Wisconsin Elections Commission

Meeting of the Commission
Monday, December 2, 2019
10:00 A.M.

Agenda
Open Session

Wisconsin Elections Commission
212 East Washington Ave., Third Floor
Madison, Wisconsin

A. Call to Order

B. Administrator's Report of Appropriate Meeting Notice

C. Personal Appearances (Time reserved for personal appearances may be limited at the discretion of the Chair)

D. Minutes of Previous Meetings

E. Election Security

F. ERIC Update

G. Voting Equipment

3. Consideration of Voting System Decertification **167**

H. BadgerBook Program Update and Next Steps **77**

I. Clerk Appointment Process to the EAC Standards Board **82**

J. Commission Polling Place Visits **84**

K. Commission Staff Update **86**

L. Closed Session

1. Minutes of Previous Meetings
2. Wis. Stat. § 5.05 Complaints
3. Litigation Update

19.851	The Commission's discussions concerning violations of election law shall be in closed session.
19.85 (1) (g)	The Commission may confer with legal counsel concerning litigation strategy.

M. Adjourn

The Elections Commission will convene in open session but may move to closed session under Wis. Stat. § 19.851 and then reconvene into open session prior to adjournment of this meeting. This notice is intended to inform the public that this meeting will convene in open session, may move to closed session, and then reconvene in open session. Wis. Stat. § 19.85 (2).

Wisconsin Elections Commission
Regular Meeting
Board Room
Madison, Wisconsin
10:00 a.m. September 24, 2019

Open Session Minutes

Present: Commissioner Dean Knudson, Commissioner Marge Bostelmann, Commissioner Julie Glancey, Commissioner Ann Jacobs, and Commissioner Mark Thomsen

Absent: Commissioner Jodi Jensen

Staff present: Meagan Wolfe, Richard Rydecki, Michael Haas, Robert Kehoe, Sharrie Hauge, Reid Magney, Nathan Judnic, Tony Bridges, Robert Williams, Cody Davies, Jodi Kitts, Connie Shehan, Riley Willman and Diane Lowe

A. Call to Order

Commission Chair Dean Knudson called the meeting to order at 10:00 a.m. and called the roll. All Commissioners except Jensen were present. He noted that Commissioner Jensen's husband, Eric Peterson, died the past week and offered thoughts and prayers for comfort and peace for her family.

B. Administrator's Report of Appropriate Meeting Notice

Administrator Meagan Wolfe informed the Commissioners that proper notice was given for the meeting.

C. Personal Appearances

Paul Malischke of Madison appeared on his own behalf to suggest changes to the new voter registration form that staff is developing. He also offered comments concerning the ES&S ExpressVote Tabulator being considered for certification by the Commission.

Barbara Beckert of Milwaukee appeared on behalf of Disability Rights Wisconsin to comment on access needs of voters with disabilities and offer to partner with WEC on poll worker training.

Eileen Newcomer of Janesville appeared on behalf of the League of Women Voters of Wisconsin to comment on improvements to the voter registration form.

Karen McKim of Waunakee appeared on behalf of Wisconsin Election Integrity to urge Commissioners to take voting equipment security as seriously as they do security for the statewide voter registration system, and to improve audits.

Julie Crego of Middleton appeared on her own behalf to encourage the Commission to improve audits and to make use of cybersecurity experts.

Rebecca Alwin of Middleton appeared on her own behalf to express concerns about the use of barcodes on ballots and encourage the use of risk-limiting audits.

Janie Riebe of McFarland appeared on her own behalf to express concerns about election security and the use of barcodes on ballots.

Christine McDonough of Sun Prairie appeared on her own behalf to advocate for the use of hand-marked, hand-counted paper ballots as well as risk-limiting audits.

Jo Garrett of Madison submitted written comment opposing the use of voting equipment that employs barcodes.

D. Minutes of Previous Meetings

1. June 11, 2019

MOTION: Approve the minutes of the June 11, 2019 Wisconsin Elections Commission meeting. Moved by Commissioner Glancey, seconded by Commissioner Thomsen. Motion carried unanimously.

2. August 13, 2019

MOTION: Approve the minutes of the August 13, 2019 Wisconsin Elections Commission meeting. Moved by Commissioner Thomsen, seconded by Commissioner Glancey. Motion carried unanimously.

E. Election Security

1. Managed Hardware and Proposed Sub Grant

Technology and Training Director Robert Kehoe and Security Lead Tony Bridges gave a presentation based on a memorandum contained in the supplemental materials for the September 24 Commission meeting regarding an updated proposal for a subgrant program, rather than managed hardware program. At the August 2019 meeting, commissioners approved a limited program to provide loaner computers to clerks in immediate need. Commissioners also asked staff to explore a rental program, which evolved into a proposal for a two-tiered grant program. The first tier would be to help municipalities in need achieve baseline standards, while the second tier would provide additional security funding to municipalities and counties that had already achieved baseline standards.

Administrator Wolfe also discussed the issue of seeking authority to create an additional election security position and reported that the Department of Administration had advised staff not to pursue it until they are sure it is needed.

Commissioners and staff discussed the subgrant proposal in detail as well as the intended audience, including the hundreds of small municipalities that do not use WisVote. They also discussed providing funding for extended IT support services to clerks and reimbursement for attending cyber security training.

Commissioner Bostelmann was excused from the meeting at 11:41 a.m. and rejoined the meeting at 11:52 a.m.

Commissioners and staff discussed focusing on the first tier of the grant proposal initially and gathering more information about what other needs clerks have for a possible second tier of grant funding.

MOTION: Direct staff to announce and initiate the HAVA security subgrant program to local election officials as described in the recommendations contained in the staff memorandum. The Commission authorizes WEC staff to announce the grant, accept applications, and issue subgrant funds to municipal and county election officials by November 29, 2020. The total amount of subgrant funds distributed is not to exceed $1.1 million. WEC staff will report to the Commission on the status of the grant and plans for any remaining funds or overages at the December 2, 2019 meeting of the Commission. Additionally, at the time of the announcement, staff will solicit and circulate Tier 2 options as a survey regarding future grants or use of funds by non-Tier 1 entities. WEC staff will report on the status the week after November 15. Priority will be given to municipalities in the 7th Congressional District due to the special election.

Moved by Commissioner Knudson, seconded by Commissioner Thomsen.

Roll call vote:	Bostelmann	Aye	Glancey:	Aye
	Jacobs:	Aye	Knudson:	Aye
	Thomsen:	Aye		

Motion carried unanimously.

Chair Knudson suggested the Commission break for lunch and take up closed session items at that time.

M. Closed Session

(This item was taken out of agenda order.)

MOTION: Move to closed session pursuant to Wis. Stat. 19.85(1)(g) to confer with counsel concerning litigation strategy and Wis. Stat. 19.851 to discuss possible violations of election law. Moved by Commissioner Thomsen, seconded by Commissioner Jacobs.

Roll call vote:	Bostelmann	Aye	Glancey:	Aye
	Jacobs:	Aye	Knudson:	Aye
	Thomsen:	Aye		

Motion carried unanimously. The Commission went into closed session at 12:24 p.m. and returned to open session at 1:01 p.m.

E. Election Security (continued)

Mr. Bridges discussed staff's recommendations for using endpoint testing in conjunction with the WisVote system and to use it to deny access to users' devices that do not comply with requirements such as a current operating system and up-to-date antivirus protection.

MOTION: Authorize WEC staff to implement endpoint testing software into the WisVote system and to utilize the gatekeeping features of the system to deny system access to non-compliant devices by January 28, 2020. Moved by Commissioner Jacobs, seconded by Commissioner Bostelmann. Motion carried unanimously.

2. Public Outreach Initiative

Public Information Officer Reid Magney made a presentation based on a memorandum starting on page 13 of the September 24 Commission meeting materials regarding research being conducted as part of the election security public outreach initiative. KW2, the WEC's communications consultant, interviewed several local election officials regarding concerns about election security they hear from voters as KW2 prepares to conduct a quantitative, statewide public opinion survey and qualitative focus groups on the subject. He also discussed progress in the development of a communications toolkit for local election officials to help them respond to public and media inquiries about election security issues. KW2 will present results of its research at the Commission's meeting in December.

The presentation was for information only, and the Commission took no action.

3. Election Security Overview and Updated Plan

Administrator Wolfe gave a brief presentation based on a memorandum starting on page 15 of the September 24 Commission meeting materials regarding staff's election security activities, including training. She noted that almost 1,500 local election officials have now participated in election security tabletop exercises.

F. ERIC Update

WisVote Elections Specialists Jodi Kitts and Connie Shehan gave a presentation based on a memorandum starting on page 20 of the September 24 Commission meeting materials regarding updates on the 2019 Movers List maintenance, Voter Participation data analysis, upcoming mailing processes and other initiatives.

Commissioners and staff discussed standards for making referrals to district attorneys for prosecutions in the event duplicate voting is discovered in the voter participation data analysis. They also discussed when to deactivate voters who do not respond to the Movers mailing and whether to include a watermark on the poll book for those who were sent the Movers mailing. Administrator Wolfe said staff will continue testing watermarks and developing training for poll workers.

The Commission took no formal action.

G. Consideration of Certification for ES&S Voting Systems

Elections Specialist Robert Williams gave a presentation based on a memorandum starting on page 26 of the September 24 Commission meeting materials regarding a request by Election Systems and Software (ES&S) for approval of the EVS 6.0.4.0 and EVS 6.0.5.0 voting systems for sale and use in the State of Wisconsin. The EVS system has been approved since 2014, and ES&S is requesting approval for newer versions of that system.

Mr. Williams introduced representatives of ES&S: Steve Pearson, Senior Vice President of Certification; Kyle Weber, Wisconsin account manager; and Mark Manganaro, State Certification Manager. Mr. Pearson discussed security enhancements to the new version of the EVS system.

Commissioners and ES&S representatives discussed security concerns about the use of modems to transmit unofficial results on election night and the fact that previous versions of the system have touched the public internet. Chair Knudson said he felt chagrined to learn that, and misled. Discussion items included whether the WEC should decertify older versions of the EVS that do not use the new security features; the use of barcodes by the ExpressVote ballot-marking device; continuing support for EMS computers running the Windows 7 operating system; and the length of time required between discovery of a vulnerability and patching that issue.

Mr. Pearson addressed the issue of the ExpressVote Tabulator, which WEC has recommended against certifying.

At 2:45 p.m., Commissioners moved to another part of the office to watch a demonstration of the ES&S voting equipment, returning at 3:04 p.m.

Mr. Williams, Elections Specialist Cody Davis and Election Security Lead Tony Bridges answered questions from the Commission about staff's recommendations on certification.

MOTION: Adopt the staff's recommendations for approval, with the exception of the ExpressVote Tabulator, of the ES&S voting system's Application for Petition for Approval of Electronic Voting Systems Approval of EVS 6.0.4.0 in compliance with US EAC certificate ESSEVS6040 including the conditions described in the staff memorandum, and the ES&S voting system's Application for Approval of EVS 6.0.5.0 including the conditions described in the staff memorandum. Approval is subject to ES&S confirming to the WEC that it will provide

Windows 7 support through January 2023 at no cost to its Wisconsin customers. Moved by Commissioner Thomsen, seconded by Commissioner Jacobs.

Discussion regarding whether this voting system will be capable of requiring voters to review the names of all primary candidates for president before making a choice. Staff agreed to bring that issue back to the Commission at the December meeting.

Chair Knudson called the question. The motion carried unanimously.

H. Dates for Future Commission Meetings

Administrator Wolfe introduced a memorandum starting on page 90 of the September 24 Commission meeting materials regarding 2020 WEC meeting dates. Staff proposes the following dates:

- Tuesday, March 3, 2020
- Wednesday, June 10, 2020
- Tuesday, August 25, 2020
- Tuesday, December 1, 2020

MOTION: Adopt the proposed meeting schedule for the 2020 calendar year. Moved by Commissioner Thomsen, seconded by Commissioner Glancey. Motion carried unanimously.

I. Voter Registration Form Revision (EL-131)

Elections Specialists Riley Willman and Cody Davies made a presentation based a memorandum starting on page 91 of the September 24 Commission meeting materials regarding the redesign of Wisconsin's voter registration form.

Commissioners and staff discussed a draft of the new form, which has been extensively tested with voters and local election officials. Commissioners offered additional suggestions for changes to the form. Administrator Wolfe said staff will incorporate those changes and circulate an updated form to members of the Commission. If any Commissioner believes an additional meeting is necessary to discuss additional changes, he or she can notify the Chair, who may call a special meeting if needed to discuss.

MOTION: Subject to recommendations made by the Commission today, approve revisions of the voter registration application as illustrated in Appendix B of the staff memorandum and provide members with a final version of the form. Any member who desires further changes may request that the Chair call a special meeting to discuss changes. If there are no changes requested, authorize staff to finalize the form and release it publicly after final revisions are made. The Commission further directs staff to report on the progress of this project at the December 2, 2019 Commission meeting. Moved by Commissioner Jacobs, seconded by Commissioner Thomsen. Motion carried unanimously.

The Chair called a recess at 4:09 p.m. The Commission reconvened at 4:15 p.m.

J. Approval of Ballot Templates for Spring 2020 Elections

Lead Elections Specialist Diane Lowe made a presentation based on a memorandum starting on page 106 of the September 24 Commission meeting materials regarding the 2020 Spring Ballot design format.

MOTION: Approve the ballot designs presented by staff and attached to the memorandum, with the addition that all ballots allow for choice of party in the presidential preference, and direct staff to utilize the ballot designs for the 2020 Spring Primary and Spring Election/Presidential Preference Vote. Moved by Commissioner Jacobs, seconded by Commissioner Bostelmann. Motion carried unanimously.

K. Guidance Document Submission Procedures

Staff Counsel Michael Haas made a presentation based on a memorandum starting on page 102 of the September 24 Commission meeting materials regarding agency procedures to create guidance documents and publications subject to public comment requirements under 2017 Wisconsin Act 369.

MOTION: Approve the agency approach as described in the staff memorandum to implementing the guidance documents provisions of 2017 Act 369 and direct staff to make reasonable efforts to complete the process for publishing its guidance documents. Authorize the Administrator to exercise discretion to request that the Governor establish a public comment period shorter than 21 days for particular guidance documents when warranted by timeliness considerations. Further authorize the Administrator to approve the adoption of final guidance documents following the applicable public comment period and to execute the guidance document certification required by Act 369. Moved by Commissioner Knudson, seconded by Commissioner Glancey. Motion carried unanimously.

L. Commission Staff Update

Administrator Wolfe discussed the Staff Update memorandum starting on page 121 of the September 24 Commission meeting materials. She highlighted the value of feedback staff receives from clerk advisory committees on proposals, the variety of training staff is conducting for local election officials, the expansion of the Badger Books program, and IT projects staff is completing.

H. Adjourn

MOTION: Adjourn. Moved by Commissioner Thomsen, seconded by Commissioner Jacobs. Motion carried unanimously.

The Commission adjourned at 4:46 p.m.

####

The next meeting of the Wisconsin Elections Commission is scheduled for Monday, December 2, 2019, at the Wisconsin Elections Commission offices in Madison, Wisconsin beginning at 10:00 a.m.

September 24, 2019 Wisconsin Elections Commission meeting minutes prepared by:

_____

Reid Magney, Public Information Officer November 15, 2019

September 24, 2019 Wisconsin Elections Commission meeting minutes certified by:

_____

Julie Glancey, Commission Secretary December 2, 2019

Wisconsin Elections Commission
Special Teleconference Meeting
Board Room
Madison, Wisconsin
4:30 p.m. September 24, 2019

Open Session Minutes

Present: Commissioner Dean Knudson, Commissioner Marge Bostelmann, Commissioner Julie Glancey, Commissioner Ann Jacobs, Commissioner Robert Spindell and Commissioner Mark Thomsen

Staff present: Meagan Wolfe, Michael Haas, and Reid Magney

A. Call to Order

Commission Chair Dean Knudson called the meeting to order at 4:30 p.m. He noted that a new Commissioner, Robert Spindell, had just been appointed to replace Commissioner Jodi Jensen, and asked for a brief recess for staff to see if he could attend the teleconference.

Commissioner Spindell joined the meeting at 4:40 p.m., and Chair Knudson called the roll. All Commissioners were present by telephone.

B. Administrator's Report of Appropriate Meeting Notice

Administrator Meagan Wolfe informed the Commissioners that proper notice was given for the meeting.

C. 7th Congressional District Special Election Nomination Paper Issues and Statutory Deadlines

Chair Knudson noted that the dates Governor Evers originally used to order the special election in the 7th Congressional District are inconsistent with federal law, and that the Governor has indicated he will amend his order. In the meantime, the Commission needs to provide guidance to candidates about the status of nomination paper signatures that have already been collected.

Staff Counsel Michael Haas gave a presentation based on a memorandum contained in the materials for the October 16 Commission meeting regarding nomination paper signatures.

MOTION: Direct staff to apply the following rules when evaluating signatures on nomination papers of candidates for the 7th Congressional District:

1. If an amended executive order of the Governor establishes a new starting date for the nomination paper circulation period, signatures must be dated on or after that date and on or before the filing deadline to be accepted as valid signatures.

2. Notwithstanding Wis. Stat. § 8.50(3) and EL 2.07(3)(c), Wis. Adm. Code, if an amended executive order retains the original starting date for the circulation of nomination papers, the Commission determines that September 23, 2019 is the beginning date of the nomination paper circulation period and signatures on nomination papers are valid when the date of the signature is dated on or after that date and on or before the filing deadline.

3. Notwithstanding Wis. Stat. 8.15(5), the Commission determines that signatures are valid if the nomination paper indicates that the date of the election is either January 27, 2019 or the date of the special election established by any amended executive order issued by the Governor.

Moved by Commissioner Thomsen, seconded by Commissioner Bostelmann.

Commissioners and staff discussed possible primary and election dates, and whether the Commission should wait to issue guidance until the Governor issues an amended order. Commissioner Thomsen said he believes it should be addressed now so everyone knows what the rules are.

Chair Knudson called the question. Motion carried unanimously.

Chair Knudson asked Commissioners whether they wished to encourage the Governor to hold the special primary and election on regular election dates. After discussion, there was not a consensus to do so.

D. Adjourn

MOTION: Adjourn. Moved by Commissioner Jacobs, seconded by Commissioner Bostelmann. Motion carried unanimously.

The Commission adjourned at 5:01 p.m.

####

The next meeting of the Wisconsin Elections Commission is scheduled for Monday, December 2, 2019, at the Wisconsin Elections Commission offices in Madison, Wisconsin beginning at 10:00 a.m.

October 16, 2019 Wisconsin Elections Commission meeting minutes prepared by:

_____

Reid Magney, Public Information Officer November 15, 2019

October 16, 2019 Wisconsin Elections Commission meeting minutes certified by:

_____

Julie Glancey, Commission Secretary December 2, 2019

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

DATE: For the December 2, 2019 Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe
Administrator, Wisconsin Elections Commission

SUBJECT: Elections Security – Current Initiatives

I. Introduction

Wisconsin clerks remain leaders in elections security, having achieved many milestones still under consideration in other states. Some of the more significant programs completed last year included WisVote multifactor authentication (MFA), an award-winning cybersecurity training program, the tabletop exercise (TTX) program, and the expansion of post-election audits. There is no finish line for election security, and we must continually adapt our approach to improve our defenses. This need particularly applies to cybersecurity, since both technology and threats evolve rapidly.

II. 2020 Projects

In the final 60 days of calendar year 2019, the WEC will implement multiple programs to improve the state's election security posture. These programs were developed with the input of our clerk advisory committees and come on the heels of an enormously popular election security subgrant program. WEC staff are referring to this year-end package of programs as the 2020 Vision plan. Plan components are introduced in the following paragraphs.

A. Upgrading WisVote

Throughout 2019 the WEC IT development team has worked behind the scenes to completely upgrade the foundation of WisVote, called the "365 Upgrade". This includes upgrading all WisVote software to the latest standards. This upgrade will have minimal impact on users and user-facing processes will not change.

The upgrade required two days of downtime for the WisVote and MyVote websites. A notice of the impending downtime was posted on the MyVote website, as well as to clerk communications and over the agency's social media. From November 14 to 15 WisVote was made inaccessible, and MyVote was replaced by a static notification page. During that time, database and DNS migrations

were completed, the new websites were brought online, and production testing was completed to confirm the new sites were working properly. All testing completed successfully, and the new sites were made available to all users by the end of the day on November 15.

B. Validating Device Security

The technical term for this initiative is "Endpoint Testing." This means that every computer connecting to Wisconsin elections systems will be checked to verify its security before access is permitted. In addition to protecting the network, this process will also allow the WEC to alert users if a problem is detected. This initiative requires users to install a small application on any computers used to access election systems such as WisVote.

A staged implementation of this project began in November and December 2019. This system will be mandatory for WisVote users no later than January 28, 2020. Staff will then be able to provide targeted advice for cybersecurity, as well as gauge the overall security posture of Wisconsin clerks.

Endpoint Testing Deployment Timeline	
November 7 to 14, 2019	Counties install endpoint testing software
November 15, 2019	Endpoint Testing Webinar
November 19, 2019	Endpoint Testing Webinar (Evening)
November 22 to December 20, 2019	Municipalities install endpoint testing software
January 28, 2020	Endpoint Testing required for WisVote access

C. Protecting Critical Information

The WEC is creating new communication tools and establishing best practices to protect sensitive information such as voter PII (Personally Identifiable Information). These tools will allow clerks to receive information with voter PII or security procedures through private communication channels. Deployment will occur over the next few months.

D. Expanding Critical Communication Tools

A mass notification system (RAVE) has been procured and is being implemented by the WEC. This will allow the WEC administrator and select staff to rapidly alert a large number of clerks through email, telephone and text messaging about critical election information. Clerks, in turn, may use the system to communicate with chief inspectors or other staff during critical Election Day periods. The RAVE system will only be used for alerting targeted groups about security threats, urgent Election Day situations, WisVote/MyVote outages, and widespread misinformation. RAVE will not be a substitute for routine clerk communications. The system has passed initial testing using staff and Election Security Clerk Committee members as volunteers with an expected deployment time frame of December.

E. Emergency Support to Clerks

The State of Wisconsin, through the Division of Enterprise Technology, greatly expanded the Cyber Response Team program in 2019. These teams provide local jurisdictions with free emergency repair

and remediation services in the event of a cyber incident. Moving into 2020, additional support tools will be made available to clerks, including a computer hardware loaner program and a 24/7 hotline.

WEC has taken delivery of 25 laptops that will be provided to clerks in the event that a cyber incident such as ransomware renders their computers inoperable, impacting their ability to do election-related work. The loaner computers will be distributed upon request for a period of up to two weeks. The program will be maintained by WEC staff and request of a loaner computer will be initiated by clerks sending a request to the Secure Elections email box. This process will trigger evaluation by staff and notification to relevant agencies in the event of a cybersecurity incident. The requestors must certify that they have no other computer that can securely access WisVote. In the event that the municipality is requesting a loaner to replace a clerk's personal computer, the municipality will be directed to grant funding for purchase of a municipal computer.

The 25 laptops will be ready for deployment in January 2020 as previously planned. WEC is currently awaiting delivery of Microsoft Office via the state contract. Once this is received and installed, the laptops will be available for use.

III. Other Security Activities

A. Upgrading Clerk Email and Websites

WEC is recommending jurisdictions establish a .wi.gov email address to eliminate vulnerabilities with data access and make it harder to imitate an official email domain. A vast majority of jurisdictions (64 counties and 1,838 municipalities) do not have a .wi.gov, with the majority using commercial internet domains, such as Gmail, Yahoo, and CenturyTel. Free and commercial email providers create vulnerabilities, such as making it easier to imitate a municipality. Free e-mail providers may also sell user data to advertisers.

To help jurisdictions transition their email, the WEC and DET partnered to develop a standard process that will walk clerks through the process. To test the process, five municipalities volunteered to begin transitioning to a .wi.gov email domain. These municipalities will contact WEC to request a domain name using the .wi.gov domain name, such as @town.concord.wi.gov. WEC will send the requested domain name to DET to approve the usage through the municipality's internet provider. The .wi.gov domain is owned by the State of Wisconsin and municipalities will be able to use this service for free. The only cost associated with having a custom domain is establishing an email server with an email provider. The .wi.gov domain name is only accessible by qualified government organizations and programs and may not host any non-government advertising and cannot be used for political campaign information.

WEC staff has also been conducting follow up on a related project with county clerks. County Election Officials are required by state law to post unofficial election night results from each of their municipalities to the county website. WEC staff sent a high priority communication to all county

election officials encouraging them to adopt Hypertext Transfer Protocol Secure (HTTPS) for their county websites. Using a secure protocol for websites provides an additional layer of encryption to help to protect websites from defacement and other potential breaches. While website defacement would not impact the official outcome or tally of an election, it could undermine public confidence in the election process. The WEC has no authority to mandate that counties use https for their website, but is working to educate counties about the benefits and provide information and resources to make the migration.

B. Penetration Testing and Phishing Awareness Exercises

Agency servers exposed to the internet are regularly scanned by the Department of Homeland Security for known vulnerabilities, and servers within the state network are regularly scanned by DET. DHS continues to perform detailed internal scans regularly. These scans provide useful action items and ensure that new vulnerabilities are addressed in a timely manner. Staff plan to participate in an additional on-site risk vulnerability assessment in order tested agency security in detail. Valuable action items were generated by the previous assessment that will significantly improve agency security.

C. Election Security Training

Continued development of elections security training including many presentations (past and future) at WCCA, WMCA, and WTA meetings. TTX 2.0 summarized in the Staff Update.

Three WEC staff participated in the New Jersey statewide Election Security Tabletop Exercise on September 9-10, hosted by the New Jersey Secretary of State. The New Jersey TTX elected to use external facilitators to coordinate the flow of discussion for each inject and evaluators to record responses for evaluation of each counties' contingency plans. WEC staff served in those capacities. With approximately 60 external facilitators/evaluators and 400 in attendance, this TTX was a culmination of months of preparation on the part of the NJ Division of Elections and the Secretary of State's office. WEC staff gained an understanding of how another state administers elections with some takeaways for our own Election Security TTXs.

D. Monitoring Agency Security

WEC staff has been partaking in cyber defense webinars from the Multi-State Information Sharing and Analysis Center (MS-ISAC) and the Elections Infrastructure Information Sharing and Analysis Center (EI-ISAC). These organizations have been identified as a key cyber security resource by the Department of Homeland Security for their ability to bring together election security officials from various states. The updates and information in the MS-ISAC and EI-ISAC webinars assume a large knowledge about information technology and cybersecurity practices. WEC staff has made the decision that the MS-ISAC and EI-ISAC updates will be monitored by staff who will then send pertinent information to the local election officials to ensure that information is getting to all involved officials in a timely and productive manner.

E. Election Security Council

In October 2019, WEC staff hosted the first meeting of a multi-agency Election Security Council that will meet regularly to review election security matters through November 2020. The council is intended to increase collaboration between state agencies and local government in order to improve communication and maximize election security. Activities the council may perform include: (1) assessing our preparations for election security threats; (2) developing processes to identify and address risks; (3) information sharing; (4) incident response planning; (5) cybersecurity exercises; and (6) public communications.

Current members of the council include the following agencies and organizations:

1. Office of Governor Tony Evers
2. Wisconsin Senate Committee on Elections, Ethics and Rural issues
3. Wisconsin Assembly Committee on Campaigns and Elections
4. Wisconsin Department of Military Affairs
5. Wisconsin Emergency Management
6. Wisconsin Department of Justice
7. Wisconsin Department of Transportation
8. Wisconsin Statewide Intelligence Center
9. Wisconsin Division of Enterprise Technology
10. Wisconsin Municipal Clerks Association
11. Wisconsin Towns Association
12. Wisconsin County Clerks Association
13. Governmental Information Processing Association of Wisconsin
14. U.S. Department of Homeland Security
15. League of Wisconsin Municipalities

The council's objectives are to improve coordination between election offices and other state cybersecurity offices and help Wisconsin address each of the challenges described above in the areas of technology; communication; and training. The council will seek three specific outcomes:

1. *Technology*. Identify innovative, cost-effective, and sustainable plans to improve technical capabilities in general, and cybersecurity specifically, at county and local levels. Explore ways to leverage existing resources to enhance elections cybersecurity.

2. *Communications*. Establish and strengthen relationships between state, county, and local officials. Find ways to routinely exercise communication channels and maintain a current and common operating picture.
3. *Training*. Develop sustainable, recurring, multi-agency and multi-jurisdiction security training programs for state, county and local officials. Establish an annual or biennial exercise to maintain currency.

The next meeting of the Election Security Advisory Council is scheduled for December 18, 2019.

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

DATE: For the December 2, 2019 Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe
Administrator, Wisconsin Elections Commission

Prepared and/or Presented by:
WEC Staff

SUBJECT: Elections Security Subgrant Update

I. Introduction

The Election Security ("ES") Subgrant Program provided clerks the opportunity to apply for HAVA security funds to procure an updated computer or operating system, IT support capable of maintaining minimum security standards, and funding to send clerks and clerk staff to election security training. Clerks were given from September 27 until November 15 to submit their applications for the subgrant. WEC staff approved 798 applications and approved $774,000.00 in subgrants. As of November 18, 2019, there are 46 applications for an additional $42,000 still under review.

In conjunction with the ES Subgrant Program, WEC staff provided clerks the opportunity to submit suggestions on how elections security funding should be allocated for those who already meet baseline security standards. The results from this survey and discussion from the clerk committees inform the recommendations for uses of remaining HAVA Security funds. This memo will outline the status of the current subgrant program, make recommendations for a next round of election security subgrant funding, and outline what additional security measures WEC staff would propose if more federal election security funds become available.

II. Election Security Subgrant Update

A. Process. After receiving approval at the September 24 Commission meeting, the Election Security Subgrant Program was announced on Friday, September 27. Clerks were notified via email and a clerk communication posted to the WEC website. Jurisdictions with less than 1,000 registered voters, totaling 1,317, were mailed a paper copy of all subgrant documentation and the announcement communication. The communication included an overview of the program, the Election Security Subgrant memorandum

of understanding (MOU), Grant Compliance Form, Grant Compliance Standards, subgrant deadlines, and how-to guides to achieve compliance once funds were released.

WEC staff hosted webinars on October 7 and the evening of October 9 to review the subgrant program and take any questions. There were 156 attendees to the live webinar and a recording available on the WEC Learning Center has been viewed 308 times since it's posting. WEC staff worked with the Wisconsin County Clerks Association, Wisconsin Municipal Clerks Association, and Wisconsin Towns Association to promote the program at conferences and other meetings. In addition, WEC staff and management worked directly with the clerk associations to enlist their assistance in alerting clerks of the opportunity to apply for the grant. The Wisconsin Towns Association (WTA) included an article on the program in its newsletter publication.

Clerks were required to submit a completed MOU to apply for subgrant funding. Completed MOUs were due on November 15 with the expectation that recipients would be compliant with baseline standards by January 28, 2020. Jurisdictions who accepted ES Grant funds agreed to meet four baseline standard security needs. The four baseline compliance standards are:

1) Possess compliant (up-to-date) computer hardware and software
2) Possess either in-house or contracted IT support
3) Complete WEC Election Security Training Requirements (online and in-person)
4) Complete an Elections Security Contingency Plan

The MOU consists of five yes or no questions to determine if a jurisdiction already met baseline security requirements. A jurisdiction without a compliant computer or operating system, could choose either $600 for a new computer or $200 if they preferred to upgrade the operating system on their current device. Jurisdictions in need of IT support services could request $500. Finally, $100 was available to clerks who had never attended in-person election security training. As a stipulation to receive the described funding, jurisdictions were also required to complete cybersecurity training modules on the WEC Learning Center and to submit a copy of the municipality's election contingency plan. Jurisdictions were eligible to receive a maximum of $1,200 and must work to achieve full compliance with the standards of the subgrant. Once the funds are expended, subgrant recipients are required to comply with the terms of the subgrant and submit the Grant Compliance form to the WEC by January 28, 2020. A final reminder to submit applications was posted to the WEC website on November 11.

B. Reception. Funding was released to the jurisdictions immediately after applications were approved. WEC staff moved through applications quickly, to provide jurisdictions as much time as possible to achieve compliance ahead of the end of mainstream support of Windows 7 on January 14, 2020. The first applications were received on September 30, 2019. The agency received applications from 636 towns, 112 villages, 44 cities, and 6 counties (see attached map). A small number of jurisdictions submitted MOU's that stated they were already in compliance and therefore not eligible for the subgrant.

<u>Computer Hardware and Operating System Upgrades</u>
Amount approved: $369,200
The greatest portion of funding was expended on support for new hardware for 684 jurisdictions for a total of $369,200. WEC staff provided a recommendation for a baseline compliant configuration including Windows 10, 1 gigahertz or faster processor, 2 gigabytes or more of memory, and required

that the device not be refurbished. Contact information and vendors from the state contract were provided, however jurisdictions were able to purchase from other vendors or local retailers. Some municipalities opted only to receive $200 to upgrade an existing computer's operating system. A total of 49 jurisdictions requested the operating system upgrade.

Information Technology Support
Amount approved: $343,200
The next largest share of funds was allocated to IT support or a managed service provider in 710 jurisdictions, with a handful receiving funding only for this purpose. Any selected managed service provider must be capable of ensuring that the jurisdiction maintain current patching and firmware within 30 days of release by the vendor, current anti-virus software, anti-spam software, web filtering software, and updates to the operating system. Any managed service provider procured using subgrant funds is also required to communicate with the WEC in case of an actual or suspected cybersecurity breach. They must also sign-up to receive Cyber Alerts from the Election Infrastructure Information Sharing and Analysis Center (EI-ISAC) which provides information on elections-related threat intelligence, incident response and remediation guidance, and tools for implementing security best practices.

In-Person Election Security Training
Amount approved: $62,100
621 jurisdictions applied and were eligible to attend an in-person election security training session. These jurisdictions certified that no staff with elections responsibilities had previously attended a compliant training. Recipients will be attending Elections Security Tabletop Exercises (TTX), cybersecurity workshops, elections security roundtables, or elections security presentations with the use of these funds. WEC events do not require a fee, however funding may cover travel, lodging, or other expenses that enable participation in training.

Online Training
Amount disbursed: none
Since the announcement of the subgrant, at least 103 clerks completed the online training modules on the WEC Learning Center. The Securing WisVote series covers topics such as phishing, password protocols, browser safety and computer safeguards. This statistic does not include the potential for clerks who viewed the series in a group setting.

Contingency Planning
Amount disbursed: none
As part of compliance with the subgrant, 66 jurisdictions have submitted an election contingency plan. All other recipients have until January 28, 2020 to submit a completed contingency plan to cover emergency situations such as a polling place electrical outage, evacuation, medical emergencies, etc. A template for a contingency plan is available to clerks on the WEC Learning Center.

