting system meets this requirement.

§ 5.91 (14)
The voting system does not use any mechanism by which a ballot is punched or punctured to record the votes cast by an elector.
Staff Analysis
The Clear Ballot voting system does not use any such mechanism to record votes.

§ 5.91 (15)
The voting system permits an elector to privately verify the votes selected by the elector before casting his or her ballot.
Staff Analysis
The Clear Ballot voting system meets this requirement.

§ 5.91 (16)
The voting system provides an elector the opportunity to change his or her votes and to correct any error or to obtain a replacement for a spoiled ballot prior to casting his or her ballot.
Staff Analysis
The Clear Ballot voting system meets this requirement.

§ 5.91 (17)
Unless the ballot is counted at a central counting location, the voting system includes a mechanism for notifying an elector who attempts to cast an excess number of votes for a single office the ballot will not be counted, and provides the elector with an opportunity to correct his or her ballot or to receive a replacement ballot.
Staff Analysis
The Clear Ballot voting system meets this requirement.

§ 5.91 (18)
If the voting system consists of an electronic voting machine, the voting system generates a complete, permanent paper record showing all votes cast by the elector, that is verifiable by the elector, by either visual or nonvisual means as appropriate, before the elector leaves the voting area, and that enables a manual count or recount of each vote cast by the elector.
Staff Analysis
Since the Clear Ballot voting system presented for approval requires paper ballots to be used to cast votes, this requirement does not apply.

The Help America Vote Act of 2002 (HAVA) also provides the following applicable requirements that voting systems must meet:

HAVA § 301(a)(1)(A)
The voting system shall: (i) permit the voter to verify (in a private an independent manner) the votes selected by the voter on the ballot before the ballot is cast and counted; (ii) provide the voter with the opportunity (in a private and independent manner) to change the ballot or correct any error before the ballot is cast and counted (including the opportunity to correct the error through the issuance of a replacement ballot if the voter was otherwise unable to change the ballot or correct any error); and (iii) if the voter selects votes for more than one candidate for a single office – (I) notify the voter than the voter has selected more than one candidate for a single office on the ballot; (II) notify the voter before the ballot is cast and counted of the effect of casting multiple votes for the office; and, (III) provide the voter with the opportunity to correct the ballot before the ballot is cast and counted
HAVA § 301(a)(1)(C)
The voting system shall ensure than any notification required under this paragraph preserves the privacy of the voter and the confidentiality of the ballot.
HAVA § 301(a)(3)(A)
The voting system shall—

(A) be accessible for individuals with disabilities, including nonvisual accessibility for the blind and visually impaired, in a manner that provides the same opportunity for access and participation (including privacy and independence) as other voters
Staff Analysis
The Clear Ballot voting system meets these requirements.

VIII. Recommendations

Staff has reviewed the application materials, including the technical data package and testing lab report, and examined the results from the functional test campaign to determine if this system is compliant with both state and federal certification laws. ClearVote 1.4 complies with all applicable state and federal requirements. The voting systems met all standards over three mock elections and staff determined they can successfully run a transparent, fair and secure election in compliance with Wisconsin Statutes. The systems also enhance access to the electoral process for individuals with disabilities with the inclusion of the ClearAccess vote capture system.

1. WEC staff recommends approval of Clear Ballot voting system ClearVote 1.4 and components set forth in the tables on pages 3, 4 and 9 above. This voting system accurately completed the three mock elections and was able to accommodate the voting requirements of the Wisconsin election process. Staff recommends that this approval be contingent on ClearVote 1.4 receiving federal approval from the Election Assistance Commission and a staff review of the certification report.

2. WEC staff recommends that as a continuing condition of the WEC's approval, that Clear Ballot may not impose customer deadlines contrary to requirements provided in Wisconsin Statutes, as determined by the WEC. In order to enforce this provision, local jurisdictions purchasing Clear Ballot equipment shall also include such a provision in their respective purchase contract or amend their contract if such a provision does not currently exist.

3. WEC staff recommends that as a continuing condition of the WEC's approval, that this system must always be configured to include the following options:

   a. Automatic rejection of crossover and overvoted ballots with or without the option to override.
   b. Automatic rejection of all improper ballots except blank ballots.
   c. Digital ballot images to be captured for all ballots tabulated by the system.

4. Only the hardware and software versions included in this system can to be used together to conduct an election in Wisconsin. Any updates to the hardware or software included in this system must be brought before the Commission for review and approval.

