



Preliminary Optical Scan Survey Results

New York State has been voting exclusively on lever machines¹ for generations. Due to this lack of experience with any other type of voting systems, many of our local and state officials often accept false or inaccurate statements made about precinct based optical scan systems by supporters of touchscreen/pushbutton style voting machines (DREs) as fact. False statements about optical scan systems, such as ballot printing costs, numbers of machines required, and HAVA compliance have been disseminated by vendors and some election officials in an effort to dissuade New York from purchasing what in practice is a reliable, mature, auditable and cost effective voting system.

The facts are that precinct based optical scanners are used in nearly 30% of polling places around the United States, and have been performing remarkably well in elections for 20 years. One would expect that if the statements made about optical scan by DRE proponents were true, that many states would abandon their existing systems to replace it with something better. But almost no states who are currently using precinct based optical scanners are abandoning this technology at a moment when they could do so. State after state currently using optical scanners are planning to keep them or expand their usage² as they move towards full HAVA compliance in 2006.

In New York State, there seems to be a fundamental misunderstanding about how optical scan systems work in the real world. In order to have some substantive information about optical scanning, New Yorkers for Verified Voting is conducting a survey of other states with many years of experience with optical scan systems. Election officials from these states are able to provide real world experience and realistic costs of acquisition, training and operation.

Our survey is still in progress, but the responses we have received so far show a wealth of positive experiences with optical scan systems. We've decided to publish this preliminary data in order to counter some of the inaccurate statements being made about this popular, robust voting technology.

How We Conducted the Survey

We obtained a list of 865 counties in the United States which use precinct based optical scan systems. We requested by phone or email answers to a set of survey questions related to usage of their systems. This is can be a laborious process, as connecting with a knowledgeable person who can answer the questions can take multiple contact attempts and lots of "phone tag". At the time of this writing, we have received responses from 9 states. Typically, respondents replied to some but not all of the survey questions. In several cases, we got an email response summarizing their experience with scanners rather than specific responses to our questions (several of these are reproduced here).

Survey Questions Asked

We asked questions in the following categories:

- Typical Duration Times for Voters Using Paper Ballots and Optical Scanners
- Maintenance Costs and Lifetime of Optical Scanners
- Training Costs for Poll Workers and Voters
- Number of Ballots Printed Per Election
- Formula for Determining Required Number of Optical Scanners
- Procedures –Testing, Election Day Set Up, Close Down Procedures
- Poll worker and Voter Training

¹ With the exception of several precincts in Saratoga County which use DREs.

² Michigan, Arizona, Oklahoma, South Dakota, North Dakota, Rhode Island, and West Virginia among others are going 100% optical scan in 2006.

Typical Duration Times for Voters Using Paper Ballots and Optical Scanners

Average time to fill out ballots in privacy booth	
Alabama	Varies – usually no more than a minute.
District of Columbia	Rarely more than a minute or two.
Florida	A few minutes.
Iowa	A few seconds, depends upon lines.
Minnesota	Depends on election, from 15 seconds to several minutes.
Oklahoma	Depends – faster than touch screen – no scrolling.
Average time to for scanner to scan ballots, per voter	
Alabama	A few seconds.
District of Columbia	A few seconds.
Florida	A few seconds.
Iowa	2 seconds.
Minnesota	Instantaneous.
Oklahoma	Insignificant.
Do lines form waiting to use scanners	
Alabama	No.
District of Columbia	Rarely – when several people walk up at once.
Florida	Rarely.
Iowa	No lines.
Minnesota	No, they form waiting to use booths and to register to vote.
Oklahoma	No lines.
How long is the typical wait on line to use the scanner	
Alabama	No line.
District of Columbia	None.
Florida	5 seconds.
Iowa	None.
Minnesota	None. The scanner is not an encumbrance.
Oklahoma	None – couple seconds.