C. Current State. Of the $1.1 million originally allocated to the Election Security Subgrant Program, approximately $800,000 will be disbursed. Funds were distributed to every corner of the state in 71 out of 72 counties (see map). A total of 428 jurisdictions received subgrant funding to achieve compliance for all three baseline security standards. In response to the subgrant, WEC staff have added 15 additional TTXs around the state for clerks to attend, including after-hours options for clerks working part-time. WEC staff have also increased its presence at Wisconsin Towns Association meetings to

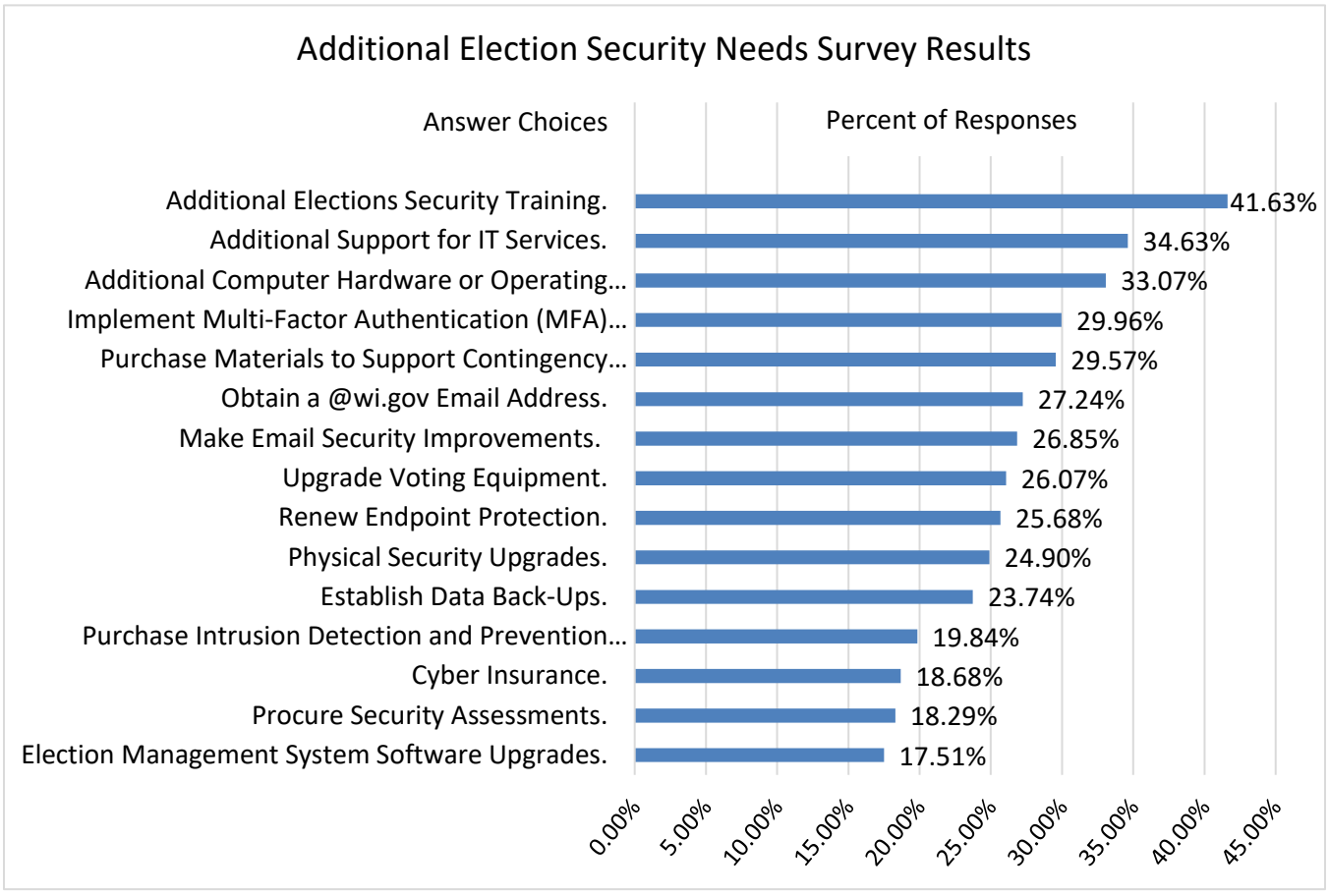
provide opportunities to receive elections security training presentations at events clerks are already planning to attend. Grant Compliance Forms are due back to the WEC on January 28, 2020. WEC staff will review compliance forms and complete any necessary follow up starting on January 31. Jurisdictions may ask for an extension, however WEC staff are only anticipating granting extensions to clerks who planned to attend training but could not find a training that fit in their schedule or travel abilities by the January 28 deadline. The final deadline for subgrant compliance is September 30, 2020.

III. Additional Security Needs Survey Results

At the direction of the Commission, a survey on Additional Security Needs was posted to the WEC website on October 18. This survey asked clerks to indicate what elections security initiatives they would like to implement with the remaining funds not spent through the initial subgrant. All jurisdictions were encouraged to respond by November 1. Clerks, deputy clerks, IT directors, and administrators from municipalities and counties submitted a total 257 responses listing their desired elections security improvements.

The chart below shows the top 15 security needs requested by local officials. Note that the top three requests mirror the three areas of focus chosen for the ES Subgrant Program. These results match the anecdotal experience of WEC staff, who frequently reported clerks were asking if more funds would be available for these three needs.

Table 1. Survey Results



IV. Future Election Security Subgrant Recommendations

A. Overview. When notification of the $6.9 million awarded to Wisconsin from the federal government arrived to the WEC, staff created a two-phase approach to spend the funds. Phase one was designed to address election security needs at the state level through implementing multi-factor authentication on the voter registration system, creation of election security training, and creation and recruitment of additional staff positions to support new security initiatives. The second phase involved collecting feedback from local election officials to find out what was needed to secure elections at the town, village, city, and county level. In the first step of phase two, the Elections Security Subgrant Program focused on providing up to $1.1 million in funding to those who demonstrated the greatest need for financial support. Jurisdictions who were approved for funding are in the process of attaining compliance with these standards before the start of the 2020 election cycle. With the exception of the unspent subgrant funds, all HAVA election security funds have now either been spent or are earmarked for phase-one expenses such as software subscriptions, staffing, and IT support.

In considering recommendations for the next phase of the subgrant program applying the remaining $300,000.00, WEC staff considered the feedback of the county and municipal clerks, local IT directors, town board members, and input from other local government employees. Results of that survey are displayed in Section III above. WEC staff also considered many calls and emails from local elections staff describing what additional resources they needed to perform their elections duties in 2020. Additionally, WEC staff have been in discussion with the advisory committees for communication, training, and security comprised of county and municipal clerks since March 2019.

With the remaining funds, WEC staff recommends splitting funds between two initiatives as supported by the data collected in the survey:

1. A reserve fund for clerks with an emergency need to achieve compliance. For example, a new clerk whose predecessor did not take advantage of the grant. WEC staff believe the Commission should continue to support jurisdictions in need of baseline security standards. In addition, this reserve fund could be available in the event of an unexpected crisis or urgent need.

2. Funding for any jurisdiction who wishes to obtain an @wi.gov email address or implement HTTPS on jurisdiction websites that are used to post unofficial election results and provide election-related information to the public.

B. Analysis. The first part of the staff recommendation is creation of a reserve fund. The reserve fund may provide opportunities to clerks to apply for compliant hardware, IT support, and election security training in exceptional situations. Acceptance of the subgrant would be contingent on the Administrator's determination that the current clerk made every reasonable effort to achieve compliance.

Clerks who were not in their position as of November 15, 2019 would be eligible to apply if their computer does not meet baseline security standards, or if the new clerk does not have access to a municipal owned device. In addition, jurisdictions where a device is identified by endpoint testing as non-compliant would be eligible to apply for funds from the emergency reserve, provided that they also

submit a justification for why a device, IT support, or training is required. WEC staff will perform outreach to municipalities based on the reports through the endpoint testing software and use this as confirmation that a device is non-compliant. No jurisdiction would be eligible for more than $1,200.

The second part of the staff recommendation is to provide funding to help municipalities improve the security of their email and/or website. Over a quarter of survey responses referenced improvements to email security. Public trust in information provided by local election officials is important in all public communications – including information provided via email and local county and municipal websites. Many clerks are currently using Google, Yahoo, Hotmail, and other free email domains to communicate with voters. Free email services generally do not employ robust malware scanning features that would be an additional layer of security for clerks. In addition to the risk of malware or ransomware attacks, a bad actor could easily obtain an email domain designed to trick the recipient that it is from a government entity, allowing them to send disinformation that may cause disruption in the election process. This is because only the .gov domain is regulated by law. Other domains, such as .com, .org, and even .us are freely available to anyone willing to pay for them.

The best way to provide voters confidence in the communications they receive from the government is to use the wi.gov email domain, owned by Wisconsin's Department of Technology (DET). All requests to create an email address, using the wi.gov domain, are vetted by DET to ensure the request is coming from a legitimate government entity. Although DET is offering the domain to localities free of charge, many jurisdictions will need to pay professional IT services to change their email domain.

Similarly, many county and municipal websites are not protected by the secure communication protocol knows as HTTPS. HTTPS encrypts the communications between computers, providing additional security that ensures the information arriving at the destination has not been altered in transit, and also verifies that the data received is coming from the legitimate owner of the website. If a bad actor had gained access to the network and the traffic was not protected by HTTPS protocol, they would be able to modify the content of communications from an official website. Protecting the integrity of the information we provide to voters is a simple way we can fight misinformation and attempts to disrupt the election process.

C. Program Elements and Timeline. Two recommendations for election security initiatives at the local level are outlined below. Each includes information on eligibility, minimum and maximum funding that will be awarded, how to apply, deadlines for application and compliance, and a description of what the WEC will provide. Each program will require application via a memorandum of understanding.

At the time of publication of this memo, an estimated $284,000 of the original $1.1 million will remain unallocated.

1. Baseline Compliance Reserve

Recommended allocation	$150,000
Minimum award	$500
Maximum award	$1,200

Eligibility	Jurisdictions who demonstrate they have an emergency need for a secure device, IT support, or election security training
Application Deadline	Applications accepted on a rolling basis
Grant Compliance Deadline	September 30, 2020
Authorized use of funds	
Jurisdictions may use their grant funds for any of the following needs: 1) $600 for compliant hardware and software (includes software subscriptions) or $200 for operating system upgrade 2) $500 for professional IT support. 3) $100 for election security training Additionally, the administrator may authorize use of funds for unforeseen emergencies.	
Justification	
Turnover among clerks is extremely high. For this reason and the results of the Additional Security Needs survey, WEC staff recommend that $150,000 be reserved for clerks who were not able to benefit from the subgrant before the November 15 deadline. Reserve funding should be used to support clerks with non-compliant devices identified through endpoint testing or clerks who were not in their position on or before November 15. Applying jurisdictions would be required to submit an explanation for their request of emergency funds and provide description of how it would be used (ex. front desk where absentee ballots are issued, computer for deputy clerk, etc.). After January 28, 2020, any WisVote user attempting to access WisVote must pass a cybersecurity scan that will deny access to users who do not meet baseline security standards. Clerks who rely on WisVote to complete their elections duties will need an emergency resource to tap into if they are determined to be using non-compliant devices after January 2020. WEC recommend that this emergency fund be available to jurisdictions through the entirety of 2020.	

2. Obtain a @wi.gov Email Address and/or upgrade to HTTPS Website

Recommended allocation	$134,000
Flat Contribution	$300
Eligibility	Any jurisdiction who certifies they do not have an @wi.gov email or HTTPS protected website
Application Deadline	June 30, 2020 (or until funds run out)
Grant Compliance Deadline	September 30, 2020
Authorized use of funds	
Jurisdictions may use their grant funds for one or both of the following needs: 1) Costs associated with a transition to an @wi.gov email for a clerk email account 2) Costs associated with the implementation of HTTPS secure protocol for the jurisdiction website 3) IT consultant fees 4) Secure HTTPS certificate 5) Monthly costs for email hosting or other services	
Justification	

WEC staff strongly recommend supporting any jurisdiction who decides to make the transition to an @wi.gov email address or upgrade their website to a secure HTTPS protocol. WEC staff believe that if we guide jurisdictions through the transition and make funding available for each initiative, clerks will be more likely to make the switch. The use of a .gov email and HTTPS website provides a voter increased assurance that the information provided comes from a government entity and can be trusted.

D. Implementation. The grant program will provide clerks with detailed step-by-step guides to many of the requirements and recommendations listed above. Specifically, clerks will receive instructions explaining:

- how to purchase a compliant device (multiple options)
- how to update an operating system
- how to obtain IT support
- how to obtain an @wi.gov email address

If approved, the subgrant programs will be announced on December 6, 2019. This will allow clerks eight weeks to review, complete, and submit their applications to the WEC. Compliance deadlines have been designed to bring clerks into compliance ahead of the 2020 General Election.

V. Recommendations for New HAVA Funds in 2020

Additional elections security funding for states is under consideration by the United States Congress. If new funding becomes available, it would allow an expansion into advanced security projects that are currently cost prohibitive. WEC staff believe new funding should be directed towards security improvements at the county level. Much of the work already completed has raised the level of security at the state and municipal level. County clerks have unique responsibilities and security needs that require significant financial investment that most counties do not have within their existing budgets.

The implementation of a firewall in front of the county network where the election management system (EMS) or Election Results Module (ERM) is located is an initiative unique to counties that modem their unofficial election night results. An EMS or ERM is the software application some counties use to receive modemed election night results. A firewall can provide protection to systems by denying traffic based on the configuration of the firewall rules. The existing vendor-provided firewall in front of the EMS or ERM is not accessible to County IT staff. Providing funding for a County-maintained firewall would enable more rapid and relevant updates to firewall rules, which would include more timely threat intelligence.

A firewall that would provide adequate protection would cost at least $5,000. It would cost $360,000 if all 72 counties were to choose to apply for subgrant HAVA funding to support a firewall implementation. Given that roughly 20 counties receive modemed unofficial election night results, the cost of funding this initiative would likely be much lower. As county clerks are also responsible for receiving election night results from each municipality and posting these results for public consumption, public trust in this information and the devices protecting access is vital to the integrity of elections.

Another option best suited for counties is already in use in at least 36 states and some Wisconsin counties. The Center for Internet Security (CIS), a non-profit organization and leader in developing

cybersecurity defenses, provides an IDPS solution called Albert Network Monitoring, to state and local government entities or tribal and territorial governments. The devices monitoring each jurisdiction's network are informally referred to as Albert sensors. When an Albert sensor is installed, it can detect, log, and report threats to the network directly to the Security Operations Center at the Multi-State Information and Analysis Center (MS-ISAC). The MS-IASAC analyzes the data to identify abnormal traffic and provides direction on appropriate action. The intelligence gathered through the sensors allows rapid information sharing between state and federal partners. More sensors would provide more intelligence and raise the security posture of elections at the national level.

For most Wisconsin counties it is not feasible to purchase an Albert sensor without outside assistance. Initial costs for hardware and installation of an Albert sensor costs $8,900 with additional fees for ongoing maintenance. Maintenance fees are based on data usage and range from $890 a month to $1,650 per month. To provide all 72 Wisconsin Counties with Albert sensors would cost $640,800 just for hardware. Maintenance fees for 72 Albert Sensors would add an additional $1,000,000 to $1,425,600 in expenses each year.

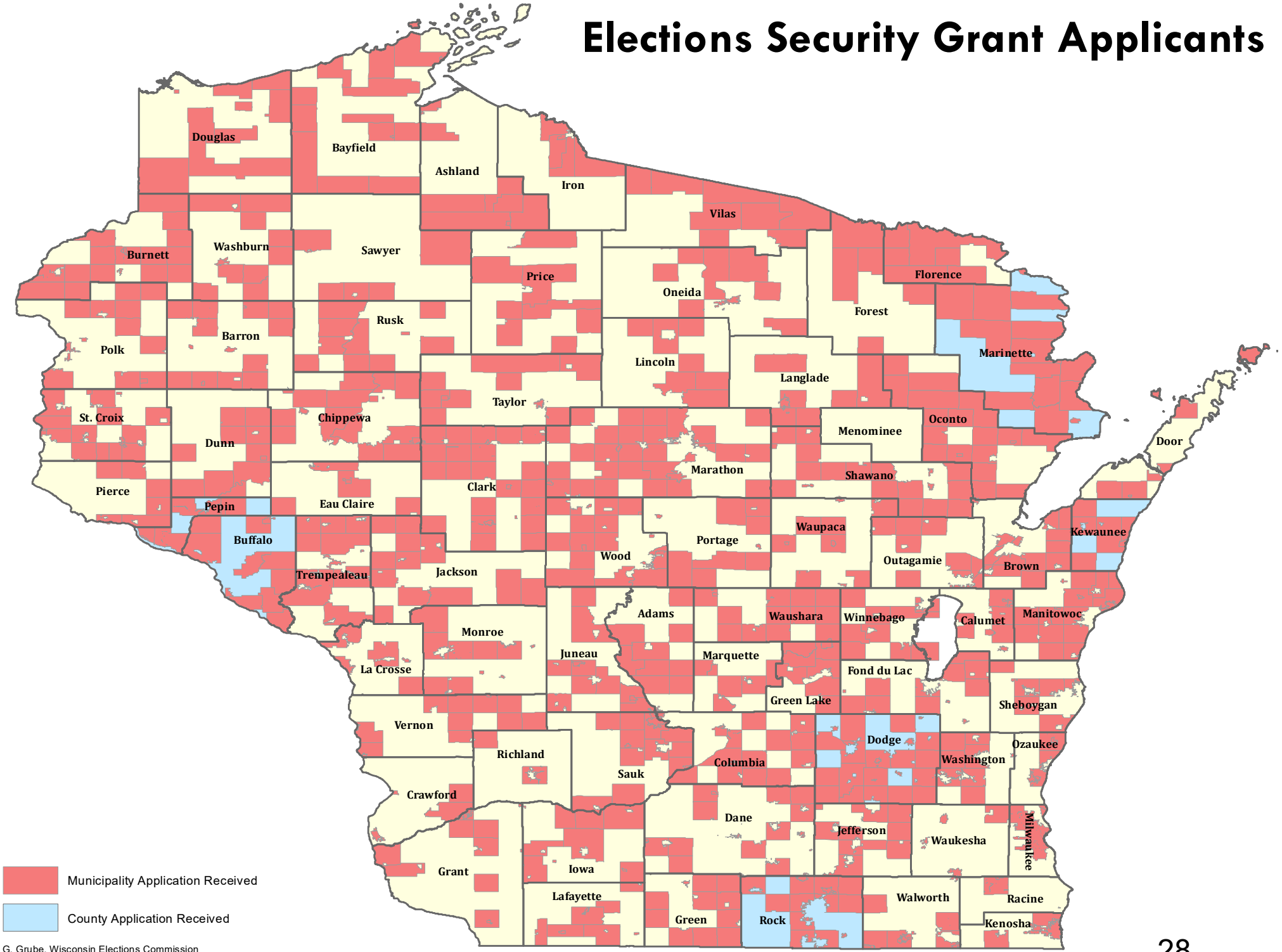
VI. Recommended Motion

WEC staff recommends the Commission approve the following actions:

Recommended Motion:

The Commission directs staff to announce and initiate the second HAVA security subgrant program to local election officials as described in the recommendations contained in the staff memorandum. The Commission authorizes WEC staff to announce the grant, accept applications, and issue subgrant funds to municipal and county election officials no later than June 30, 2020. The total amount of subgrant funds distributed is not to exceed $284,000

Elections Security Grant Applicants



Municipality Application Received

County Application Received

G. Grube, Wisconsin Elections Commission
Data as of 11/18/19

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

DATE: For the December 2, 2019 Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe
Administrator

Prepared and Presented by:

Reid Magney
Public Information Officer

SUBJECT: Election Security - Public Information Program

At its August 13, 2019 meeting, the Commission directed staff to engage the KW2 agency to conduct market research regarding election security and to develop training and communications tools to support state and local election officials as they communicate with voters and media about election security.

This document updates the Commission on the program's progress.

1. Research

KW2 started by meeting with WEC staff and then conducting key informant interviews with 15 county and municipal clerks to gather information about the kinds of questions and concerns that voters are voicing about election security, as well as the challenges clerks face in communicating with the public and the media about the issue. KW2 used results of those interviews to develop a statewide quantitative survey, which was conducted between September 23 and October 18. KW2 followed up the survey by conducting focus groups around the state to discuss election security and to evaluate messages they developed based on the quantitative survey results. The focus groups helped determine what messages are most relevant to various audiences, whether they find them credible, and what type of action they would take after hearing the messages.

KW2 presented its quantitative and qualitative research findings to WEC staff November 22 (after the preparation of this memorandum), and will present them to the Commission at its meeting December 2. At that meeting, staff will have recommendations for what kind of public information would be appropriate, based on the research and will ask for the Commission's approval to pursue next steps.

2. Strategic Communications

The second track of the project involves developing plans and training materials to assist WEC staff and local election officials in communicating with the media and voters about election security, especially in reaction to questions or an actual event. Clerks have consistently told staff that they want training and resources to help them communicate with the public and the news media about election security.

KW2 worked closely with WEC staff to develop an election security communications toolkit for local election officials. The toolkit include sample news releases clerks can submit to local news organizations in advance of elections, as well as holding statements and news release templates clerks can have ready in the event a problem occurs. The toolkit also includes social media messages and graphics which clerks can use on their websites and social media accounts.

KW2 also worked closely with WEC staff to develop two types of training. The first is a one-hour, online webinar to introduce clerks to the election security communications toolkit. The webinar was held on Monday, November 4, and attended by 217 clerks. Those who were not able to watch the webinar live may watch it on their own schedules at the WEC's Learning Center website.

The second type of training is a two-hour in-person exercise designed to give clerks hands-on experience in dealing with election security communications scenarios. These trainings are limited to 50 participants due to their hands-on nature. KW2 conducted a practice session with WEC staff and the first in-person election security training session was held Monday, November 11 in Milwaukee, and was attended by 26 clerks. A second session attended by 27 clerks was held on Tuesday, November 12 in La Crosse.

Additional sessions are scheduled for Friday, December 6 in Madison and Thursday, December 12 in Green Bay. The Green Bay session will be held in the afternoon following an election security tabletop exercise (TTX) that morning. We are also scheduling a communications training for January in Wausau. Going forward, we anticipate adapting the communications training sessions to be presented by WEC staff, often in conjunction with TTX trainings across the state throughout 2020.

KW2 also provided a two-hour hands-on media training session for Administrator Meagan Wolfe and PIO Reid Magney on November 21.

Conclusion

WEC staff and KW2 moved quickly to develop the communications plans and materials that state and local election officials will need to be ready for 2020. Staff and KW2 are focusing on cost-effective ways to communicate meaningfully with Wisconsin voters about election security and to be prepared to respond with accurate, credible information in the event that developments warrant it. Staff has received positive feedback from local election officials regarding the usefulness of the communications toolkit and the training exercises in providing practical preparation and assistance for their own public communications.

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

DATE: For the December 2, 2019 Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe, Administrator
Wisconsin Elections Commission

Prepared by:
Jodi Kitts, WisVote Specialist
Connie Shehan, WisVote Specialist

SUBJECT: **Wisconsin's Electronic Registration Information Center (ERIC) Movers Update**

This memo is an update on the 2019 ERIC Movers mailing. Since the last update during the September 24, 2019 Commission meeting, the letters have been printed and mailed. The Commission mailed 234,039 letters from October 9-11, 2019 to voters identified by the ERIC process as potentially having moved. As of November 10, 2019 these are the statistics:

Description	Count
Undeliverable Mailing	54,234
Requested Continuation at Current Address	1,666
Registered at a New Address	13,267

Staff will continue to analyze the data to identify other trends as voter participation, additional continuation requests, and updated registrations are processed. Unlike the Four-Year Maintenance process, there is not a 30-day statutory deadline to request continuation from a current voter registration address, so the above numbers will continue to change. Staff will provide updates on the status of the mailing to the Commission at subsequent meetings.

Clerk Training
Staff hosted a webinar on this subject for clerks on October 17, 2019, and FAQs from this presentation are available as resource on the WEC website, along with the recording of the webinar itself.

Poll Book Watermark
The Commission initially approved a watermark process, in June 2019, for identifying voters who received the 2019 Movers mailing on the poll book. This process will prompt poll workers to ask those identified with the "Have you moved?" watermark to certify they still reside at the address printed on the poll book. If the voter has not moved, they would sign the poll book and continue with the voting process. If the voter has indeed moved, they have the option to register at their new

address. If a voter certifies that he or she has not moved, that would update a voter's record from Active-Movers to Active-Registered once participation for that election has been entered.

On November 5, 2019 there were three special elections in Wisconsin and the watermark was printed on those poll books as an opportunity to gather some preliminary usability feedback. Staff communicated with clerks after these elections and their feedback did not identify any problems or concerns expressed by their poll workers or voters with this process. It was reported that several voters with the watermark did participate in these special elections and there were no issues identified when processing those voters at the polls.

Poll Worker Training
Staff have drafted poll worker training materials to provide background information and outline how voters identified with the "Have you Moved?" watermark in the pollbook should be handled. This document also includes answers to FAQs that a voter may ask the poll worker to ensure the process is streamlined and that election officials are prepared to process these voters. Staff will be seeking clerk input on these poll worker tools to improve their effectiveness before finalizing and widely distributing them.

Recommended Motion:

The Commission directs staff to continue to implement the ERIC Movers poll book watermark process for the 2020 election cycle.

Attachment: Pollbook Watermark Example

Ballot, Ward, District	Voter Reg & Barcode	Name and Address	Voter #	Voter Signature

Names beginning with the letter [A]

WARD 1 WD-001 09211-001-1092-1 CG-03 1092 TC-01 AS-67 Notes:	700006118	**Aamodt, Janell M** 819 2ND AVE CHIPPEWA FALLS, WI 54729		Janell M Aamodt HAVE YOU MOVED?	1
WARD 1 WD-001 09211-001-1092-1 CG-03 1092 TC-01 AS-67 Notes:	700006121	**Aamodt, Samantha M** 1157 EVERGREEN LN CHIPPEWA FALLS, WI 54729		Samantha M Aamodt	2
WARD 1 WD-001 09211-001-1092-1 CG-03 1092 TC-01 AS-67 Notes:	0004071003	**Aardappel, Dean Patrick** 930 BROADWAY AVE CHIPPEWA FALLS, WI 54729		Dean Patrick Aardappel	3
WARD 1 WD-001 09211-001-1092-1 CG-03 1092 TC-01 AS-67 Notes:	0710144300	**Aberle, Kenneth W** 330 MARSHALL ST CHIPPEWA FALLS, WI 54729		Kenneth W Aberle	4
WARD 1 WD-001 09211-001-1092-1 CG-03 1092 TC-01 AS-67 Notes:	0700753550	**Adams, Deborah Ann** 948 PRENTICE ST CHIPPEWA FALLS, WI 54729		Deborah Ann Adams	5
WARD 1 WD-001 09211-001-1092-1 CG-03 1092 TC-01 AS-67 Notes:	0710038540	**Adleman, Wanda Jean** 917 GOLDSMITH ST CHIPPEWA FALLS, WI 54729		Wanda Jean Adleman	6
WARD 1 WD-001 09211-001-1092-1 CG-03 1092 TC-01 AS-67 Notes:	700188468	**Adrian, Melissa Lynn** 901 JEFFERSON AVE CHIPPEWA FALLS, WI 54729		Melissa Lynn Adrian	7
WARD 1 WD-001 09211-001-1092-1 CG-03 1092 TC-01 AS-67 Notes:	0004189653	**Adrian, Mark Edwin** 509 N PINE NEEDLE DR CHIPPEWA FALLS, WI 54729		Mark Edwin Adrian	8
WARD 1 WD-001 09211-001-1092-1 CG-03 1092 TC-01 AS-67 Notes:	0701252960	**Alexander, Paul Jeffrey** 927 MARSHALL ST CHIPPEWA FALLS, WI 54729		Paul Jeffrey Alexander	9
WARD 1 WD-001 09211-001-1092-1 CG-03 1092 TC-01 AS-67 Notes:	0710680030	**Alexander, Lorraine R** 927 MARSHALL ST CHIPPEWA FALLS, WI 54729		Lorraine R Alexander	10

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

DATE: For the December 2, 2019 Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe, Administrator

Prepared by:
Jodi Kitts, WisVote Specialist
Connie Shehan, WisVote Specialist

SUBJECT: Electronic Registration Information Center (ERIC) – Cross-State Voter Participation Matches

As part of its processes, ERIC matches voter participation records across state lines and generates reports of individuals who appear to have voted in the same election in multiple states. ERIC then sends reports to each member state for further investigation. These reports are now available to member states for the first time in 2019 with data covering the 2018 General Election and will continue to be provided by ERIC after each subsequent general election. Commission staff received the Cross-State Voter Participation Report earlier this year and has since been researching potential matches with local election officials in Wisconsin and other member states.

Wis. Stat. § 12.13(1)(e) prohibits anyone from intentionally voting "more than once in the same election." Violating Wis. Stat. § 12.13(1)(e) is Class I Felony. Wis. Stat. § 12.60(1)(a). The Wisconsin Elections Commission ("WEC" or "Commission") does not have the authority to prosecute criminal violations of law, but it does have the ability to forward potential violations to the appropriate District Attorney of the county in which a violation may have occurred. The Commission already forwards potential criminal violations of law following its voter felon audit when records from the Department of Corrections (DOC) are matched against voter participation records after each election. If an individual is still under supervision (parole or probation) by DOC and records show the individual voted, a referral is made to the appropriate District Attorney for potential investigation and prosecution.

When Commission staff received the potential cross-state voter participation matches, Commission staff reviews documents provided by local clerks with those provided by election officials from the states with potential matches. When available, the following documents are reviewed: a copy of the Wisconsin voter registration application (EL-131), a copy of the voter registration form from the other state, copies of the poll list pages from both states showing that voter's poll book listing (pre-printed or supplemental), a copy of the Wisconsin absentee envelope or request for absentee ballot (if applicable), copy of an absentee envelope or request for absentee ballot (if applicable) from the other state, and any

other documents that the clerk in Wisconsin or election official in the other state may have which would provide additional confidence that the voter may have voted in both states.

At this time, Commission staff has not passed along any referrals to a District Attorney as a result of the cross-state voter participation matching. Staff has been gathering the available supporting documentation from Wisconsin clerks and election officials in other states for review before making any referrals.

Commission staff believes the below matching criteria must be met prior to a referral being made to the appropriate District Attorney. Any available supporting documentation gathered as part of this process is used to support these determinations.

1. The voter's first name, last name and middle name or initial (if available) must match between Wisconsin and the other state. (The use of common nicknames like "Bill" instead of "William" will also be considered a match).

2. The voter's date of birth must match between Wisconsin and the other state.

3. If criteria #1 and #2 are met, then one of the following pieces of information (a. through e.) must also match between Wisconsin and the other state:

    a. last four digits of the voter's social security number
    b. the voter's driver license number
    c. the voter's state ID number
    d. the voter's previous address information
    e. a highly comparable signature on voter records

If criteria #1 and #2 are not met, Commission staff does not believe a referral should be made to the District Attorney. Commission staff believes requiring an additional data point matching beyond the voter's name and date of birth provides a reasonable reliability check point before passing the information to a District Attorney.

As with the voter felon audit referrals made by the Commission, Commission staff considers any allegation of voter fraud to be a serious matter. Therefore, as much supporting information as possible is collected for review before a determination is made regarding a referral. Commission staff takes great care in ensuring that any referral is based upon accurate information and staff is confident that if the criteria outlined above is met, the individual likely voted twice in the same election in different states, or at least further investigation is warranted by law enforcement.

The matching process and staff review, however, does not guarantee that the same individual voted twice in two different states, as it is still possible that a data entry error at some point in the process created a false match or that the votes were cast by individuals with the same name and date of birth. The final disposition of any matter should be based upon a thorough criminal investigation conducted by the District Attorney's investigative staff and/or local law enforcement. The referral letter that will be sent to a District Attorney, which stresses

this important point, is attached to the memorandum for your reference. Any referral made would include copies of all documents used by the Commission staff to make its determination to assist the District Attorney in making its decision regarding further investigation and/or filing charges.

Recommended Motion:

The Commission adopts the matching criteria described in the staff memorandum for referring voters who may have voted in the same in election in Wisconsin and another state, based on information obtained from ERIC, Wisconsin clerks and election officials in other states. The Commission directs staff to periodically update the Commission on the number of referrals made and the disposition of such referrals by the District Attorney if known.

Attachment: Sample District Attorney Referral Letter

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

<Date>

<District Attorney>
<Address 1>
<Address 2>
<City, State, Zip>

Dear District Attorney <DA Last Name>:

Enclosed with this letter you will find information related to an individual in your county who may have voted twice in the 2018 General Election held on November 6, 2018. Voter participation records indicate the individual voted at the same election in Wisconsin and in another state. Wis. Stat. § 12.13(1)(e) prohibits anyone from intentionally voting "more than once in the same election." Violating Wis. Stat. § 12.13(1)(e) is Class I Felony. Wis. Stat. § 12.60(1)(a).

While the Wisconsin Elections Commission ("Commission") may investigate potential criminal violations of Wisconsin Statutes, Chapter 12, the authority to prosecute these violations rests with a District Attorney. The Commission provides this referral to your office for potential investigation and prosecution if warranted.

Background

By statute, Wisconsin is a member of Election Registration Information Center (ERIC). ERIC matches voter participation records across state lines and generates reports of individuals likely voting at the same election in multiple states. ERIC uses personally identifiable information provided by voters when they register to vote and cast a ballot to produce the report. ERIC compares voter registration records across all states that are members of ERIC and sends reports to each state for further investigation.

Prior to providing this referral to your office, Wisconsin Elections Commission staff has reviewed the information provided for accuracy and has worked with local election officials to provide additional supporting documents if they are available

When available, the following documents will be included with this letter: a copy of the Wisconsin voter registration application (EL-131), a copy of the poll list page showing that the individual likely voted in the Wisconsin election (pre-printed or supplemental), and a copy of the Wisconsin absentee envelope or request for absentee ballot (if applicable). Additional documents from the other state in which the individual likely voted will also be included if available.

Status Update

Commission staff tracks referrals made to District Attorneys and requests that you periodically provide the Commission with an update on the status of the referral to your office until the matter has been resolved. Updates can be sent via email to WEC.Casetracker@wi.gov or by mail to the Wisconsin Elections Commission at P.O. Box 7984, Madison, WI 53707-7984.

Please note that any allegation of voter fraud is a serious matter. Commission staff takes great care in ensuring that this referral is based upon sound information. But its review does not guarantee that the same individual actually voted twice in two different states during the 2018 General Election, as it is still possible that a data entry error created a false match or that the votes were cast by individuals with the same name. The final disposition of this matter should be based upon a thorough criminal investigation conducted with the assistance of your investigative staff and/or local law enforcement.

If I can provide additional information to assist you, please contact me at (608) 266-0136 or Michael.Haas@wisconsin.gov.

Thank you in advance for your assistance and for your commitment to fair, accurate and transparent elections in Wisconsin.

Sincerely,

Michael Haas
Staff Counsel
Wisconsin Election Commission

cc: Meagan Wolfe
Administrator
Wisconsin Election Commission

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

MEMORANDUM

DATE: For the December 2, 2019, Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe
Administrator

Prepared and Presented by:
Robert Williams, Elections Specialist
Cody Davies, Elections Specialist

SUBJECT: Clear Ballot
Petition for Approval of Electronic Voting System ClearVote 2.0

Introduction

Clear Ballot Group is requesting the Wisconsin Elections Commission (WEC or Commission) approve the ClearVote 2.0 voting system for sale and use in the State of Wisconsin. The Commission approved a previous Clear Ballot voting system, ClearVote 1.4, in December 2017. 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 B). The WEC has also adopted administrative rules detailing the approval process. Wis. Admin. Code Ch. EL 7 (Appendix C). Voting systems submitted to the EAC for testing after December 13, 2007, are tested using the 2005 Voluntary Voting System Guidelines (2005 VVSG).

Recommendation

WEC staff is recommending approval of ClearVote 2.0 for sale and use in Wisconsin. Detailed recommendations are listed on pages 14-16, following the analysis of functional testing performed by WEC staff.

Background

On October 1, 2019 WEC staff received an Application for Approval of ClearVote 2.0. 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 2.0. Clear Ballot also submitted the required Voting System Test Lab (VSTL) report as testing of the system had been completed. Clear Ballot, however, did not include a certificate of approval from the Elections Assistance Commission (EAC) with the initial application materials. Despite testing having been completed by the VSTL, a full EAC certificate had not yet been granted.

WEC staff determined that it would not pursue a testing campaign related to the application from Clear Ballot Group until formal certification and approval had been granted by the EAC and the certification report had been issued. Clear Ballot Group continued to provide regular updates to WEC staff regarding the status of the EAC certification process of ClearVote 2.0. Staff began to plan the test campaign once Clear Ballot Group provided a realistic expected date for the issuance of the EAC report. The VSTL responsible for testing ClearVote 2.0, Pro V&V, recommended on September 30, 2019 that the EAC certify ClearVote 2.0. The EAC issued final certification of ClearVote 2.0 on October 21, 2019.

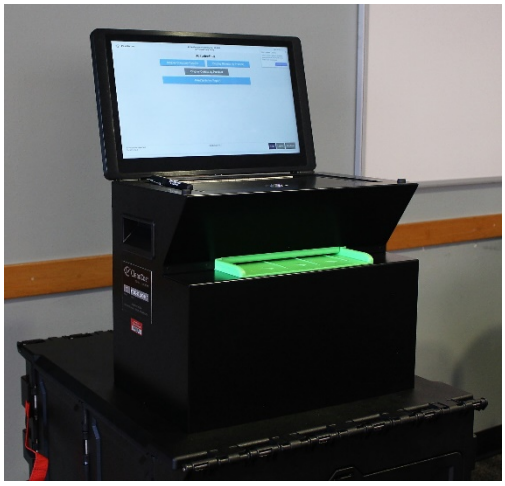
WEC staff conducted the voting system testing campaign for ClearVote 2.0 from October 28 to October 31, 2019 in the WEC office. The campaign consisted of functional testing using three different mock election configurations, which are detailed beginning on page 7. Additionally, staff conducted a meeting of the Voting Equipment Review Panel, which is a body consisting of local election officials as well as voting rights and disability advocates. A public demonstration of the equipment was held following the Review Panel meeting.