5. WEC staff recommends that as a condition of approval, Clear Ballot shall abide by applicable Wisconsin public records laws. If, pursuant to a proper public records request, the customer receives a request for matters that might be proprietary or confidential, customer will notify Clear Ballot, providing the same with the opportunity to either provide customer with the record that is requested for release to the requestor, or shall advise customer that Clear Ballot objects to the release of the information, and provide the legal

and factual basis of the objection. If for any reason, the customer concludes that Clear Ballot is obligated to provide such records, Clear Ballot shall provide such records immediately upon customer's request. Clear Ballot shall negotiate and specify retention and public records production costs in writing with customers prior to charging said fees. In absence of meeting such conditions of approval, Clear Ballot shall not charge customer for work performed pursuant to a proper public records request, except for the "actual, necessary, and direct" charge of responding to the records request, as that is defined and interpreted in Wisconsin law, plus shipping, handling, and chain of custody.

6. The Wisconsin application for approval contains a condition that requires the vendor to reimburse the WEC for all costs associated with the testing campaign and certification process. Clear Ballot agreed to this requirement on the applications submitted to WEC on June 29, 2017 requesting the approval of ClearVote 1.4.

IX. Proposed Motion

MOTION: The Wisconsin Elections Commission adopts the staff's recommendations for approval of ClearVote 1.4 for sale and use in Wisconsin contingent upon the system receiving final certification from the EAC and a staff review of the EAC certification report.

Appendices

- Appendix A: Wisconsin Statutes § 5.91
- Appendix B:Wisconsin Administrative Code EL 7
- Appendix C:Wisconsin Voting Equipment Review Panel Feedback

Appendix A: Wis. Stat. § 5.91

5.91 Requisites for approval of ballots, devices and equipment. No ballot, voting device, automatic tabulating equipment, or related equipment and materials to be used in an electronic voting system may be utilized in this state unless it is certified by the commission. The commission may revoke its certification of any ballot, device, equipment, or materials at any time for cause. The commission may certify any such voting device, automatic tabulating equipment, or related equipment or materials regardless of whether any such item is approved by the federal election assistance commission, but the commission may not certify any ballot, device, equipment, or material to be used in an electronic voting system unless it fulfills the following requirements:

(1) It enables an elector to vote in secrecy and to select the party for which an elector will vote in secrecy at a partisan primary election.

(3) Except in primary elections, it enables an elector to vote for a ticket selected in part from the nominees of one party, and in part from the nominees of other parties, and in part from independent candidates and in part of candidates whose names are written in by the elector.

(4) It enables an elector to vote for a ticket of his or her own selection for any person for any office for whom he or she may desire to vote whenever write-in votes are permitted.

(5) It accommodates all referenda to be submitted to the electors in the form provided by law.

(6) The voting device or machine permits an elector in a primary election to vote for the candidates of the recognized political party of his or her choice, and the automatic tabulating equipment or machine rejects any ballot on which votes are cast in the primary of more than one recognized political party, except where a party designation is made or where an elector casts write-in votes for candidates of more than one party on a ballot that is distributed to the elector.

(7) It permits an elector to vote at an election for all persons and offices for whom and for which the elector is lawfully entitled to vote; to vote for as many persons for an office as the elector is entitled to vote for; to vote for or against any question upon which the elector is entitled to vote; and it rejects all choices recorded on a ballot for an office or a measure if the number of choices exceeds the number which an elector is entitled to vote for on such office or on such measure, except where an elector casts excess write-in votes upon a ballot that is distributed to the elector.

(8) It permits an elector, at a presidential or gubernatorial election, by one action to vote for the candidates of a party for president and vice president or for governor and lieutenant governor, respectively.

(9) It prevents an elector from voting for the same person more than once for the same office, except where an elector casts excess write-in votes upon a ballot that is distributed to the elector.

(10) It is suitably designed for the purpose used, of durable construction, and is usable safely, securely, efficiently and accurately in the conduct of elections and counting of ballots.

(11) It records correctly and counts accurately every vote properly cast and maintains a cumulative tally of the total votes cast that is retrievable in the event of a power outage, evacuation or malfunction so that the records of votes cast prior to the time that the problem occurs is preserved.

(12) It minimizes the possibility of disenfranchisement of electors as the result of failure to understand the method of operation or utilization or malfunction of the ballot, voting device, automatic tabulating equipment or related equipment or materials.

(13) The automatic tabulating equipment authorized for use in connection with the system includes a mechanism which makes the operator aware of whether the equipment is malfunctioning in such a way that an inaccurate tabulation of the votes could be obtained.

(14) It does not employ any mechanism by which a ballot is punched or punctured to record the votes cast by an elector.

(15) It permits an elector to privately verify the votes selected by the elector before casting his or her ballot.

(16) It provides an elector with the opportunity to change his or her votes and to correct any error or to obtain a replacement for a spoiled ballot prior to casting his or her ballot.