Maintenance Costs and Lifetime of Optical Scanners

How long have optical scanners been used?	
Alabama	Most since 1980's – some early 1980's
District of Columbia	Since 2002
Florida	Since mid 1990's
Iowa	Six years
Minnesota	4 years. Ramsey County has used optical scan since 1987.
Oklahoma	Since 1990
What is the anticipated life expectancy of the scanners in use?	
Alabama	10 to 20 years
District of Columbia	10 years
Florida	10 years
Iowa	12+ years
Minnesota	10 years
Oklahoma	15 years or more
What is the failure rate of scanners as a percentage of the total?	
Alabama	No failures and only minor repairs.
District of Columbia	None.
Florida	Unknown – not reported.
Iowa	None with precinct based scanners.
Minnesota	.03% per election.
Oklahoma	1 of 3,000
How much is budgeted for maintenance cost of scanners?	
Alabama	No separate budget line, but vendor contract by counties – fee unknown.
District of Columbia	No special budget line – routine.
Florida	Varies by county.
Iowa	Less than mechanical lever machines.
Minnesota	~\$125 per year
Oklahoma	Routine.

Training Costs

What are approximate Poll worker training costs?	
Alabama	Vendor provides as per county contracts.
District of Columbia	Unknown.
Florida	No state data.
Iowa	About same as with mechanical lever machines.
Minnesota	~\$45.00/election judge/year
Oklahoma	None.
What are approximate Voter training costs?	
Alabama	ES&S provides as per county contracts.
District of Columbia	Unknown – machines available for trial at several locations before election.
Florida	No state data.
Iowa	Nothing special.
Minnesota	~\$.01/voter/year
Oklahoma	None.

Number of Ballots Printed Per Election

How many ballots are printed (as a percentage of registered voters)?	
Alabama	Varies – largest number of ballots cast over last four elections plus margin as determined by county.
District of Columbia	110%
Florida	110%
Iowa	100%
Minnesota	118% for Federal General Elections (Local General Elections and primaries varies by expected turnout)
Oklahoma	90%

Formula for Determining Required Number of Optical Scanners

How do you determine the required number of scanners?	
Alabama	One precinct counter for each 2400 registered voters/precinct.
District of Columbia	One scanner per polling place.
Florida	There is no statewide formula. Counties decide.
Iowa	One scanner per polling place.
Minnesota	One per polling location.
Oklahoma	One scanner per polling place.

Election Day Procedures

How long does it take to prepare a polling place on Election Day?	
Alabama	About one hour – few minutes for scanners.
District of Columbia	Varies by size – never more than 1.5 hours.
Florida	No more than an hour.
Iowa	Less than one hour.
Minnesota	1 hour.
Oklahoma	Not sure – a few minutes.
What procedure is followed if a scanner fails during an election?	
Alabama	Seal and continue paper ballots in alternate storage. Some precincts have more than one device and may use that alternative.
District of Columbia	Scanner can be swapped or ballots isolated.
Florida	Counties determine. May use alternate scanner, save ballots, or destroy ballot and switch to DRE.
Iowa	Deliver a substitute –no delay as paper ballots are then collected and scanned by poll workers.
Minnesota	Try to resolve issue over the phone, then replace scanner by election staff if necessary.
Oklahoma	Secure ballots and continue to vote.

Close Down Procedures

Please describe ballot handling procedures at end of day	
Alabama	Witness, seal, and hold locally. Deliver memory module and printout to central location.
Florida	Paper ballots are retained by precinct until 90 days after election certification.
Minnesota	Write ins are separated and sealed, voted ballots are sealed and stored for 22 months
What procedures are used to move ballots to central storage?	
Alabama	If not counted centrally they are held locally for a period of 90 days unless challenged.
District of Columbia	Bonded carrier.
Florida	Physical delivery of memory module by certified poll workers.
Iowa	Sheriff's posse member stores data box in bag and carries to central office.
Minnesota	They are brought in by the election judges.
Oklahoma	Poll workers deliver along with the memory module from the scanner. Oklahoma does not send the data from the polls via telecomm – only the memory modules delivered by certified poll workers.

Poll Worker and Voter Training

How easy or difficult is training for poll workers?	
Alabama	Very easy and no complaints.
District of Columbia	Some are resistant.
Iowa	They love it!
Minnesota	2 hours, every other year.
Oklahoma	No difficulty.
Average age of poll workers?	