System Overview

ClearVote 2.0 is a paper based, digital scan voting system powered by the ClearDesign and ClearCount software applications. It consists of four major components: ClearDesign, an election management system (EMS); ClearAccess, an Americans with Disabilities Act compliant ballot marking device for polling place use; 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 following paragraphs describe the design of the ClearVote 2.0 hardware taken in part from Clear Ballot technical documentation.

ClearCast

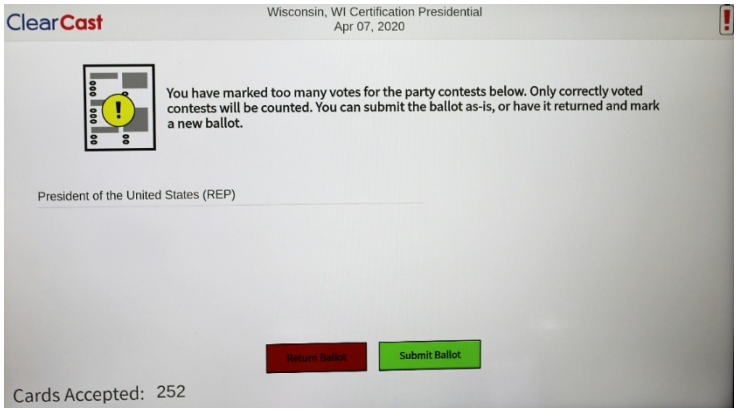


ClearCast is a digital scan paper ballot tabulator designed for polling place use. Voters insert marked ballots into the unit for processing. The tabulator uses high speed, high-resolution, commercial scan engines to simultaneously image the front and back of the ballot. Ballots used in conjunction with this system are designed with an oval next to the candidate name or ballot choice. 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 2.0 testing, red, blue, and green pens were also used to mark ballots, all of which were correctly tabulated by ClearCast.

The system deposits the ballot into a detachable, secured storage bin. Included in ClearVote 2.0 are two options for ballot containers. The first is a secured ballot bag which attaches to the back of the unit. The second option is a collapsible ballot bin on top of which the ClearCast unit is secured. ClearCast includes an internal thermal printer for the printing of the zero reports, log reports, polling place and precinct totals as well as an optional write-in report. 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. There is no modem or results transmission component in ClearCast. After the election is complete and the memory device is removed, 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 cast using the machine. The information screens are designed to alert voters to any errors on their ballot. ClearCast will provide the voter with details about the error, identifying the specific contests where errors have occurred. Voters have the option for the ballot to be returned or to cast the ballot with errors on it. ClearCast can be programmed to automatically reject ballots containing overvotes, crossover votes, and under votes. If a voter attempts to insert multiple ballots into the machine at the same time the ballots are automatically returned. Further information on specific voter information screens can be found on the next page.

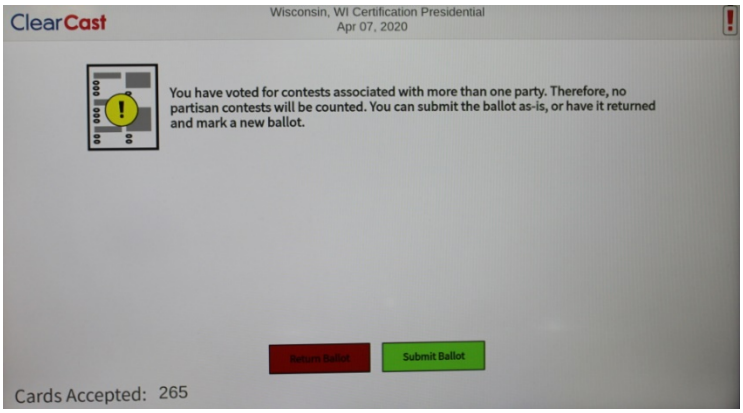
- **Overvote Notification:** If there is a ballot containing an overvote, an error message appears that identifies the contests containing overvotes. That message reads: "You have marked too many votes for the party contests below. Only correctly voted contests will be counted. You can submit the ballot as-is, or have it returned and mark a new ballot."



The voter has the option to return the ballot for review or to cast the ballot with overvotes, as indicated by the error message. If there are multiple overvotes, the contests containing errors are listed to allow the voter the opportunity to review all errors.

Voters can press "Return Ballot" if they wish to correct their ballot. Conversely, voters are able to press "Submit Ballot" if they wish to submit their ballot with overvotes. The overvote notification also advises voters that, should they choose to cast their ballot with overvotes, that only their votes in the correctly voted contests will be counted.

- **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 they are attempting to cast a ballot that contains crossover votes. That message reads: "You have voted for contests associated with more than one party. Therefore, no partisan contests will be counted. You can submit the ballot as-is, or have it returned and mark a new ballot."



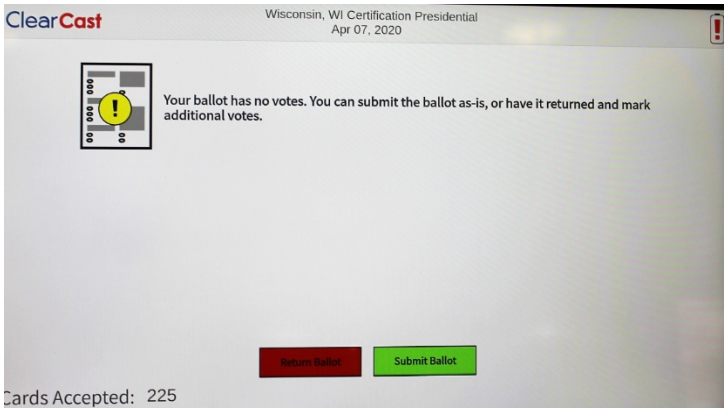
Staff recommendation is to include the prescribed language included in Appendix D: "Cross Over Votes Detected. You selected candidates from different parties. IF the ballot is cast as marked, no votes in any partisan contests will count." Clear Ballot has confirmed that the language will be updated prior to implementation.

As with an overvoted ballot, the voter may choose to return the ballot for further review or to cast the ballot as originally marked. 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 specific contests contain crossover votes.

- **Blank Ballot Notification:** If the ballot contains no votes, a message appears that states the ballot is blank. This screen reads: Your ballot has no votes. You can submit the ballot as-is, or have it returned to mark additional votes."

  The voter is allowed to press "Return Ballot" to correct their ballot and see a poll worker for help. The voter may also press "Submit Ballot" to submit their ballot with no selections made.



ClearCount

ClearCount is a high-speed, optical scan ballot tabulator coupled with ballot processing applications designed for use at central count locations. ClearCount software runs on unmodified COTS laptop or desktop computers running the Windows 10 or Ubuntu Linux operating system and supports specific models of Fujitsu scanners. The ClearCount system is capable of processing between 50 and 70 ballots per minute, or roughly 4,100 ballots per hour when using a 14-inch ballot. Throughput capabilities are dependent upon the model of scanner implemented. All of the components are unmodified COTS that are connected via a wired, closed, and isolated network which is not connected to any other systems or the Internet. All files that make up the ClearCount system reside on a single scan server that is shared by a municipality's scan stations. The only software programs installed on the scan stations are the Windows or Linux 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 2.0 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 are reviewed by ClearCount based on election definitions created in the EMS and a report is available that indicates how votes on each ballot were counted. The adjudication component allows for the review of each vote on a ballot and the user can alter the disposition of votes on a ballot if they feel the system did not correctly determine voter intent. Election officials are also able to adjudicate and reconcile

problem ballots by evaluating individual errant marks, overvotes, and crossover votes. ClearCount results can be printed or exported in a variety of formats.

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 2.0 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 their votes privately. Voters have the option to use the touchscreen or an integrated tactile keypad to navigate the ballot and make their 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. 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 have the option of using the touchscreen, a 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 and presidential preference 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 voter's selections. This system uses Oki brand printers that can accommodate up to a 22-inch ballot.

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.

ClearDesign

ClearDesign is a Windows 10 based 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 other DesignStation computers to the DesignServer using a wired, closed connection. All the components used for the creation of voting machine election definitions are off-the-shelf products that are connected via a wired, closed, and isolated network which is not connected to any other systems or the internet.

System Software Components

ClearVote 2.0 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	2.0.1
ClearCount	2.0.1
ClearAccess	2.0.1
ClearCast	2.0.0

WEC staff visually verified the software version numbers for each component of the ClearVote 2.0 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 2.0. 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.

Ballot images captured by either ClearCast or ClearCount scan stations can be 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 series of ballots. The ballot image files serve as a reliable backup in the event that original ballot images are lost or damaged.

Functional Testing

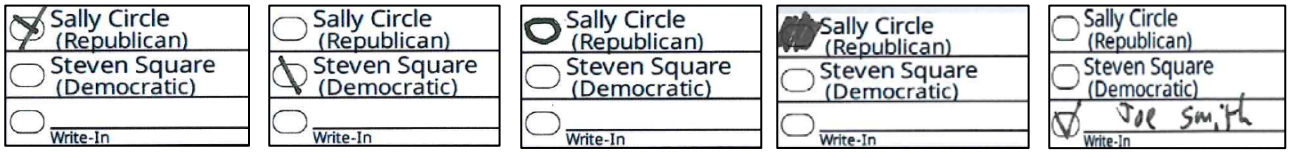
As required by Wis. Admin. Code EL § 7.02(1), WEC staff conducted three mock elections with each component of ClearVote 2.0 to ensure the voting system conforms to all Wisconsin requirements. These mock elections included: A partisan primary with a special nonpartisan school board election, a general election with both a presidential and special gubernatorial contest, and a presidential preference vote combined with a partisan Assembly Representative special election.

WEC staff designed a test deck of 1,200 ballots using various configurations of votes over the three mock elections to verify the accuracy and functional capabilities of the ClearVote 2.0 system. A three-person team of WEC staff hand marked 900 paper ballots based on a test deck spreadsheet for each mock election. Blank ballots were provided by Clear Ballot. 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. When the votes on all ballots were confirmed, WEC staff utilized ClearCast and three different COTS scanners that work in conjunction with the ClearCount software to count and tabulate all of the votes. 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 contained a special election contest. 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 2.0 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 were also included to determine how each of the three different tabulators would treat these ballots. Ballots purposefully marked with slight resting marks within the oval were treated consistently by all components of ClearVote 2.0 and were not counted. 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 includes 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, ballots with write-in votes where the oval was not filled in are not captured on the report. The ClearCast write-in report 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.

There were only two issues experienced by staff during testing. The first relates to the ClearAccess ballot marking device. When marking accessible ballots, staff observed that, if the extreme lower right corner of the next contest button is touched, the subsequent contest will be flashed onscreen but skipped over and the second contest following will be the next contest presented on the screen. The voter is able to return and correctly vote this contest by pushing the back button. The second issue concerned the ClearCount central count scanner model 7180. An unnoticed smudge on one of the scanner heads resulted in several ballots being deemed unreadable. This was corrected by ClearBallot staff cleaning the scanner and a rerun on the ballots. Purchasing municipalities sign up for a service plan with Fujitsu at the time of purchase that includes such cleanings. Service intervals are decided upon by the municipality as part of that agreement.

Testing results and staff observation of the system indicate that ClearVote 2.0 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.

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.

Six of the 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 October 30 from 2:00 p.m. to 3:30 p.m., and representatives from Clear Ballot Group provided a demonstration of the ClearVote 2.0 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 E.

Public Demonstration

A public demonstration of the ClearVote 2.0 was held on October 30, 2019, from 4:00 p.m. to 5:30 p.m. at the WEC office in Madison. The public meeting is designed to allow members of the public the opportunity to use the voting system and offer comment. While representatives from Clear Ballot and WEC staff were present to demonstrate the functionality of all system components, no members of the public attended the demonstration.

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 2.0 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 by placing Presidential or Gubernatorial candidates and running mates within the same contest.

§ 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 ClearCast component contains a battery backup with multiple hours of battery life to allow for time to find an adequate power source. ClearCount saves

ballot images and files to a server in real time.

§ 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 by allowing a voter to review a physical hand marked or BMD marked ballot prior to placing it in a ballot box or tabulator.

§ 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 by including an option for the return of the ballot to the voter from the notification screens on the tabulator.

§ 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 by including an option for the return of the ballot to the voter from the notification screens on the tabulator.

§ 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
The Clear Ballot voting system meets this requirement.

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.

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 2.0 complies with all applicable state and federal requirements. The voting system 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 2.0 and components set forth in the table on page 7 and in Appendix A. This voting system accurately completed the three test elections and was able to accommodate the voting requirements of the Wisconsin election process.

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. WEC staff recommends that as a continuing condition of the WEC's approval, that voting systems purchased and installed as part of ClearVote 2.0 be configured in the same manner in which they were tested, subject to verification by the Commission or its designee. Once installed, the configuration must remain the same and may not be altered by Clear Ballot nor by state, county, or municipal officials except as approved by the Commission.

5. Staff recommends that, as a continuing condition of the WEC's approval, that the language on the information screen displayed to a voter when a ballot with crossover votes is inserted into a tabulator is updated to conform with the verbiage previously prescribed by the Commission.

6. Only the hardware and software versions included in this system version 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. As part of US EAC certificate: CBG-CV-20, only equipment included in this certificate can be used together to conduct an election in Wisconsin. Previous versions that were approved for use by the Elections Commission are not compatible with the new Clear Ballot voting system and are not to be used together with the equipment seeking approval by the WEC, as this would void the US EAC certificate. If a jurisdiction upgrades to ClearVote 2.0, it needs to upgrade each and every component of the voting system to the requirements of what is approved herein

7. 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.

8. 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 application submitted to WEC on October 1, 2019 requesting the approval of ClearVote 2.0.

Proposed Motion

MOTION: The Wisconsin Elections Commission adopts the staff recommendations for approval of Clear Ballot Group's Application for Approval of ClearVote 2.0 voting system in compliance with US EAC certification number CBG-CV-20, including the conditions described above.

Appendices

- Appendix A: Hardware Components
- Appendix B: Wisconsin Statutes § 5.91
- Appendix C: Wisconsin Administrative Code EL 7
- Appendix D: Prescribed Language for Voter Information Screens
- Appendix E: Wisconsin Voting Equipment Review Panel Feedback
- Appendix F: Clear Ballot 2.0 EAC Report

Appendix A: Hardware Components

Clear Ballot Group submitted the following equipment for testing as part of ClearVote 2.0:

Equipment	***Hardware Version(s)***	***Firmware Version***	***Type***
ClearCast	**Revision 4**	**D**	**Polling Place Digital Scanner and Tabulator**
ClearCount			**Central Count Digital Scanner**
Dell Latitude Laptop	5580, 5590		
Dell PowerEdge Server	T130, T140, T330, T440		
Dell OptiPlex AIO	7440		
Dell Precision Tower	T3620		
Fujitsu Scanner	fi-7180		
Fujitsu Scanner	fi-6800		
Fujitsu Scanner	fi-6400		
ClearDesign			**Election Management System**
Dell Latitude Laptop	5580, 5590		
Dell PowerEdge Server	T130, T140, T330, T440		
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	E-Series		
Brother Laser Printer	HL-L2340DW		
Oki Data Laser Printer	B432dn		

Appendix B: 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 C: 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 D: Prescribed Language for Crossover Information Screen

Pursuant to the advice of the Commission, the informational screen displayed to voters when a ballot with crossover votes is fed into the tabulator has been updated to include more meaningful and more clear verbiage.

Figure 1 shows the language from the last Clear Ballot certification campaign in 2017 and Figure 2 shows the language from the most recent test campaign. WEC staff are in the process of discussing the necessary changes with Clear Ballot to bring the langauge from ClearVote 2.0 into compliance with previous Commission decisions.

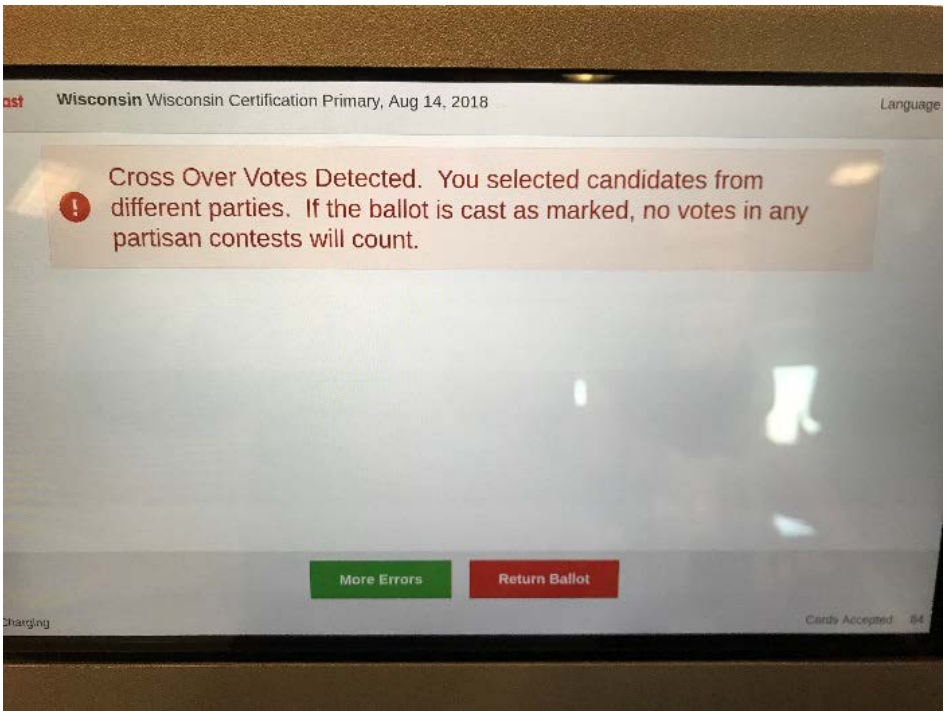


Fig. 1

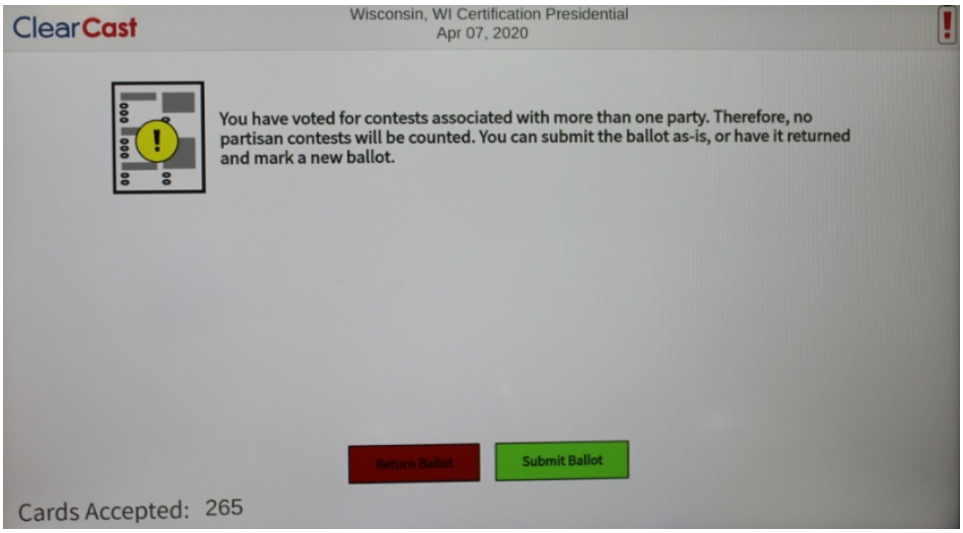


Fig. 2

Appendix E: 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	

- Version 2.0 is greatly improved from version 1.4. Feedback given by Sheboygan County municipal clerks and poll workers during training for use of 1.4 was implemented in 2.0, a definite plus for Sheboygan County and Wisconsin.
- Liked the ability to look at marked ballots in EMS software. I didn't like that device would make a judgement which mark would count in overvote situation. I think that's the inspectors' job.
- I like that the system takes voter intent into account when reading the ballots.

2. How would you rate the accessible features?

Very Poor	Poor	Fair	Good	Excellent
		1	5	3

- I didn't feel that the audio script helped me to work through the ballot. I didn't like that it marked the ovals perfectly and used type for the write-ins. If ballots were inspected, you could tell which ones were marked by handicapped voter.
- I really like some of the accessible features and find others could be improved upon. The system requires a poll worker to walk with the voter to the equipment so they can vote. This limits some of the independence of voters with certain disabilities who go to vote. It also requires that a poll worker has to be available to help a voter. This could disincentivize a poll worker offering the option to voters. It would also be nice if the audio gave a warning that the voter was moving on without marking a selection when undervoting. Other parts of it are very good.

3. Rate your overall impression of the system.

Very Poor	Poor	Fair	Good	Excellent
		4	5	1

- Version 2.0 is greatly improved from version 1.4. Feedback given by Sheboygan County municipal clerks and poll workers during training for use of 1.4 was implemented in 2.0, a definite plus for Sheboygan County and Wisconsin.
- I like the new collapsible ballot box.

Appendix F: ClearVote 2.0 Certification Report

Manufacturer: *Clear Ballot Group*
System Name: *ClearVote 2.0*
Certificate: *CBG-CV-20*

Laboratory: *Pro V&V*
Standard: *VVSG 2005*
Date: *October 21, 2019*

Scope of Certification

This document describes the scope of the validation and certification of the system defined above. Any use, configuration changes, revision changes, additions or subtractions from the described system are not included in this evaluation.

Significance of EAC Certification

An EAC certification is an official recognition that a voting system (in a specific configuration or configurations) has been tested to and has met an identified set of Federal voting system standards. An EAC certification is **not**:

- An endorsement of a Manufacturer, voting system, or any of the system's components.
- A Federal warranty of the voting system or any of its components.
- A determination that a voting system, when fielded, will be operated in a manner that meets all HAVA requirements.
- A substitute for State or local certification and testing.
- A determination that the system is ready for use in an election.
- A determination that any particular component of a certified system is itself certified for use outside the certified configuration.

Representation of EAC Certification

Manufacturers may not represent or imply that a voting system is certified unless it has received a Certificate of Conformance for that system. Statements regarding EAC certification in brochures, on Web sites, on displays, and in advertising/sales literature must be made solely in reference to specific systems. Any action by a Manufacturer to suggest EAC endorsement of its product or organization is strictly prohibited and may result in a Manufacturer's suspension or other action pursuant to Federal civil and criminal law.

System Overview

The ClearVote 2.0 voting system is a paper-based optical-scan voting system consisting of the following major components: ClearDesign (ballot design and EMS), ClearCount (central count, tabulation, and election reporting), ClearCast (precinct count and tabulation), and ClearAccess (accessible voting and ballot marking device).

ClearDesign

ClearDesign is an election management system consisting of an interactive set of applications that 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 the physical components listed below. All the components and the generation of voting machine election definition file packages are unmodified COTS that are connected via a wired, closed, and isolated network not connected to any other systems or to the Internet.

- DesignServer: A desktop computer that runs the ClearDesign software on an Ubuntu operating system and hosts the election database.
- DesignStation(s): One or more laptop or desktop computers that runs Microsoft Windows with a browser-based user interface. DesignStations connect to the DesignServer, and users with administrative privileges can define users and manage the elections.
- Router: Connects the DesignStations to the DesignServer using a wired, closed Ethernet-based network with FIPS 140-2 certified encryption.

ClearCount

ClearCount is a central, high-speed, optical-scan ballot tabulator coupled with ballot-processing applications. The ClearCount software runs on unmodified COTS laptop or desktop computers running the Linux and Windows operating systems, and supports specific models of Fujitsu scanners. The ClearCount central-count system consists of the following physical components, all of which are unmodified COTS hardware that are connected via a wired, closed, and isolated network not connected to any other systems or to the Internet.

- ScanServer: A computer running the ClearCount software and hosting its election database and the web server that serves its election reports. The ScanServer runs on the Ubuntu operating system.
- ScanStation(s): One or more computer/scanner pairs used to scan and tabulate ballots. The ScanStations run on the Microsoft Windows operating system.
- Router: Connects the ScanStations and election administration stations to the ScanServer using a wired, closed Ethernet-based network with FIPS 140-2 certified encryption.
- Election Administration Stations (Adjudication Stations): One or more laptop or desktop computers that runs Microsoft Windows with installed browser software. This station can serve multiple purposes: user administration, election administration, adjudication, and reporting. This station is also used to consolidate the vote totals and ballot images from the ClearCast precinct tabulator. The vote totals and ballot images are consolidated by the ClearCount software via the ClearCast USB drive.

All files that make up the ClearCount software reside on a single ScanServer that is shared by all client ScanStations. The only software programs installed on ScanStations, other than the Windows operating system, are the Fujitsu ScandAll Pro software and drivers required by the scanner hardware. The ClearCount software consists of the following components:

- Tabulator: The Tabulator application handles ballot tabulation. The Tabulator software is stored on the ScanServer and is executed by each ScanStation at run-time from files that reside on the ScanServer. The Tabulator program analyzes the incoming image and transfers them to the local output folder named CBGBallotImages. The ScanServer retrieves the images from the folder and

uploads them into the election database.

- Election Database: A centralized election database that resides on the ScanServer and collects the output of each Tabulator.
- Election Reports: A browser-based suite of reports that provides election results and analysis, and allows election officials to review individual ballot images. A web server on the ScanServer serves the reports.
- Card Resolutions Tool: A web application that allows election officials to review and appropriately resolve unreadable voted ballots.
- User and Election Database Management through Web Applications: From the User Administration page, the administrator can add, rename, or delete users; assign permissions; and change user passwords. From the Election Administration pages, the administrator can create or delete an election, set an election as active or inactive, back up or restore an election, merge election results, withdraw contests/choices, and export the Cast Vote Record.

ClearCast

The ClearCast tabulator is a precinct-count ballot-scanning solution suitable for early and election in-person voting, including processing ballots printed by the ClearAccess accessible ballot-marking device. The ClearCast application runs on the precinct-count-based tabulator, and is used to scan, count and tally marked ballots.

ClearCast functionality is divided into three essential modes, Election Mode (early voting and Election Day), which is used to process voter cast ballots; Pre-Election Mode, which occurs prior to Election Mode, and is used to test all system functionality subsequent to the start of the election; and Post-Election Mode, which is used to perform administrative functions following the close of the election. Ballots tabulated on the ClearCast system are transmitted via one of the redundant USB drives to the central ClearCount system for consolidation and reporting.

ClearAccess

ClearAccess is an accessible touchscreen ballot-marking device used for the creation of paper ballots that can be scanned and tabulated by ClearCast or ClearCount. Like other components of the ClearVote voting system, ClearAccess uses modified and unmodified COTS hardware, such as laptop and desktop computers, combined with personal assistive devices, printers, and uninterruptible power supplies to form a ballot-marking device.

Mark Definitions

Twenty percent or more of the voter target (oval) marked anywhere within the oval (left/right, above, or below its center) provides mark recognition. The manufacturer recommends black ink, but many colors will tally in accordance with VVSG 1.0 accuracy requirements. There are no required dropout colors.

Tested Marking Devices

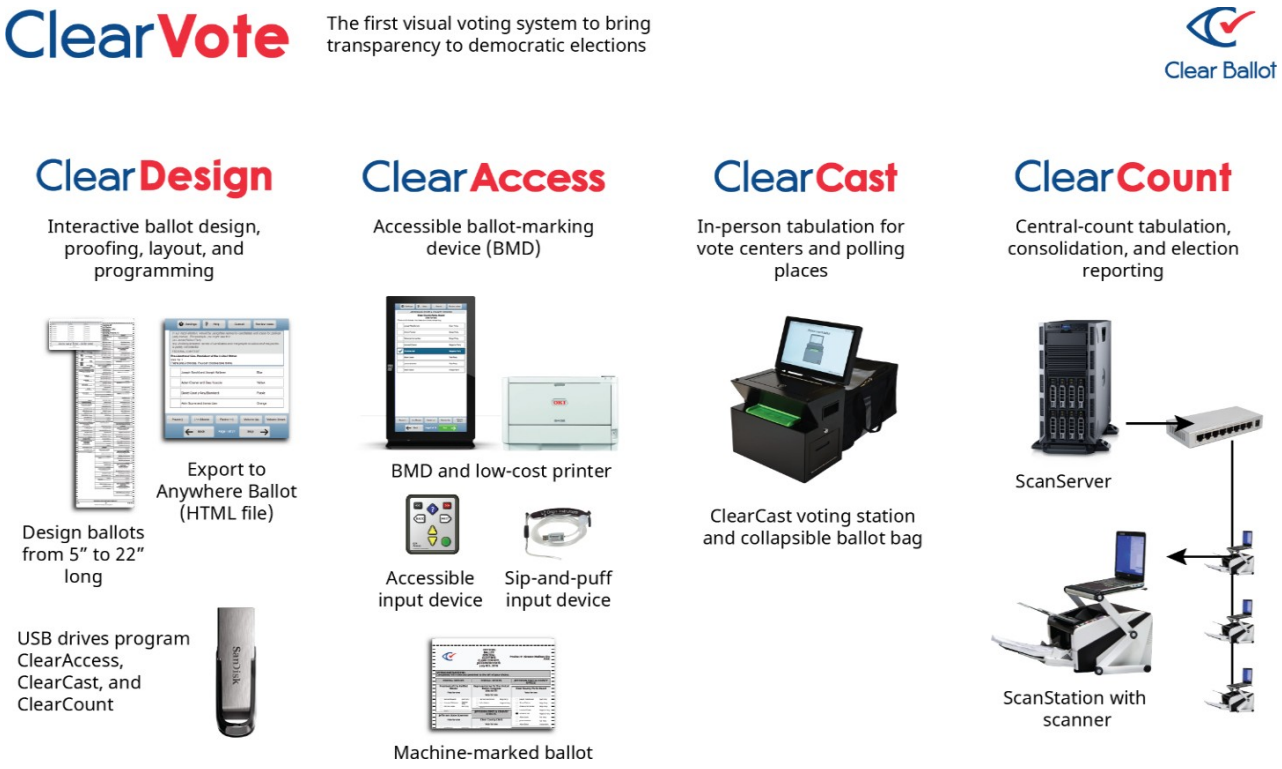
The manufacturer recommends black and blue ballpoint pens, Sharpie® markers, and number 2 pencils.

Language Capability

In addition to English, the voting system supports Chinese, Danish, Dutch, Flemish, French, German, Italian, Japanese, Korean, Norwegian, Portuguese, Spanish, Swedish and Vietnamese.

Components Included

This section provides information describing the components and revision level of the primary components included in this Certification.



