

State of Wisconsin\Government Accountability Board

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MEMORANDUM

DATE: For the March 19, 2014 Board Meeting

TO: Members, Wisconsin Government Accountability Board

FROM: Michael Haas
Elections Division Administrator

Prepared and Presented by:
David Buerger
Elections Specialist

SUBJECT: Electronic Poll Book Research – Final Report

I. Introduction

This memorandum is the final version of the research report commissioned by Director Kennedy on the subject of electronic poll books (see Appendix A). This report contains background on the subject of electronic poll books as well as Board staff's recommendations as to minimum system requirements and required functionalities. Board staff also propose a testing and approval process for the Board to follow in the event that approval of a system by the Board is requested under Wis. Stat. § 6.79(1m). Finally, Board staff recommends further study and analysis of the costs and benefits of developing an electronic poll book solution and requests the Board to direct staff to conduct such a study.

The Board has no pending requests for approval of an electronic poll book system, and this report is being submitted for the Board's review and feedback as well as further direction. Staff recommends leaving the proposed standards open for the time being, to provide further opportunity for local elections officials, electronic poll book vendors, and the public to provide feedback, and to provide the Board with further time to consider these recommendations.

II. Background

The poll book is the primary resource for administering elections at the polling place. At its core, the poll book serves three primary functions:

1. Eligibility Check

- Is this person registered to vote?
- Has this person already voted in this election? Is there an absentee ballot outstanding that was issued to this person?
- Does the poll book reflect any unresolved issues regarding this person such as a requirement to provide proof of residence (POR)?

2. Record of Voter Activity on Election Day

- Voters are required to sign the poll book. Wis. Stat. § 6.79(2)(a).
- Election inspectors are required to assign a sequential number to each elector who votes. Wis. Stat. § 6.79(2)(b).
- Election inspectors are required to record notations in the poll book for a variety of special situations (assistance, challenge, extended hours, provisional ballots, etc.) Wis. Stat. §§ 6.82, 6.95, 6.96, 6.97.
- Municipal clerks are required to record who has voted at each election. Wis. Stat. § 7.15(4).

3. Audit Trail

- Increases confidence by identifying the voters (by name, address, and signature) who were issued ballots for an election for post-election follow-up as necessary.
- Can also serve as a diagnostic tool for resolving discrepancies between ballots issued and ballots counted.

The poll book contains a listing of all registered electors in the reporting unit by name and address. It is where election officials record the serial number assigned to each elector who votes at an election. It is also where voters are required to sign before receiving their ballot. Finally, it is where a number of special notations may be recorded such as POR required, Absentee, Challenged, Assisted, etc. that indicate for election officials when special action is necessary or was taken on Election Day (see Figure 1).

Figure 1 – Current Paper Poll Book

NP-1	0014360538	SKINNER, Brian A	Brian A SKINNER	10
WD1		6941 S SOUTHFIELD BLVD APT E7	<input type="text"/>	10
41265-001-4018-1		OAK CREEK, WI 53154		
AL1 CG01 4018 AS21				
Notes:				

Electronic poll books bring the traditional paper poll book into the digital era. Depending on the system, an electronic poll book may appear as a dedicated, proprietary piece of hardware (much like voting equipment) or simply a common laptop or tablet that has the electronic poll book software loaded on it for Election Day and can be re-used for other purposes the rest of the year (see Figure 2, page 3).

Figure 2 – Electronic Poll Book Systems



Electronic poll books are a relatively new tool for election administrators, but are already being used in at least part of 24 states for checking-in pre-registered voters, recording voter signatures, processing Election Day registrations, updating voting history, or looking up a voter’s correct polling place.¹ Election officials in several states report that electronic poll books facilitate faster check-in by pre-registered voters and significant time-savings post-election due to the ability to upload voter registrations and voter participation directly into their electronic voter registration lists.

The Presidential Commission on Election Administration (PCEA) also received testimony from numerous witnesses regarding the “extraordinary value” that they have derived from electronic poll books.² The PCEA noted that in a national survey of election officials, electronic poll books was one of the most frequently identified innovations that respondents desired.³ The PCEA ultimately recommended that “jurisdictions should transition to electronic poll books.”⁴

Typically electronic poll books are loaded with voter registration information in the days immediately preceding the election to capture any last minute voter registration or absentee voting activity. The systems are then deployed to the polling place with other polling place supplies, materials, or voting equipment. If the system requires significant setup (running extension cords, connecting to local networks, etc.), staff from the clerk’s office may choose to set up the equipment the night before the election to ease the burden on poll workers.

On Election Day, election officials use the electronic poll book in a similar manner to a paper poll book except that instead of needing to split a paper poll book into

¹ U.S. Election Assistance Commission, Election Administration and Voting Survey (2012), available at http://www.eac.gov/research/election_administration_and_voting_survey.aspx.

² Presidential Commission on Election Administration, The American Voting Experience: Report and Recommendations, at 44 (2014), available at: <https://www.supportthevoter.gov/files/2014/01/Amer-Voting-Exper-final-draft-01-09-14-508.pdf>.

³ *Id.* at 45.

⁴ *Id.* at 44.

alphabetically-divided sections to provide multiple stations for voters to check-in, each electronic poll book can check-in any voter. Additionally, electronic poll books offer more ways for pre-registered voters to check-in. A voter would still be required to announce their name and address like they would to check-in at a paper poll book, but instead of an election inspector needing to page through a paper book to find the voter's record, an election inspector can simply type in the first few characters of the name or address to find the voter's record. Another alternative that synergizes well with voter photo identification requirements is scanning barcodes or magnetic strips to read identifying information directly from a driver license or other ID card.

Once the voter is verified as being registered, the voter is directed to sign the poll book. Using an electronic poll book, the voter can sign using a digital signature pad similar to using a credit card at a store or they can sign directly on the screen of the device. The signature can be digitally captured and printed on a hardcopy receipt or label. Alternatively, a receipt or label can be generated with a line for the voter to sign in order to capture a "wet" signature.