(17) Unless the ballot is counted at a central counting location, it includes a mechanism for notifying an elector who attempts to cast an excess number of votes for a single office that his or her votes for that office will not be counted, and provides the elector with an opportunity to correct his or her ballot or to receive and cast a replacement ballot.

(18) If the device consists of an electronic voting machine, it generates a complete, permanent paper record showing all votes cast by each elector, that is verifiable by the elector, by either visual or nonvisual means as appropriate, before the elector leaves the voting area, and that enables a manual count or recount of each vote cast by the elector.

History: 1979 c. 311; 1983 a. 484; 1985 a. 304; 2001 a. 16; 2003 a. 265; 2005 a. 92; 2011 a. 23, 32; 2015 a. 118 s. 266 (10); 2015 a. 261; s. 35.17 correction in (intro.).

Cross-reference: See also ch. EL 7, Wis. adm. code.

Appendix B: Wis. Admin. Code Ch. EL 7

Chapter EL 7
APPROVAL OF ELECTRONIC VOTING EQUIPMENT

Note: Chapter ElBd 7 was renumbered chapter GAB 7 under s. 13.92 (4) (b) 1., Stats., and corrections made under s. 13.92 (4) (b) 7., Stats., Register April 2008 No. 628. **Chapter GAB 7 was renumbered Chapter EL 7 under s. 13.92 (4) (b) 1., Stats., Register June 2016 No. 726.**

EL 7.01 Application for approval of electronic voting system.

(1) An application for approval of an electronic voting system shall be accompanied by all of the following:

(a) A signed agreement that the vendor shall pay all costs, related to approval of the system, incurred by the elections commission, its designees and the vendor.

(b) Complete specifications for all hardware, firmware and software.

(c) All technical manuals and documentation related to the system.

(d) Complete instruction materials necessary for the operation of the equipment and a description of training available to users and purchasers.

(e) Reports from an independent testing authority accredited by the national association of state election directors (NASED) demonstrating that the voting system conforms to all the standards recommended by the federal elections commission.

(f) A signed agreement requiring that the vendor shall immediately notify the elections commission of any modification to the voting system and requiring that the vendor will not offer, for use, sale or lease, any modified voting system, if the elections commission notifies the vendor that the modifications require that the system be approved again.

(g) A list showing all the states and municipalities in which the system has been approved for use and the length of time that the equipment has been in use in those jurisdictions.

(2) The commission shall determine if the application is complete and, if it is, shall so notify the vendor in writing. If it is not complete, the elections commission shall so notify the vendor and shall detail any insufficiencies.

(3) If the application is complete, the vendor shall prepare the voting system for three mock elections, using offices, referenda questions and candidates provided by the elections commission.

History: Cr. Register, June, 2000, No. 534, eff. 7−1−00; **correction in (1) (a), (f), (2), (3) made under s. 13.92 (4) (b) 6., Stats., Register June 2016 No. 726.**

EL 7.02 Agency testing of electronic voting system.

(1) The elections commission shall conduct a test of a voting system, submitted for approval under s. EL 7.01, to ensure that it meets the criteria set out in s. 5.91, Stats. The test shall be conducted

using a mock election for the partisan primary, a mock general election with both a presidential and gubernatorial vote, and a mock nonpartisan election combined with a presidential preference vote.
(2) The elections commission may use a panel of local election officials and electors to assist in its review of the voting system.
(3) The elections commission may require that the voting system be used in an actual election as a condition of approval.
History: Cr. Register, June, 2000, No. 534, eff. 7−1−00; **correction in (1) to (3) made under s. 13.92 (4) (b) 6., Stats., and correction in (1) made under s. 13.92 (4) (b) 7., Stats., Register June 2016 No. 726.**

EL 7.03 Continuing approval of electronic voting system.

(1) The elections commission may revoke the approval of any existing electronic voting system if it does not comply with the provisions of this chapter. As a condition of maintaining the elections commission's approval for the use of the voting system, the vendor shall inform the elections commission of all changes in the hardware, firmware and software and all jurisdictions using the voting system.
(2) The vendor shall, at its own expense, furnish, to an agent approved by the elections commission, for placement in escrow, a copy of the programs, documentation and source code used for any election in the state.
(3) The electronic voting system must be capable of transferring the data contained in the system to an electronic recording medium, pursuant to the provisions of s. 7.23, Stats.
(4) The vendor shall ensure that election results can be exported on election night into a statewide database developed by the elections commission.
(5) For good cause shown, the elections commission may exempt any electronic voting system from strict compliance with this chapter.
History: Cr. Register, June, 2000, No. 534, eff. 7−1−00; **correction in (1), (4), (5) made under s. 13.92 (4) (b) 6., Stats. and corrections in (5) made under s. 13.92 (4) (b) 7., Stats., and s. 35.17, Stats., Register June 2016 No. 726.**

Appendix C: Wisconsin Voting Equipment Review Panel's Feedback

These comments were provided via a structured feedback form.