System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comment
ClearAccess software	2.0.1			ClearAccess
ClearCast software	2.0.0			ClearCast
ClearCount software	2.0.1			ClearCount
ClearDesign software	2.0.1			ClearDesign
Brother printer driver	1.0.1.0		Windows 10 Pro	ClearAccess
Google Chrome	61.0.3163.100		COTS software	ClearAccess
jquery	1.10.2		COTS software	ClearAccess

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comment
jsmin	2003.12.04		COTS software	ClearAccess
nsis	3.01		COTS software	ClearAccess
Okidata printer driver	1.0.0.0		Windows 10 Pro	ClearAccess
pefile	2018.8.8		COTS software	ClearAccess
PyInstaller	3.2		COTS software	ClearAccess
Python	2.7.10		COTS software	ClearAccess
Python-future	0.15.2		COTS software	ClearAccess
pywin	223		COTS software	ClearAccess
webpy	0.38		COTS software	ClearAccess
Zebra Scanner Driver	3.03.0001		COTS software	ClearAccess
Windows 10 Pro	Build 1607		Windows 10 Pro	ClearAccess
DataTables	1.10.16		COTS software	ClearCast
google_chrome	76.0.3809.87-1		COTS software	ClearCast
jquery	1.12.4		COTS software	ClearCast
jQuery.NumPad	1.4		COTS software	ClearCast
jquery.ui	1.11.3		COTS software	ClearCast
JTSage DateBox	4.0.0		COTS software	ClearCast
libScanAPI.a	1.1.4		COTS software	ClearCast
OpenSSL (standard)	1.0.2g		COTS software	ClearCast
OpenSSL FIPS Object Module	2.0.10		COTS software	ClearCast
pdi_ps3_drv_scanner.ko	2.0.5		COTS software	ClearCast
Pyinstaller	3.2.1		COTS software	ClearCast
scanner_control	0.0.33		COTS software	ClearCast
Ubuntu LTS	18.04.1		COTS software	ClearCast
zeromq	4.2.3		COTS software	ClearCast
Apache	2.4.29		COTS software	ClearCount
ColVis	1.0.8		COTS software	ClearCount
Fujitsu fi-6400 PaperStream	1.30.0		Windows 10 Pro	ClearCount
Fujitsu fi-6800	10.10.710		Windows 10 Pro	ClearCount
Fujitsu fi-7180 PaperStream	1.4.0		Windows 10 Pro	ClearCount
Google Chrome	55.0.2883.87		COTS software	ClearCount

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comment
J JavaScript jQuery-migrate library	1.2.1		COTS software	ClearCount
JavaScript Bootstrap library	2.3.2		COTS software	ClearCount
JavaScript Chosen library	1.0.0		COTS software	ClearCount
JavaScript DataTables library	1.9.4		COTS software	ClearCount
JavaScript FixedHeader library	2.0.6		COTS software	ClearCount
JavaScript hotkeys library	0.8		COTS software	ClearCount
JavaScript jQuery library	1.10.2		COTS software	ClearCount
JavaScript LESS library	1.3.3		COTS software	ClearCount
JavaScript pep library	1.0		COTS software	ClearCount
JavaScript TableTools library	2.1.5		COTS software	ClearCount
JavaScript tooltip library	1.3		COTS software	ClearCount
libapache2-mod-fcgid	2.3.9		COTS software	ClearCount
MySQLdb (part of Ubuntu)	5.7.26		COTS software	ClearCount
OpenSSL (standard)	1.1.0g		COTS software	ClearCount
OpenSSL FIPS Object Module	2.0.10		COTS software	ClearCount
PollyReports	1.7.6		COTS software	ClearCount
PyInstaller	3.2.1		COTS software	ClearCount
Python (part of Ubuntu)	2.7.15		COTS software	ClearCount
Ubuntu LTS	18.04.1		COTS software	ClearCount
Windows 10 Pro	Build 1607		Windows 10 Pro	ClearCount
ZeroClipboard TableTools2	1.0.4		COTS software	ClearCount
Aptitude	1.6.11		COTS software	ClearCount
auditd	2.8.2		COTS software	ClearCount
debconf	1.5.66		COTS software	ClearCount
pmount	0.9.23		COTS software	ClearCount
Samba	4.7.6		COTS software	ClearCount
udisks	2.7.6		COTS software	ClearCount
Apache	2.4.18		COTS software	ClearDesign
Bootstrap	3.0.0		COTS software	ClearDesign

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comment
DataTable	1.10.16		COTS software	ClearDesign
DataTable Buttons	1.4.2		COTS software	ClearDesign
DataTable Buttons JSZip	2.5.0		COTS software	ClearDesign
DataTablePlugins	1.10.16		COTS software	ClearDesign
DataTable Buttons Pdfmake	0.1.32		COTS software	ClearDesign
Google Chrome	55.0.2883.87		COTS software	ClearDesign
jquery	1.10.2		COTS software	ClearDesign
jquery-impromptu	5.2.3		COTS software	ClearDesign
jquery-qrcode	1.0		COTS software	ClearDesign
jquery-splitter	0.14.0		COTS software	ClearDesign
jquery-ui	1.10.4		COTS software	ClearDesign
jscolor	1.4.2		COTS software	ClearDesign
jsmin	2003.12.04		COTS software	ClearDesign
jszip	3.1.2		COTS software	ClearDesign
libapache2-mod-fcgid	2.3.9		COTS software	ClearDesign
libmp3lame	0.5.0		COTS software	ClearDesign
MySQL	5.7.26		COTS software	ClearDesign
OpenSSL (standard)	1.0.2g		COTS software	ClearDesign
OpenSSL FIPS Object Module	2.0.10		COTS software	ClearDesign
papaparse	4.1.2		COTS software	ClearDesign
PhantomJS	1.9.8		COTS software	ClearDesign
Pyinstaller	3.2.1		COTS software	ClearDesign
Python	2.7.15		COTS software	ClearDesign
Python DBUtils	1.1		COTS software	ClearDesign
Python Flup	1.0.2		COTS software	ClearDesign
Python FontTools library	3.0		COTS software	ClearDesign
Python JSMIN	2.2.1		COTS software	ClearDesign
Python MySQL DB	1.3.10		COTS software	ClearDesign
Python Pillow	5.1.0		COTS software	ClearDesign
Python PIP	9.0.1		COTS software	ClearDesign
Python RTF	0.2.1		COTS software	ClearDesign
Python webpy	0.38		COTS software	ClearDesign
Python XLRD	0.9.4		COTS software	ClearDesign

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comment
Samba	4.7.6		COTS software	ClearDesign
SQLAlchemy	1.0.15		COTS software	ClearDesign
tinymce	4.1.9		COTS software	ClearDesign
Ubuntu LTS	18.04.01		COTS software	ClearDesign
Unzip	6.0.21		COTS software	ClearDesign
Windows 10 Pro	Build 1607		Windows 10 Pro	ClearDesign
Dell Inspiron 15"		7000 Series	COTS hardware	ClearAccess
Dell OptiPlex AIO		5250	COTS hardware	ClearAccess
ELO 15 inch AIO		E-Series (ESY15E2)	COTS hardware	ClearAccess
ELO 20 inch AIO		X-Series (ESY20X2)	COTS hardware	ClearAccess
Brother Laser Printer		HL-L2340DW	COTS hardware	ClearAccess
Brother Laser Printer		HL-L2350DW	COTS hardware	ClearAccess
Oki Data Laser Printer		B432dn	COTS hardware	ClearAccess
Micrologic Tray Kit		B432TrayKit	COTS hardware	ClearAccess
Oki Data Laser Printer		B432dn-B	COTS hardware	ClearAccess
Storm EZ Access Keypad		EZ08-222013	COTS hardware	ClearAccess
Zebra Technologies Bar Code Scanner		DS457-SR, CBL-58926-05	COTS hardware	ClearAccess
Origin Instruments Sip/Puff Breeze with Headset		AC-0313-MUV	COTS hardware	ClearAccess
Samson Over-Ear Headphones		SASR350	COTS hardware	ClearAccess
Clear Ballot Privacy Screen		CB-1097-1.5	COTS hardware	ClearAccess
APC Smart-UPS		SMT2200C	COTS hardware	ClearAccess
Ergotron Neo-Flex		Widescreen Lift Stand	COTS hardware	ClearAccess
Corsair Flash Padlock 3 32 GB		Secure USB 3.0 Flash Drive	COTS hardware	ClearAccess
SanDisk Extreme Go 64 GB USB		3.1 USB Drive	COTS hardware	ClearAccess
SanDisk Ultra Flair 32 GB USB		3.0 Drive	COTS hardware	ClearAccess
Wurth		742-711-32, 742-712-22, 742-717-22	COTS hardware	ClearAccess
Polymide Film Tape		1″ 2mil	COTS hardware	ClearAccess
Polymide Film Tape		2″ 2 mil	COTS hardware	ClearAccess

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comment
Polymide Film Tape		4" 2 mil	COTS hardware	ClearAccess
Lifetime 4-Foot Folding Table		4428	COTS hardware	ClearAccess
LG DVD Burner		GP65NB60	COTS hardware	ClearAccess
CyberPower Smart App UPS		PR1500RT2U	COTS hardware	ClearAccess
ClearCast		Model D, Revision 5	COTS hardware	ClearCast
Ballot Bag		CV-1032-1.5, CV-113-1.5	COTS hardware	ClearCast
Corsair Flash Padlock 3 32 GB		Secure USB 3.0 Flash Drive	COTS hardware	ClearCast
Wurth ferrites		74271142,74275812 74275813,74271132 ,74271722	COTS hardware	ClearCast
SanDisk Extreme Go 64 GB USB		3.1 USB Drive	COTS hardware	ClearCast
SanDisk Ultra Flair 32 GB USB		3.0 USB Drive	COTS hardware	ClearCast
Ballot Box		CV-1082-2.0	COTS hardware	ClearCast
Dell Latitude Laptops (Election Administration)		5580, 5590	COTS hardware	ClearCount
Dell Latitude Laptops (ScanStation)		5580, 5590	Windows 10 Pro	ClearCount
Dell Precision Tower (Election Administration)		T3620	Windows 10 Pro	ClearCount
Dell PowerEdge Server (ScanServer)		T130, T140, T330, T440	Ubuntu 18.04.1 LTS	ClearCount
Dell Optiplex (Election Administration)		7440	Windows 10 Pro	ClearCount
Fujitsu Scanner		fi-7180	COTS hardware	ClearCount
Fujitsu Scanner		fi-6800	COTS hardware	ClearCount
Fujitsu Scanner		fi-6400	COTS hardware	ClearCount
LG DVD Burner		GP65NB60	COTS hardware	ClearCount
Western Digital 4 TB External HD		WDBFJK0040HBK-NESN	COTS hardware	ClearCount
Western Digital 8 TB External HD		WDBFJK0080HBK-NESN	COTS hardware	ClearCount
Netac Keypad Encryption Portable Hard Disk		K390	COTS hardware	ClearCount
Dell 24 inch Monitor		P2415Q	COTS hardware	ClearCount

System Component	Software or Firmware Version	Hardware Version	Operating System or COTS	Comment
Dell 22 inch Monitor		P2217	COTS hardware	ClearCount
Cisco 8-Port Switch		SG250-08	COTS hardware	ClearCount
Cisco 26-Port Switch		SG250-26	COTS hardware	ClearCount
APC Smart-UPS		SMT-1500C	COTS hardware	ClearCount
Corsair Flash Padlock 3 32 GB		Secure USB 3.0 Flash Drive	COTS hardware	ClearCount
SanDisk Extreme Go 64 GB USB		3.1 USB Drive	COTS hardware	ClearCount
SanDisk Ultra Flair 32 GB USB		3.0 Drive	COTS hardware	ClearCount
Anker USB Hub		AK-68ANHUB-B10A)	COTS hardware	ClearCount
WorkEZ Executive Scanning Shelf		WEEs (661799222990)	COTS hardware	ClearCount
StarTech 4-Port VGA KVM Switch w/Hub		SV431USB	COTS hardware	ClearCount
Dell Latitude Laptop (client)		5580, 5590	Windows 10 Pro	ClearDesign
Dell Precision Tower (client)		T3620	Windows 10 Pro	ClearDesign
Dell PowerEdge Server (server)		T130, T140, T630, T440	Ubuntu 16.04.4 LTS	ClearDesign
Dell Optiplex (client)		7440	Windows 10 Pro	ClearDesign
Dell 24 inch Monitor		SE2416H	COTS hardware	ClearDesign
Dell 22 inch Monitors		E2216HV	COTS hardware	ClearDesign
Cisco 8-Port Switch		SG250-08	COTS hardware	ClearDesign
LG DVD Burner		GP65NB60	COTS hardware	ClearDesign
SySTOR Multiple USB Duplicator		SYS-USBD-11	COTS Hardware	ClearDesign
Corsair Flash Padlock 3 32 GB		Secure USB 3.0 Flash Drive	COTS hardware	ClearDesign
SanDisk Extreme Go 64 GB USB		3.1 USB Drive	COTS hardware	ClearDesign
SanDisk Ultra Flair 32 GB USB		3.0 Drive	COTS hardware	ClearDesign
Anker 10 port USB 3.0 Hub		AK-68ANHUB-B10A	COTS hardware	ClearDesign

System Limitations

This table depicts the limits the system has been tested and certified to meet.

System Characteristic	Boundary or Limitation	Limiting Component
Precincts in an election	3200	ClearDesign database

Contests in an election	3200	ClearDesign database
Candidates/Counters in an election	3200	ClearDesign database
Ballot Styles in an election	3200	ClearDesign database
Contests in a ballot style	60	ClearDesign database
Candidates in a contest	300	ClearDesign database
Ballot styles in a precinct	50	ClearDesign database
Number of political parties	50	ClearDesign database
"vote for" in a contest	50	ClearDesign database
Supported languages in an election	15	ClearDesign database
Number of write-ins	50	ClearDesign database
Maximum oval positions per side: 5-inch ballot	60	Ballot length
Maximum oval positions per side: 11-inch ballot	180	Ballot length
Maximum oval positions per side: 14-inch ballot	240	Ballot length
Maximum oval positions per side: 17-inch ballot	300	Ballot length
Maximum oval positions per side: 19-inch ballot	360	Ballot length
Maximum oval positions per side: 22-inch ballot	420	Ballot length

System Limits for ClearCount

Scanner Model	Sustained (not burst speed) ballots per hour						
	8.5x5	**8.5x11**	**8.5x14**	**8.5x17**	**8.5x19**	**8.5x22**	**Typical county size (central count)**
fi-6400	5592	3624	2928	2448	2350	2236	Large (>100k voters)
fi-6800	7822	5508	4155	3352	3000	2800	Large (>100k voters)
fi-7180	3396	2040	1692	1400	1300	1200	Small (<25k voters)
ClearCount can have a maximum of 10 ScanStation/Scanner pairs							

Functionality

2005 VVSG Supported Functionality Declaration

Feature/Characteristic	Yes/No	Comment
• Precinct and BMD accessible via Parallel (Side) and Forward Approach	Yes	
Closed Primary		
• Primary: Closed	Yes	
Open Primary		
• Primary: Open Standard (provide definition of howsupported)	Yes	Open Primary

• Primary: Open Blanket (provide definition of how supported)	Yes	General "top two"
Partisan & Non-Partisan:		
• Partisan & Non-Partisan: Vote for 1 of N race	Yes	
• Partisan & Non-Partisan: Multi-member ("vote for N of M") board	Yes	
• Partisan & Non-Partisan: "vote for 1" race with a single candidate and write-in voting	Yes	
• Partisan & Non-Partisan "vote for 1" race with no declared candidates and write-in voting	Yes	
Write-In Voting:		
• Write-in Voting: System default is a voting position identified for	Yes	
• Write-in Voting: Without selecting a write in position.	Yes	
• Write-in: With No Declared Candidates	Yes	
• Write-in: Identification of write-ins for resolution at central count	Yes	
Primary Presidential Delegation Nominations & Slates:		
• Primary Presidential Delegation Nominations: Displayed delegate slates for each presidential party	Yes	
• Slate & Group Voting: one selection votes the slate.	Yes	
Ballot Rotation:		
• Rotation of Names within an Office; define all supported rotation methods for location on the ballot and vote tabulation/reporting	Yes	Rotation by precinct and district
Straight Party Voting:		
• Straight Party: A single selection for partisan races in a general	Yes	
• Straight Party: Vote for each candidate individually	Yes	
• Straight Party: Modify straight party selections with crossover votes	Yes	
• Straight Party: A race without a candidate for one party	Yes	
• Straight Party: "N of M race (where "N">1)	Yes	
• Straight Party: Excludes a partisan contest from the straight party	Yes	
Cross-Party Endorsement:		
• Cross party endorsements, multiple parties endorse one candidate.	Yes	
Split Precincts:		
• Split Precincts: Multiple ballot styles	Yes	
• Split Precincts: P & M system support splits with correct contests and ballot identification of each split	Yes	
• Split Precincts: DRE matches voter to all applicable races.	N/A	Not a DRE system
Feature/Characteristic	Yes/No	Comment
• Split Precincts: Reporting of voter counts (# of voters) to the precinct split level; Reporting of vote totals is to the precinct level	Yes	
Vote N of M:		
• Vote for N of M: Counts each selected candidate, if the maximum is not exceeded.	Yes	
• Vote for N of M: Invalidates all candidates in an overvote (paper)	Yes	
Recall Issues, with options:		
• Recall Issues with Options: Simple Yes/No with separate race/election. (Vote Yes or No Question)	Yes	

• Recall Issues with Options: Retain is the first option, Replacement candidate for the second or more options (Vote 1 of M)	Yes	
• Recall Issues with Options: Two contests with access to a second contest conditional upon a specific vote in contest one. (Must vote Yes to vote in 2nd contest.)	No	
• Recall Issues with Options: Two contests with access to a second contest conditional upon any vote in contest one. (Must vote Yes to vote in 2nd contest.)	No	
Cumulative Voting		
• Cumulative Voting: Voters are permitted to cast, as many votes as	No	
Ranked Order Voting		
• Ranked Order Voting: Voters can write in a ranked vote.	No	
• Ranked Order Voting: A ballot stops being counting when all ranked choices have been eliminated	No	
• Ranked Order Voting: A ballot with a skipped rank counts the vote for the next rank.	No	
• Ranked Order Voting: Voters rank candidates in a contest in order of choice. A candidate receiving a majority of the first choice votes wins. If no candidate receives a majority of first choice votes, the last place candidate is deleted, each ballot cast for the deleted candidate counts for the second choice candidate listed on the ballot. The process of eliminating the last place candidate and recounting the ballots continues until one candidate receives a majority of the vote	No	
• Ranked Order Voting: A ballot with two choices ranked the same, stops being counted at the point of two similarly ranked choices.	No	
• Ranked Order Voting: The total number of votes for two or more candidates with the least votes is less than the votes of the candidate with the next highest number of votes, the candidates with the least votes are eliminated simultaneously and their votes transferred to the next-ranked continuing candidate.	No	
Provisional or Challenged Ballots		
• Provisional/Challenged Ballots: A voted provisional ballots is identified but not included in the tabulation, but can be added in	Yes	via jurisdiction processes
• Provisional/Challenged Ballots: A voted provisional ballots is included in the tabulation, but is identified and can be subtracted in the	No	
Feature/Characteristic	Yes/No	Comment
• Provisional/Challenged Ballots: Provisional ballots maintain the secrecy of the ballot.	Yes	
Overvotes (must support for specific type of voting system)		
• Overvotes: P & M: Overvote invalidates the vote. Define how overvotes are counted.	Yes	If the system detects more votes than allowed by the vote rule, it is counted as an overvote
• Overvotes: DRE: Prevented from or requires correction of overvoting.	Yes	Yes for ClearAccess

• Overvotes: If a system does not prevent overvotes, it must count them. Define how overvotes are counted.	Yes	If the system detects more votes than allowed by the vote rule, it is counted as an overvote
• Overvotes: DRE systems that provide a method to data enter absentee votes must account for overvotes.	N/A	No method to data enter absentee via ClearAccess
Undervotes		
• Undervotes: System counts undervotes cast for accounting purposes	Yes	
Blank Ballots		
• Totally Blank Ballots: Any blank ballot alert is tested.	Yes	
• Totally Blank Ballots: If blank ballots are not immediately processed, there must be a provision to recognize and accept them	Yes	via adjudication in ClearCount
• Totally Blank Ballots: If operators can access a blank ballot, there must be a provision for resolution.	Yes	via adjudication in ClearCount
Networking		
• Wide Area Network – Use of Modems	No	
• Wide Area Network – Use of Wireless	No	
• Local Area Network – Use of TCP/IP	Yes	
• Local Area Network – Use of Infrared	No	
• Local Area Network – Use of Wireless	No	
• FIPS 140-2 validated cryptographic module	Yes	
Used as (if applicable):		
• Precinct and Central counting devices	Yes	
• Ballot Marking Device	Yes	
Overvotes (must support for specific type of voting system)		
• Overvotes: P & M: Overvote invalidates the vote. Define how overvotes are counted.	Yes	If the system detects more votes than allowed by the
• Overvotes: DRE: Prevented from or requires correction of	Yes	Yes for ClearAccess
• Overvotes: If a system does not prevent overvotes, it must count them. Define how overvotes are counted.	Yes	If the system detects more votes than allowed by the
• Overvotes: DRE systems that provide a method to data enter absentee votes must account for overvotes.	N/A	No method to data enter absentee via ClearAccess
Undervotes		
• Undervotes: System counts undervotes cast for accounting purposes	Yes	
Blank Ballots		
• Totally Blank Ballots: Any blank ballot alert is tested.	Yes	
• Totally Blank Ballots: If blank ballots are not immediately processed, there must be a provision to recognize and accept them	Yes	via adjudication in ClearCount
Feature/Characteristic	**Yes/No**	**Comment**
• Totally Blank Ballots: If operators can access a blank ballot, there must be a provision for resolution.	Yes	via adjudication in ClearCount
Networking		
• Wide Area Network – Use of Modems	No	
• Wide Area Network – Use of Wireless	No	
• Local Area Network – Use of TCP/IP	Yes	
• Local Area Network – Use of Infrared	No	
• Local Area Network – Use of Wireless	No	

• FIPS140-2 validated cryptographic module	Yes	
Used as (if applicable):		
• Precinct and Central countingdevices	Yes	
• Ballot Marking Device	Yes	

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

MEMORANDUM

DATE: For the December 2, 2019 Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe, Administrator
Wisconsin Elections Commission

Prepared by Badger Book Team and Presented by:
Michelle R. Hawley, Training Officer
Cody Davies, Elections Administration Specialist

SUBJECT: Badger Book Program Update

I. Introduction

The intent of this memorandum is to provide an overall update on the Badger Book program and to outline the 2020 implementation plan.

II. Background

WEC staff developed the Badger Book software in 2017 using clerk and election inspector feedback. During the 2018 Spring Election, the WEC introduced the electronic poll book pilot program and Badger Books have been used in all statewide elections since that pilot. Since implementing Badger Books, WEC staff has sought and received valuable feedback from clerks, election inspectors, and voters which has led to continuous enhancements and improvements to software, hardware, training, security, and best practices. WEC staff will continue to use this model to collect feedback that will be used to support and improve the program.

III. General Program Status

Program Growth

In 2020, the Badger Book program will add a total of 59 new municipalities (53 new purchasers and 6 prior owners who did not use the devices last year), and over 625 new machines (purchases by new municipalities and current owners that purchased additional devices) into circulation.

To gauge which municipalities intended to implement Badger Books in 2020, on May 31, 2019, WEC staff posted a Clerk Communication highlighting the Badger Book Purchasing and Borrowing Processes for the 2020 election cycle. This communication also included details outlining the Badger Book hardware (e.g., the price of each unit and the variances between each type of unit, etc.) and provided instruction to reply to a survey to indicate interest in either purchasing or borrowing Badger Books for 2020.

Additionally, on August 30, 2019, WEC issued another Clerk Communication outlining the purchasing window, which was open from September 16 through October 18, 2019. Badger Books were then purchased through the vendor PDS during the purchasing window. Delivery of Badger Book devices for municipalities who budgeted for the 2019 fiscal year is expected by the end of December. For those that have budget approval for the 2020 year, PDS expects delivery of devices the week of January 6, 2020.

Purchasers

In 2020, Badger Books will be operating in more than three times as many municipalities as they were in the 2019 Spring Election. As of November 9, municipalities that own Badger Books were home to approximately 125,000 registered voters. Following successful implementation for all new 2020 purchasing municipalities, the Badger Book program will affect approximately 561,900 registered voters in the State of Wisconsin and, given the expected uptick in registration for next year's election, it is likely this number will continue to grow.

Accounting for the 53 new purchasers, these 561,900 voters live in 76 Wisconsin municipalities. Appendix A shows a map of all current participants and offers a bit more in terms of hard numbers. While the map reflects certain clusters of purchasing municipalities throughout the state, it is safe to say that the program has effectively made it to all corners of Wisconsin. We expect that there will approximately 800 Badger Book machines operating during a statewide election and, as purchasers are allowed and encouraged to purchase additional units throughout the year, this number is also expected to increase as we approach the fall of 2020.

Borrowing Program

As indicated by the results of the purchasing and borrowing survey disseminated by staff on May 31, 2019, there is still interest in the borrowing program. However, after careful consideration, WEC staff decided to revamp the scope of the program for 2020. Staff initially planned to offer borrowing opportunities for interested municipalities to pilot Badger Books for any election in 2020; however, the plan was modified to instead make available WEC's stock of Badger Books only to current users who may require additional units to more efficiently handle the high turnouts expected for the 2020 elections. While this is a departure from the original intent of the program, due to the number of new purchasing municipalities who will implement in 2020, in addition to the number of current Badger Book owners who expressed an interest to borrow via the survey, our intention is to more keenly focus on ensuring successful outcomes for municipalities currently in the program and to revisit the borrowing program in 2021.

Improvements

WEC staff spent much of 2019 improving existing Badger Book workflows, making changes to the user interface, implementing, and testing new processes designed to make the electronic poll book experience better for the clerks, the poll workers, and, ultimately, the voters. These updates reflect several rounds of usability testing over the summer, both with election officials from municipalities who currently use Badger Books and with election officials who had never previously interacted with the product. The goal of these usability sessions was to assess the efficacy and value of proposed new features from the perspective of individuals who would be working with Badger Books during an election.

WEC staff also procured the services of in-house PDS contractor to reconstruct the Badger Book image to ensure it meets the requirements of the program and incorporated all lessons learned from previous elections. The new software was submitted last week to the contractor to be added to the image. Upon installation to WEC's Badger Book devices, staff will conduct several more rounds of testing prior to giving approval to load all new devices with the new image and software. In addition, WEC staff worked to restore the five municipalities impacted by previous flawed updates (City of Elkhorn, Village of Bayside, Village of Campbellsport, Village of Hales Corners, and Town of Washington), and to adequately prepare these municipalities for 2020, WEC staff will ensure the clerks, chief deputies, and super users are afforded new training opportunities.

Training/Roll Out Plan

WEC staff will conduct in-person training for all new municipalities and will continue to use the train-the-trainer approach to support Badger Book training. This strategy includes WEC-led training sessions with clerks, Chief Inspector(s), or other designated election inspectors, called "super users" (points of contact for Election Day issues that arise in a polling location, who have administrative level access to the Badger Books, are comfortable with new technology, and attend one-on-one training with their clerk). The WEC-led training is intended to familiarize users with Badger Book functionality, hardware setup, program maintenance, security, and best practices. Then, clerks will be expected to work with their Chief Election Inspector(s) and super users to conduct poll worker training (1-2 weeks prior to Election Day), with training curriculum and material provided by WEC. WEC staff will also conduct a webinar in January for current Badger Book owners related to the software updates, providing ample time to provide updated training and resources their election inspectors as well.

The plan is to conduct regional training sessions for clerks, Chief Election Inspector(s), and super users, in several locations throughout the state in the months of December and January. This will provide ample time for municipalities to conduct training for election inspectors. The training plan for the week of December 16th includes visits to St. Croix County, Chippewa County, and Ashland County to complete Badger Book training for the coinciding municipalities in Northern Wisconsin (12 new). We will also invite 2 current local Badger Book owners to join us for training. As noted in the proposed December schedule, the staff will also conduct several Election Security Tabletop Exercises (TTXs) during this trip.

Badger Book Training Schedule for 2020 Implementation (December)

Date	Location	Time	Type of Training	Also Invited
12/16 (M)	City of Hudson	9AM	**Badger Book:** City of Hudson Town of Hudson City of New Richmond City of River Falls	St. Croix County
	City of Hudson	1:30PM	**Badger Book:** Town of Hammond Town of St. Joseph Village of Baldwin Village of Woodville	
12/17 (T)	City of Hudson	9AM	Regional Election Security TTX	
12/17	City of Hudson	1:30PM	Regional Election Security TTX	
12/18 (W)	City of Eagle Point	9AM	**Badger Book:** City of Eagle Point Chippewa County Town of Rice Lake	Town of Washington City of Rice Lake
	City of Eagle Point	1:30PM	Regional Election Security TTX	
12/19 (Th)	City of Ashland	9AM	**Badger Book:** City of Ashland Town of Russell	
	City of Ashland	1:30PM	Regional Election Security TTX	
12/20 (F)	City of Phillips	9AM	Regional Election Security TTX	

In January, WEC staff expects to lead training sessions in 5-6 general locations (Racine, Kenosha, Walworth, Madison, Oshkosh). WEC staff is in the process of establishing the dates and locations for these training sessions.

IV. Projected Program Growth

The Badger Book is becoming an integral feature of Wisconsin elections and will remain so in the future. WEC staff learned valuable lessons thus far and built in extra time for additional testing and training to help alleviate the potential for technical issues and help ensure successful implementation for 2020. While this project remains relatively new, and WEC staff and clerks continue to develop, learn, and grow through this process, it is expected that the program will eventually grow too large for the

WEC staff to support on its own. WEC staff will continue to research and pursue potential support (i.e., potential options from outside vendors, Division of Enterprise Technology, etc.) on how to best support a more sustainable program model going forward. Staff will also continue to seek and incorporate feedback from clerks, election inspectors, voters, and others to help ensure the success of the Badger Book well into the future.

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

MEMORANDUM

DATE: For the December 2, 2019 Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe
Administrator

SUBJECT: EAC Standards Board Local Representative

Background

The Help America Vote Act of 2002 (HAVA) establishes a Standards Board consisting of a state election official and a local election official from each state, the District of Columbia and the four Territories of American Samoa, Guam, Puerto Rico and the U.S. Virgin Islands. 42 USC 15341 et seq. The Standards Board Members review the voluntary voting systems guidelines established by HAVA, the voluntary guidance provided by the U.S. Elections Assistance Commission (EAC) under HAVA Title III and the best practices recommendations provided by the EAC. The Standards Board typically meets on an annual basis.

The Commission has previously authorized me to act as the state representative to the Standards Board, which is consistent with many other states in which the chief election official serves in that capacity. Wis. Stat. § 5.055.

HAVA provides that the local election officials in each state shall select a local election official under a process supervised by the chief state election official. 42 USC 15343. Wisconsin law provides that the WEC Administrator shall conduct and supervise a process for the selection of an election official by county and municipal clerks and boards of election commissioners to represent local election officials as a member of the Standards Board. Wis. Stat. § 5.055.

Due to a lack of an EAC quorum from late 2011 until early 2015 and the Standards Board was unable to meet during that period. After the EAC was reconstituted in 2015, it asked states to appoint members to the Standards Board. At that time, the Government Accountability Board (G.A.B.) adopted a process for selecting the local election official to serve on the Standards Board. The process included requesting that five organizations which represent local election officials designate an individual to serve on a selection committee. The groups invited to participate were the Wisconsin County Clerks Association, the Wisconsin Municipal Clerks Association, the Wisconsin Towns Association, the Milwaukee City Election Commission and the League of Wisconsin Municipalities.

G.A.B. staff provided the organizations with an announcement to distribute to its members and then convened a meeting of the selection committee to review applications from interested individuals and choose a local election official to serve on the Standards Board. As a result of that process, Barbara Goeckner, who was the Clerk of the Village of Germantown at the time and is currently the Deputy Clerk of the Village of Cambridge, was selected to serve as the local election official representing Wisconsin on the EAC Standards Board for a term of four years ending on November 1, 2019.

Ms. Goeckner has been a valuable contributor to the work of the Standards Board. She has served on the U.S. Postal Service Committee, which monitors election mail issues that have become increasingly important, and is currently serving as the Chair of that Committee. She was also elected by the full Standards Board to serve on its Executive Board for a term that concludes in April 2023. In order to maintain continuity both for those positions as well as Wisconsin's representation on the Standards Board as we enter into the 2020 election cycle, there would be advantages to Ms. Goeckner continuing as the local election official representative from the state.

I am in the process of obtaining feedback from the leadership of the organizations involved in the 2015 selection process to determine whether there would be any objections to continuing Ms. Goeckner's appointment or desire to initiate a different appointment process. I will complete those contacts prior to the Commission meeting and present a recommendation at that time.

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

MEMORANDUM

DATE: For the December 2, 2019 Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe
Administrator

Prepared and Presented by:

Michael Haas
Staff Counsel

SUBJECT: Polling Place Visits by Commissioners

Commissioner Spindell has requested that the Commission discuss the role of and rules for members of the Elections Commission who wish to observe voting at polling places or in-person absentee voting. Commissioners Spindell has often observed voting as a member of the City of Milwaukee Election Commission. The Milwaukee Election Commission does have a program to allow its Commissioners to observe at City of Milwaukee polling places outside of the regular election observer process. Neither the Wisconsin Elections Commission nor its predecessor agencies, have previously sponsored a polling place visit or observer program for agency staff or members of the oversight bodies.

Wis. Stat. § 7.41 permits members of the public, except for a candidate on the ballot, to be present at polling places and in-person absentee voting locations "for the purpose of observation of an election and the absentee ballot voting process. . . ." Section 7.41 contains several rules for election observers including that they must sign an observer log and remain within the designated observation area. The chief inspector or municipal clerk in charge of the voting location may order the removal of an observer who engages in electioneering or disrupts the operation of the voting location.

The Elections Commission has provided additional guidance regarding rules applicable to election observers. The guidance is based on emergency administrative rules previously promulgated by the Government Accountability Board. While the emergency rules have expired, WEC staff is working to update and promulgate the rules and has continued to advise that the substance of the expired observer rules constitute the agency's interpretation of Wis. Stat. § 7.41 and other applicable statutes.

Except when conducting polling place accessibility audits, WEC staff visiting polling places and in-person absentee voting locations comply with the rules for election observers which have been in place since 2008. Staff members sign the observer log, wear an observer badge, remain within the designated observation area and do not engage with voters. Election inspectors are often busy with tasks that require attention to detail and staff does not wish to distract from those duties.

Commissioners are welcome to visit voting locations to observe the conduct of the election. Polling place observation can lead to a greater understanding of and appreciation for the impact of election-related legislation and Commission decisions. However, there is no legal authority for Commissioners to vary from the conduct required of other election observers by, for instance, declining to sign the observer log or moving throughout the location outside of the designated observation area. The rules are in place to provide transparency to the elections process, but also maintain order at the polling place and the clerk's office while voting occurs. It is important for election inspectors, clerk staff and the public to know who is in charge at each voting location. Allowing individuals to bypass the established observer rules (not stay within the observer area, not sign in, etc.) because they are a member of the Commission could unintentionally blur the line of who is in charge of overseeing the voting process when they are present.

If the Commission wishes to articulate a policy pertaining to Commissioners' visits to polling places and in-person absentee voting locations, staff recommends reiterating the principle that members of the Elections Commission are subject to the same rules as other election observers.

Recommended Motion

The Commission adopts the following policy regarding visits to polling places and in-person absentee voting locations by Commissioners:

When visiting voting locations for purposes of observation, members of the Wisconsin Elections Commission shall abide by rules applicable to other election observers. Commissioners shall sign the observer log, wear an observer badge, restrict their activities to the observation area and comply with lawful orders of the chief inspector.

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

MEMORANDUM

DATE: For the December 2, 2019 Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe, Administrator
Wisconsin Elections Commission

Prepared by Elections Commission Staff

SUBJECT: Commission Staff Update

Since the last Elections Commission Update (September 24, 2019), staff of the Commission focused on the following tasks:

1. General Activities of Election Administration Staff

Local Special Elections

From June through the end of this year, Wisconsin averaged two local special elections per month.

Month	Type of Election	County	Location	Office(s)
June 4	Special Election	Racine	Village of Raymond	President & Trustee
June 4	Special Election	Dane	Dane County	3 Supervisor Districts
July 16	Recall Election	Lincoln	City of Merrill	5 Alder Districts
July 16	Special Primary	Milwaukee	City of Milwaukee	1 Alder District
Aug. 13	Special Election	Milwaukee	City of Milwaukee	1 Alder District
Aug. 27	Recall Election	Waukesha	Town of Vernon	1 Town Supervisor
Sep. 10	Special Election	Outagamie	City of Appleton	2 Alder Districts
Oct. 29	Referendum	Outagamie	City of Kaukauna	
Nov. 5	Referendum	Jefferson	Palmyra-Eagle SD	
Nov. 5	Referendum	Sawyer	Town of Hayward	
Nov. 5	Referendum	Forest	Forest County	
Nov. 19	Recall Primary	Door	Door County	1 Supervisor, District
Nov. 19	Referendum	Menomonee	Town of Menomonee	
Dec. 17	Recall Election	Door	Door County	1 Supervisor, District

Congressional District 7 Special Election

A special election to fill the vacancy in the office of Representative in Congress, District 7, caused by the resignation of the Honorable Sean Duffy, is scheduled for May 12, 2020. If a primary is necessary, it will be held in conjunction with the Spring Primary on February 18, 2020. Nomination papers are due on December 2, 2019.

On September 23, 2019, the effective date of the resignation of the incumbent, the governor issued Executive Order #46 calling the special election. The special election was ordered to be conducted on January 27, 2020. If a primary was necessary, it would be held on December 30, 2019. The Order set the nomination paper circulation period as beginning on September 23, 2019 and ending at 5:00 p.m. on December 2, 2019.

Legislators and clerks immediately expressed concerns, primarily centered around the date of the special primary. December 30, 2019 is the day before a state holiday. It is also during the holiday season when many people travel to visit friends and relatives. Clerks and inspectors, believing they chose an election-free time to take a vacation, would have their plans foiled by a special primary that may or may not be required. Clerks also worried they would not be able to muster enough inspectors to conduct the primary.

On October 19, 2019 the governor issued Executive Order #53 amending Executive Order #46 by postponing the special election to May 12, 2020 and conducting the special primary, if required, in conjunction with the Spring Primary on February 18, 2020. The period for circulating nomination papers and filing them with the WEC remains the same.

Currently, there are three candidates who have filed Declarations of Candidacy for the special election in Congressional District 7; one candidate each representing the Democratic and Constitution Parties and an independent candidate.

2. Badger Voters

The Badger Voters program typically experiences a modest increase in requests for voter data immediately before and after the general and spring elections.

The following statistics summarize voter data requests through October 31, 2019.

Fiscal Year	Total Number of Requests	Requested Files Purchased	Percentage of Requests Purchased	Total Revenue
FY2020 to Date	86	60	69.7%	$120,650.00
FY2019	617	473	76.6%	$328,015.00
FY2018	706	517	73.2%	$182,341.00
FY2017	643	368	57%	$234,537.35
FY2016	789	435	55%	$235,820.00
FY2015	679	418	61.56%	$242,801.25
FY2014	371	249	67.12%	$125,921.25
FY2013	356	259	72.75%	$254,840.00
FY2012	428	354	78.04%	$127,835.00

3. Election Voting and EDR Postcard Statistical Reporting (formerly WEDCS)

Commission staff continue to work with municipal and county clerks to meet reporting requirements following the 2019 Spring Primary, 2019 Spring Election and 2019 Special Assembly District 64 Election.

A handful of reporting units have not completed reports for the reconciliation process, which replaced the former EL-190 reporting. As of November 11, 2019, there are 19 reporting units outstanding for the 2019 Spring Election. Reconciliation data for the other two elections has been completed.

The Election Day Registration (EDR) Postcard Statistics for all calendar year 2018 elections were due no later than February 4, 2019, the 2019 Spring Primary data was due May 20, 2019, the 2019 Spring Election data was due July 1, 2019, and the 2019 Special Assembly District 64 Election data was due July 29, 2019. By statute this report is to be updated monthly until there is a full accounting of all EDR postcards. We continue to update these reports on the agency website for a year after the election. As of November 11, 2019, there remain a handful of incomplete reports as follows: one for the Spring Primary, 61 for the Spring Election and zero for the Special Assembly District 64. The 2018 General Election final EDR report showed only five municipalities still outstanding in their reporting.

4. Education/Training/Outreach/Technical Assistance

County and Municipal Clerk Conferences
Commission staff participated in a variety of clerk conferences and district meetings this fall. In September, staff presented the Wisconsin County Clerks Association with a review of the agency's 2019 elections activities, including updates on election security measures, WisVote development projects and a detailed review of ballot access procedures and required candidate filings.

In October, staff provided the attendees of the Wisconsin Towns Association's annual convention in Wisconsin Dells with detailed information about the agency's subgrant program, the latest WisVote project news, a voting equipment status report, and a reminder of end-of-term election official training requirements and available training resources. Staff reviewed ballot access procedures in advance of the nomination paper circulation period in December. Staff attended and gave similar presentations at several WMCA District meetings during this period.

Training Resource Development

- **Poll Worker Training**
  Commission staff has developed poll worker training agendas that are task-based and modular in function so clerks can assemble a training plan depending on their training needs for a specific type of election and election worker. Some examples of poll worker training agendas include Opening the Polls, Voter Registration, Voting Equipment, Poll Book Management and Absentee Ballot Processing, both at the polling place and a central count location.