After the voter has been checked-in and provides their signature, the election inspector issues a voter number. This number is typically written on paper poll books and has proven to be a potential source of confusion at the polling place when election inspectors inadvertently skip a number or use the same number more than once. An electronic poll book eliminates the potential for human error at this stage by automatically assigning sequential voter numbers.

Once a voter number has been recorded, a voter is typically given a slip of paper bearing their voter number and ballot style to exchange at another station for their ballot. Electronic poll books can provide a similar slip by printing a receipt with the voter number as well as an indication of the voter's ballot style if multiple types of ballots are available. These printed receipts can also serve as a useful auditing tool to ensure that the number of voters recorded as voting in the poll book balances with the number of ballots issued at the polling place, which should also match the number of ballots in the ballot box.

Poll books are also the document where a variety of notations are recorded for special situations at the polls such as a voter receiving assistance with voting, challenges to a voter's eligibility, etc. In a paper poll book, these notations are often squeezed into the small space available for notes (see page 2, Figure 1). With an electronic poll book, these notations are not constrained by physical space. Additionally, electronic poll books can guide election inspectors through these special situations step-by-step while simultaneously creating a record showing that proper procedures were followed in that special situation.

Electronic poll books also offer other features outside of their function as poll books. Electronic poll books can be used to process Election Day voter registrations, allowing for speedy upload of those voter registrations to the Statewide Voter Registration System (SVRS) instead of time-consuming data entry, which also introduces human errors into the process. Electronic poll books can also automate the process of entering voter

participation into SVRS. Instead of the traditional hand-recording of individual voters from a paper poll book, an electronic poll book can simply generate a file which can be quickly uploaded directly into SVRS to update each voter record accordingly. In many jurisdictions which use electronic poll books, election officials upload voter participation immediately on Election Night. This feature would be especially useful for quick upload and tracking of outstanding provisional ballots issued on Election Day and could eliminate the laborious practice of maintaining a separate provisional ballot log.

Electronic poll books can also serve as a resource to voters who show up at the wrong polling place. Traditionally, if a voter appeared at the wrong polling place for their address they could only be redirected if the election inspectors at that polling place knew the proper polling place or had access to another resource (e.g., MyVote.wi.gov, ward map combined with the Type D notice, etc.) Many electronic poll books can serve as that resource and can print directions from the current polling place to the correct polling place for the voter.

Wisconsin law currently permits the use of electronic poll books if the system used is approved by the Government Accountability Board. Wis. Stat. § 6.79(1m). At this time, no municipality uses electronic poll books for their elections, although a few municipalities have inquired about the possibility. Approximately ten municipalities have used computers in select polling places during higher turnout elections so they can use the online assisted voter registration capability of the MyVote.wi.gov website. MyVote's online assisted voter registration process is similar to the Election Day Registration functionality of an electronic poll book in that it eliminates the need for post-election data entry of the voter registration form, but the voter information must still be manually added to the paper poll list.

III. Analysis

Board staff has pursued a number of paths in researching and preparing for the potential use of electronic poll books in Wisconsin including interviewing election officials in states currently using electronic poll books, surveying Wisconsin election officials, reviewing existing commercially-available electronic poll book systems, examining the relevant legal framework, and discussing with the Board's IT staff the technical options and feasibility of either integrating a commercial product with SVRS or creating a Wisconsin-specific electronic poll book system.

A. Interviews of Election Officials Using Electronic Poll Books

As part of its research, Board staff contacted several election officials in jurisdictions that are currently using electronic poll books. Board staff asked a broad range of questions to elicit details about system configuration, initial and ongoing costs, training needs, and overall satisfaction with the system by clerks, election inspectors, and voters. Board staff contacted election officials in many states, but found the responses of officials in Iowa, Michigan, Ohio, and Minnesota most useful for this analysis.

1. Iowa

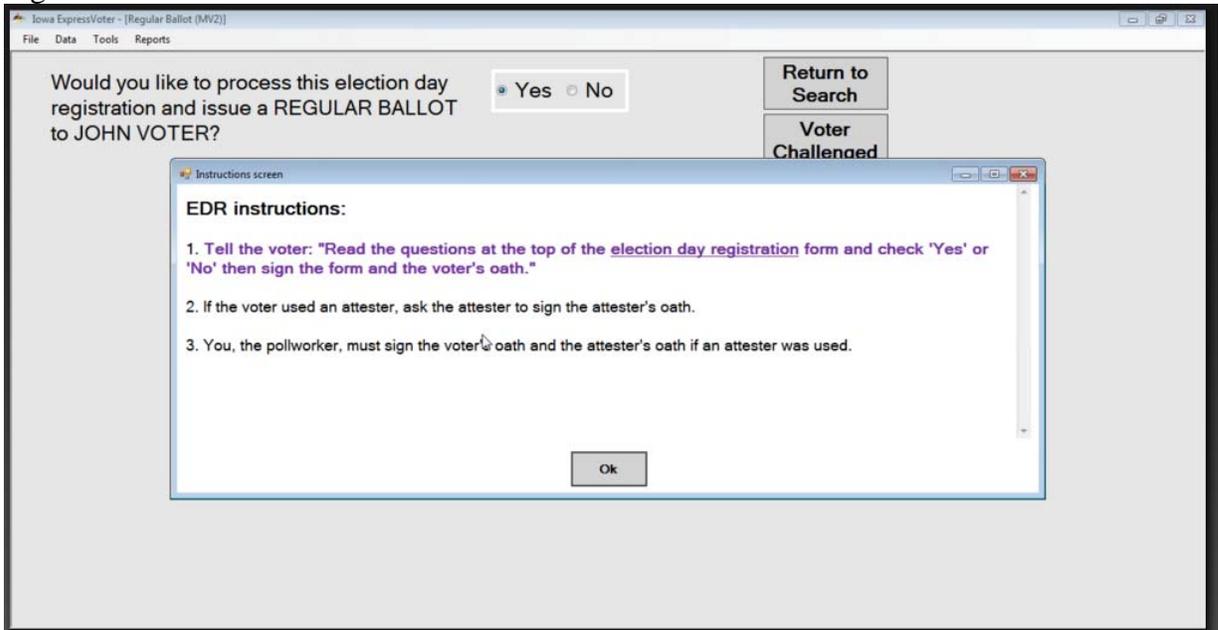
Cerro Gordo County began investigating the use of electronic poll books in 2009 due to troubling observations from the November 2008 election. Election officials noticed that poll workers had difficulty in navigating Iowa's increasingly complex election procedures. This challenge was further compounded by the fact that most poll workers only work two to four times per year, so opportunities to put training into practice were limited.