1. How would you rate the functionality of the equipment?

Very Poor	Poor	Fair	Good	Excellent
		5	5	

- No modem capability. This is a problem. Needs a seal over memory card area. I like the smaller profile of the voting unit. I am concerned about the time to process a ballot that was a partial jam. I don't like the message that says there is a ballot jam when an overvote bounces back. New message, maybe?
- I like the ease of use by simply using contrasting colors on the unit and printing the results on a tape large enough to read with a font size that is more readable. I like the smaller size of the units when it comes to storing them and then transporting them to and from the polling locations.
- Not impressed with the ballot bag/box. I don't feel it is very secure. More areas are needed for seals. Incorrect tabulating for write ins. It needs to read "write in" line per state law. Even though modems may be going away, I would want to have that capability.
- I like how write in votes appear on the tape. I would like the ability to secure it but not a big deterrent for me. Not impressed with the accessibility feature.
- I liked the large tape and the ballot. I thought the scanner, ClearCast, was slow and jammed often. The ballot ink smeared
- The ballot box doesn't seem secure enough. It is easily removable, making it a risk for tampering. It is a light weight voting machine that is not secured to anything. That seems to be a security risk.
- The onscreen buttons seemed not sensitive enough. Sometimes you had to touch it multiple times.
- Slow response in error messaging. The scanner and data acquisition seem cumbersome as currently constructed.
- I like the paper printout of the write in candidates. The scanner seemed slow on precinct voting machine.
- Easy to use from design to counting ballots. It passed several "tests" of common problems

2. How would you rate the accessible features?

Very Poor	Poor	Fair	Good	Excellent
		1	5	3

- I didn't adequately test this. It could have been additional message, to arrow down to the next candidate. I liked the big "dauber" pencil.

- I like the fact that this is a table top unit that can be placed on a table so people in a wheelchair can approach and feed their own ballots through themselves. I also appreciate the familiar computer appearance and functionality so the entire system feels familiar and not like a machine no one has used before.
- The ballot printed from the accessible printer was fuzzy and easily smeared.
- Very similar to ExpresssVote and, while I am not in need of accessibility, from my perspective, accessibility functions were better than adequate.
- OK
- The ballot quality was bad; smeared when handled.
- I like that it produces an identical ballot to the "regular" ballot.
- It can be on a table for handicapped voters to insert ballot.
- Very intuitive. Easy to change accessibility features in the middle of voting. Having the ballot print out and look like the actual ballots is one of the best features and helps ensure privacy.

3. **Rate your overall impression of the system.**

Very Poor	Poor	Fair	Good	Excellent
		4	5	1

- It is not set up to minimize overvotes. When it detects overvotes, it shows a green "submit" button. The green button invites the voter to override and lose their votes. The message is at the very top, not near the buttons. Wis. Statutes say that the pollworker should do any override.
- I thought it was kind of cool. Although I like the smaller footprint and size of the equipment, I do have some concerns about security because of this. It needs to be able to modem. Must be able to direct upload results.
- The familiarity of the browser views and functionality only works to build confidence in the system. There are a couple security measures suggested regarding being able to seal the doors of the Clear Ballot box. Not even so much for the security (because I believe they are secure) but for the visual proof that no one has tampered with it. Modem ability was brought up during the meeting and it sounds like that will be possible….YAY
- I think it is a good piece of equipment for the starting stages; or a small municipality/county. I would <u>not</u> recommend for a big municipality.
- Very nice equipment with good features and appears to be very affordable.
- If accurate and integrity is preserved, I could approve the system.
- It is so different from other systems in regard to size and set up. Securing the unit, large, secured ballot box, that I'm not that impressed with. Election equipment security requirements, seals, could be an issue on this equipment.
- I don't like that timing mark accuracy isn't an issue with this system. That also seems to be a security issue.
- Allows voters to use the ADA portion without disturbing/upsetting the flow at the tabulator. (ICE is the opposite). Easy/clear set up for the poll worker, easy to restock the paper roll. The ballot bag is easier than a box bottom.

- Modeming of results feasible? Security involved with future QR code? Clarity on screen not as sharp as current vendors. Is in house programming permitted, or is all vendor based?
- I like the ballot bag for voted ballots. I did not use central count tabulator.
- I don't know the cost, so it is hard to say what the value is for the system. From an accessibility perspective, its features are top notch.