- **Election Administration Tabletop Exercise**
  Commission staff has conducted additional Election Administration Tabletop Exercises (EA TTX) for county and municipal clerks, local election officials and election officials visiting from other states. The EA TTX is based on the structure of the Elections Security Tabletop Exercise and focusses on some common and not-so-common Election Day situations encountered by local election officials at the polls on Election Day.

  Commission staff is in the process of packaging the materials and posting them on the WEC Learning Center for clerks to use when training their election officials.

- **Election Security Tabletop Exercise**
  Commission staff has conducted additional Election Security Tabletop Exercises 2.0 for county and municipal clerks, local election officials and election officials from around the United States. The Elections Security TTX 2.0 has built upon the success of the first iteration of the Election Security TTX program and contains new situations for local election officials to resolve. As of November 2019, more than 1,500 local elections officials have attended an Election Security TTX, and WEC staff expects this number to rise significantly throughout 2020 as staff conduct additional trainings around the state, and local election officials attend the training to meet recertification and election security grant program requirements.

- **WisVote/Election Administration 2019-2020 Training Webinar Series**
  Commission staff has produced several WisVote and election administration webinars in the last several months. The *New Clerk Orientation* webinar introduced clerks to the Commission and provided detailed information about training requirements and resources. The webinar also gave clerks a virtual tour of the Elections Commission website and other web applications. The *Voter Registration Form Revision* webinar reviewed changes to the application and answered questions from clerks and their election workers. The *WisVote Voter Registration* webinar reviewed the WisVote voter registration process and common questions/issues associated with entering registrations in WisVote. The *2019 WisVote Updates* webinar reviewed many of changes and updates to WisVote in preparation for the 2020 election cycle.

  Commission staff has received positive feedback from clerks about several changes to the webinar series, such as including live webinar access links in the webinar schedule memo, so clerks could sign up in advance of the webinars. The training software was programmed to send clerks email reminders one week, one day and one hour before the webinar is scheduled to start. The posted webcasts include indexing links to allow clerks to go directly to a specific topic covered in the webinar.

- **WEC Certified Clerk-Trainer Program**
  Commission staff surveyed the WEC's Training Recommendations Committee and received 13 nominations of qualified and experienced county and municipal clerks for the Certified Clerk-Trainer Program. Nominees participated in a day of training with Commission staff on October 23, 2019. Staff walked clerk-trainers through the Baseline Chief Inspector training class in a forum designed to encourage them to ask questions and provide suggestions and thoughts about the training presentation.

Technology Director Robert Kehoe provided a security update and staff guided the clerks through a new election administration roundtable discussion which included some common election day scenarios. A recertification webinar is also under development to recertify the Commission's current roster of clerk-trainers and ensure they are prepared for the 2020-2021 term.

Following this memorandum as Attachment 1 is a summary of information regarding initial certification and focused election administration training recently conducted by WEC staff.

5. Polling Place Accessibility Program

WEC staff has added the Accessibility Audit survey data to the Access Elections database to be reviewed further by the evaluated municipalities. WEC staff has also sent notifications to each municipality that has had its polling places audited during the November 2018, February 2019, and April 2019 elections. Currently the WEC is in the process of working with each municipality affected by the accessibility audits to create plans to make its polling places accessible to every voter, regardless of physical ability.

Throughout the summer, the WEC placed an order for, and received, a wide variety of supplies that will help improve the accessibility of Wisconsin's polling places. The WEC received new tablets to help improve the auditing process moving into 2020. These new tablets will help make polling place audits more efficient by having a longer battery life, an improved camera, numerous accessibility functions, and being lighter weight. The WEC has also received supplies that will assist municipalities in fulfilling the ADA Polling Place Standards. They are accessible parking signs, van accessible parking signs, accessible entrance signs, wireless doorbells, and orange cones. Municipalities that need these supplies can request them from the WEC and receive them free of charge.

The Fall Accessibility Advisory Committee meeting was November 13 from 9 a.m. to 12 p.m. Staff updated the committee on election security, legislative agenda items, the Polling Place Supply Program, and Polling Place Audit Program. Committee members reviewed and provided feedback for the Election Day Polling Place Accessibility Checklist, the accessibility chapter in the Election Administration Manual, and reference documents on the Reporting System website. The next Accessibility Advisory Committee meeting will be in the Spring of 2020.

6. Voting Equipment

The voting equipment team has been involved in a flurry of activity in recent months with the effort to ensure new voting systems and updates to existing systems are secure and correctly implemented in the leadup to 2020. In addition to multiple certification campaigns for ES&S and a certification for Clear Ballot, the team has also been communicating with all vendors who operate in Wisconsin to confirm their plans for continuing support for customers who will be using Windows 7-based products following that system's end of life in January of 2020.

In addition, ES&S submitted Engineering Change Order (ECO) 1032 that was approved by Administrator Wolfe in consultation with the Commission Chair. This ECO contained an update to EVS 5.3.4.0 regarding the software used to support the Verizon modem contained in that certification. A copy of the ECO and the staff memo outlining the recommendation for approval will be provided as part of the Commissioners meeting folder.

7. ElectionGuard Pilot

Staff continue to work with Microsoft on the ElectionGuard voting system pilot project for the 2020 Spring Primary. The Town of Fulton in Rock County has been selected as a pilot site and their town board voted unanimously on November 12, 2019 to approve participation in the pilot. WEC staff is working with Microsoft on updates to the ElectionGuard software, including development and testing of the tabulation feature of the system. The pilot will also be supported through the creation of poll worker and voter training materials that will provide information as to the functionality of the system and the advanced security features used to develop the software. A mock election has been scheduled for December 17 in the Town of Fulton that has been designed to increase familiarity with the system for the municipal and county clerk and the poll workers and voters who will be using the system on Election Day.

8. Records Management Task Force

Staff continues pushing to improve the state of records management at the agency. With the approved sunset of one agency RDA and the tentative approval of five new, subject matter specific RDAs at the Public Records Board's November 18, 2019 meeting, the records taskforce is improving the process by which WEC retains, transfers, and, when appropriate, destroys agency records.

Thirty-six boxes of records have been scheduled for transfer to the Wisconsin Historical Society and, following the approval of new RDAs, several dozen more will be destroyed confidentially. Throughout 2020, this taskforce will continue to introduce training to staff to aid in identifying records, associating them to their appropriate retention schedules, and processing them accordingly.

9. MyVote

MyVote is the Wisconsin Elections Commission's main voter information tool. The website allows voters to register online during open registration, start the registration process during closed registration, request an absentee ballot, find their polling places, view sample ballots, track their absentee and provisional ballots, and more. MyVote is a critical tool that both Wisconsin voters and clerks rely on.

MyVote usage has continued at the expected low, but steady, rate in the absence of a statewide Fall Election cycle. During this time, there were two increases in MyVote usage – the first as a result of the recent Movers mailing and the second on November 5. The recent Movers mailing led to an uptick in online voter registration and MyVote activity beginning in mid-October. During a three-week period beginning October 15, user activity increased approximately 6-10 times the levels of early October. Detailed numbers related to the increase in registration activity can be found in the ERIC Movers update section.

Even though Wisconsin did not have a statewide fall election, the MyVote site saw more than 17,000 users on Tuesday, November 5. While usage was far above a non-election day, it was only 10% of the usage of the last General Election in 2018. Many of these users were residents of other states who came to the Wisconsin MyVote site in error while looking for information related the elections in their own states.

10. Legislative Update

Elections Administration staff continued to monitor and provide ongoing analysis of legislation relevant to WEC. Relevant updates to previously reported bills are contained below:

- Assembly Bill 168. This bill exempts individuals with a disability from having to state their name and address at the polls to receive a ballot. The individual may present his or her identification to the election official who verifies it conforms to legal requirements and the election official or another person selected by the voter states the voter's name and address. This bill passed the Assembly and the Senate concurred. This bill will become law once the Governor signs it. A public bill signing was schedule for November 22, 2019.

- Senate Bill 108/Assembly Bill 89. These bills reorganize Chapter 17 of the statutes, which prescribes the methods for filling vacancies in elective offices in cities and villages. The bill passed the Senate on September 6 and has asked Assembly for concurrence. Assembly bill is still in committee.

- Senate Bill 193/Assembly Bill 203. These bills allow a municipality to use electronic voting equipment for in-person absentee voting. These bills have both made it out of committee and are awaiting scheduling for a full vote of each house.

- Senate Bill 221/Assembly Bill 244: These bills allow an elector to use a W-2 form to establish proof of residence for voting. The Senate bill is out of committee and awaiting a vote by the full Senate. Assembly bill had a public hearing on September 10, 2019.

- Senate Bill 240/Assembly Bill 245. Commission legislative agenda bill: elections administration, recall petitions, recall procedures. Both bills have been voted out of committee and are available for a full vote by each house.

- Senate Bill 241/Assembly Bill 246. Commission legislative agenda bill: administrative and technical provisions related to voter registration. Both bills have been voted out of committee and are available for a full vote by each house.

- Senate Bill 242/Assembly Bill 247. Commission legislative agenda bill: relating to absentee voting and voting procedures. Both bills have been voted out of committee and are available for a full vote by each house.

- Senate Bill 71/Assembly Bill 64. These bills required the Elections Commission to reimburse counties and municipalities for certain costs incurred in the administration of special primaries and special elections. Bill passed the full Senate, which has asked Assembly for concurrence. Executive action taken on the Assembly Bill, available for scheduling a vote in the Assembly.

11. Complaints

Elections Administration staff and Staff Counsel have continued to process and resolve formal complaints related to the actions of local election officials, as well as informal inquiries submitted by voters and the public. For a complaint against a local election official to be

processed in accordance with Wis. Stat. § 5.06, an elector of a jurisdiction must file a written sworn complaint. Since January 1, 2019, the Commission has received 14 Wis. Stat. § 5.06 complaints, two of which are still outstanding. In addition, staff frequently handles informal complaints and inquiries submitted through telephone calls, emails or through the agency's website, which are typically resolved promptly through a phone call, or email with the complainant and local election officials if necessary. Since January 1, 2019, the agency has received a total of 74 informal complaints through the website. Complaints filed under Wis. Stat. § 5.05 are confidential and decided by the Commission in closed session. Since January 1, 2019, the Commission has received seven complaints under Wis. Stat. § 5.05, two of which are outstanding.

12. Voter Registration Application Redesign

The redesign of the Voter Registration Application (EL-131) has entered its final stages. Following the presentation of the prototype to the Commission during its September 24, 2019 meeting, the team has continued to make crucial changes to reflect the feedback of usability test participants, election officials, and the Commission itself.

It is hoped that the most recent round of comments and resulting changes to the prototype will constitute the redesign's last steps and that, barring no further issues, the Commission will be able to view the final prototype at its December 2, 2019 meeting. After the prototype has been finalized, WEC staff will issue a clerk communication and a news release to announce the update. Accordingly, the updated form will be available for printing and further dissemination in time for election officials to adequately prepare for the 2020 elections. The form is also being translated into Spanish and Hmong and those versions will also be posted on the agency website once complete.

13. 2020 Steering Committee

The 2020 Steering Committee was created in October 2019 to coordinate staff's planning efforts ahead of the 2020 election cycle. The 2020 Steering Committee will assist the current staff teams and projects of the WEC through resource forecasting, creating and monitoring an agency-wide internal planning calendar, and coordinating planning across the agency for the 2020 elections.

The 2020 Steering Committee is also consolidating reporting efforts to better monitor progress on project goals. The various teams that will be reporting to the 2020 Steering Committee are election administration, IT services, election security, clerk support, agency administration, and team engagement. The various team leads will attend a bimonthly meeting to update the whole 2020 Steering Committee on project progress and resource needs. These updates will allow for the WEC to better coordinate efforts and ensure projects are getting the timely assistance they may need throughout 2020.

14. Communications Report

Between September 1 and November 15, 2019, Public Information Officer Reid Magney engaged in the following activities in furtherance of the Commission's mission:

Media: I logged approximately 200 media and general public phone calls and email contacts during the period. I arranged several interviews for the Administrator or gave interviews when she was not available. I prepared five news releases on topics including election security grants, ERIC movers mailing, and the Elections Security Council.

Election Security: News media and public inquiries about election security issues remain steady, and increased around early November, one year from the 2020 General Election. I continue working closely on this with the Elections Security Team, county and municipal clerks, staff of the National Association of State Election Directors, voting equipment vendors, in addition to the Administrator and other senior agency staff.

The Election Security Public Information Program has commanded much of my attention, working closely with KW2 and our staff on the development of a communications toolkit for clerks and communications training for clerks. Additional details are contained in the Election Security section of the meeting materials.

Online: Administrator Wolfe has created a new team of elections staff members who I am working with to update the WEC's websites as we prepare for 2020.

Public Records: The Commission received and responded to four formal public records requests during the period of this report. Some of these requests were for information related to election security, which involved extensive consultations with agency legal staff, as well as the Department of Administration and the Department of Justice.

Records Management: As the agency records officer, I have worked with a Records Management Team on a project to review and either dispose of or archive all paper records.

15. Elections HelpDesk/Customer Service Center

The Elections Help Desk staff is supporting more than 2,000 active WisVote users, while also answering calls from the public and election officials. Staff is monitoring state enterprise network and data center changes and status, and processing voter verification postcards. Help Desk staff has been serving on and assisting various project teams including ongoing WisVote and MyVote development, ERIC mailing, and Security teams. Staff continues to maintain and update Elections Commission, WisVote user and clerk listserv email lists. Voter cancellation notices from other states continue to be processed and Address Verification postcards are being sent. Staff is assisting with several upgrade projects such as migrating various Commission websites to new platforms, installing and testing CRM 365 OnPrem for the next generation of WisVote, EndPoint Protection roll out, the Subgrant program, Computer Loaner program and various projects initiated by the Department of Administration (DOA) including AT&T Unified Communication (VoIP), serving on DOA committee developing the next Voice Services contracts and administering Elections Commission's O365 Exchange email system.

The Help Desk staff continues to create new clerk user credentials for the WisVote system and the Elections Learning Center to ensure all users are properly trained in WisVote and WisVote security. They also assist clerks with configuring and installing WisVote on municipal computers. The Help Desk continued to field a wide variety of calls and emails from voters and the public, candidates, political committees, and public officials.

Monthly Calls	Help Desk	Front Desk	Total Call Volume
September 2019	244	325	569
October 2019	669	820	1,489
Total	**913**	**1,145**	**2,058**

16. Financial Services Activity

- On October 15, 2019 staff submitted the WEC 2017-2019 biennial report to the Governor and the chief clerk of each house of the Legislature in accordance with Wis. Stat § 15.04(1)(d). This report provides information on the performance and operations of the Commission and its projects, goals, and objectives as developed for the agency budget. This report also includes information required specifically of the Elections Commission, information provided at the Commission's discretion, information on matters within the Commission's jurisdiction and recommendations for legislation.

- Staff continued collaborating with the Department of Administration (DOA) on analyzing historic WISmart financial data to reconcile past Federal Financial Reports for HAVA 101 and HAVA 251 grants for accurate and complete close out financial reporting.

- On November 5, 2019, staff submitted to the U.S. Election Assistance Commission (EAC) amended Federal Financial Reports for HAVA 101 and HAVA 251, Federal Fiscal Year (FFY) 2018. These amended reports included an attachment excel reconciling all prior activity.

- On November 12, 2019, Staff received EAC acceptance of our HAVA 101 and HAVA 251 amended FFR 2018, including amended 2003-2018 activity. The EAC confirmed that, "All applicable audits during this period have been completed and findings have been addressed."

- Staff has continued to perform and submit to DOA scheduled month-end close queries, inquiries, and reports. Staff conducted necessary adjusting entries to resolve any found errors.

- Staff attended a day-long procurement conference at the Alliant Energy Center and several procurement webinars.

- Staff has continued to participate in monthly DOA user group webinars pertaining to Project Costing and Billing and Accounts Receivable.

- Staff has continued to participate in the Financial Leadership Council meetings at DOA.

- On November 11, 2019, staff completed and submitted to DOA our annual Payment Card Industry (PCI) compliance report.

- On November 11, 2019, staff completed and submitted to DOA our annual Schedule of Expenditures of Federal Awards (SEFA) report.

- Staff created a payment process for the subgrant election security program and a tracking excel spreadsheet for all WEC to access.

- As of November 11, 2019, Staff has entered, audited, and paid 315 subgrant vouchers, comprising $324,700.

17. Procurements

Financial staff has spent a lot of the time this past couple of months on purchasing activities for several large-scale procurements. The following Purchase Orders have been processed since the September 24, 2019 Commission meeting:

- A $13,750 Purchase Order was written to Paragon Development Systems for 25 laptops and Microsoft Office software for the Commission-approved hardware loaner program for election security municipality emergencies.

- A $7,000 Purchase Order was written to Paragon Development Systems for architect application services designing images for Badger Book.

- A $4,940 Purchase Order was written to Herkimer LLC for annual updates and changes to our Bring It website.

- A $9,761.25 Purchase Order was written to SHI International for our annual subscription to cloud based SmartyStreets mapping software.

- A $2,600.36 Purchase Order was written to SHI International for new WEC annual subscriptions to LastPass for staff's password security.

- A $262.08 Purchase Order was written to SHI International for four additional Acrobat Pro licenses for WEC staff pdf creation and editing.

- A $113.74 Purchase Order was written to Vanguard Computers for two solar power charging banks.

- A $1,896 Purchase Order was written to Paragon Development Systems for reimaging 24 Badger Books for five municipalities.

- **All purchases accurately followed the Wisconsin State Procurement Process.**

18. Meetings and Presentations

WEC staff attended the following events:

September 27, 2019	Tony Bridges and Camille Lore attended the GIPAW (Government Information Technology Professionals Association of Wisconsin) Annual Conference in Sheboygan.

October 4, 2019	Richard Rydecki attended the WMCA District 1 and District 2 meeting in Rice Lake.
October 10, 2019	Staff supported both an Election Security TTX and an Election Administration TTX in Madison, for both clerks and other election officials.
October 14-18, 2019	Elections security staff attended Security Training on Hacking Tools, Techniques, Exploits and Incident Handling (SANS SEC 504).
October 15, 2019	Richard Rydecki and Robert Kehoe attended the Wisconsin Towns Association annual conference in the Wisconsin Dells.
October 16, 2019	The first meeting of the multi-agency Election Security Council convened in Madison.
October 18, 2019	Meagan Wolfe attended a meeting with Midwest states and Ohio State University to discuss plans for Midwest Law Summit
October 24, 2019	Meagan Wolfe was invited to present at the Cyber Threat Alliance's CyberNext Conference in Washington D.C.
October 26, 2019	Meagan Wolfe was invited to present at the National Conference of State Legislatures (NCSL) conference in Columbus, OH
October 30, 2019	Election Security TTX for WMCA District 4.
November 5, 2019	Staff provided guidance to local officials at the West Central Wisconsin Cybersecurity Workshop in Eau Claire.
November 7, 2019	Outagamie County Election Security TTX.
November 11, 2019	Robert Kehoe conducted an election security presentation and training exercise for WMCA District 7 in Oconto Falls.
	Communications Training Exercise for clerks in Milwaukee.
November 12, 2019	Communications Training Exercise for clerks in La Crosse.
November 13, 2019	Accessibility Advisory Committee meeting in Madison.
November 15, 2019	Staff facilitated Columbia County Voting Equipment Testing.
November 15, 2019	Richard Rydecki participated in the Center for Internet Security workgroup for certification of non-voting technology in Washington, DC.
November 16, 2019	Meagan Wolfe presented on the topic of geographical information systems in elections at Massachusetts Institute of Technology.
November 19, 2019	Staff facilitated Wood County Equipment Testing.

November 20, 2019	Staff facilitated Columbia County Election Security TTX.
	Staff facilitated Marathon County Voting Equipment Testing.
November 21, 2019	Staff facilitated Sauk County Voting Equipment Testing.
November 22, 2019	Elections security team members conducted a security TTX at the Presidential Election Academy in Green Bay.
	Staff facilitated Rock County Voting Equipment Testing.

19. Delegation of Authority

The Administrator of the State of Wisconsin Elections Commission used the delegated authority provided by the Commission to authorize the following:

- Purchases and expenditures as listed above.
- Engineering Change Order (ECO) 1032 for ES&S
- Issuance of two §5.06 decision letters as reported to the Commission

ATTACHMENT #1

Wisconsin Elections Commission's Training Initiatives
9/25/2019 – 10/02/2019

Training Type	Description	Class Duration	Target Audience	Number of Classes	Number of Students
Municipal Clerk	2005 Wisconsin Act 451 requires that all municipal clerks attend a state-sponsored training program at least once every 2 years. MCT Core class is available in the WisVote Learning Center.	3 hours	All municipal clerks are required to take the training; other staff may attend. Clerks may attend refresher once per 2-year term.	In-Person: 3 16-section presentation with quizzes	45 25
Chief Inspector	Required training for new Chief Inspectors before they can serve as an election official for a municipality during an election. CIT Baseline class is available in the WisVote Learning Center.	2-3 hours	Election workers for a municipality.	In-Person: 8 7-section presentation with self-evaluation	235 55
Election Administration and WisVote Training Webinar Series	Series of programs designed to keep local government officials up to date on the administration of elections in Wisconsin.	60 + minute webinar training sessions hosted and conducted by Commission staff.	County and municipal clerks, chief inspectors, poll workers, election registration officials, and school district clerks.	9/25/2019: New Clerk Orientation; 10/08/2019: Election Security Subgrant Program; 10/09/2019: School District Clerk Duties; 10/15/2019: Voter Registration Form Revisions; 11/06/2019: Clerk Tasks: Candidate Filings, Appointing Election Inspectors and Training Compliance.	50 – 250 per live webinar; posted to website for clerks to use on-demand.

ATTACHMENT #1

Wisconsin Elections Commission's Training Initiatives
9/25/2019 – 10/02/2019

WisVote Training	Online training in core WisVote functions – how to navigate the system, how to add voters, how to set up elections and print poll books.	Varies	New users of the WisVote application software.	Online	Not tracked
Other	Commission staff presented election administration and WisVote status information to county and municipal clerks attending the following conferences: • Wisconsin County Clerks Association Fall Conference on September 23, 2019 in Wisconsin Dells • Wisconsin Municipal Clerks Association Districts 1 & 2 Meeting on October 4, 2019 in Rice Lake • Election Administration Tabletop Exercise on October 11, 2019 in Madison • Wisconsin Towns Association Annual Convention on October 15, 2019 in Wisconsin Dells • Wisconsin Municipal Clerks Association District 4 Meeting on October 30, 2019 in Portage • Wisconsin Municipal Clerks Association District 7 meeting on November 11, 2019 in Oconto Falls				

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

MEMORANDUM

DATE: For the December 2, 2019 Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe
Administrator

Prepared and Presented by:

Michael Haas
Staff Counsel

SUBJECT: Electronic Registration Information Center (ERIC) – Legal Authority Governing ERIC Movers Mailings

Introduction

On several occasions since 2017, the Wisconsin Elections Commission (WEC) has discussed the voter mailings which are generated as a result of data matching conducted through Wisconsin's membership in the Election Registration Information Center (ERIC). There are no specific statutory directives dictating actions the WEC must take as a result of the ERIC data matching. There is a clear statutory directive to comply with the ERIC Membership Agreement which in turn establishes timelines for contacting voters identified by the mailing. However, the ERIC Agreement does not dictate the method of contact or consequences for individuals who do not respond to a mailing or whose correspondence is returned as undeliverable.

At its March 2019 meeting, the Commission adopted a motion directing staff to report back to the Commission on the status of drafting an administrative rule or proposed statutory change for the Commission's consideration. This memorandum outlines options for clarifying the legal authority for, and/or seeking more specific legal authority related to, the treatment of voter registration records of those individuals included on the ERIC Movers list.

Relevant Legal Authority

Since its inception, ERIC's goals have been described as balancing voter registration outreach with more regular and accurate voter list maintenance efforts. The intent has been to encourage voter registration activity and updates throughout the year to reduce the volume

of changes and the workload on election officials required immediately prior to elections. This balance is achieved by requiring ERIC members states to contact individuals who appear to be eligible but unregistered electors every two years and to contact annually individuals who appear to have moved.

As noted in the March 11, 2019 staff memorandum to the Commission, Wis. Stat. § 6.36(1)(ae)1. requires the Commission to enter into a membership agreement with ERIC subject to certain conditions which have been met. Wis. Stat. § 6.36(1)(ae)2. states that "If the chief election official enters into an agreement under subd. 1, the chief election official shall comply with the terms of the agreement. . . ." Neither the enabling legislation (2015 Act 261) nor other existing statutes require or authorize the Commission to promulgate administrative rules related to procedures implemented pursuant to the ERIC Agreement.

Regarding the list maintenance aspect of ERIC, the Agreement states the following:

> When the Member receives credible ERIC Data (meaning the state has validated the data) indicating that information in an existing voter's record is deemed to be inaccurate or out-of-date, the Member shall, at a minimum, initiate contact with that voter in order to correct the inaccuracy or obtain information sufficient to inactivate or update the voter's record. Each Member shall have ninety (90) days after the data was sent to initiate contact with at least 95% of the voters on whom data indicating a record was inaccurate or out-of-date, as described above, was provided.

This provision of the ERIC Agreement illustrates the desire of the ERIC member states to retain their own authority and flexibility to determine appropriate voter list maintenance procedures. The role of the ERIC organization is to conduct the matching process resulting in potential contact lists which states use to initiate contact with individuals. The above provision specifically does not dictate specific action that member states are required to take beyond initiating contact. The stated purpose of the contact is to correct inaccuracies and obtain information sufficient to inactivate or update voter records, but there is no specific process outlined or timeline attached to the measures to update or inactivate voter records.

The flexibility reflected in this provision is a significant reason that ERIC's membership has grown from its initial seven states in 2012 to its current membership of 28 states and the District of Columbia. Most of the other ERIC member states are also subject to the National Voter Registration Act, which contains requirements for voter list maintenance programs, and which does not apply to Wisconsin due to the availability of election day registration.

The March 11, 2019 staff memorandum also noted that the Commission has relied on the framework outlined in Wis. Stat. § 6.50(3) to develop procedures related to the ERIC Movers mailing. That statute provides:

> Upon receipt of reliable information that a registered elector has changed his or her residence to a location outside of the municipality, the municipal clerk or board of election commissioners shall notify the elector by mailing a notice by 1st

> class mail to the elector's registration address stating the source of the information. . . . If the elector no longer resides in the municipality or fails to apply for continuation of registration within 30 days of the date the notice is mailed, the clerk or board of election commissioners shall change the elector's registration from eligible to ineligible status. Upon receipt of reliable information that a registered elector has changed his or her residence within the municipality, the municipal clerk or board of election commissioners shall change the elector's registration and mail the elector a notice of the change. . . .

In 2017, the Commission initially used Wis. Stat. § 6.50(3) to help guide its analysis and decision making regarding the treatment of voter registrations subsequent to the ERIC Movers mailing. But that provision clearly does not govern the list maintenance procedures related to the ERIC mailing for two reasons. First, the plain language of the statute applies to actions of municipal clerks and the City of Milwaukee Election Commission ("the municipal board of election commissioners"), not to the WEC. Second, the statute does not define what constitutes reliable information that registered electors have changed their residence and it definitely does not specify that ERIC Movers data qualifies as reliable information that an individual voter has changed their residence in every case.

After analyzing the data resulting from the initial ERIC Movers mailing in 2017, the Commission recognized that, while largely accurate from a statistical perspective, an undeliverable mailing or non-response to the mailing does not accurately indicate in every case that individuals have changed their voting residence. The Commission has adjusted its procedures based upon that evidence. The Commission has also retained the municipal clerk's authority to determine whether the ERIC Movers data and a non-response to the mailing constitutes reliable information sufficient to justify inactivation of voter registrations.

The Commission is also vested with general statutory authority related to maintenance of the statewide voter registration list pursuant Wis. Stat. § 5.05(15):

> The commission is responsible for the design and maintenance of the official registration list under s. 6.36. The commission shall require all municipalities to use the list in every election and may require any municipality to adhere to procedures established by the commission for proper maintenance of the list.

Finally, Wis. Stat. § 5.05(1)(f) provides the Commission with general rulemaking authority "applicable to all jurisdictions for the purpose of interpreting or implementing the laws regulating the conduct of elections or election campaigns, other than laws regulating campaign financing, or ensuring their proper administration."

<u>Options for Clarifying Legal Authority</u>

As a result of the Commission's March 11, 2019 motion, Commission staff has further analyzed the legal framework related to the ERIC Movers mailing and treatment of voter registrations resulting from that mailing. The accuracy and currency of the voter registration list, as well as the basis for and means by which all states conduct list maintenance

procedures, is receiving significant and increasing public attention. Therefore, staff believes it would be helpful for the Commission to more specifically determine whether any additional legal authority or framework is required and, if so, provide direction to staff for pursuing changes. Staff has identified the following three options for consideration:

1) Continue with Current Legal Framework

   To date, the Commission has been operating within the parameters of the Statutes and the ERIC Agreement. The Legislature has authorized and directed the Commission to be responsible for the maintenance of the voter registration list. Wis. Stat. § 5.05(15). That mandate existed at the time the WEC was directed to join ERIC and to comply with the terms of the Membership Agreement as a result of 2015 Act 261. The Legislature is presumed to be aware of both the existing Statutes and also the terms of the Membership Agreement which are incorporated into the language of Wis. Stat. 6.36(1)(ae)2.

   The Statutes and Membership Agreement vest significant authority and discretion in the Commission to determine the specific means and timeline for updating voter registration information and inactivating voter registrations. Many ERIC states do not inactivate voter registrations as a result of the ERIC Movers mailing because they are subject to the National Voter Registration Act. Pursuant to its authority under Wis. Stat. § 5.05(15) and the Membership Agreement, the Commission originally instituted procedures that were consistent with those described for local election officials in Wis. Stat. § 6.50(3) and then modified its procedures based on data and feedback from voters who were incorrectly deactivated and from local election officials.

   The Commission could continue this approach, which would not rely on additional actions or policy decisions from the Legislature. It would require the Commission to continue to make determinations regarding voter eligibility without specific guidance in the Statutes.

2) Request Legislation Specifying ERIC Procedures

   Apart from directing the Commission to comply with the ERIC Membership Agreement, the Statutes do not establish specific procedures by the WEC or local election officials after the ERIC Movers mailing is sent. The Legislature has not determined that an undelivered ERIC mailing or non-response to the mailing results in a specific consequence for the voter or that it affects the voter eligibility requirements established in the Wisconsin Constitution and Chapter 6 of the Statutes.

   This contrasts with the very specific procedures for the Four-Year Maintenance process outlined in Wis. Stat. 6.50(1) and (2), which represent the Legislature's balancing of the goals of maintaining current voter lists and not prematurely removing individual voter names without adequate notice. In that case, the Legislature determined that the combination of not voting over a period covering four years and three general elections, and either a voter's non-response to an outreach mailing or the mailing being returned as

undeliverable, constitutes a sufficient basis for inactivating an individual's voter registration.

The Commission could request that the Legislature codify the specific procedures and consequences, if any, related to the ERIC Movers mailing. The Commission's experience with the 2017 and 2019 mailings may give policymakers a more concrete basis to make such policy decisions than existed at the time it directed the Commission to join ERIC. The Legislature could, for example, determine that the ERIC data matching process and the Movers mailing warrant an alternate timeline for inactivating voter registrations when a voter does not request continuation of their registration, which is the Commission's current process. Alternatively, the Legislature could decide that a non-response to the ERIC Movers mailing does not carry any additional consequence related to voter registration separate from the timeline for the Four-Year Maintenance process.

As noted in the March 11, 2019 staff memorandum, the Commission's current decision to delay further inactivation of voter registrations resulting from the 2019 ERIC Movers mailing until 2021 allows some time for the Legislature to act. If the Legislature declines to do so or policymakers do not reach consensus regarding a policy approach, however, the Commission will be left to continue to operate under the existing statutory framework.

3) Request Legislation Granting Rulemaking Authority

The general statutory authority related to maintenance of the statewide voter registration list under Wis. Stat. § 5.05(15) and the grant of rulemaking authority in Wis. Stat. § 5.05(1)(f) likely is not sufficient legal basis for the WEC to promulgate administrative rules governing ERIC procedures. Pursuant to Wis. Stat. § 227.11(2)(a)2., "A statutory provision describing the agency's general powers or duties does not confer rule-making authority on the agency or augment the agency's rule-making authority beyond the rule-making authority that is explicitly conferred on the agency by the legislature."

The Commission could choose to seek legislation conferring specific rule-making authority related to implementation of the ERIC Agreement. This may represent a middle road between the first two options. It would recognize the agency's authority to promulgate administrative rules in this area and allow greater flexibility than would new substantive statutory provisions for the Commission to modify its approach and procedures based upon data resulting from successive mailings and the lessons learned from those efforts. Administrative rules have the force of law, although the complexity of the rulemaking process might allow less flexibility than currently for the Commission to modify its approach based on new evidence and developments.

On the other hand, only conferring specific rule-making authority without any further direction from the Legislature as to whether or when voter registrations should be inactivated would continue to leave the substantive policy decisions up to the Commission, subject to approvals of the Governor and Legislature during the rulemaking process. If the Commission prefers this option, staff recommends considering a request

that the Legislature authorize but not require the Commission to promulgate additional administrative rules.

The Commission's statutory responsibility to maintain the voter registration list and the ERIC Membership Agreement has permitted the Commission to consider the data resulting from its first two ERIC Movers mailings and take a deliberative approach to balancing the interests involved. That flexibility to modify procedures has been helpful at the outset of the WEC's experience with ERIC, given Wisconsin's uniqueness among ERIC states. The disadvantage of continuing this approach is that the Commission is unable to cite to specific statutory or administrative rule provisions that dictate the procedures to be followed and that may impact voter eligibility requirements.

Additional substantive legislation or specific rulemaking authority can provide a more specific legal framework to govern the ERIC Movers mailing, or at least more specifically codify the WEC's authority to develop and update procedures based on experience and data. While the options outlined above each carry their own advantages and disadvantages, the consensus of Commission staff is that, on balance, the ERIC Movers process would benefit from additional legislation that either establishes specific procedures or provides the Commission with specific authority to do so through rulemaking or decisions made pursuant to the ERIC Membership Agreement.

Recommended Motion

The Commission directs staff to pursue legislation establishing specific procedures governing the ERIC Movers mailing and/or granting rulemaking authority to the Commission.

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

DATE: For the December 2, 2019 Commission Meeting

TO: Members, Wisconsin Elections Commission

FROM: Meagan Wolfe
Administrator

Prepared and Presented by:
Robert Williams, Elections Specialist
Cody Davies, Elections Specialist

SUBJECT: Election Systems and Software (ES&S)
Petition for Approval of Electronic Voting Systems EVS 5.3.4.1

Introduction

Election Systems and Software (ES&S) is requesting the Wisconsin Elections Commission ("WEC" or "Commission") approve the EVS 5.3.4.1 voting systems for sale and use in the State of Wisconsin. The Government Accountability Board originally approved the EVS system, with EVS 5.2.0.0 and EVS 5.3.0.0, on September 4, 2014. 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 B). The WEC has also adopted administrative rules detailing the approval process in Wis. Admin. Code Ch. EL 7 (Appendix C).

Application Background

On July 10, 2019, WEC staff received an Application for Approval of EVS 5.3.4.1. ES&S submitted complete specifications for hardware, firmware, and software related to the voting system. In addition, ES&S submitted technical manuals, documentation, and instruction materials necessary for the operation of EVS 5.3.4.1. Also included with the application documentation was the testing report from the Voting Equipment Testing Lab (VSTL) which conducted federal level testing for this system. Initially, ES&S requested that Commission staff proceed with testing using EVS 5.2.4.0 as a "base system" for approval of EVS 5.3.4.1. Normally, when an application is received for a system containing a telecommunications component for modeming unofficial results, the application will contain a "base" system version which is EAC certified and a secondary system version which is identical to the "base" system except for the addition of a telecommunications hardware. In such applications, EVS 5.3.4.1 being among them, the secondary system version lacks EAC certification, but is federally tested to

comply with the 2005 Voluntary Voting Systems Guidelines (VVSG). After researching application documentation submitted by ES&S and through numerous exchanges with the VSTL, Pro V&V, staff determined that there were enough changes between EVS 5.2.4.0 and EVS 5.3.4.1 that a full test campaign was warranted prior to seeking Commission approval of EVS 5.3.4.1.