In 2009, Iowa started using electronic poll books as part of a pilot study in Cerro Gordo County. By the end of 2010, approximately 40 counties were using the first State-built electronic poll book system. Iowa has built and utilizes two electronic poll book systems: one managed by a consortium of counties, the other by the Iowa Secretary of State's office. Currently, over half of the state's 99 counties are using one of the two systems. The State provided financial incentives to the counties to use electronic books. Initial costs were relatively modest and ongoing costs are minimal. The Iowa Secretary of State predicts 70 counties will be using one of the systems by the 2014 fall elections.

Iowa initially experienced some resistance to the idea of using electronic poll books from poll workers, primarily from those with limited experience with computers. To address this concern, Iowa used small group training classes focused on teaching poll workers basic computer proficiencies, such as how to navigate with a mouse or read the electronic poll book screen.

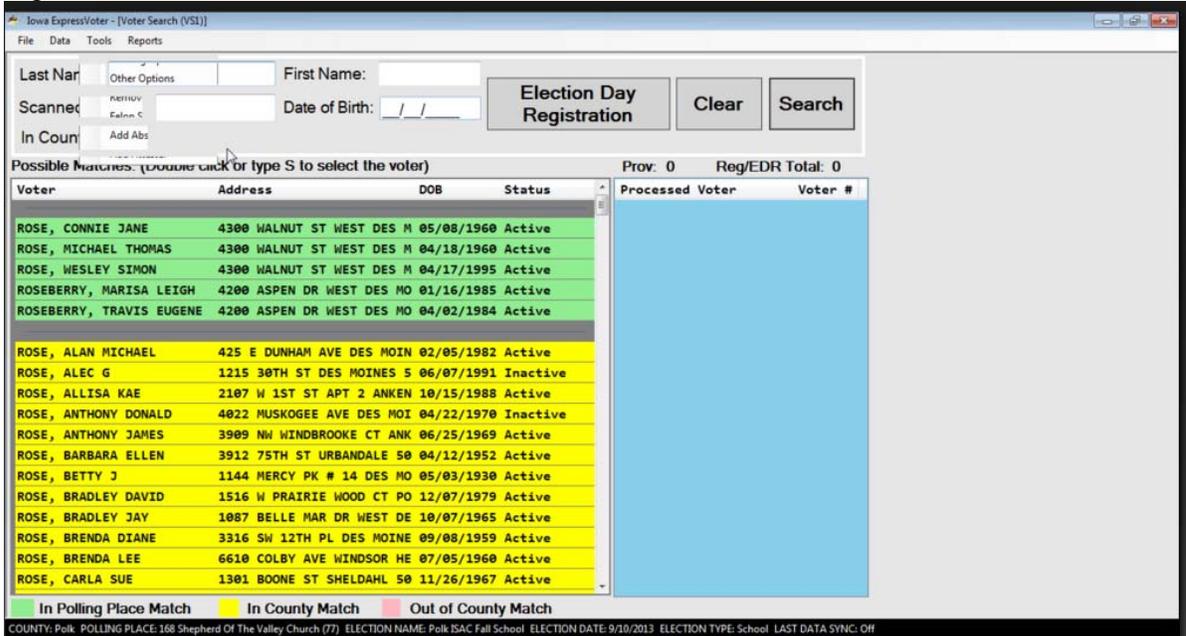
The State's electronic poll book systems were designed to guide poll workers through the process step-by-step via a series of questions and other prompts that ensure poll workers are following the correct procedure for any given scenario, and also provide instant access to the latest editions of training resources if more information is needed (see Figure 3). The system can walk the poll worker through almost every election-related scenario possible with detailed instructions, from processing an Election Day registration to issuing a provisional ballot. The system also identifies voters who may need specialized assistance, generating a help ticket with more details, and directs those voters to a different line or table for processing.

Figure 3 – IA EPB Election Official Instructions



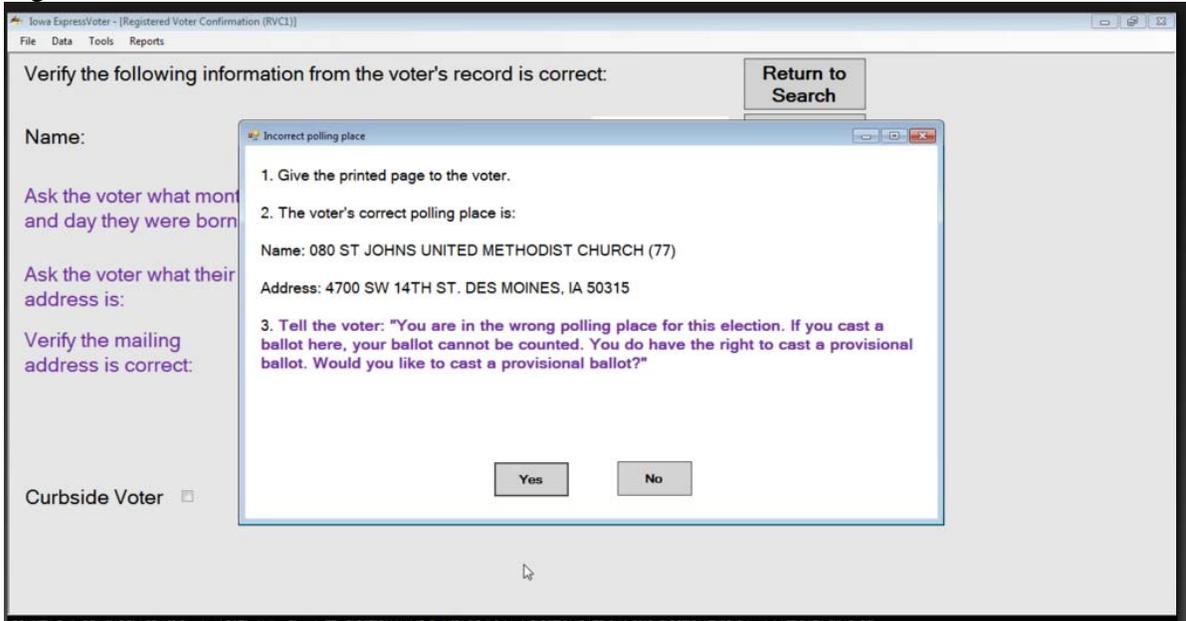
Names of voters on the electronic poll list are color coded according to their registration status (see Figure 4). For example, green voters are registered in the precinct; yellow voters are registered in the county, but not this particular precinct, etc.