Updates introduced in this system version include:

- Upgrade to modems with 4G capabilities via the Verizon Private Network.
- Support for write-in review to be sorted by precinct or to not display contests in which no write-in votes were recorded.

Recommendation

WEC staff is recommending approval of EVS 5.3.4.1 for sale and use in Wisconsin. Detailed recommendations are listed on pages 20 and 21 following the analysis of functional testing performed by WEC staff.

System Overview

EVS 5.3.4.1 is a federally tested paper based, digital scan voting system powered by the ElectionWare software platform. It consists of eight major components: an election management system (EMS) server; an EMS client workstation (desktop and/or laptop computer); the ExpressVote and AutoMark, two Americans with Disabilities Act ("ADA") compliant vote capture devices for polling place use; ExpressLink, a ballot activation code application and barcode printer combination for ExpressVote ballots; the DS200, a polling place scanner and tabulator; the DS450, a mid-range scanner and tabulator for a central count location; and the DS850, a high-speed scanner and tabulator for a central count location.

EVS 5.3.4.1 is a federally tested modification to the EAC certified EVS 5.2.4.1 voting system, which is, in turn, baselined from the EAC certified EVS 5.2.4.0. EVS 5.3.4.1 provides support for modeming of unofficial election results from a DS200 to a Secure File Transfer Protocol (SFTP) server through encrypted wireless telecommunications networks after the polls close on Election Day. The modeming components of EVS 5.3.4.1 do not meet federal certification standards, but the underlying voting system is federally certified.

The following paragraphs describe the design of the EVS 5.3.4.1 hardware taken in part from ES&S technical documentation.

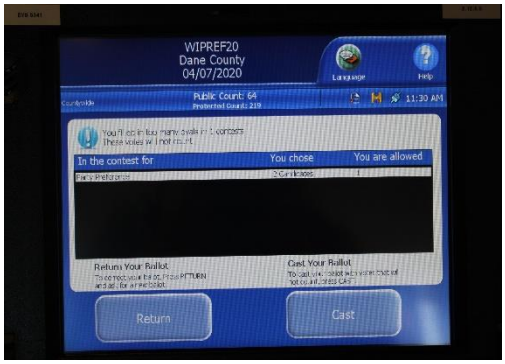
DS200

The DS200 is a digital scan paper ballot tabulator designed for use at the polling place. After the voter marks a paper ballot, their ballot is inserted into the unit for processing. The tabulator uses a high-resolution scanner to simultaneously image the front and back of the ballot. The resulting ballot images are then processed by proprietary mark recognition software, which identifies and evaluates marks made by the voter. The system then tabulates any votes cast on each ballot

before depositing the ballot into an integrated 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 county clerk's office where the election results may be uploaded into an election results management program or transferred to another memory device to facilitate storage. The DS200 does not store any images or data in its internal memory. The DS200 includes an internal thermal printer for the printing of the zero reports, log reports, and polling place totals upon the official closing of the polls. DS200s as part of EVS 5.3.4.1 also include wireless modems for the transmission of unofficial election results via a secured and encrypted network hosted by Verizon Wireless.

Voter Information Screens: The DS200 features a 12-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 errors on their ballot. The DS200 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.

Overvote Notification: If the ballot contains an overvote, a message appears that identifies the contest or contests with overvotes. The message also tells the voter that these votes will not count. The language displayed in this notification reflects the requirements as approved by the Commission.

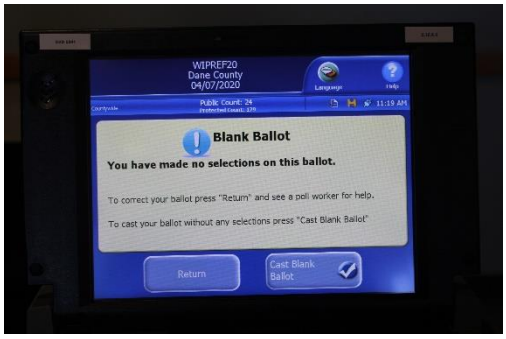


The voter has the option to return the ballot for review or cast the ballot. If there are multiple errors the voter is given an option to review the next error. Instructions above the "Return" button direct the voter to press "Return" if they wish to correct their ballot. The voter is also instructed to ask for a new ballot. Instructions above the "Cast" button direct the voter to press "Cast" if they wish to submit their ballot with votes that will not count. Instructions above the "Next" button direct the voter to press "Next" if they wish to review additional errors on their ballot. Once all the errors have been reviewed, the voter will have the option to cast the ballot.

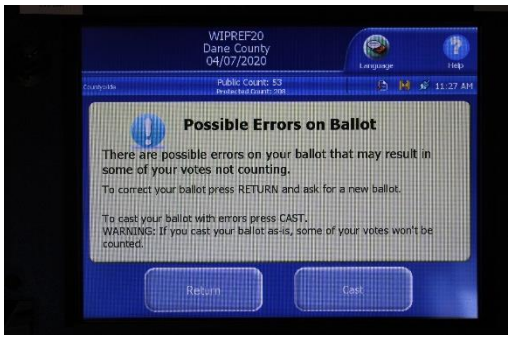
Crossover Vote Notification: If a ballot is inserted with votes in more than one party's primary, a message appears that identifies the contests with crossover votes. As in the notification for an overvote, the language displayed in this notification reflects the requirements as approved by the Commission.

The voter has the ability to return the ballot for review or cast the ballot. If there are multiple errors the voter is given an option to review the next error. Instructions above the "Return" button direct the voter to press "Return" if they wish to correct their ballot to reflect their party preference. The voter is instructed to ask for a new ballot. Instructions above the "Next" button direct the voter to press the "Next" button if they wish to review additional errors on their ballot. Once all errors have been reviewed, the voter will have the option to cast the crossover-voted ballot.

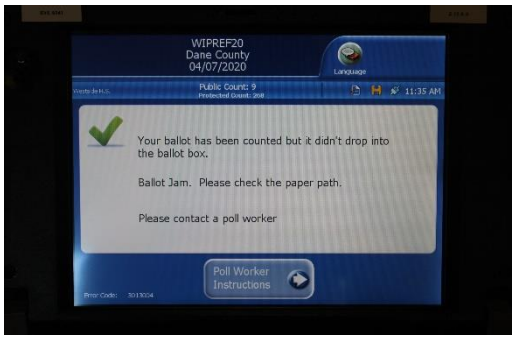
Blank Ballot Notification: If the ballot contains no votes, a message appears that states the ballot is blank. The voter is instructed to press "Return" to correct their ballot and see a poll worker for help. The voter is instructed to press "Cast Blank Ballot" to submit their ballot without any selections.



Error Scanning Ballot: If a ballot is inserted incorrectly, the DS200 will return the ballot to the voter and advise that the voter reinsert the ballot into the tabulator. The DS200 does not allow the voter to cast the ballot without resolving the issue and, if the issue persists, the voter is instructed to contact a poll worker for assistance.



Ballot Jam: This message will be displayed if a ballot becomes jammed during the scanning process. The voter is informed that the tabulator has jammed and that they should contact a poll worker. Voters are also informed of the disposition of their ballot. In the event that the ballot was tabulated prior to the jam, a green check mark appears. If the jam occurred prior to tabulation, a red x is shown, and the screen tells the voter their ballot was not counted.

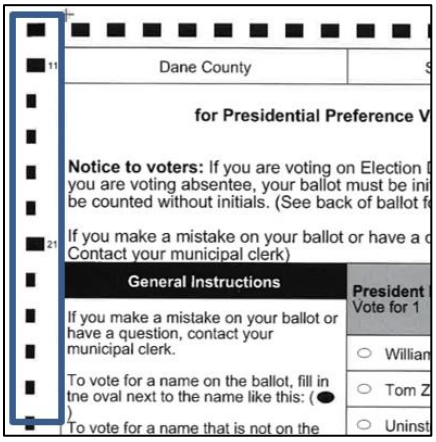


The screen shots above illustrate the manufacturer's default configuration. This system may also be programmed, at the request of the municipality, to automatically reject all ballots with overvotes or crossover votes without the option for override, which requires the voter to correct the error by remaking 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. The automatic rejection configuration of the DS200, however, creates issues for processing absentee ballots because no voter is present to correct the error. These ballots would have to be remade without the improperly voted contests before they could be processed by the DS200.

The DS200 is also capable of producing a results report showing all candidates with write-in votes. This report captures an image of what is written on the write-in vote line, regardless of whether or not the oval is darkened. For EVS 5.3.4.1 the write-in report, which prints on the results tape, is organized by precinct or reporting unit. Previous system versions presented results information by office. Presently, the write-in report is not approved for use. Election inspectors, instead, review ballots by hand searching for write-in votes. This certification application is not seeking approval for the utilization of

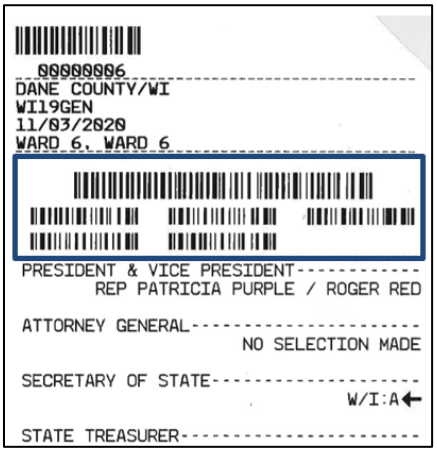
the write-in report. Per ES&S, the system was developed anticipating the possibility of future legislation allowing for its use.

Reading Ballots: The DS200 uses proprietary software called Intelligent Mark Recognition to identify properly marked votes on a hand-marked 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. The machine uses coordinates determined by the timing marks laid out and printed on the border of the optical scan ballot to determine which contest and candidate each filled-in oval corresponds with. It does not read the actual candidate name printed next to the oval to determine voter intent as the voting equipment programming is responsible for determining the correlation between the filled-in oval and the candidate name.



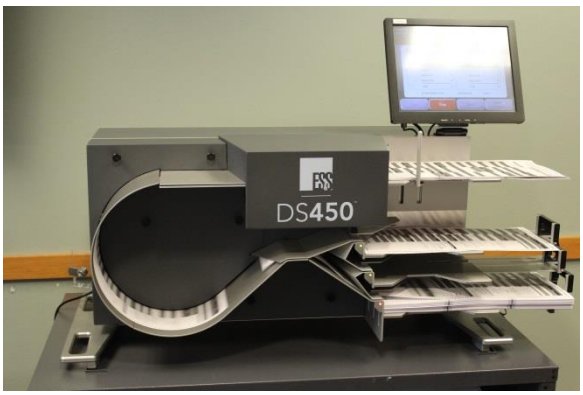
A digital image of both sides of the ballot is captured by the machine when the ballot is inserted and the DS200 scans the ballot images to determine and record the voter's choices. ES&S recommends that voters use a specific marking device (BIC Grip Roller Ball pen) to mark ballots processed on the DS200. Per the supporting documentation provided by ES&S as part of its application, an improper mark is defined as being "smaller than .005 square inches as a marked response on a pixel count basis." Marks that do not have a greater pixel count than this standard will be read by the equipment as an unmarked oval.

Ballots marked using the ExpressVote are tabulated by the DS200 based on the barcodes that print on the top sections of the ballot card after the voter has made their selections. The barcode at the top of the ballot represents the ballot style for that ballot and indicates to the tabulator which contests and candidates are contained on that style. Each barcode listed in the highlighted section in the image provided to the right represents the same coordinates used by the DS200 to identify contest and candidate information found on the hand-marked optical scan ballot. The DS200 reads those barcodes and uses that information to determine voter intent.



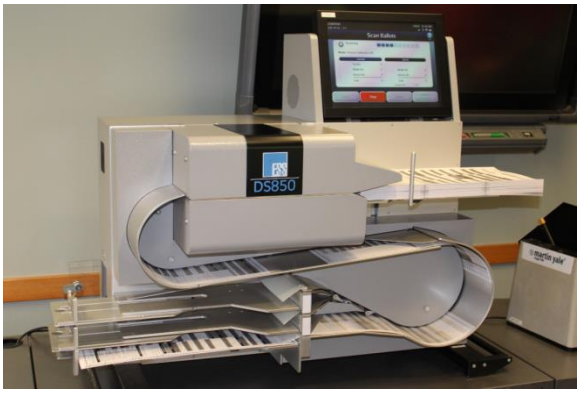
DS450

The DS450 is a mid-range digital scan ballot tabulator designed for use by election officials at a central count facility. This machine can accommodate a variety of different length ballots and can process between 60 and 90 ballots per minute, depending on the size of the ballot. The DS450 uses technology similar to the DS200 to image both sides of the ballot and identify properly marked votes. Three sorting trays are available that can be configured to set apart specific types of ballots for further review. For example, an election official can use the touchscreen interface to program the machine to sort all ballots containing write-in votes or all overvoted ballots into separate trays for hand tabulation or



review. While processing ballots, the DS450 prints a continuous audit log to a dedicated audit log printer. Reports are printed from a second printer. The DS450 saves voter selections and ballot images to an internal hard disk and exports results to a USB flash drive for processing with the Election Management System.

DS850



The DS850 is a high-speed, digital scan ballot tabulator designed for use by election officials at a central count facility. The DS850 can scan and count up to 300 ballots per minute. It uses digital cameras and imaging systems to read the front and back of each ballot, evaluate the result, and sort each ballot into trays based on the result to maintain continuous scanning and tabulating. Multiple criteria can be used to segregate ballots for review, including overvotes, crossover votes and blank ballots. Depending on the situation, ballots segregated in this fashion may not be counted and may need to be remade by the election inspectors. Election officials use a 14-inch touchscreen display to program these features of the DS850. While processing ballots, the DS850 prints a continuous audit log to a dedicated audit log printer. Reports are printed from a second connected printer. The DS850 saves voter selections and ballot images to an internal hard disk and exports results to a USB flash drive for processing with the Election Management System.

ExpressVote

The ExpressVote is an electronic vote capture device designed for use by all voters. It features a touchscreen display and integrated thermal printer.

Voters insert a blank ballot card in the machine to begin the voting process. Ballot instructions, contests and candidates are displayed on the screen and they have the option to use the touchscreen or the keypad to navigate the ballot and make selections. The voter may adjust the text contrast and size of the display, if needed. Each button on the tactile keypad has both Braille and printed text labels designed to indicate function and use to the voter. In addition, voters may 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 the voter and they can use the touchscreen, tactile keypad, or other assistive technology to make their selections.

The ExpressVote provides a ballot summary screen for the voter to review their selections before the ballot is marked by the built-in printer. Overvotes and crossover votes cannot occur on this equipment and a voter is warned about undervotes on the ballot summary screen. Once the voter confirms their selections, those selections are printed on the blank ballot card and the machine returns the ballot card to the voter. ExpressVote ballot cards do not employ an oval format but utilize an unambiguous ballot format where the names of candidates and referendum choices are printed directly on the ballot card

along with the names of the contest. The phrase "No Selection Made" appears under any contest in which the elector did not vote.

After the voter completes the process, the ExpressVote clears its internal memory and the paper ballot is the only record of the voting selections made. Ballot cards marked using the ExpressVote can be processed by the DS200, DS450, or DS850. ExpressVote ballot cards can also be deposited into a secured ballot box to be hand tabulated by election inspectors after the polls have closed.

AutoMARK

The AutoMARK is an electronic ballot marking device primarily designed for use by voters who have visual or physical limitations or disabilities.

Voters insert a blank paper ballot in the machine to begin the voting process. They then 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. The voter has the option to adjust the text display contrast and text size to suit their preference. 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 the voter and they can use the touchscreen, tactile keypad, or other assistive technology to make their selections.

The AutoMARK provides a ballot summary screen for the voter to review their selections before the ballot is marked by the built-in printer. Overvotes and crossover votes cannot occur on this equipment and a voter is warned about undervotes on the ballot summary screen. Once the voter confirms their selections, those selections are marked on ballot and the machine returns the ballot to the voter.

After the voter completes the process, the AutoMARK clears its internal memory and the paper ballot is the only record of the voting selections made. Ballots marked using the AutoMark can be processed by the DS200, DS450, or DS850. AutoMark ballots can also be deposited into a secured ballot box to be hand tabulated by election inspectors after the polls have closed.

ExpressLink

ExpressLink is an application software used to pre-print ballot cards for the ExpressVote so that ballot style information is automatically loaded when the ballot card is put into the ExpressVote. Ballot style information, in the form of a barcode for Ward 1 ballots and a different code for Ward 2 ballots, are printed at the top of the blank ExpressVote ballot card using an ExpressLink associated printer. If blank ballot cards are used in these situations, a poll worker or voter will be prompted to select the correct ballot style upon inserting the activation card. WEC staff pre-printed activation cards for this test campaign using this application and the ExpressLink printer. WEC staff incorporated these preprinted activation cards into the in-office equipment testing by including 100 ballot cards in 10 reporting units

as part of the ExpressVote ballot test deck. A more detailed explanation of the ExpressLink testing on page 11 of this report.

As in previous testing campaigns, this feature worked as designed. However, neither the ExpressLink application nor ExpressLink printer are federally certified by the EAC. Pro V&V, a Voting System Test Laboratory, determined it to be outside of the scope of certification but Pro V&V did review the source code for 2005 VVSG compliance. Pro V&V tested the equipment and found that it functions as stated in the technical data package for this voting system. No other federal testing was performed on this equipment. ES&S states that these products do not require federal certification. These products are described as ancillary products available to a jurisdiction who may purchase the system. These products are not required for the ExpressVote to function and, in their absence, election inspectors will need to activate each ballot on the ExpressVote if more than one ballot style is available on the machine.

EVS 5.3.4.1 also features a Regional Results program. This stand-alone application allows for the transmission of unofficial election results from a regional location to a central office utilizing a wireless network provided Verizon. The Regional Results application allows election media containing results from different polling places to be read and then securely transferred to a server at a central office location such as the county clerk's office. Neither the modem function of the DS200 nor the Regional Results program impacts the tabulation of official election results.

Modeming Functionality

EVS 5.3.4.1 provides support for modeming of unofficial election results from a DS200 to a Secure File Transfer Protocol (SFTP) server, located in the offices of the county clerk, through a secured and encrypted wireless telecommunications network. The modem in the DS200 communicates with the Verizon Private Network to transmit unofficial election night results as an encrypted data packet to a secure server at a central office location, such as the county clerk's office.

The server hosts a secure file transfer commercial off the shelf software package. A firewall provides a buffer between the network segment, where the server is located, and other internal virtual networks. The data that is transmitted is encrypted and it is digitally signed. The modem function on the DS200 may only be used after an election inspector has closed the polls and entered a password to access the control panel. The network is configured to only allow valid connections with the correct encryption key to connect to the SFTP server. The firewall further restricts the flow and connectivity of traffic. As the system determines that an incoming data packet contains the correct encryption key, the information is passed through the SFTP server and on to the Election Management System (EMS) workstation.

The EMS is required to be deployed on a "hardened system," meaning that all software that is not essential to the proper functioning of the EMS is removed from the computer where the EMS is installed. This procedure is designed to increase the security of the system through the elimination of applications that may provide "back door" access to the system. Access to the internet is also restricted and the EMS provides an audit log of all system actions and connection attempts that can be used to verify unauthorized access to the system while unofficial election results are being transmitted after the close of polls.

While previous versions of the EMS supported modeming through a number of service providers, e.g., Sprint, AT&T, and Verizon, the EMS as part of EVS 5.3.4.1 only supports the transmission of results via Verizon modems. During this test campaign, WEC staff successfully transmitted results in each county listed below using Verizon modems in each municipality. During this test campaign, the

strength of service ranged from two bars (lowest indicator level is zero) to five bars (highest indicator level). Election results packets were sent successfully at all service levels.

WEC staff conducted testing of EVS 5.3.4.1 in three counties: Columbia, Wood, and Marathon between November 15 and 20, 2019. In consultation with each county clerk, WEC staff selected three municipalities in each county to serve as locations for testing.[1] The municipalities were selected in part because of the strength of the wireless networks in the community, or lack thereof, and the municipal clerk's willingness to host the test team.

At its May 21, 2013, meeting, pursuant to authority granted in Wis. Stat. §5.91 and Wis. Admin. Code EL 7, the Government Accountability Board adopted testing procedures and standards pertaining to the modeming and communication functionality of voting systems that have not received EAC certification. The standards were based upon the analysis and findings outlined in a staff memorandum and detailed in the *Voting Systems Standards, Testing Protocols and Procedures Pertaining to the Use of Communication Devices in Wisconsin*, which are attached as Appendix E. These rules apply to non-EAC certified voting systems, where the underlying voting system received EAC certification to either the 2002 Voting System Standards (VSS) or 2005 VVSG, but any additional modeming component does not meet the 2005 VVSG.

Ongoing Windows 7 Support

As detailed in the materials for the Commission's September 24, 2019 meeting, WEC staff have previously sought and obtained clarification regarding ES&S's plans to support customers utilizing the Windows 7 operating system after the system's projected end of life on January 14, 2020.

ES&S confirmed that only the client workstation laptop that houses the Election Management System utilizes the Windows 7 operating system and that none of the optical scan tabulators or accessible voting devices included in either the systems certified on September 24, EVS 6.0.4.0 and EVS 6.0.5.0, or the system detailed in this certification report, EVS 5.3.4.1, run on Windows 7.

Functional Testing

As required by Wis. Admin. Code EL § 7.02(1), WEC staff conducted three mock elections with each component of EVS 5.3.4.1 to ensure the voting system conforms to all Wisconsin requirements. These mock elections included: A partisan primary with a special nonpartisan school board election, a general election with both a presidential and special gubernatorial contest, and a presidential preference vote combined with a partisan Assembly Representative special election.

WEC staff designed a test deck of nearly 1,500 ballots using various configurations of votes over the three mock elections to verify the accuracy and functional capabilities of EVS 5.3.4.1. Using blank test ballots supplied by ES&S, WEC staff appropriately marked votes for contests and candidates as designated on a test deck spreadsheet. For each mock election, 300 paper ballots were marked to be fed through the DS200, DS450 and DS850. An additional 80 paper ballots were marked to test the write-in report function of the DS200. The functionality of the ExpressVote was tested by marking 250 ballots

[1] Columbia County: Village of Cambria, City of Wisconsin Dells, Town of Dekorra
Wood County: Town of Hiles, Town of Grand Rapids, City of Marshfield
Marathon County: Village of Weston, Town of Marathon, Town of Wien

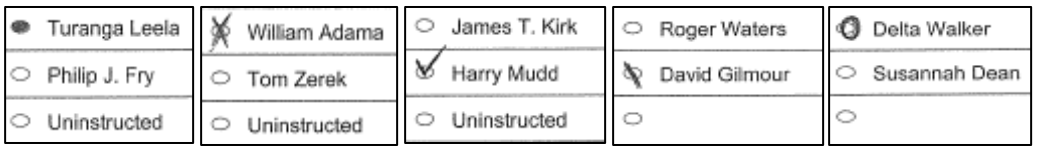
with the equipment across the three mock elections. This total includes 50 ballots for each mock election, plus 100 ExpressVote ballots that were marked as part of ExpressLink testing. The functionality of the AutoMark was tested by marking a total of 150 ballots, or 50 per election type.

The paper ballots marked, as well as the votes captured by the ExpressVote and AutoMark, were verified by WEC staff before being scanned and counted by the DS200, DS450, and DS850. WEC staff ensured that the results produced by the three pieces of equipment were accurate and reconciled with the test deck script prior to transitioning to test the next mock election type. A small number of results anomalies, explained below, were investigated and resolved in real time.

Votes were recorded on test 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. 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." The ballots with special marks were processed by the tabulation equipment. WEC staff reviewed the results to determine which of the special marks were read by the tabulation machines. The chart below illustrates actual marks from test deck ballots that were successfully read and counted as "good marks" by the DS200, DS450 and DS850.

Examples of Marks Read by the EVS 5.3.4.1 Components during Testing



All three pieces of equipment were able to correctly read marks in pencil, black pen, blue pen, and red pen, as well as marks made with pens provided by ES&S. The test decks also included ballots folded to simulate absentee ballots and ballots with slight tears in them. Folded ballots were able to be processed on the DS200, DS450 and DS850. It is possible, however, for ballots with folds directly through the oval to create what is best described as a false positive. While all three pieces of equipment processed slightly torn ballots without incident, anything other than a slight tear was only able to be processed by the DS200. Ballots with large tears will cause a jam in both the DS450 and the DS850.

Blank ballots were also included to determine how each of the three different tabulators would treat these ballots. The DS200 was able to identify 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 was also tested on the DS450 or DS850, with the blank ballots diverted to a separate tray for election inspector review.

Ballots with write-in votes tabulated by the DS200 are marked by the tabulator with a small pink circle on one end of the ballot. Depending on the ballot box used, these ballots may or may not be diverted into a separate write-in bin. This voting system can also be configured to capture ballot images of ballots with write-ins and store them on the external USB flash drive, which would permit write-in votes to be easily verified within the ElectionWare EMS. For a more detailed review of the testing staff conducted to review the DS200's write-in report functionality, please see Appendix G.

Staff also conducted testing on the ExpressLink application and ballot style printer. The ExpressLink printer places a barcode on an ExpressVote ballot that, when inserted, automatically loads a voter's correct ballot style. To ensure that the ExpressLink printer functions appropriately, staff placed ballot style activation codes on 100 ExpressVote ballot cards, representing 10 ballot styles. These 100 ballot cards were then placed in the ExpressVote and marked according to a pre-set test script. Each of the 100 ExpressVote ballot cards that had been pre-printed with the ExpressLink ballot style activation codes loaded the corresponding ballot style correctly. Further detail on the testing protocol employed to test the ExpressLink functionality can be found in Appendix F.

Testing Anomalies

The majority of ballots in the test deck were processed without incident during the test campaign, but there were minimal anomalies identified. There were two instances in which a ballot with an erasure mark that was not captured by the DS850 or DS200 triggered an overvote on the DS450. An investigation of the cast vote record showed that the ovals containing the erasure appeared much darker when scanned by the DS450 tabulator than to the naked eye. Other test ballots that contained lighter erasure marks were treated uniformly by all three tabulators.

In a separate situation, a single ballot on which the contests were marked using green ink was incorrectly tabulated by the DS200. On the ballot, which contained a total of 5 votes in separate contests, all marked in green ink, 2 of the voted contests were not counted by the DS200 tabulator. The remaining 3 voted contests on the same ballot were counted as expected. In reviewing the ballot image and cast vote record, staff was able to determine that the green ink was not dark enough to create a pixel count higher than the minimum threshold of the equipment for the two contests in question.

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 instances, voter behavior in marking the ballot (erasure smudge and the use of green ink) played a significant role in the disposition of those ballots by the voting equipment. Election day voter behavior notwithstanding, staff recommends that any returned absentee ballots containing erasure marks or contests marked with green ink be remade prior to processing on election day.

No anomalies that presented during testing affected the outcome in any way. All elections reconciled, as required. Testing results and staff observation of the system indicate that EVS 5.3.4.1 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.

Modem Testing

WEC staff conducted functional testing of EVS 5.3.4.1 in Columbia, Wood, and Marathon counties based on the *Voting Systems Standards, Testing Protocols and Procedures Pertaining to the Use of Communication Devices in Wisconsin.* A four-person team of WEC staff conducted this testing campaign November 15-20, 2019. Two representatives from ES&S were on hand in each county to provide technical support. ES&S provided three (3) DS200s in each county, each equipped with a Verizon wireless modem. Also provided by ES&S as part of testing was a portable EMS environment, which included an SFTP client, firewall, and Electionware software. In each location, ES&S set up the portable environment in the county office to receive test election results from each municipal testing location. In each municipal location, WEC staff inserted a pre-marked package of 10 test ballots through the DS200 to create an election results packet to transmit to the county office. A WEC staff member was present at the county office to observe how the portable EMS environment handled the transmissions.

In previous test campaigns, staff tested both wireless and analog (wired) modems. Testing for EVS 5.3.4.1, however, was performed only with wireless modems, as there was no analog component in this system. As part of EVS 5.3.4.1, the unofficial results data is encrypted, digitally signed, and then transmitted via a further encrypted virtual private network (VPN) hosted by Verizon Wireless. Without the correct encryption key, the incoming data is prevented from reaching the EMS workstation.

Columbia County

On November 15, 2019, WEC staff conducted tests on the EVS 5.3.4.1 modem component in three municipalities: Village of Cambria, City of Wisconsin Dells, and Town of Dekorra. ES&S conducted pre-testing of the EVS 5.3.4.1 wireless modem component in Columbia County prior to WEC testing. A DS200 equipped with Verizon wireless modem was tested in all three municipalities. A test script was used to ensure that each machine conforms to the communications device standards and was able to transmit accurate election results data from the DS200 to the Election Management System.

Municipality	Type of Modem	Signal Strength
Village of Cambria	Wireless	3 bars
City of Wisconsin Dells	Wireless	3-4 bars
Town of Dekorra	Wireless	3 bars

WEC staff successfully transmitted election results from each of the three municipalities. The test script calls for the verification of several certification standards and then requires 10 results sets to be transmitted from each DS200. The machines were able to successfully transmit multiple results with a 100% success rate during this portion of testing. The functional testing concluded with a load test during which WEC staff attempted to transmit results simultaneously from all the machines for a set period of time. Each machine was able to transmit at least 17 results sets with 100% success during the 20-minute load test in Columbia County.

Location	Modem Type	Initial Transmission	Load Test Results
Village of Cambria	Wireless	10 of 10	17 of 17
City of Wisconsin Dells	Wireless	10 of 10	17 of 17
Town of Dekorra	Wireless	10 of 10	17 of 17
Totals		**30 of 30**	**51 of 51**

Wood County

On November 19, 2019, WEC staff conducted tests on the EVS 5.3.4.1 modem component in three municipalities: Town of Hiles, Town of Grand Rapids, and City of Marshfield. ES&S conducted pre-testing of the EVS 5.3.4.1 modem component in Wood County prior to WEC testing. A DS200 equipped with a Verizon wireless modem was tested in all three municipalities. The same test script that was used in Columbia County was again used during this portion of the test campaign.

Municipality	Type of Modem	Signal Strength
Town of Hiles	Wireless	2-4 bars
Town of Grand Rapids	Wireless	2-4 bars
City of Marshfield	Wireless	4 bars

WEC staff successfully transmitted election results from each of the three municipalities. The test script calls for the verification of several certification standards and then requires 10 results sets to be transmitted from the DS200. The three machines each were able to successfully transmit results with an 100% success rate during this portion of testing. The functional testing concluded with a load test where WEC staff attempted to transmit results simultaneously from all the machines for a set period of time and each machine was able to transmit at least 19 results set during the stress test with zero overall transmission failures.

Location	Modem Type	Initial Transmission	Load Test Results
Town of Hiles	Wireless	10 of 10	19 of 19
Town of Grand Rapids	Wireless	10 of 10	19 of 19
City of Marshfield	Wireless	10 of 10	21 of 21
Totals		**30 of 30**	**59 of 59**

Marathon County

On November 20, 2019, WEC staff conducted tests on the EVS 5.3.4.1 modem component in three municipalities: Village of Weston, Town of Marathon, and Town of Wien. ES&S conducted pre-testing of the EVS 5.3.4.1 modem component in Marathon County prior to WEC testing. A DS200 equipped with a Verizon wireless modem was tested in all three municipalities. The same test script that was used in Columbia and Wood Counties was again used during this portion of the test campaign.

Municipality	Type of Modem	Signal Strength
Village of Weston	Wireless	3 bars
Town of Marathon	Wireless	3-4 bars
Town of Wien	Wireless	1-3 bars

WEC staff successfully transmitted election results from each of the three municipalities using wireless modems. The test script calls for the verification of several certification standards and then requires 10 results sets to be transmitted from the DS200. The three machines each were able to transmit results sets during this portion of testing with a 100% rate of success. The functional testing concluded with a load test during which WEC staff attempted to transmit results simultaneously from all the machines for a set period of time and each machine was able to transmit at least 14 results set during the stress test with three transmission failures. These failures were due to intermittent lapses in signal strength at the most rural of the test municipalities (Town of Wien).

Location	Modem Type	Initial Transmission	Load Test Results
Village of Weston	Wireless	10 of 10	17 of 17
Town of Marathon	Wireless	10 of 10	19 of 19
Town of Wien	Wireless	10 of 10	14 of 17
Totals		**30 of 30**	**50 of 53**

As part of modem testing for EVS 5.3.4.1 staff experienced a single issue in Marathon County. Two tests were conducted in this county. One was for 3g modems on EVS 5.3.4.0 and the 4g VPN modems as part of EVS 5.3.4.1. When transitioning from EVS 5.3.4.0 to EVS 5.3.4.1, there were several initial transmission failures. This was due to the wireless router at the county office needing additional time to connect to the network. In an election day scenario, this would not be an issue as the county clerk would have the system up and running beginning in the morning.

Public Demonstration

A public demonstration of EVS 5.3.4.1 was held on November 13, 2019 from 4:00 p.m. to 5:00 p.m. at the WEC office in Madison. The public meeting is designed to allow members of the public the opportunity to use the voting system and to provide comment. There were no attendees at the public demonstration.

Wisconsin Elections Commission Voting Equipment Review Panel Meeting

In an effort to continue to solicit valuable feedback from local election officials and community advocates during the voting equipment approval process, the Wisconsin Elections Commission formed a Voting Equipment Review Panel. Wis. Admin. Code EL §7.02(2), permits the agency to use a panel of local election officials and electors to assist in the review of voting systems.

Five of the 25 invited participants attended the Voting Equipment Review Panel Meeting, which is composed of municipal and county clerks, representatives of the disability community, and advocates for the interests of the voting public. The meeting took place at the WEC office in Madison on November 13, 2019, from 2:00 p.m. to 3:30 p.m. ES&S provided a demonstration of EVS 5.3.4.1 with

attendees encouraged to test the equipment. The modeming component of EVS 5.3.4.1 was discussed but not demonstrated during the meeting. Comments and feedback from the Voting Equipment Review Panel meeting are included in Appendix H.

Statutory Compliance

Wis. Stat. §5.91 provides the following requirements voting systems must meet to be approved for use in Wisconsin. Please see the text below of each requirement and staff's analysis of the EVS 5.3.4.1 compliance with the standards.

§ 5.91 (1)
The voting system enables an elector to vote in secret.
Staff Analysis
The ES&S 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 ES&S voting systems allow voter to split their ballot among as many parties as they wish during any election that is not a partisan primary.

§ 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 ES&S voting systems allow write-ins 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 ES&S voting systems meet this requirement. Referenda included as part of testing were accurately tabulated by all EVS 5.3.4.1 components.

§ 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 ES&S voting systems 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 crossover voted contest. Either one of these programming options allows these systems to meet this requirement. The warning screen provides options where the voter can choose to have their 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 ES&S voting systems can be configured to always reject overvotes 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 overvoted contest. Either one of these programming options allows these systems to meet this requirement. The warning screen provides options where the voter 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 ES&S voting systems meet this requirement. Traditional paper ballots utilized by the DS200, as well as the ExpressVote candidate screens, present the two candidates in these contests as a single choice.

§ 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 ES&S voting systems meet 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 ES&S voting systems meet 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 ES&S voting systems meet 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 ES&S voting systems 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.

§ 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 ES&S voting systems meet 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 ES&S 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 ES&S voting systems meet this requirement through the use of hand-marked paper ballots and accessible voting equipment that provides both an electronic ballot review screen and a marked paper ballot that can be reviewed before tabulation.

§ 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 ES&S voting systems meet this requirement. Traditional paper ballots can be changed and/or spoiled at any point up to being placed in the tabulator. ExpressVote ballots are printed for the voter to review prior to casting in a tabulator and can be spoiled at will by the voter.

§ 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 ES&S voting systems 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.

§ 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 ES&S voting systems presented for approval require paper ballots to be used to cast votes, this requirement is satisfied.

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 ES&S voting system components meet these requirements through the inclusion of options for ADA-compliant voting machines municipalities can choose to employ.

Recommendations

Staff has reviewed the application materials, including the technical data package and testing lab report, and examined the results from the functional and modeming test campaigns to determine if these systems are compliant with both state and federal certification laws. EVS 5.3.4.1 complies with all applicable state and federal requirements. The voting system components 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 system also enhances access to the electoral process for individuals with disabilities with the inclusion of the ExpressVote and AutoMark vote capture systems.

1. WEC staff recommends approval of ES&S voting system EVS 5.3.4.1 and components set forth in Appendix A of this report, as described below in item 3. This voting system accurately completed the three mock elections and was able to accommodate the voting requirements of the Wisconsin election process. This recommendation is based on the VSTL report provided by Pro V&V and on this voting system successfully completing a functional test according to the *Voting Systems Standards, Testing Protocols and Procedures Pertaining to the Use of Communication Devices in Wisconsin*.

2. WEC staff recommends approval of the ExpressLink application software and ballot style printer as part of the WEC's approval. While this product lacks EAC certification, the component performed successfully when evaluated under a Commission approved test protocol.

3. WEC staff recommends that as a continuing condition of the WEC's approval, ES&S 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 ES&S equipment shall also include such a provision in their respective purchase contract or amend their contract if such a provision does not currently exist.

4. WEC staff recommends that as a continuing condition of the WEC's approval, that voting systems purchased and installed as part of EVS 5.3.4.1 be configured in the same manner in which they were tested, subject to verification by the Commission or its designee. Once installed, the configuration must remain the same and may not be altered by ES&S nor by state, county, or municipal officials except as approved by the Commission.

5. 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.

6. As part of this WEC certification, only equipment included in this certificate can be used together to conduct an election in Wisconsin. Previous system versions that were approved for use by the WEC, former Elections Board, or the former G.A.B. are not compatible with EVS 5.3.4.1 and are not to be used in conjunction with the equipment components of EVS 5.3.4.1 as submitted for approval. If a jurisdiction upgrades to EVS 5.3.4.1, it needs to upgrade each and every component of the voting system to the requirements of what is approved herein.

7. As part of this WEC certification, ES&S agrees to provide extended Windows 7 support through January of 2023 at no cost to any Wisconsin purchasing entity.

8. WEC staff recommends that as a condition of approval, ES&S 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 ES&S, 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 ES&S 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 customer is obligated to provide such records, ES&S shall provide such records immediately upon customer's request. ES&S 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, ES&S 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.

9. 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. ES&S agreed to this requirement on the applications submitted to WEC on July 17, 2019 requesting the approval of EVS 5.3.4.1.

A. Proposed Motion

MOTION: The Wisconsin Elections Commission adopts the staff's recommendations for approval of the ES&S voting system's Application for Approval of EVS 5.3.4.1, including the conditions described above.

Appendices

- Appendix A: Hardware and Software Components
- Appendix B: Wisconsin Statutes § 5.91
- Appendix C: Wisconsin Administrative Code Ch. EL 7
- Appendix D: Voting System Test Laboratory Report
- Appendix E: *Voting Systems Standards, Testing Protocols and Procedures Pertaining to the Use of Communication Devices in Wisconsin*
- Appendix F: ExpressLink Testing Protocol
- Appendix G: DS200 Write-In Report Pilot Test Protocol
- Appendix H: Wisconsin Voting Equipment Review Panel Feedback

Appendix A: Hardware and Software Components

ES&S submitted the following equipment for testing as part of EVS 5.3.4.1:

Hardware Components

Equipment	*Hardware Version(s)*	*Firmware Version*	*Type*
DS200	1.2 1.3, 1.3.11	2.12.6.0	Polling Place Digital Scanner and Tabulator
DS450	1.0	3.0.2.0	Mid-range Digital Scanner and Tabulator
DS850	1.0	2.10.4.0	High-speed Digital Scanner and Tabulator
AutoMARK	1.0 1.1 1.3	1.8.6.1	ADA Ballot Marking Device
ExpressVote HW 1.0	1.0	1.4.1.7	Universal Voting System
ExpressVote HW 2.1	2.1.0.0 2.1.2.0	2.4.2.0	Hybrid Universal Voting System and precinct count tabulator

Software Components

Software	*Type*
ElectionWare	4.7.6.0
ES&S Event Logging Service (ELS)	1.5.5.0
ExpressVote Previewer (HW 1.0)	1.4.1.7
ExpressVote Previewer (HW 2.1)	2.4.2.0
ExpressLink	1.5.0.0
AutoMARK VAT Previewer	1.8.6.1
Removable Media Service (RMS)	1.4.5.0

Appendix B: 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; 2017 a. 365 s. 111.

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

Appendix C: 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 D: Voting System Test Laboratory Test Report

Test Report

**Election Systems & Software (ES&S)
Voting System (EVS) 5.3.4.1
Certification Testing**

Approved by: Diane Gray
for **Michael Walker, VSTL Project Manager**

Approved by: Wendy Owens
Wendy Owens, VSTL Program Manager

July 2, 2019

1.0 INTRODUCTION

The purpose of this Test Report is to document the procedures that Pro V&V, Inc. followed to perform testing on the Election Systems and Software (ES&S) Voting System EVS 5.3.4.1 (EVS 5.3.4.1) to the requirements set forth for voting systems in the U.S. Election Assistance Commission (EAC) 2005 Voluntary Voting System Guidelines (VVSG), Version 1.0.

1.1 References

The documents listed below were utilized in the development of this Test Report:

- ES&S Voting System EVS 5.3.4.1 System Change Notes, Document Revision 1.0
- Election Assistance Commission (EAC) 2005 Voluntary Voting System Guidelines (VVSG) Version 1.0, Volume I, "Voting System Performance Guidelines", and Volume II, "National Certification Testing Guidelines"
- National Voluntary Laboratory Accreditation Program NIST Handbook 150, 2016 Edition, "NVLAP Procedures and General Requirements (NIST Handbook 150)", dated July 2016
- National Voluntary Laboratory Accreditation Program NIST Handbook 150-22, 2017 Edition, "Voting System Testing (NIST Handbook 150-22-2017)", dated July 2017
- Pro V&V, Inc. Quality Assurance Manual, Revision 7.0
- United States 107th Congress Help America Vote Act (HAVA) of 2002 (Public Law 107-252), dated October 2002
- Election Assistance Commission Testing and Certification Program Manual, Version 2.0
- Election Assistance Commission Voting System Test Laboratory Program Manual, Version 2.0
- EAC Requests for Interpretation (RFI) (listed on www.eac.gov)
- EAC Notices of Clarification (NOC) (listed on www.eac.gov)
- ES&S Voting System EVS 5.3.4.1 Technical Data Package *(A listing of the TDP documents submitted for this test campaign is included in Section 3.3.1 of this Test Report)*

1.2 Terms and Abbreviations

"ADA" –Americans with Disabilities Act "BMD"

– Ballot Marking Device

"CBT" – Central Ballot Tabulator

"COTS" – Commercial Off-The-Shelf "DRE"

– Direct Record Electronic

"EAC" – Election Assistance Commission "EMS"

– Election Management System

"ERM" – Election Reporting Manager

"ES&S" Election Systems & Software LLC "FCA"

– Functional Configuration Audit

"HAVA" – Help America Vote Act

"PCA" – Physical Configuration Audit "PBT" –

Precinct Ballot Tabulator

"TDP" – Technical Data Package "UVS" –

Universal Voting System "VAT" – Voter

Assist Terminal

"VVSG" – Voluntary Voting System Guidelines

1.3 Description of Modification

ES&S's EVS 5.3.4.1 Voting System (EVS 5.3.4.1) is based on the previously VSTL-certified EVS 5.2.4.1 (which was baselined from the EAC-certified EVS 5.2.4.0). Specific updates focused on telecommunications capabilities and write-in support. This release includes support for Presidential Preference Primary (PPP) voting, including the ability to process overvotes and undervotes on the DS200 with the new PPP contest type.

ES&S has identified the following modifications which are incorporated into the EVS 5.3.4.1 system: Detailed

Description of Changes

Software/Firmware Changes:

- Cross-Product Changes

  The following changes were made across multiple products as part of this release:

  - Telecommunication Support

    - Impacted Products: DS200, Electionware
      - Added support for modeming.

- DS200

- Write-In Support
  - Changed the Write-in Review report to sort write-ins by precinct.
  - Revised the Write-In Review report to suppress contests with no entered write-in votes. This will save space on the report and avoid wasting report tape.

1.4 Scope of Testing

Pro V&V performed an evaluation of the results from the previous test campaign along with the changes made to the system to determine the scope of testing required for the submitted modification. It was determined the following tasks would be required to verify compliance of the VVPAT:

- Technical Data Package (TDP) Review

  A limited TDP Review was performed to ensure that all submitted modifications were accurately documented and that the documents meet the requirements of the EAC VVSG, Version 1.0.

- Physical Configuration Audit (PCA), including Security Testing

  A PCA was performed to compare the voting system submitted for certification testing to the manufacturer's technical documentation.

- Source Code Review, Compliance Build, Trusted Build, and Build Document Review

  The source code review was based on the source code changes made since the previous system was certified.

  Build document review was performed to ensure that all required equipment and software were current during the building process. A compliance build was created after the reviews. Once the integrity of the compliance build was verified, the trusted build was created.

- Accuracy Testing

  The Accuracy Test was performed to ensure the EVS 5.3.4.1 correctly captured, stored, consolidated, and reported the specific ballot selections, and absence of selections, for each ballot position.

- Telecommunications Testing

  Telecommunications testing was conducted on the EVS 5.3.4.1 to determine the capability of the system to transmit and receive data electronically using hardware and software components over distances both within and external to a polling place. All telecommunications were tested using the Verizon Private Network, or Zero Tunnel. The DS200 utilized the Verizon 4R.2 modem. *Additional data transmissions used to operate a voting system in the conduct of an election but not explicitly listed in the VVSG are also subject to the requirements of this section. For systems that transmit data using public networks, this section applies to telecommunications*

hardware and software for transmissions within and among all combinations of senders and receivers located at polling places, precinct count facilities and central count facilities (whether operated by the jurisdiction or a contractor).

2.0 TESTING OVERVIEW

The evaluation of EVS 5.3.4.1 was designed to verify that certain features and applications, which have been modified from the certified baseline system, conform to the applicable EAC VVSG 1.0 requirements. The evaluation addressed each of the test goals in the following manner:

Table 1-1: Testing Overview

Test Goal	Testing Response
Perform Source Code Review of any modified source code, generate Trusted Builds, and perform a Build Documentation Review	Trusted Builds were generated for the EVS 5.3.4.1 components during the test campaign. The source code submitted by ES&S was reviewed by Pro V&V and was successfully built using the submitted COTS and third-party software products. Additionally, build documentation was reviewed.
Perform System Setup, Loads, and Hardening	The system setup, loads, and hardening was tested by comparing the voting system submitted for certification testing to the manufacturer's technical documentation.
Accuracy Testing (including Telecommunication Testing)	Accuracy Testing was performed to verify that the voting system components could accurately process ballot selections, transmit selections back to the EMS, and produce accurate totals.

Table 1-1: Testing Overview *(continued)*

Test Goal	Testing Response
System Integration (including FCA and Telecommunications Testing)	System Integration and FCA testing were conducted to verify system functionality.

Telecommunications Testing	Telecommunications testing was conducted on the EVS 5.3.4.1 to determine the capability of the system to transmit and receive data electronically using hardware and software components over distances both within and external to a polling place.
Perform PCA & Receipt Inspection	A PCA and Receipt Inspection were performed to compare the voting system components and materials submitted for testing against the manufacturer's technical documentation.

2.0 Test Candidate

A description of the system tested, as taken from the manufacturer's submitted technical documentation, is provided in the paragraphs below.

EVS 5.3.4.1 includes the following hardware: ExpressVote Universal Voting System (UVS), Hardware 1.0, ExpressVote Universal Voting System (UVS), Hardware 2.1, AutoMARK Voter Assist Terminal (VAT), DS200 Precinct Ballot Tabulator (PBT), DS450 Central Ballot Tabulator (CBT), and the DS850 Central Ballot Tabulator (CBT).

ExpressVote Universal Voting System

The ExpressVote Universal Voting System is a universal vote capture device, with independent voter- verifiable paper record that is digitally scanned for tabulation. This system combines paper-based voting with touch screen technology. The ExpressVote is designed to serve all voters, including those with special needs. Voters navigate ballot selections using the touch screen, detachable ADA keypad, or ADA support peripheral such as a sip-and-puff or other binary tactile device.

The ExpressVote includes a mandatory vote summary screen that requires voters to confirm or revise selections prior to printing the summary of ballot selections using the internal thermal printer. Once printed, ES&S ballot scanners process the vote summary card. The ExpressVote serves those with special needs, allowing voters to cast ballots autonomously. ES&S has fully integrated the ExpressVote with the existing suite of ES&S voting system products.

DS200 Precinct Ballot Tabulator

The DS200 is a paper-based precinct tabulator that scans voter selections from both sides of the ballot simultaneously. It has a large touch screen for voter communication, an integrated thermal printer for limitless Election Day printing, an easy-to-use interface and an internal battery pack for reliable power in the event of a power outage. The DS200 can scan a variety of ballot sizes, including vote summary cards.

DS450 Scanner and Tabulator

The DS450 is a high-throughput scanner and tabulator that simultaneously scans the front and back of a paper ballot and/or vote summary card. The DS450 reads ballots in any of four orientations and sorts tabulated ballots into

discrete output bins without interrupting scanning. A dedicated audit printer generates a continuous event log. Machine level reports are produced from a second, laser printer. The scanner saves voter selections and ballot images to an internal hard disk and exports results to a USB flash drive for processing with ERM. Optionally, this device may be configured to transmit tabulation results to the results server through a closed network connection rather than using physically transported USB flash drives.

DS850 Central Ballot Tabulator

The DS850 is a digital scan central ballot tabulator that uses cameras and imaging algorithms to capture voter selections on the front and back of a ballot, evaluate results and then sort ballots into discrete bins without interrupting scanning. A dedicated audit printer generates a continuous event log. Machine level reports are produced from a second, laser printer. The scanner saves voter selections and ballot images to an internal hard disk and exports results to a USB flash drive for processing with ERM. Optionally, this device may be configured to transmit tabulation results to the results server through a closed network connection rather than using physically transported USB flash drives.

AutoMARK Voter Assist Terminal

AutoMARK Voter Assist Terminal enables voters who are visually or physically impaired and voters more comfortable reading or hearing instructions and choices in an alternative language to privately mark optical scan ballots. The AutoMARK supports navigation through touch screen, physical keypad or ADA support peripheral such as a sip and puff device or binary tactile device.

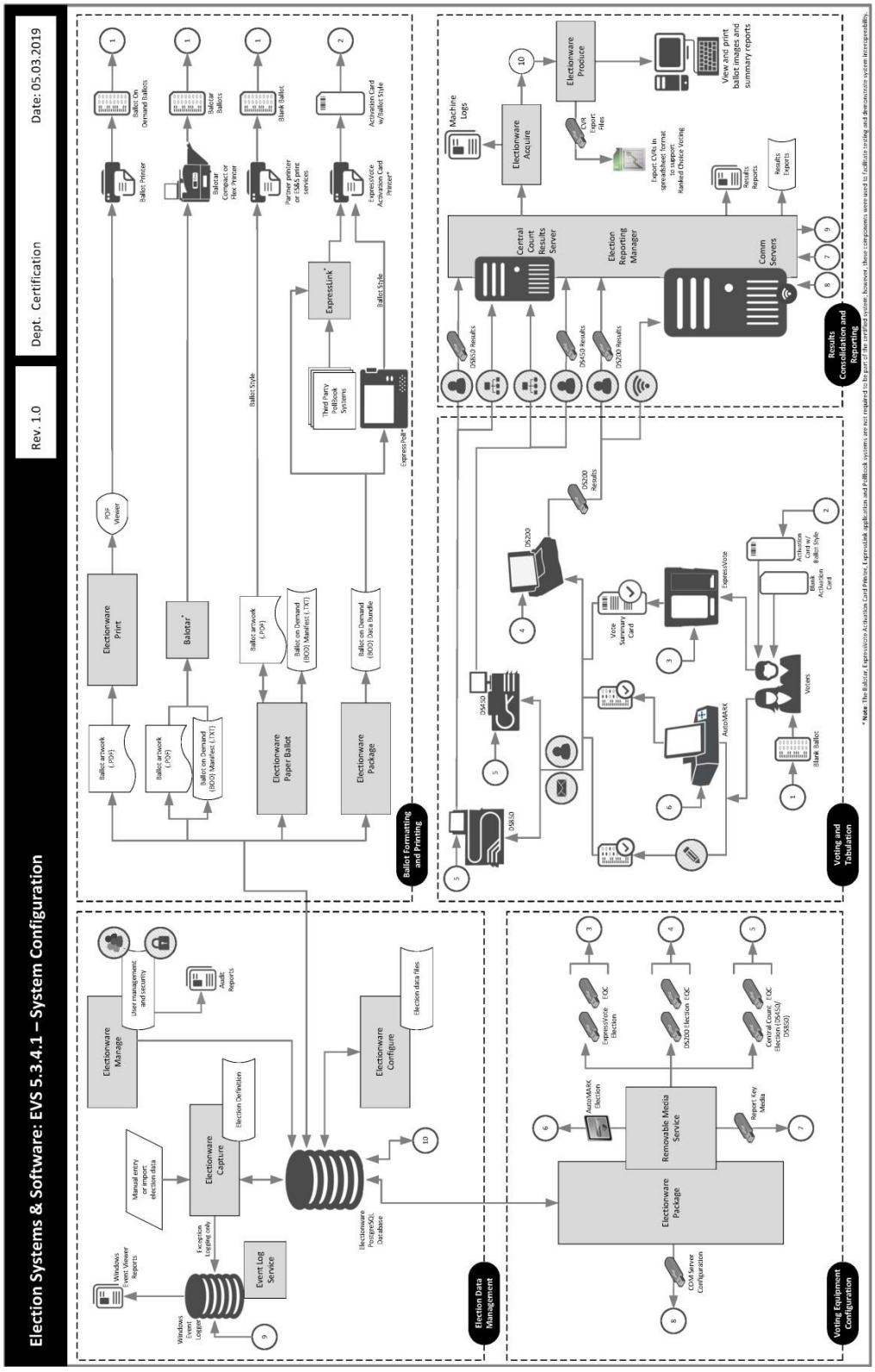


Figure 2.1 Voting System Overview

Table 2-1 lists the software components of the EVS 5.3.4.1 that were evaluated during testing.

Table 2-1: EVS 5.3.4.1 System Components

System Component	Software or Firmware Version	Hardware Version(s)	Description
ExpressVote HW 1.0	1.4.1.7	1.0	Universal Voting System
ExpressVote HW 2.1	2.4.2.0	2.1.0.0 2.1.2.0	Universal Voting System
ExpressVote Rolling Kiosk	---	1.0	Portable voting booth
Thermal Printer	LTPD-347B	---	Thermal report printer
ExpressVote Voting Booth	---	---	Stationary voting booth
Quad ExpressCart	---	---	Portable voting booth
Voting Booth Workstation	---	---	Stationary voting booth
MXB ExpressVote Voting Booth	---	---	Stationary voting booth
ExpressVote Double Table	---	---	Voting table for two units
ExpressVote Single Table	---	---	Voting table for one unit
ADA Table	---	---	Voting table
DS200	2.12.6.0	1.2, 1.3, 1.3.11	Precinct ballot tabulator
DS200 Ballot Box	---	1.2, 1.3, 1.4, 1.5	Plastic Ballot Box
DS200 Ballot Box	---	1.0, 1.1, 1.2	Metal Ballot Box
DS200 Ballot Box	---	1.0, 1.1	Collapsible Ballot Box
DS200 Tote Bin	---	---	Tote Bin Ballot Box
DS450	3.0.2.0	1.0	Central Count Scanner and Tabulator
DS450 Cart	---	---	---
DS850	2.10.4.0	1.0	Ballot Marking Device
DS850 Cart	---	---	---
HP Inkjet Ink Cartridge	---	---	Ink cartridge for ballot number imprinting
Auto MARK A100	1.8.6.1	1.0	ADA Ballot Marking Device
AutoMARK A200	1.8.6.1	1.1, 1.3	ADA Ballot Marking Device
AutoMARK A300	1.8.6.1	1.3	ADA Ballot Marking Device
AutoMARK Table	---	---	Voting table for one unit
Electionware	4.7.6.0	---	---
Election Reporting Manager (ERM)	8.12.1.6	---	---
ES&S Event Log Service	1.5.5.0	---	---
AutoMARK VAT Previewer	1.8.6.1	---	---
ExpressVote Previewer	1.4.1.7 (1.0) 2.4.2.0 (2.1)	---	---
Removable Media Service	1.4.5.0	---	---

Table 2-1: EVS 5.3.4.1 System Components *(continued)*

System Component	Software or Firmware Version	Hardware Version(s)	Description
SecureSetup	2.0.0.1		Proprietary Hardening Script
EMS Server	---	Dell PowerEdge T430	Election database creation, media programming and ballot image management
EMS SFTP Server	---	Dell PowerEdge T310	Secure Server used for modeming results
EMS Client Workstation	---	Dell OptiPlex 5050	Election database creation, media programming and ballot image management
Firewall	9.1.7, 9.9.2	Cisco ASA 5505 or 5506-X	Security Appliance for modeming
Router	---	CradlePoint AER1600LPA	Secure Router for modeming
Delkin: USB Flash Drive	---	512MB, 1 GB, 2 GB, 4 GB, 8 GB	Election and ballot definition media
Delkin: Validation USB Flash Drive	---	16 GB	Validation purposes only
Delkin: Compact Flash	---	1 GB	Election and ballot definition media
SanDisk: Compact Flash	---	512 MB, 1 GB, 2 GB	Election and ballot definition media
Delkin: CF Card Reader/Writer	---	6381	Device used to burn firmware media
SanDisk: CF Card Reader	---	018-6305	---
Headphones	---	AVID 86002	ExpressVote & AutoMARK headphones
Scanner (Zebra)	---	DS457-SR20009	QR Code Scanner (Integrated)
Scanner (Symbol)	---	DS9208	QR Code Scanner (External)
DS450 Report Printer	---	Dell S2810dn, OKI B432DN	Laser report printers
DS850 Report Printer	---	OKI B431D, OKI B431DN & OKI B432DN	Laser report printer
DS450 and DS850 Audit Printer	---	OKI Microline 420	Laser report printer
DS450 UPS	---	APC Back-UPS Pro 1500 or Smart-UPS 1500	---

Table 2-1: EVS 5.3.4.1 System Components *(continued)*

System Component	Software or Firmware Version	Hardware Version(s)	Description

DS450 Surge Protector	---	Tripp Lite Spike Cube	---
DS850 UPS	---	APC Back-UPS RS 1500 or Pro 1500	---
Adobe Acrobat Standard	11	---	---
Cerberus FTP	10.0.9 (64-bit)	---	---
Microsoft Server 2008	R2 w/SP1	---	Operating System for EMS and results servers
Microsoft Windows 7 Professional	64-bit/SP1	---	Operating System for client workstations
WSUS Microsoft Windows Offline Update Utility	11.6.1	---	Software updates (Update utility)
Micro Focus RM/COBOL Runtime	12.06	---	---
WS-FTP Professional	12.7.0	---	File transfer client software
Microsoft .NET	3.5	---	.NET framework
Kiwi Syslog Server	9.6.7		Manages system messages
Symantec Endpoint Protection	14.2.0_MP1 (64-bit)	---	Anti-Virus
Symantec Endpoint Protection Intelligent Updater (File-Based Protection)	20190404-001-core15sdsv5i64.exe	---	Anti-Virus
Symantec Endpoint Protection Intelligent Updater (Network-Based Protection)	20190403-061-IPS_IU_SEP_14RU1.exe	---	Anti-Virus
Symantec Endpoint Protection Intelligent Updater (Behavior-Based Protection)	20190401-001-SONAR_IU_SEP.exe	---	Anti-Virus
Visual C++ Redistributable	vcredist_x86.exe	---	Visual C++ 2010 Redistributable

Table 2-2 provides the hardware components of the EVS 5.3.4.1 that were evaluated during this test effort.

Table 2-2: Hardware Components

EVS 5.3.4.1 System Component	Serial Number(s)
Dell Optiplex 5050	Service Tag: 1JJB1S2
Dell Power Edge T430	Service Tag: 2KV30W2
Dell Power Edge T310	Service Tag: 2MQLQW1
Cisco ASA 5505	JMX1717Z0LV
Cisco ASA 5506	JMX2203G32U
CradlePoint AER1600LPA	MM190190900640
OKI B431d	AK59044965A0 (EMS reports)
Dell Keyboard	---
Dell Mouse	---
DS200 1.2	SN 0110340435
Verizon 4G Modem MTSMC-LVW3	20150243
DS200 Carrying case	HW 1.4
DS200 Steel ballot box w/ diverter	No SN found
DS200 1.3	SN 0315412960
Verizon 4G Modem MTSMC-LVW3	5347991K
DS200 Carrying case	HW 1.4
DS200 Plastic Ballot Box	HW 1.4
DS450	SN DS4516053019
OKI B432	AK34002391A0
OKI Microline 420 log printer	AE72011457C0
APC SMART-UPS	3B1B03B421012E
DS850	SN DS8510090039
OKI B431dn	AK53043027A0
OKI Microline 420 log printer	AK5C018657E0
APC BACK-UPS	4B1636P32814
ExpressVote 1.0	SN EV0115370807
ExpressVote rolling kiosk includes integrated QR code scanner	K0116362729
ExpressVote 2.1	SN EV0218382364
ExpressVote voting booth workstation	EV-booth-01
External QR code scanner	SN 15272010505004
AutoMARK	106432020

2.1 Testing Configuration

The testing event utilized each of the above described setups of the EVS 5.3.4.1 and its components. The following is a breakdown of the EVS 5.3.4.1 components and configurations for the test setup:

Standard Testing Platform:

The standard testing platform consisted of a precinct setup with the following components:

- Two DS200 Precinct Ballot Tabulators
- One AutoMARK Voter Assist Terminal
- One ExpressVote Universal Voting System, Hardware 1.0 in Rolling Kiosk
- One ExpressVote Universal Voting System, Hardware 2.1 in Voting Booth Workstation The

standard testing platform also consisted of a central office setup with the following components:

- DS850 Central Ballot Tabulator
- DS450 Central Ballot Tabulator
- EMS Components

Elections and ballots/cards were supplied by ES&S. Once ballots/cards were marked and subsequently cast on a DS200, the polls were closed and tabulation reports were printed, with results being further transported back to the EMS either manually or by telecommunication via modem. Ballots/cards were additionally cast on the DS850 and DS450 and manually transported or networked to the EMS. Results were tabulated on the EMS and reviewed and compared and found consistent with the expected results.

2.2 Test Support Equipment/Materials

All test support equipment/materials required to facilitate testing were supplied by ES&S.

3.0 TEST PROCESS AND RESULTS

The following sections outline the test process that was followed to evaluate the EVS 5.3.4.1 to the test goals defined in the scope of this Test Report.

3.1 General Information

All functional and system level testing was conducted by qualified Pro V&V personnel at the ES&S facility located in Omaha, NE.

3.2 Test Cases/Procedures

Test procedures were developed to evaluate the system being tested against the stated requirements. Prior to execution of the required test procedures, the system under test was subjected to testing initialization to establish the baseline for testing and ensure that the test candidate matched the expected test candidate and that all equipment and supplies are present.

The following tasks were completed during the testing initialization:

- Ensure proper system of equipment. Check network connections, power cords, keys, etc.
- Check version numbers of (system) software and firmware on all components.
- Verify the presence of only the documented COTS.
- Ensure removable media is clean.
- Ensure batteries are fully charged.
- Inspect supplies and test decks.
- Record protective counter on all tabulators.
- Review physical security measures of all equipment.
- Record basic observations of the testing setup and review.
- Record serial numbers of equipment.
- Retain proof of version numbers.

3.3 Summary Findings

Summary findings for the System Level Testing (System Integration Testing, Accuracy, and FCA), PCA (including Security Review), and Source Code Review are detailed in the relevant sections of this report. In addition to these areas of testing, a limited TDP Review was performed, as described below.

3.3.1 Technical Documentation Package (TDP) Review

In order to determine compliance of the modified TDP documents with the EAC VVSG 1.0, a limited TDP review was conducted. This review focused on TDP documents that have been modified since the certification of the baseline system. The review consisted of a compliance review to verify that each regulatory, state, or manufacturer-stated requirement had been met based on the context of each requirement.

A listing of all documents contained in the EVS 5.3.4.1 TDP is provided in Table 3-1.

Table 3-1: EVS 5.3.4.1 Technical Data Package

Document Name	Doc. Revision
01 TDP - 00_Preface	
Requirements of the 2005 VVSG Trace to Technical Data Package - ES&S Voting System 5.3.4.1	1.0
01_System Overview	
System Overview - ES&S Voting System 5.3.4.1	1.1

02_System Functionality Description	
System Functionality Description - ES&S Voting System 5.3.4.1	1.0
03_System Hardware Specifications	
AutoMARK System Hardware Overview	9.0
AutoMARK System Hardware Specification	6.0
DS200 1.2 Hardware Specification	3.5
DS200 1.3 Hardware Specification	4.7
DS450 1.0 Hardware Specification	1.6
DS850 1.0 Hardware Specification	1.6
ExpressVote Hardware Specification 1.0	3.10
ExpressVote Hardware Specification 2.1	1.3
03_System Hardware Specifications - Approved Parts List	
AutoMARK A100 Approved Parts List	2.0
AutoMARK A200 Approved Parts List	2.0
AutoMARK A300 Approved Parts List	2.0
Approved Parts List: DS200 HW Rev 1.2	1.1
Approved Parts List: DS200 HW Rev 1.3	1.6
Approved Parts List: DS450 HW Rev 1.0	1.1
Approved Parts List: DS850 HW Rev 1.0	1.1
Approved Parts List: ExpressVote HW Rev 1.0	1.1
Approved Parts List: ExpressVote HW Rev 2.1	2.3
04_Software Design and Specifications	
Coding Standards	1.2
System Development Program	1.5
License Agreements for Procured Software	1.3

Table 3.1: EVS 5.3.4.1 Technical Data Package *(continued)*

Document Name	Doc. Revision
04_Software Design and Specifications (continued)	
DS200 - Software Design Specification	1.0
DS450 – Software Design Specification	1.0
DS850 - Software Design Specification	1.0
Electionware - Software and Design Specification	1.1
ES&S Software Design Specifications Event Log Service (ELS)	1.0

ES&S Software Design Specifications Election Reporting Manager (ERM)	1.0
ExpressVote Software Design and Specification	1.0
ExpressVote (Hardware Version 2.1) Software Design Specification	1.0
04_Software Design and Specifications – AutoMARK SDS	
AutoMARK ESS Ballot Image Processing Specification AQS-18-5002-003-S	6.0
AutoMARK ESS Ballot Scanning and Printing Specification AQS-18-5002-007-S	5.0
AutoMARK ESS Driver API Specification AQS-18-5000-002-F	5.0
AutoMARK ESS Embedded Database Interface Specifications AQS-18-5002-005-S	6.0
AutoMARK ESS GUI Design Specifications AQS-18-5001-005-R	6.0
AutoMARK ESS Operating Software Design Specifications AQS-18-5001-002-R	5.0
AutoMARK ESS Operations and Diagnostic Log Specs AQS-18-5002-004-S	5.0
AutoMARK ESS Programming Specifications Details AQS-18-5001-011-R	6.0
AutoMARK ESS Software Design Spec AQS-18-5001-004-S	7.0
AutoMARK Voter Assist Terminal (VAT) ESS Software Design Spec Overview	N/A
AutoMARK ESS Software Development Environment AQS-18-5001-006-R	5.0
AutoMARK ESS Software Diagnostics Specifications AQS-18-5000-004-F	5.0
AutoMARK ESS Software Standards Specification AQS-18-4000-000-S	5.0
05_System Test and Verification - 01_UsabilityTestReports	
ES&S AutoMARK Voter Assist Terminal (VAT)	1.X
DS200 Precinct Ballot Scanner	1.2.1
ExpressVote Usability Report ES&S Voting System 5.2.0.0	N/A
06_System Security Specification	
AutoMARK ESS System Security Specification AQS-18-5002-001-S	7.0
EMS Client Workstation Secure Setup & Configuration Guide	1.0

Table 3.1: EVS 5.3.4.1 Technical Data Package *(continued)*

Document Name	Doc. Revision
06_System Security Specification (continued)	
EMS Server Secure Setup & Configuration Guide	1.0
Best Practices for Physically Securing ES&S Equipment	1.0
Standalone EMS Workstation Secure Setup & Configuration Guide	1.0
Voting System Security Specification	1.0
Security Script Description	1.0
CradlePoint Setup & Configuration Guide	1.0

Firewall Setup & Configuration Guide	1.0
Data Communication Server Secure Setup & Configuration Guide	1.0
06_System Security Specification - 01_VerificationProcedures&Scripts	
Verification Procedure, Election Management System Workstation and Server	1.0
Verification Procedure: AutoMARK Ballot Marking Device	1.0
Verification Procedure: DS850 High-Speed Scanner & Tabulator	1.0
Verification Procedure: DS450 High-Throughput Scanner & Tabulator	1.0
Verification Procedure: DS200 Precinct Scanner and Tabulator	1.0
Verification Procedure: ExpressVote Hardware 1.0	1.0
Verification Procedure: ExpressVote Hardware 2.1	1.0
06_System Security Specification - 02_ValidationFileLists	
EVS5341_D_L01_StaticDynamicFileList_Electionware.xlsm	1.1
EVS5341_D_L02_StaticDynamicFileList_ExpressVote_HW1'0	1.0
EVS5341_D_L02_StaticDynamicFileList_ExpressVote_HW2'1	1.2
EVS5341_D_L03_StaticDynamicFileList_DS450.xlsm	1.0
EVS5341_D_L04_StaticDynamicFileList_DS200.xlsm	1.2
EVS5341_D_L05_StaticDynamicFileList_DS850.xlsm	1.0
EVS5341_D_L06_StaticDynamicFileList_AutoMARK.xlsm	1.0
EVS5341_D_L08_StaticDynamicFileList_ERM.xlsm	1.0
EVS5341_D_L11_StaticDynamicFileList_ExpressVotePreviewer_HW1'0	1.0
EVS5341_D_L11_StaticDynamicFileList_ExpressVotePreviewer_HW2’1	1.1
EVS5341_D_L19_StaticDynamicFileList_VATPreviewer.xlsm	1.0

Table 3.1: EVS 5.3.4.1 Technical Data Package *(continued)*

Document Name	Doc. Revision
06_System Security Specification - 10_BuildProcedures	
Build Procedure: DS200 Precinct Scanner & Tabulator Trusted Build 1	1.1
Build Procedure, Election Management System Trusted Build 1	1.1
06_System Security Specification - 10_BuildProcedures-Harvested	
Build Environment Construction: VM Ds450 Central Scanner & Tabulator	1.0
Build Procedure, DS450 Trusted Build 1	1.0
Build Procedure: DS850 Central Scanner & Tabulator Trusted Build 1	1.0

Commercial-Off-The-Shelf Install Guide DS200 Ancillary Devices ES&S Voting System 5.0.0.0	1.1
Build Environment Construction, Election Management System	1.4
Build Procedure: ExpressVoteUVS-v1 and ExpressVoteUVS-v1 Previewer Trusted Build 1	2.0
Build Environment Construction VM, EMS	1.2
Build Environment Construction, ExpressVote	1.1
Build Procedure, AutoMARK VAT and VAT Previewer Trusted Build 1	1.1
Build Procedure: cipherUpdateKeys Trusted Build 1	1.2
Build Environment Construction, AutoMARK VAT and VAT Preview	1.1
Build Procedure: ExpressVoteUVS-v1 and ExpressVoteUVS-v1 Previewer Trusted Build 1	1.0
Build Procedure: ExpressVoteUVS-v2 and ExpressVoteUVS-v2 Previewer Trusted Build 1	1.0
Build Procedure, Election Management System Trusted Build 1	1.0
Build Environment Construction Election Management System	1.0
Title: Build Environment Construction, EMS, Addendum 1	1.0
Build Environment, Installer, Windows Embedded Standard 7	1.2
Build Process Microsoft Windows Embedded Developer Update	1.1
Build Procedure, Election Management System Trusted Build 2	1.0
Build Procedure, ExpressVote COTS Image Trusted Build 3	1.3
Build Procedure, Windows Embedded Standard 7 Installer	1.3
Build Environment Construction: ExpressVote UVS-V2	1.1
Build Environment Construction, Election Management System	1.3

Table 3.1: EVS 5.3.4.1 Technical Data Package *(continued)*

Document Name	Doc. Revision
07_System Operations Procedures	
AutoMARK Operator's Guide Firmware Version 1.8	1.0
DS200 Operator's Guide Firmware Version 2.12	1.1
DS200 Operator's Guide Appendices Firmware Version 2.12	1.0
DS450 Operator's Guide Firmware Version 3.0	1.2
DS450 Operator's Guide Appendices Firmware Version 3.0	1.0
DS850 Operator's Guide Firmware Version 2.10	1.2
DS850 Operator's Guide Appendices Firmware Version 2.10	1.0
EVS Event Logging Service User's Guide Software Version 1.5	1.0

Election Reporting Manager User's Guide Software Version 8.12	1.0
Election Reporting Manager User's Guide Appendices Software Version 8.12	1.0
Electionware Vol. I: Administrator Guide Software Version 4.7.5.0	1.1
Electionware Vol. II: Define User Guide Software Version 4.7.5.0	1.0
Electionware Vol. III: Design User Guide Software Version 4.7.5.0	1.0
Electionware Vol. IV: Deliver User Guide Software Version 4.7.5.0	1.2
Electionware Vol. V: Results User Guide Software Version 4.7.5.0	1.0
Electionware Vol. VI: Appendices Software Version 4.7.5.0	1.0
ExpressVote Operator's Guide Firmware Version 1.4	1.0
ExpressVote Operator's Guide Appendices Firmware Version 1.4	1.0
ExpressVote Operator's Guide Hardware Version 2.1 Firmware Version 2.4	1.0
08_System Maintenance Manuals	
AutoMARK Maintenance Manual Firmware Version 1.8	1.0
DS200 Maintenance Manual Firmware Version 2.12	1.0
DS450 Maintenance Manual Firmware Version 3.0	1.0
DS850 Maintenance Manual Firmware Version 2.10	1.0
ExpressVote Maintenance Manual Firmware Version 1.4	1.0
ExpressVote Maintenance Manual Firmware Version 2.4 Hardware Version 2.1	1.0
09_Personnel Deployment and Training	
Personnel Deployment and Training Program	1.1

Table 3.1: EVS 5.3.4.1 Technical Data Package *(continued)*

Document Name	Doc. Revision
10_Configuration Management Plan	
Configuration Management Program	2.1
Technical Documentation Program	1.3
11_QA Program	
Manufacturing Quality Assurance Program	1.9
Software Quality Assurance Program	1.2
12_System Change Notes	
ES&S Voting System 5.3.4.1 System Change Notes	1.0
13_Attachments	
Ballot Production Guide for EVS	3.2

Summary Findings:

A versioning review was conducted, as well as functionality and compliance reviews on the modifications made following the previous certification testing. This review did not address consistency or completeness of documents. Results of the review of each document were entered on the TDP Review Checklist. Any documents that were revised during the TDP review process were compared with the previous document revision to determine changes made, and the document was re-reviewed to determine whether the discrepancies had been resolved.