Figure 4 – IA EPB Voter List



When the voter's name is displayed, instructions in purple tell the poll worker what information needs to be verified and instructions provided to voters (see Figure 5). Once verified, a ballot number is issued. The system prints a voter eligibility slip that the voter signs. The slips are kept for record retention and reconciliation purposes, if needed.

Figure 5 – IA EPB Voter Instructions



2. Michigan

The State of Michigan also decided to build their electronic poll book system from scratch. It started the project in 2005-2006, but a full commitment to the project did not begin until 2008. The State purchased the initial equipment for jurisdictions that decided to use the electronic poll books using federal funds provided by the Help America Vote Act (HAVA), but ongoing maintenance and replacement costs are borne at the local level. Michigan had funding available primarily because it already had a statewide voter registration system in place when HAVA was enacted. Approximately 80% of jurisdictions are now using the electronic poll books, including almost all of the largest jurisdictions.

Michigan estimates that it pays about \$600 per laptop computer and costs for development of the electronic poll book system were less than \$100,000. State and local officials are very pleased with the system, particularly because it is tailored to their needs. It has generally improved efficiency at the polling place and saves local election officials significant time by allowing for upload of voter participation directly into the statewide voter registration system.

Michigan officials report that, while some poll workers were initially hesitant about the electronic poll books, they have become comfortable with the use of the new technology, and now would resist going back to paper poll books. Like Iowa's system, the Michigan electronic poll books include on-screen instructions that guide the poll workers through the process, based on state laws. Michigan officials also noted that they feel that current commercially-available electronic poll book products are too generic and require considerable work to link with their statewide voter registration system. They emphasized that, despite representations made by some vendors, electronic poll books are not just "plug and play" systems. Vendor delivered electronic poll books require significant effort to initially configure and deploy, as well as additional effort to update as election laws and procedures change.

3. Ohio

Ohio is considered a "bottom-up" state, meaning that each county operates its own voter registration system, which in turn integrates with the statewide registration system. This decentralization applies to many aspects of election administration in Ohio, including the use of electronic poll books. Individual counties can choose to purchase an electronic poll book system, but must then integrate it with their voter registration system. Currently 12 out of 88 Ohio counties are using electronic poll books. The City of Dayton is the largest municipality using electronic poll books at all polling places. The City of Cleveland has conducted a pilot and plans to implement electronic poll books before the next election.

Counties can select from any vendor, but the most popular system in Ohio has been the ES&S ExpressPoll system because of its synergy with ES&S-supported voting

equipment.⁵ Also, as Ohio requires voter photo identification, election officials also appreciated the ability to swipe the magnetic strip of the driver license through a card reader to quickly and easily identify the correct voter record.

Thus far, the State has not been involved in the purchasing, development, or management of electronic poll books. However, a recent state law now requires the Ohio Secretary of State's office to certify electronic poll book systems and the State is beginning the process of developing these certification standards (see Appendix B).

The counties using electronic poll books have generally been very satisfied with them. Election workers overall have also been supportive after they have familiarized themselves with the new system. Ohio also tries to use its high school and college student election workers whenever possible to set up the electronic poll books to ease the burden on election workers who are less comfortable with new technology.

4. Minnesota

The State of Minnesota conducted an electronic poll book pilot in conjunction with its November 5, 2013 elections. The pilot was authorized by an act of the Minnesota Legislature, which is considering further legislation regarding electronic poll books. The act also established an Electronic Roster Task Force to examine broader issues with electronic poll books including data security, statewide networking, and the possibility of importing DMV photos into the electronic poll book for use on Election Day.

Minnesota had some limited experience with electronic poll books, but this was the first state-level pilot. The pilot was originally planned to determine how electronic poll books could be used to facilitate Election Day Registration, but was expanded to include having pre-registered voters check in using electronic poll books. An open invitation was extended to vendors to participate in the pilot and ultimately five vendors chose to participate. A diverse group of five municipalities (large, small, urban, rural) were selected for the pilot. Prior to Election Day, participating vendors presented training to the participating election officials.

Board staff requested permission to observe the Minnesota pilot and was authorized by the Minnesota Secretary of State's office to observe at the various pilot polling locations. Board staff visited 10 polling places participating in the electronic poll book pilot to gather information regarding both the vendor systems being used and how they were used. Board staff interviewed election officials at the municipal, county, and state level to gather information on the pilot and the lessons learned from using electronic poll books. The hands-on experience gained visiting the polling sites and meeting with Minnesota election officials was very useful and their cooperation is appreciated.

In all pilot sites, voters were checked in using both the electronic poll book as well as a paper roster, which served as the official record. This redundant process made it difficult

⁵ The ES&S ExpressPoll system can program the voter activation cards that are required to use ES&S AccuVote TSX system.

to discern if there was any significant time-savings in the check-in process; however poll workers reported that they believed the electronic process was faster, particularly if the voter presented an ID. Poll workers also stated that they liked the ability to check-in any voter at any station instead of having voters queue up according to sections of the alphabet.

Poll workers also liked the systems that were capable of handling Election Day registrations as it meant that voters did not need to be redirected to another station and could be issued their voter number immediately after registering rather than having to wait in line a second (or third) time. As this was a pilot, poll workers entered the Election Day registration into the electronic poll book, but then printed out the application on paper and voters signed the paper form as the official record. Due to the relatively low-turnout election, Board staff did not get an opportunity to observe the Election Day registration process at each polling place, but did interview poll workers about their experience with the functionality when possible.

Voter participation in the pilot was voluntary, but nearly all voters that Board staff observed chose to participate and appeared to respond positively to the new electronic process despite being asked to sign twice, once on paper and once digitally. Formal voter feedback on the process was obtained via a short survey that was handed out as voters were leaving the polling place.

The Minnesota Secretary of State's Office published its findings and recommendations from both the Electronic Roster Pilot Project and the Electronic Roster Task Force on January 31, 2014 (see Appendices E & F). The reports make a number of Minnesota-specific recommendations and also recommend an expanded study of electronic poll books be conducted at the 2014 General Election to address issues discovered in the 2013 pilot and test the systems at a higher-turnout election. However, there were some general feedback and recommendations with which Board staff agrees:

1. Allow voters to check-in using only the electronic poll book. A separate paper record should only be required if the electronic poll book system has failed.⁶
2. The State should not require that electronic poll book systems use dedicated hardware. However, the state should establish minimum security standards for any such multi-purpose hardware.⁷
3. The State should engage in a "build or buy" analysis regarding electronic poll book software.⁸

⁶ Office of the Minnesota Secretary of State, *Electronic Roster Pilot Project: Legislative Report and Evaluation* (2014), at page 43.

⁷ Office of the Minnesota Secretary of State, *Electronic Roster Task Force: Findings and Recommendations* (2014), at page 12.

⁸ *Id.* at 13.

These recommendations will be further discussed in the Staff Recommendations section below.

B. Survey of Wisconsin Election Officials

The introduction of electronic poll books to the landscape of Wisconsin elections would automate a number of processes that historically have only been performed manually. Doing away with manual processes that are rife with opportunities for human error would help to ensure accurate election documentation, increase the efficiency of election inspectors, accelerate and enhance the voting experience, and ease the post-election workload for municipal clerks.

Board staff works in partnership with local election officials and regularly seeks their input before making decisions or recommendations that will impact them or the process at the local level. To gauge their receptiveness to the possibility of utilizing electronic poll books as well as attempt to identify areas of concern, Board staff asked municipal clerks to answer a short survey.

Table 1

Do you have a preference for a paper poll book vs. an electronic poll book?		
Answer Options:	Response Percent	Response Count
Paper poll book	50.9%	444
Electronic poll book	7.7%	67
No preference	7.1%	62
I don't have enough information to form an opinion	34.3%	299

The survey results show a strong preference for paper poll books over electronic poll books (see Table 1). However, roughly one-third of respondents indicated a need for more information, which suggests that at least some clerks who indicated a preference for paper poll books may have done so primarily due to a lack of familiarity with electronic poll books.

Table 2

How do you think your poll workers will feel about using electronic poll books?						
Positive	Mostly Positive	Neutral	Mostly Negative	Negative	Rating Average	Response Count
17	75	205	393	182	3.74	872

While Board staff did not survey election inspectors directly, clerk responses indicate that they believe their election inspectors would not have a positive reaction to using

electronic poll books (see Table 2). Again, this may be due in part to a lack of familiarity. However, it may also be an accurate assessment of poll worker attitudes towards new technology or procedures. A common complaint from election officials is that election procedures are changing too rapidly or without sufficient time for training.

Table 3

What do you think are the possible advantages of electronic poll books? Please select your top five advantages from the following

	Answer Options	Directions to correct polling place	Processing of EDRs	Upload to SYRS	Greater accuracy	Post-election auditing	Photos in e-poll book	Electronic supplemental poll list	Electronic ineligible voter list	Provisional ballot tracking	Embedded training	Electronic signatures	Response Count
1	38	288	119	99	48	26	18	27	8	14	33	718	
2	25	124	149	121	64	43	59	30	6	21	41	683	
3	25	81	60	104	88	55	89	61	16	19	53	651	
4	36	44	45	78	77	52	90	73	18	44	57	614	
5	27	43	34	47	59	42	66	84	26	61	93	582	

In assessing possible advantages and disadvantages, responses suggest that clerks are aware of and appreciate the benefit electronic poll books offer with respect to processing election-day registrations and recording voter participation. However, cost and anticipated resistance from inspectors top the list of disadvantages.

Table 4

What do you think are the possible disadvantages of electronic poll books? Please select your top five disadvantages from the following

	Answer Options	Initial implementation costs	Ongoing costs	Poll workers not comfortable with technology	Perceived risk of fraud, hacking, etc.	Learning curve and associated problems/delays	Potential for system breakdowns	Observer concerns regarding transparency	List not being maintained in duplicate	Response Count
1	391	65	246	35	21	53	7	17	835	
2	135	254	176	65	95	71	12	21	829	
3	81	115	175	102	139	154	23	33	822	
4	65	87	55	88	174	211	51	64	795	
5	44	89	46	108	101	182	84	115	769	

C. Review of Commercially-Available Electronic Poll Books

To better understand how electronic poll books could be used in Wisconsin, Board staff set out to survey the market to determine the capabilities and functionalities of existing commercially-available electronic poll books. Board staff contacted electronic poll book

vendors and reviewed vendor websites and other information to develop a matrix of features (see Appendix C). Please note this review was limited to the features reportedly available from each product and Board staff is not recommending approval of any system for use in Wisconsin at this time.

The most common feature of all electronic poll books surveyed was the ability to scan driver license and identification cards to quickly identify or populate a voter registration record. The exact method by which the ID is scanned varies. Some systems use a magnetic strip reader while others use a camera to decode a two-dimensional barcode such as those on the back of Wisconsin driver licenses (see Figure 6). However, no product that staff reviewed had the capability to read other forms of identification such as student or veteran's ID cards. It is believed that such flexibility is possible, but not currently supported by the vendors surveyed.