During execution of the test campaign, it was verified that the technical documentation provided for the EVS 5.3.4.1 was effectively reviewed with all discrepancies that were noted during the review being resolved.

3.3.2 Source Code Review

Pro V&V reviewed the submitted source code to the EAC VVSG 1.0 and the manufacturer-submitted coding standards. Prior to initiating the software review, Pro V&V verified that the submitted documentation is sufficient to enable: (1) a review of the source code and (2) Pro V&V to design and conduct tests at every level of the software structure to verify that design specifications and performance guidelines are met. The source code review was based on the source code changes made since the previous system was certified.

Summary Findings:

During execution of the test procedure, it was verified that the source code provided for the EVS 5.3.4.1 successfully met the requirements. After a review of the submitted code was completed, all issues were reported and resolved prior to the Trusted Build. To perform the trusted build, ES&S submitted source code, COTS, and third-party software products. These items were inspected and combined to create the executable code. Additionally, during the performance of the trusted build, the build documentation was

reviewed. During execution of the Trusted Build, the source code submitted by ES&S and reviewed by Pro V&V was successfully built using the submitted COTS and third-party software products, and the reviewed build documentation.

3.3.3 Physical Configuration Audit

The Physical Configuration Audit (PCA) compares the voting system components submitted for certification testing to the manufacturer's technical documentation. The purpose of the PCA was to verify that the submitted hardware is unmodified from the previously certified voting system. The PCA included the following activities:

- Establish a configuration baseline of software and hardware to be tested; confirm whether manufacturer's documentation is sufficient for the user to install, validate, operate, and maintain the voting system
- Verify software conforms to the manufacturer's specifications; inspect all records of manufacturer's release control system; if changes have been made to the baseline version, verify manufacturer's engineering and test data are for the software version submitted for certification
- If the hardware is non-COTS, Pro V&V reviewed drawings, specifications, technical data, and test data associated with system hardware to establish a system hardware baseline associated with the software baseline
- Review manufacturer's documents of user acceptance test procedures and data against system's functional specifications; resolve any discrepancy or inadequacy in manufacturer's plan or data prior to beginning system integration functional and performance tests

- Subsequent changes to baseline software configuration made during testing, as well as system hardware changes that may produce a change in software operation are subject to re-examination

Summary Findings:

During execution of the test procedure, the components of the EVS 5.3.4.1 were documented by component name, model, serial number, major component, and any other relevant information needed to identify the component. For COTS equipment, every effort was made to verify that the COTS equipment had not been modified for use. Additionally, each technical document submitted in the TDP was recorded by document name, description, document number, revision number, and date of release. At the conclusion of the test campaign, test personnel verified that any changes made to the software, hardware, or documentation during the test process were fully and properly documented.

3.3.4 System Level Testing

System Level Testing included the Functional Configuration Audit (FCA), the Accuracy Test, and the System Integration Tests. The Accuracy Test and the System Integration Tests were performed as part of the Regression Test requirements for this campaign. System Level Testing was implemented to evaluate the complete system. This testing included all proprietary components and COTS components (software, hardware, and peripherals).

The FCA for this test campaign focused on telecommunications capabilities (modeming) and write-in support.

This evaluation utilized baseline test cases as well as specifically designed test cases and included predefined election definitions for the input data. As part of the FCA, two Primary Elections and one General Election were executed to verify that each of the submitted modifications had been successfully implemented. The System Integration Tests were performed to verify the EVS 5.3.4.1 functioned as a complete system.

During System Level Testing, the system was configured exactly as it would for normal field use per the procedures detailed in the submitted technical documentation. This included connecting all supporting equipment and peripherals as well as any physical security equipment such as locks and ties.

3.3.4.1 Functional Configuration Audit (FCA) / Regression Testing

During testing, modified functionality was observed to note any changes to documented baseline functionality. This testing used both positive and negative criteria to measure conclusions. The primary focus of the FCA was the incorporation of the modifications to the system.

Regression testing was additionally performed as needed on the system components to verify that all functional and/or software modifications made during the test campaign did not adversely affect the system and its operation.

Summary Findings:

During testing all modification performed as documented and nothing was noted suggesting that additional testing was needed.

3.3.4.2 Accuracy

The Accuracy test addressed the capability to successfully transmit accurate results. After test performance, results were verified on each component and transmitted to the EMS where they were compiled and re-verified to be accurate.

Summary Findings:

The EVS 5.3.4.1 accurately captured as well as recorded ballot selections and integrated the results using the EMS. All results obtained during test execution matched the expected results.

3.3.4.3 System Integration

The system level certification tests addressed the integration of the hardware and software. This testing focused on the compatibility of the voting system software components and subsystems with one another and with other components of the voting system as a whole. During test performance, the system was configured as would be for normal field use.

Summary Findings:

One General Election and two Primary Elections were successfully exercised on the voting system, with the breakdowns as described below:

- General Election GEN-01: A basic election held in four precincts, one of which is a split precinct. This election contains 19 contests compiled into four ballot styles. Five of the contests are in all four ballot styles. The other 15 contests are split between at least two of the precincts with a maximum of four different contest spread across the four precincts.

- Primary Election PRIM-01: Open Primary Election in two precincts. This election contained 30 contests compiled into five ballot styles. Each ballot style contains six contests.

- Primary Election PRIM-02: Closed Primary Election held in ten precincts: Rhode Island Presidential Preference Primary election (RI PPP). This election contains seven contests compiled into ten ballot styles. A total of three contests linked to Democratic candidates and four contests linked to Republican candidates. Of the three contests on Democratic ballots, two rotate in and out depending on even and odd precincts. Of the four contests on Republican ballots, two rotate in and out depending on even and odd precincts.

The EVS 5.3.4.1 successfully completed the system level integration tests with all results obtained during test execution matching the expected results.

4.0 CONCLUSION

The EVS 5.3.4.1, as presented for testing, successfully met the requirements set forth for voting systems in the U.S. Election Assistance Commission (EAC) 2005 Voluntary Voting System Guidelines (VVSG), Version 1.0, with no deficiencies or anomalies noted during testing. Additionally, Pro V&V, Inc. has determined that the EVS 5.3.4.1 functioned as a complete system during System Integration Testing.

Appendix A

Table A1.1: Ancillary Components

System Component	Software or Firmware Version	Hardware Version(s)	Description
Electionware – ToolBox Test Deck*	3.5.0.0	---	Optional means for the election official to test the election on each machine
Electionware – ToolBox Text to Speech	3.5.0.0	---	An optional simplified method for creating the audio wave files

**Component not tested as part of this test campaign*

Appendix E: Voting System Standards, Testing Protocols and Procedures Pertaining to the Use of Communication Devices

PART I: PROPOSED TESTING STANDARDS

Applicable VVSG Standard

The modem component of the voting system or equipment must be tested to the requirements contained in the most recent version or versions of the Voluntary Voting System Guidelines (VVSG) currently accepted for testing and certification by the U.S. Election Assistance Commission (EAC). Compliance with the applicable VVSG may be substantiated through federal certification by the EAC, through certification by another state that requires compliance with the applicable VVSG, or through testing conducted by a federally certified voting system test laboratory (VSTL) to the standards contained in the applicable VVSG. Meeting the requirements contained in the VVSG may substantiate compliance with the voting system requirements contained in Section 301 of the Help America Vote Act of 2002 (HAVA).

Access to Election Data

Provisions shall be made for authorized access to election results after closing of the polls and prior to the publication of the official canvass of the vote. Therefore, all systems must be capable of generating an export file to communicate results from the election jurisdiction to the Central processing location on election night after all results have been accumulated. The system may be designed so that results may be transferred to an alternate database or device. Access to the alternate file shall in no way affect the control, processing, and integrity of the primary file or allow the primary file to be affected in any way.

Security

All voting system functions shall prevent unauthorized access to them and preclude the execution of authorized functions in an improper sequence. System functions shall be executable only in the intended manner and order of events and under the intended conditions. Preconditions to a system function shall be logically related to the function so as to preclude its execution if the preconditions have not been met.

Accuracy

A voting system must be capable of accurately recording and reporting votes cast. Accuracy provisions shall be evidenced by the inclusion of control logic and data processing methods, which incorporate parity, and checksums, or other equivalent error detection and correction methods.

Data Integrity

A voting system shall contain provisions for maintaining the integrity of voting and audit data during an election and for a period of at least 22 months thereafter. These provisions shall include protection against:

- the interruption of electrical power, generated or induced electromagnetic radiation.
- ambient temperature and humidity.
- the failure of any data input or storage device.

- any attempt at an improper data entry or retrieval procedure.

Reliability

Successful Completion of the Logic and Accuracy test shall be determined by two criteria

- The number of failures in transmission
- and the accuracy of vote counting

The failure or connectivity rate will be determined by observing the number of relevant failures that occur during equipment operation. The accuracy is to be measured by verifying the completeness of the totals received.

PART II: TEST PROCEDURES AND PROTOCOLS

Overview of Telecommunication Test

The telecommunication test focuses on system hardware and software function and performance for the transmission of data that is used to operate the system and report election results. This test applies to the requirements for Volume I, Section 6 of the EAC 2005 VVSG. This testing is intended to complement the network security requirements found in Volume I, Section 7 of the EAC 2005 VVSG, which include requirements for voter and administrator access, availability of network service, data confidentiality, and data integrity. Most importantly, security services must restrict access to local election system components from public resources, and these services must also restrict access to voting system data while it is in transit through public networks. Compliance with Section 7, EAC 2005 VVSG shall be evidenced by a VSTL report submitted with the vendor's application for approval of a voting system.

In an effort to achieve these standards and to verify the proper functionality of the units under test, the following methods will be used to test each component of the voting system:

Wired Modem Capability Test Plan

Test Objective: To transfer the results from the tabulator to the Election Management System via a wired network correctly.

Test Plan:

1. Attempt to transmit results prior to the closing of the polls and printing of results tape

2. Set up a telephone line simulator that contains as many as eight phone lines

3. Perform communication suite for election night reporting using a bank with as many as seven analog modems:

a. Connect the central site election management system to the telephone line simulator and connect the modems to the remaining telephone line ports
b. Setup the phone line numbers in the telephone line simulator
c. Use the simulated election to upload the election results
i. Use at least eight tabulators in different reporting units
ii. Use as many as two tabulators within the same reporting units

d. Simulate the following transmission anomalies
i. Attempt to upload results from a tabulating device to a computer which is not part of the voting system
ii. Attempt to upload results from a non-tabulating device to the central site connected to the modem bank
iii. Attempt to load stress by simulating a denial of service (DOS) attack or attempt to upload more than one polling location results (e.g., ten or more polling locations)

Wireless Capability Test Plan

Test Objective: To transfer the results from the tabulator to EMS via a wireless network correctly.

Test Plan:

1. Attempt to transmit results prior to the closing of the polls and printing of results tape.

2. Perform wireless communication suite for election night reporting:
a. Use the simulated election to upload the election results using wireless transfer to the secure FTP server (SFTP)
b. Use at least eight tabulators in different reporting units
c. Use as many as two tabulators within the same reporting unit

3. Simulate the following transmission anomalies
a. Attempt to upload results from a tabulating device to a computer which is not part of the voting system
b. Attempt to upload results from a non-tabulating device to the SFTP server
c. Attempt to load stress by simulating a denial of service (DOS) attack or attempt to upload more than one polling location results (e.g., ten or more polling locations)
d. If possible, simulate a weak signal
e. If possible, simulate an intrusion

Test Conclusions for Wired and Wireless Transmission

- System must be capable of transferring 100% of the contents of results test packs without error for each successful transmission.

- Furthermore, system must demonstrate secure rate of transmission consistent with security requirements.

- System must demonstrate the proper functionality to ensure ease of use for clerks on election night.

- System must be configured such that the modem component remains inoperable until after the official closing of the polls and printing of one (1) copy of the results tape**.**

PART III: PROPOSED SECURITY PROCEDURES

Staff recommends that as a condition of purchase, any municipality or county which purchases this equipment and uses modem functionality must also agree to the following conditions of approval.

1. Devices which may be incorporated in or attached to components of the system for the purpose of transmitting tabulation data to another data processing system, printing system, or display device shall not be used for the preparation or printing of an official canvass of the vote unless they conform to a data interchange and interface structure and protocol which incorporates some form of error checking.

2. Any jurisdiction using a modeming solution to transfer results from the polling place to the central count location may not activate the modem functionality until after the polling place closes.

3. Any municipality using modeming technology must have one set of results printed before it attempts to modem any data.

4. Any municipality purchasing and using modem technology to transfer results from the polling location to the central count location must conduct an audit of the voting equipment after the conclusion of the canvass process.

5. Default passwords provided by ES&S to county/municipality must be changed upon receipt of equipment.

6. Counties must change their passwords after every election.

PART IV: CONDITIONS FOR APPROVAL (VENDOR)

Additionally, staff recommends that, as a condition/continuing condition of approval, ES&S shall:

1. Reimburse actual costs incurred by the WEC. and local election officials, where applicable, in examining the system *(including travel and lodging)* pursuant to state processes.

2. Configure modem component to remain inoperative (incapable of either receiving or sending transmissions) prior to the closing of the polls and the printing of tabulated results.

Appendix F: ExpressLink Testing Protocol

WEC Protocol for Approving the Elections Systems and Software ExpressLink Component

Background

As part of an application submitted on March 17, 2017, Elections Systems and Software (ES&S) requested the Wisconsin Elections Commission (WEC) to certify the ExpressLink component as part of the EVS 5.2.2.0 and EVS 5.3.2.0 systems. ExpressLink was outside of the scope of certification that was granted by the Elections Assistance Commission (EAC) for those systems. The WEC staff review of the application materials for EVS 5.2.2.0 and EVS 5.3.2.0 determined that this component was part of the voting system and should be subject to testing and certification, contrary to the EAC review. This component was not included in the voting equipment system that was certified for use in Wisconsin by the WEC on June 20, 2017. Staff was instructed, however, to create a protocol to test and certify the ExpressLink component outside of the EAC process. Wis. Stat. § 5.91 provides that the WEC may certify any such voting device, automatic tabulating equipment, or related equipment or materials regardless of whether any such system is approved by the EAC and this protocol outlines the procedures for reviewing the ExpressLink consistent with this statutory authority.

Component Information

The ExpressLink is designed for use by election officials in conjunction with the ExpressVote Universal Voting System that was approved as part of the EVS 5.2.20 and EVS 5.3.2.0 systems. This voting system component consists of both the ExpressLink software application and one piece of hardware, the ExpressVote Activation Card Printer. ExpressLink is a Windows application housed on a laptop computer that uses contest and candidate information imported from Election Ware election management system to determine the appropriate ballot style for a voter. The system then prints the activation barcode using the ExpressVote Activation Card Printer. The ExpressVote Activation Card Printer is a small, thermal, on demand printer used to print the ballot activation barcode on the ExpressVote ballot card. A voter would then use the ballot card that contains the barcode printed via the ExpressLink to activate the correct ballot style on the ExpressVote Universal Voting System.

Review and Testing Process

- WEC staff shall complete a review of supporting documentation provided by the vendor that details the functionality of the ExpressLink before functional testing is conducted. The manufacturer shall provide both a full and a redacted set of the following documentation as part of the process to review the component, if applicable:

  - Complete specifications for all hardware, firmware and software;
  - All technical manuals and documentation related to the component;
  - Complete instruction materials necessary for the operation of the equipment and a description of training available to users and purchasers;

- Reports from voting system test laboratories accredited by the US Election Assistance Commission (EAC) demonstrating that the system component functions as described by the vendor in the application materials.

- A list of all the states and municipalities in which the system has been approved for use and how long the ExpressLink component has been in use in those jurisdictions.

- If any portion of the materials provided to the Wisconsin Elections Commission is copyrighted, trademarked, or otherwise trade secret, the application shall include written assertion of any protected interests and redacted versions of the application and all materials consistent with any properly asserted protected interests. Simply identifying the individual item as "proprietary" is not sufficient. Any assertion of proprietary rights must include detailed specifics of each item protected, the factual and legal basis for protection, whether there is anything public within the protected item, and if there is, how to extract it along with a statement whether there are costs to do so.

- If applicable, provide the WEC with a list of software components, pursuant to Wis. Stat. § 5.905, that "record and tally the votes cast with this system." For purposes of this condition, "software components" include vote-counting source code, table structures, modules, program narratives and other human-readable computer instructions used to count votes with this system.

- The vendor shall submit the component to the WEC for functional testing. The hardware and software submitted for certification testing shall be equivalent, in form and function, to the actual production versions of the component.

- An operational status check shall be conducted on the ExpressLink to determine if it functions as described by the vendor using the following procedures:

  - Arrange the system for normal operation and power on the system.
  - Perform any servicing, and make any adjustments necessary, to achieve operational status.
  - Operate the equipment in all modes, demonstrating all functions and features that would be used during election operations.
  - Commission staff shall verify that all system functions have been correctly executed.

- Compatibility of the voting system software components or subsystems with one another, and with other components of the voting system environment, shall be determined through functional tests integrating the voting system software with the remainder of the system and to determine if the software meets the vendor's design specifications.

  - The election definition file that is created in ElectionWare for use with the ExpressLink shall be verified to determine if the data contained in that file is accurate.
  - The ExpressLink will be tested in a mock election to determine if it can print barcodes on ExpressVote ballot cards that access the correct ballot styles.
  - The ExpressLink will be tested to determine if it can accommodate multiple ballot styles for an election on a single ExpressVote machine.

Conditions for Approval (vendor)

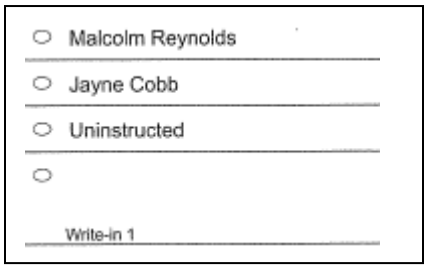
Additionally, staff recommends that, as a condition/continuing condition of approval, ES&S shall:

1. Reimburse the WEC for all costs associated with the testing campaign for the ExpressLink, where applicable, pursuant to state processes.

2. Agree to any additional conditions for approval and use that may be identified after the review and testing process is complete.

Appendix G: DS200 Write-In Report Testing and Pilot Test Protocol

In response to clerk interest as well as pending legislation, Commission staff conducted testing on the write-in report functionality of the DS200. Staff created a pilot testing protocol to account for and review how the DS200 would capture images of write-in votes in several scenarios and how the machine would display the write-in votes on the report that would be used to tabulate those votes. These scenarios included circumstances such as write-in votes with a blank oval or a write-in vote as part of an overvote or crossover vote. A total of 80 ballots were marked based on a customized test deck utilizing the election definitions from the General and Presidential Preference test elections. When the write-in report is enabled on the DS200, the write-in area on the ballot is roughly twice the size of what it would normally be, as illustrated by the example to the right.



The larger write-in area is required to ensure that write-in votes where the corresponding oval is not filled in by the voter will be captured on the write-in report. This programming must be done to allow for write-in votes to be tabulated in accordance with Wis. Stat. §7.50(d), which states that "If an elector writes a person's name in the proper space for write-in candidates for an office, it is a vote for the person written in for the office indicated, regardless of whether the elector strikes the names appearing in the same column for the same office, or places a mark by the same or any other name for the same office, or omits placing a mark to the right of the name written in". Under the proposed legislation, ballots cast via electronic voting equipment during the in-person absentee voting period would not be reviewed for write-in votes and all tabulation of write-in votes would be done using the output on the write-in report created by the voting equipment.

When programming a ballot with the larger write-in area, it is not possible to have multiple candidate lines represented. Write-in vote areas with two candidate lines are used in both Presidential and Gubernatorial elections in Wisconsin. The programming for the DS200 was unable to accommodate this style of write-in field. Testing showed that the write-in report functionality records images of write-in votes and tabulates the corresponding votes correctly and accurately.

As with traditional paper ballots, ballots from an ExpressVote with write-in votes will be imprinted with a pink circle by the tabulator prior to being dispatched to the ballot bin. To correctly account for write-in votes on ExpressVote ballots, they must be identified by election inspectors through a hand tally of ballots.

It is important to note that the write-in report testing was conducted on a pilot basis. Prior to further write-in report testing, staff would need to review the legislation if signed into law and gain Commission approval for an appropriate test protocol. If the Commission wishes staff to further explore DS200 write-in report testing or implementation, staff will work with Commissioners and management to address next steps.

Write-in Report Testing Checklist

Requirement	Pass: Y or N	Notes
Early voting demonstration from vendor (open polls multiple times, end of night procedures without closing polls, etc.)	Y	DS200 is simply shut down at the end of day with auto generated report cancelled by clerk; or lid can be closed and locked w/o powering down, putting it into a "sleep" mode.
Write-in report testing scenarios (outlined below): per the test deck	Y	If a ballot has write-ins that are part of a crossover or overvote situation, those votes do not appear on the report.
Write-in totals on tape and inclusion on write-in report: do they match the expected results?	Y	Since overvotes and crossover votes are not tallied nor captured on the write-in report, all contests tested reconciled.
Machine with multiple reporting units (simulate early voting scenario): Are the write-in records itemized by ward/precinct/reporting unit?	Y	EVS6040/6050 prints the write-in report by reporting unit, then by contest within that reporting unit.

1. Write-in Scenarios
   i Oval/good vote
   ii No oval/good vote
   iii Oval/blank vote
   iv Oval/w-i/overvote
   v No oval/w-i/overvote
   vi Oval/no w-i/overvote
   vii Oval/crossover (PP, Pres Pref)
   viii No oval/crossover (PP, Pres Pref)

APPENDIX H: 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?

Poor	Fair	Good	Excellent
		3	

- The new write-in tapes will be helpful.
- Straightforward.
- I did have one question about a ballot with miscellaneous marks. The device gave different messages.
- The upgrade to seeing the write-in votes by ward in the tape report seems helpful. We were not able to test the multi-language features that are available on the ExpressVote. It is odd that some municipalities are required to offer ballots in Spanish, but we are not able to test the multi-language function of the ExpressVote.

2. How would you rate the accessible features?

Poor	Fair	Good	Excellent
		3	

- I like the ExpressVote. I did not use the machine with the audio on, so I can't evaluate this from the perspective of a sight impaired voter.
- The AutoMark still was set up with yellow text on a white background when there is an undervote warning. In addition, while on that screen, the voter doesn't have the opportunity to change the contrast of the screen.

3. Rate your overall impression of the system.

Poor	Fair	Good	Excellent
		3	

- I would have liked if the DS200 had the same error message when same ballot was put through. I understand there is a setting that can fix that in the software.
- I like the collapsible ballot box.
- Still runs on Windows 7 as the operating system.

Wisconsin Elections Commission

212 East Washington Avenue | Third Floor | P.O. Box 7984 | Madison, WI 53707-7984
(608) 266-8005 | elections@wi.gov | elections.wi.gov

DATE: For the December 2, 2019 Meeting of the Wisconsin Elections Commission

TO: Members of the Wisconsin Elections Commission

FROM: Meagan Wolfe, Administrator; Richard Rydecki, Assistant Administrator

SUBJECT: Potential Decertification of ES&S Voting Systems

At the September 24, 2019 meeting of the Wisconsin Elections Commission, WEC staff was directed by Commissioners to investigate the potential decertification of Elections Systems and Software (ES&S) voting systems that have been made obsolete due to the recent certification of updated system versions.

I. Implementation Update on 4g Virtual Private Network (4g VPN) Modems

The Commission requested analysis of whether it was feasible to coordinate the certification of ES&S system versions that incorporate modeming using the 4g Verizon Virtual Private Network (4g VPN) with the decertification of earlier releases with 3g modems reliant on a network that would not be supported after 2019. Due to implementation complications and confirmation from cellular service providers that 3g networks will remain supported through the 2020 elections, several counties will not be upgrading to system versions that utilize the 4g VPN for the 2020 election cycle. The counties cited cellular coverage issues reported during implementations in other counties as the main reason for their decision to delay upgrades. Several counties reported inefficient success rates when the 4g VPN modems were tested after installation, with one county stating that almost 33 percent of municipalities could not transmit during testing. This county has completed their upgrade and is currently working on alternative procedures for those municipalities to report unofficial results on election night.

It is expected that 4g VPN modem performance will improve as the infrastructure for the 4g network improves and cellular service providers restructure network-sharing agreements. Currently, in any given geographic area where cellular coverage for a specific provider is weak, that signal can be carried by the infrastructure of another service provider in that area. Verizon is the only service provider included in the system versions that utilize the 4g VPN and other cellular service providers do not have the same level of 4g infrastructure in place to assist with coverage gaps in the Verizon network.

Two additional counties reported they are planning on upgrading to EVS 5.3.4.1, which also utilizes the 4g VPN, pending the Commission's certification decision. If certification were not to occur at the December 2, 2019 Commission meeting, those counties may not choose to upgrade prior to the 2020 election cycle. For these reasons, staff does not recommended decertifying non-4g VPN modem system versions at this time.

II. Recommendations for Decertification

Staff has, however, determined there are several ES&S system versions which are no longer in use in Wisconsin which can be decertified. All of these versions have been replaced through the certification and implementation of subsequent system versions. Each of these recently certified system versions have contained security upgrades to various system components. Staff has confirmed with the vendor that all jurisdictions that previously used these system versions have been migrated to more modern configurations. Based on these factors, staff is recommending that the system versions listed in the below chart be decertified and no longer used to conduct elections in Wisconsin.

System Version	Approved in WI	Modem
Unity 3.2.0.0 Rev. 3	2012	No
Unity 3.4.0.0	2013	No
Unity 3.4.0.1	2013	Yes
Unity 3.4.1.1	2015	Yes

III. Amended Certification of ES&S EVS 5.3.4.0

a. Overview

The Commission certified ES&S system version EVS 5.3.4.0 at its June 11, 2019 meeting and the configuration submitted for approval and tested by staff included only 4g modem versions from three different cellular service providers (AT&T, Sprint and Verizon). This system configuration did not include any versions that utilized 3g modeming technology. At that time, it was believed those networks would not be supported after 2019. Materials submitted with the application for certification of EVS 5.3.4.0 indicate that 3g modems were tested by the Voting System Test Laboratory as part of this release. The test report does not indicate any concerns regarding the compatibility of 3g modems with this system version.

Due to similar implementation concerns identified with EVS 6.0.5.0, one county has requested to amend the certification of EVS 5.3.4.0 to include 3g modems. This county had several sites that could not successfully transmit test results to the county office using the 4g modems but had not previously experienced difficulties sending results using the 3g modems. They have also received written confirmation from their cellular service provider that the 3g network in their area will remain supported through 2020. In order to ensure timely transmission of accurate election results for the 2020 election cycle, this county would like the option to utilize 3g modems for several locations where 4g coverage was not adequate. In response to this request, staff organized a functional test campaign where voting equipment with 3g modems was tested to ensure this configuration was reliable.

WEC staff conducted testing of EVS 5.3.4.0 with 3g modems in three counties: Marathon, Rock, and Sauk between November 19 and November 22, 2019. In consultation with each county clerk, WEC staff selected three municipalities in each county to serve as locations for testing.[1] The municipalities were selected in part because of the strength of the wireless networks in the community, or lack thereof, and the municipal clerk's willingness to host the test team.

The modem in the DS200 communicates with the jurisdiction's wireless carrier via cellular modem to transmit unofficial election night results to a secure server at a central office location, such as the county clerk's office.

[1] Sauk County: Village of Spring Green, Town of Merrimac, Town of Exelsior
Rock County: City of Janesville, Town of Harmony, Town of Center
Marathon County: Village of Weston, Town of Marathon, Town of Wien

Wireless transmissions rely on networks from Verizon. The server hosts a secure file transfer commercial off the shelf software package. A firewall provides a buffer between the internal network where the server is located, and other internal or external networks. The data that is transmitted is encrypted and it is digitally signed. The modem function may only be used after an election inspector has closed the polls and entered a password to access the control panel. The network is configured to only allow authenticated connections to connect to the SFTP server. The firewall further restricts the flow and connectivity of traffic.

b. Functional Testing

WEC staff conducted functional testing of 3g modems for EVS 5.3.4.0 in Sauk, Rock, and Marathon counties based on the *Voting Systems Standards, Testing Protocols and Procedures Pertaining to the Use of Communication Devices in Wisconsin.* A four-person team of WEC staff conducted this testing campaign. Two representatives from ES&S were on hand in each county to provide technical support. ES&S provided three (3) DS200s in each county, equipped with the appropriate style of modem to be tested. Also provided by ES&S as part of testing was a portable EMS environment, which included an SFTP client, firewall, and ERM software. In two locations, ES&S set up the portable environment in the county office to receive test election results from each municipal testing location. Rock County had already implemented EVS 5.3.4.0 so its existing environment was used for testing in that county. In each municipal location, WEC staff inserted a pre-marked package of 10 test ballots through the DS200 to create an election results packet to transmit to the county office. A WEC staff member was present at the county office to observe how the portable EMS environment handled the transmissions.

i. Marathon County

On November 20, 2019, WEC staff conducted tests on the EVS 5.3.4.0 3g modem component in three municipalities: Village of Weston, Town of Marathon, and Town of Wien. ES&S conducted pre-testing of the EVS 5.3.4.0 3g modem component in Marathon County prior to testing. A DS200 equipped with a 3g cellular modem was tested in all three municipalities. A test script was used to ensure that each machine conforms to the communications device standards and was able to transmit accurate election results data from the DS200 to the Election Reporting Manager.

Municipality	Type of Modem	Signal Strength
Village of Weston	Wireless	2-3 bars
Town of Marathon	Wireless	3-4 bars
Town of Wien	Wireless	2-3 bars

WEC staff successfully transmitted election results from each of the three municipalities using 3g modems. The test script calls for the verification of several certification standards and then requires 10 results sets to be transmitted from each DS200. The machines were able to successfully transmit multiple results with a 100% success rate during this portion of testing. The functional testing concluded with a stress test where WEC staff attempted to transmit results simultaneously from all the machines for a set period of time and each machine was able to transmit multiple results sets during that 20-minute timeframe. Staff were able to transmit at least 13 sets of results from each location without further issue.

Location	Modem Type	Initial Transmission	Load Test Results
Village of Weston	Wireless	10 of 10	16 of 16
Town of Marathon	Wireless	10 of 10	13 of 13
Town of Wien	Wireless	10 of 10	15 of 15
Totals		**30 of 30**	**44 of 44**

ii. Sauk County

On November 21, 2019, WEC staff conducted tests on the EVS 5.3.4.0 modem component in three municipalities: Town of Excelsior, Town of Merrimac, and Village of Spring Green. ES&S conducted pre-testing of the EVS 5.3.4.0 modem component in Sauk County prior to testing. A DS200 equipped with a wireless modem was tested in all three municipalities. The same test script that was used in Marathon County was again used during this portion of the test campaign.

Municipality	Type of Modem	Signal Strength
Town of Excelsior	Wireless	2-3 bars
Town of Merrimac	Wireless	3 bars
Village of Spring Green	Wireless	3-4 bars

WEC staff successfully transmitted election results from each of the three municipalities using wireless modems. The test script calls for the verification of several certification standards and then requires 10 results sets to be transmitted from the DS200. The three machines each were able to successfully transmit all 10 results sets during this portion of testing. The functional testing concluded with a stress test where WEC staff attempted to transmit results simultaneously from all the machines for a set period of time and each machine was able to transmit at least 18 results set during the stress test with zero overall transmission failures.

Location	Modem Type	Initial Transmission	Load Test Results
Town of Excelsior	Wireless	10 of 10	18 of 18
Town of Merrimac	Wireless	10 of 10	20 of 20
Village of Spring Green	Wireless	10 of 10	21 of 21
Totals		**30 of 30**	**59 of 59**

iii. Rock County

On November 22, 2019, WEC staff conducted tests on the EVS 5.3.4.0 modem component in three municipalities: Town of Harmony, Town of Center, and City of Janesville. ES&S conducted pre-testing of the EVS 5.3.4.0 modem component in Rock County prior to WEC testing. A DS200 equipped with a wireless modem was tested in all three municipalities. The same test script that was used in Marathon and Sauk Counties was again used during this portion of the test campaign.

Municipality	Type of Modem	Signal Strength
Town of Harmony	Wireless	3-4 bars
Town of Center	Wireless	1-2 bars
City of Janesville	Wireless	3-4 bars

WEC staff successfully transmitted election results from each of the three municipalities using wireless modems. The test script calls for the verification of several certification standards and then requires 10 results sets to be transmitted from the DS200. The three machines each were able to successfully transmit all 10 results sets during this portion of testing. The functional testing concluded with a stress test where WEC staff attempted to transmit results simultaneously from all the machines for a set period of time and each machine was able to transmit at least 15 results sets during the stress test with only two transmission failures.

Location	Modem Type	Initial Transmission	Load Test Results
Town of Harmony	Wireless	10 of 10	20 of 20
Town of Center	Wireless	10 of 10	15 of 17
City of Janesville	Wireless	10 of 10	20 of 20
Totals		**30 of 30**	**55 of 57**

IV. Recommended Motions

Motion 1: The Wisconsin Elections Commission adopts staff recommendation to decertify ES&S system versions Unity 3.2.0.0 Rev. 3, Unity 3.4.0.0, Unity 3.4.0.1 and Unity 3.4.1.1, so that they can no longer be used in Wisconsin elections.

Motion 2: The Wisconsin Elections Commission adopts staff recommendation to amend the certification on ES&S EVS 5.3.4.0 to allow for the use of 3g modems.