Figure 6 – Two-dimensional barcode



Another common feature was the ability to import and export voter data to and from the electronic poll book in a format that could be downloaded from and uploaded into SVRS to eliminate the need for costly data entry and other manual processes. Please note that all systems would require some initial configuration and development by Board IT staff to integrate with SVRS (see Section E, at page 15).

Features that enhanced flexibility were among the more uncommon features. Only one product allowed for changes in policies and procedures through the user interface. Only two were built with an open architecture that would allow compatibility with both existing legacy voting systems and newer technology in voting equipment. Systems with multilingual support, FIPS-level encryption, and the ability to interface with other databases such as the Department of Correction's ineligible voter list were also relatively rare. Lastly, no product surveyed currently supports a "confidential voter" option, which is likely to be a requirement for a Wisconsin electronic poll book to comply with Wis. Stat. § 6.47.

D. Statutory Framework

While Wis. Stat. § 6.79 provides that the poll list may be maintained electronically, that statute as well as several other provisions would benefit from revision to maximize the cost-savings that can be realized by using an electronic poll book and otherwise account for the fact that the poll list may be maintained in an electronic format. Suggested revisions include the following:

Statute	Relevant Text	Suggested Revision
§6.45(1)	The municipal clerk shall make copies of the list for election use.	<p>While this language can be read to include “electronic” copies, it clearly contemplates a time when lists were physically photocopied and not simply printed from SVRS.</p> <p>Also there is a need for corrective legislation in this section in any event to fix an error resulting from 1999 Act 49.</p>
§6.46(2)	If a copying machine is not accessible, the clerk shall remove the lists from the office for the purposes of copying...	Strike “if a copying machine is not accessible” and replace with “if producing copies of the lists at the clerk’s office is not possible”
§6.79(1m)	Two election officials at each election ward shall be in charge of and shall maintain 2 separate poll lists...	<p>With electronic poll books, two election officials maintaining two separate lists is unnecessary.</p> <p>Also, such a requirement seems to be at odds with subsection (2).</p>

§6.79(1m)	If the lists are maintained electronically, the board shall prescribe a supplemental list that contains the full name, address, and a space for the entry of the signature of each elector...	Electronic poll books can capture a signature electronically; there is no need for a separate physical supplemental list. Requiring such a list would remove much of the benefit of having an electronic poll book.
§7.23(1)(e)	Poll lists created for any election may be destroyed 22 months after the election at which they were created.	Add, "Electronic poll books may be cleared or erased after the latest day for the filing of a petition for a recount under § 9.01 for any office on the ballot. Before clearing or erasing the electronic poll book, a municipal clerk shall transfer all data required to reproduce the voter list to a disk or other recording medium which may be erased or destroyed 22 months after the election for which the list was created."

Additionally, provisions should be added to Chapter 5 of the Statutes to define "electronic poll books" separately from voting systems. A suggested definition would be "the combination of mechanical, electromechanical, and electronic equipment (including the software, firmware, and documentation required to program, control, and support the equipment) that is used to access and maintain the electronic poll list."

The Board should also promulgate an administrative rule describing standards for testing and approval of electronic poll books which would be similar to Wis. Admin. Code GAB Chapter 7. As electronic poll books do not count votes, it is not anticipated that the testing and approval process should mirror the process of voting equipment testing and certification. However, these devices will be repositories for sensitive information and serve as an important check on the voting system and should be subject to an appropriate level of testing and review before being approved for use. See the "Recommendations" section at page 20.

E. Integration of an Electronic Poll Book System with SVRS

The specific technical requirements for integration of an electronic poll book system with SVRS will vary greatly depending upon how electronic poll books are implemented. Several factors will determine these requirements, including:

1. Build versus Buy: Should Wisconsin develop its own electronic poll book based on Wisconsin-specific requirements (like Iowa or Michigan did), or should Wisconsin allow counties or municipalities to purchase vendor solutions (like Ohio and Minnesota)?

Two of the states interviewed by Board staff (Iowa and Michigan) chose to build an electronic poll book themselves based on their own state's statutory and business process requirements. In both states, use of electronic poll books is optional, but all jurisdictions that use electronic poll books use the systems developed by the states.⁹ These states were able to customize their electronic poll books around their unique statutory requirements and business processes, and are able to adapt their solutions based on feedback from their election officials. The Iowa system even includes instructions to poll workers that are specific to Iowa's laws. Both states reported a very high level of satisfaction with their systems, both at the state and the local levels. Both states also reported that the cost to develop the state system was dramatically lower than the costs to localities to purchase vendor systems.

Potential advantages of building an electronic poll book system include creating a customized solution specific to Wisconsin's needs, reduced overall cost, ability to improve the system based on user feedback, and ease of integration with the statewide voter registration system. The primary disadvantage would be the software development costs incurred at the state level, which are unknown at this time. Board staff recommends further analysis of the potential costs and benefits. This analysis must also include whether to allow local clerks to purchase and use vendor e-poll book solutions while a state system is being developed, and whether to continue to allow vendor systems to be used after the state system is implemented. See the "Recommendations" section below at page 22.

Advantages of allowing counties or municipalities to purchase vendors solutions include more choices, quicker implementation, less overall state-level technical costs (simply integrating with vendor solutions as opposed to developing the electronic poll book solution itself), and costs being kept at the local level. Potential disadvantages include lack of optimization for Wisconsin election procedures, increased overall costs, and state costs to integrate vendor solutions into SVRS.

⁹ Iowa has two systems available but both were built as custom Iowa solutions. One that was developed jointly with the Iowa Secretary of State's office and a participating county, and one that was developed solely by the Secretary of State's office.

2. Single Vendor or Multiple Vendors: If the Board chooses to approve commercial electronic poll book systems for local jurisdictions to purchase, should the Board limit its approval to a single vendor or allow multiple vendors?

Two of the states interviewed by Board staff (Ohio and Minnesota) have a more decentralized model where they allow each county to choose any electronic poll book vendor. Use of electronic poll books is optional in both of these states. In Ohio, the electronic poll books interface directly with the county-level voter registration systems and not the statewide voter registration system, so each county must do the necessary technical work to import and export data between the electronic poll book and their local voter registration system. However, most localities in Ohio have selected the same electronic poll book vendor, so there may be some re-use of technical work between counties. Ohio is also in the process of setting standards at the state level, which may include requirements that the vendors be able to interface with the statewide voter registration system in a consistent manner.

In Minnesota, electronic books have only been piloted, but the current intention is to allow counties to select the appropriate vendor, and require all vendors to comply with the state's standards for import from and export to the statewide voter registration system. Compliance with state standards may be a requirement for certification.

Key advantages of allowing multiple vendors include allowing counties and municipalities greater choice in the system they want (subject to state standards) and potentially lower costs due to competition between vendors. Potential disadvantages include the complexity of integrating multiple vendor systems with the statewide voter registration system, greater difficulty in supporting them at the state level, and a more complex process to add or change features if changes to the law are made.

Advantages to approving only a single vendor include consistency and uniformity, lower costs to integrate with SVRS, and a single point of contact if modifications need to be made to support changes in Wisconsin law. Potential disadvantages include increased cost (no competition), lack of choice at the local level, and dependence on a single vendor.

3. Accommodate vendor data formats or require vendors to use G.A.B. data formats: If multiple vendor solutions are purchased, should the Board write separate import and export functions for each vendor poll book based on their capabilities, or should vendors be required to comply with a standard import and export schema in order to be certified?

In Board staff's review of standards from other states that use electronic poll books, a common requirement is that the system must import and export the data in a format specified by the state. Such a standard would potentially reduce state-

level SVRS integration costs in a multiple vendor scenario, but may also hamper certification of some systems.

IV. Recommendations

Board staff has developed recommendations as to minimum system requirements, required functionalities, a testing and approval process for the Board to follow in the event that approval of a system by the Board is requested under Wis. Stat. § 6.79(1m), and some initial standards for implementation if a system is approved. Additionally, Board staff recommends further study and analysis of the costs and benefits of developing an electronic poll book solution and requests the Board to direct staff to conduct such a study.

As indicated above, no electronic poll book system is currently pending approval, and no final action is required at this time on these proposed standards. Leaving the proposed standards open at this time also provides further opportunity for local elections officials, electronic poll book vendors, and the public to provide feedback and permits the Board with further time to consider these recommendations. Board staff's recommended motions are included in the conclusion of this section.

A. Minimum System Requirements

1. **Documentation** – The electronic poll book and any peripheral devices must include documentation which fully describes the system, how to use the system, and the steps to access the various features of the system. This documentation may include, but is not limited to, system overview, software and hardware descriptions, user guides and technical manuals, and security procedures.
2. **Safety** – The electronic poll book and any peripheral devices must be designed and built with components that limit the risk of injury or damage to any individual or hardware and minimize the risk of fire or electrical hazards.
3. **Accessibility** – The electronic poll book and any peripheral devices must be designed for easy handling and use by all election officials and voters. This includes the weight of the pieces of the system, ergonomics of the pieces, screen size and shape, screen contrast, and typeface and size.
4. **Durability** – The electronic poll book and any peripheral devices must be designed to withstand continuous use on Election Day.
5. **Data Encryption** – The electronic poll book system must encrypt all data stored locally as well as transmitted across a network.
6. **Voting System Isolation** – The electronic poll book and any peripheral devices must not communicate or be connected to the voting system used at the polling place.

7. **Device Security** – Any components of the electronic poll book system that are used for other purposes prior to Election Day should be purged of any software and/or data not related to the upcoming election prior to being placed into service for an election.
8. **Network Security** – The electronic poll book system should be capable of transmitting data across a network to a central server or other electronic poll books. The system must be configured to prohibit connections to or from any network other than the authorized network.
9. **Audit Log** – The electronic poll book system should produce a record of all user actions.
10. **Data Backup** – The electronic poll book system should be configured to allow for data recovery in the event of a system failure.
11. **Power Backup** – The electronic poll book system should be designed to allow for continued use in case of battery failure or loss of electricity and including sufficient battery power, if applicable, and the ability to charge the battery quickly, if applicable.
12. **Data Transfer** – The electronic poll book system should be capable of import and export of data with the Statewide Voter Registration System (SVRS) in a data format specified by the Board. Specific requirements include:
 - a. Ability for the e-poll book to accept a file of pre-registered voters in the State standard format that can be loaded into the e-poll book directly by the election official without requiring additional manipulation.
 - b. Ability for the e-poll book to accept a file containing updates (including late registrations and absentee ballot requests processed after the initial e-poll book load) in the State standard that can be loaded directly into the e-poll book by the election official without requiring additional manipulation.
 - c. Ability for the e-poll book to export a file of election participation, in the State format, which includes all of the State-specified fields, which can be loaded directly into SVRS by the election official without requiring additional manipulation. The file must include both pre-registered voters that were loaded onto the e-poll book ahead of the election, as well as supplemental voters that were added after the e-poll book was loaded (election day registrations and late registrations received after the e-poll book was loaded)
 - d. Ability for the e-poll book to export a file of Election Day registrations, in the state standard format, which includes all of the state-specified fields, and which can be imported into the SVRS directly by the election official without requiring additional manipulation.

B. Required Functionalities

1. **Ease of Use** – The procedures for set up, use, and shutting down the electronic poll book system must be reasonably easy for an election official to learn, understand, and perform.
2. **List Storage** – The electronic poll book system must have the capability to store a list of voters, street addresses, polling locations, and ineligible persons adequate to support any jurisdiction in Wisconsin.
3. **Name/Address Search** – The electronic poll book system must have the capability to quickly search a list of voters by name or street address to support any jurisdiction in Wisconsin.
4. **Polling Place Lookup** – The electronic poll book system must be able to accurately determine a voter's ward and correct polling place by name or street address and, if the voter is not eligible to vote in that polling place, generate a locally-configurable notice to the voter containing the name and address of the voter's correct polling place.
5. **Reading of Identification Cards** – The electronic poll book system must have the capability to read information from either a magnetic strip or barcode and automatically search the voter list using that information to find the correct voter registration record, if any. If an associated voter registration is not found, the electronic poll book system must have the capability to import any relevant information from the magnetic strip or barcode consistently and correctly into a new voter registration record.
6. **Capture of Electronic Signatures** – The electronic poll book system must have the capability to capture an electronic signature.
7. **Election Day Registration** – The electronic poll book system must have the capability to accept new voter registrations and update existing voter registrations on Election Day.
8. **Customizable Embedded Training** – The electronic poll book system must provide embedded training opportunities to the user that are locally customizable.
9. **Ineligible List Matching** – The electronic poll book system must be able to compare new and updated voter registrations against the ineligible person list and notify the election inspector of a potential match.
10. **Incident Reporting** – The electronic poll book system must allow for detailed notes to be recorded for each voter record to document incidents and must be able to print any associated documentation.

11. **Election Documentation** – The electronic poll book system must be capable of producing necessary post-election documentation for retention as required.
12. **Audit Trail** – The electronic poll book system must be capable of providing a user-readable, printable audit trail/record of all user actions.
13. **Confidential Voters** – The electronic poll book system must be capable of maintaining a separate list of confidential voters and withholding confidential information related to those voters.

C. Testing and Approval Procedures

As part of its research, staff reached out to election officials in jurisdictions that are currently using electronic poll books to find examples of testing and approval processes. Of the states examined, the majority do not have a formal certification process in place. The exception is the State of Indiana, where the Indiana Code provides detailed functional and technical requirements for the electronic poll books that will be certified. Furthermore, the legislation requires that the State's Voting System Technical Oversight Program (VSTOP) perform or evaluate testing on the electronic poll books (see Appendix D).

As electronic poll books will utilize information contained in the Statewide Voter Registration System (SVRS) for purposes of conducting elections at the municipal polling places, Board staff would recommend that the Board require an appropriate level of testing and review to ensure that all systems used in the State of Wisconsin comply with minimum system requirements and required functionalities, as prescribed by the Board.

At a minimum, Board staff would recommend that the evaluation of an electronic poll book contain the following levels of review:

1. **Administrative Review of Application Documents** – The electronic poll book vendor/manufacturer should be required to submit an application to the G.A.B. for evaluation. The application shall include the following information and any other information deemed necessary by Board:
 - a. Description of electronic poll book system
 - b. Manufacturer's affirmation that the Board shall be notified of any modification prior to making any offer to use, sell, or lease equipment
 - c. Production of a full and redacted set of the following:
 - i. Equipment specifications
 - ii. All technical manuals and documentation related to the system
 - iii. Complete instructional materials
 - d. Reports from voting systems testing laboratories (VSTL) either accredited by the U.S. EAC or a VSTL approved by the Board indicating compliance with Wisconsin's minimum system and functional requirements
 - e. A list of municipalities, counties, or states using the system

- f. If any portion of the application or materials provided to the Government Accountability Board 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 entire electronic poll book system or even an 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
 - g. Manufacturer’s agreement to prepare the electronic poll book system for a test of the functionality or usability of the system developed by Board staff
 - h. Manufacturer’s agreement to keep the Board informed of all hardware, firmware and software changes and all jurisdictions using the electronic poll book system as a condition of maintaining the Board's approval for the use of the electronic poll book system
 - i. Manufacturer’s agreement to escrow, at its expense, a copy of the programs, documentation and source code used for any election in the state with an agent approved by the Board
 - j. Manufacturer’s attestation that the system meets the minimum system and functional requirements for use in Wisconsin
 - k. Manufacturer’s agreement to pay all costs incurred by the state related to testing the electronic poll book
2. **Functional Configuration Audit** – After receipt of the electronic poll book system from the vendor/manufacturer, Board staff will examine the system to ensure that it performs in accordance with the vendor/manufacturer’s specifications.
3. **Telecommunications Test** – G.A.B. staff will test the ability of the electronic poll book to transmit and receive data electronically and communicate with a poll list server.
4. **Acceptance Testing** – After certification, each county or municipality which has contracted for an electronic poll book will conduct an acceptance test at the time of delivery. This acceptance test will focus primarily on the ability of the electronic poll book to communicate with the (County/State) server in downloading and uploading appropriate data. Approval of the electronic poll book may be revoked if it fails the acceptance test.

Board staff also recommends that for good cause shown, the Board may exempt any electronic poll book system from strict compliance with the above standards.

D. Other Recommendations

1. A paper record of each voter's signature should only be required as part of a contingency plan in the event the electronic poll book system fails.
2. Specific implementation standards should be developed for clerks who choose to use an approved e-poll book, to include (but not limited to) the following:
 - a. Staff should do further analysis and study regarding the safety issues of networking poll books together within a single location, across locations, and between polling locations and central servers.
 - b. Staff should do further analysis and study regarding security, storage, and other technical and business implications of loading multiple jurisdictions' data (such as neighboring municipality's, countywide, or statewide) on e-poll books to facilitate better routing of voters to correct polling places.
 - c. Staff should do further analysis and study regarding the procedure and appropriate timeline for voter lists to be updated with data from late registrants and last minute absentee voting activity.
3. The Board should direct staff to engage in an analysis of the costs and benefits of developing custom electronic poll book software for use in Wisconsin.

V. Conclusion & Recommended Motions

Board staff would again like to thank the many election officials nationwide who contributed to this research project. Electronic poll books are a rapidly developing technology and offer many potential benefits to election administration, but like any tool, must be fully understood before they can be used most effectively.

Board staff recommends extending an invitation to election officials, vendors, and other interested parties to review this research, and particularly the proposed requirements, and to provide their feedback so that these standards can be further refined. As such, no final action is requested on those standards at this time. Board staff recommends the following two motions:

Recommended Motion: The Board directs staff to solicit and review feedback on the recommendations presented in this report and to further develop procedures, standards, and proposed legislative changes related to electronic poll books, and to report to the Board at a future meeting.

Recommended Motion: The Board directs staff to conduct an analysis of the costs of developing a custom electronic poll book solution for use in Wisconsin and to not accept applications for approval of any electronic poll book system until the Board has had an opportunity to consider this analysis.