Alabama

Email Responses

In some cases, respondents did not complete the survey questions but simply sent an email with their thoughts on their usage of paper ballots and optical scanners. Following are two.

Michigan Email Response

Date: Tue, 26 Apr 2005 09:56:11 -0400

Thank you for your email. I'm happy to discuss Michigan's experience with optical scan. We have chosen optical scan as our statewide voting system.

We have qualified three vendors (ES&S, Diebold and Sequoia) to sell equipment in Michigan. Each county chooses a vendor for the entire county.

We chose to go with optical scan for many of the reasons you discuss. We have concerns about paper trail and Michigan has had good experiences with optical scan systems for more than a decade. Michigan is a heavy recount state and we find that optical scan ballots are quite compatible with recounts. We are not opponents of DRE systems. We simply feel that optical scan is a better choice for our state.

We have not yet chosen a disability system, but we are looking closely at Automark and similar technologies.

It is true that optical scan ballots are a cost that DRE equipment does not have and the cost can be substantial. It is my strong sense, however, that the initial investment in DRE equipment and its ongoing costs (optical scan equipment can easily last 15-20 years; I would be surprised if the same is true of DRE) more than even out the total costs of ownership. Storage of DRE equipment requires much more space and environmental considerations than optical scan.

It's also worth mentioning that no DRE system can handle Absentee Ballots, so most DRE states use optical scan for AV processing. Therefore, DRE systems do not eliminate the cost of ballots.

As part of our contract negotiations with optical scan vendors, we negotiated ceilings on the cost of producing ballots. The website below provides comparisons of ballot costs for our three vendors. Election officials can negotiate lower prices if they are able to do so. We also "encouraged" vendors to open up the printing process to as many printers as possible for the purpose of allowing market forces to drive down the price.

We have considerable other information available on our website that you might find helpful:

http://www.michigan.gov/sos/0,1607,7-127-1633_11619_27151-91711--,00.html

Please let me know if I can provide you with any additional information.

Timothy M. Hanson
Director, Program Development Division
Michigan Bureau of Elections

North Dakota Email Response

Date: Thu, 21 Apr 2005 17:43:35 -0500

North Dakota made the decision to stay with paper ballots read by optical scanners for several reasons that I will detail below. We are confident in our decision because it was reached by way of consensus among state election officials, local election officials, advocacy groups, political parties, and other interested parties.

* Prior to HAVA, 48 of the state's 53 counties used some form of optical scan technology for ballot tabulation. This meant that most of us are comfortable in knowing how to cast a vote. The difference now, since we are using precinct optical scanners rather than central scanners, is that voters are notified by the tabulation equipment if they have made an error in voting and are offered the chance to spoil their present ballot and vote a replacement ballot. We were a little concerned that voters might be intimidated by this "second chance voting" feature, but we are pleased that voters have been thankful in knowing that their vote for a certain office will not count if the ballot is cast as is. For example, it used to be that all the votes on the political party portion of ballot were not counted on nearly 20% of the ballots cast in Primary Elections because the voters failed to follow the instructions directing them not to cross vote between the parties. Last June, election workers across the state heard people say that they never knew that those votes weren't counted if they voted for people from different political parties and they were glad to now have the chance to make their votes count. Some people fail to read instructions even when they are printed several times on the ballot.

* Certainly a DRE is much better at making sure that voters cannot over vote, cross vote, or any of the other common voting errors, yet we needed to evaluate the cost of all of the voting equipment. In order to provide DRE's for every voter, we would need to spend far more money on equipment than we are receiving from HAVA payments. The ballots from a polling location serving 1000 voters can be tabulated by one precinct optical scan at a cost of around \$5,000, but that same precinct using DRE's would require five machines at a cost of no less than \$15,000. And that is before any VVPT device would be added.

* Another factor taken into consideration was that many of the state's senior citizen population said that they would not go to the polls to vote if they had to vote on a "computer," which is what they think of the DRE machines. Based on this reaction by a large portion of our population, we were led to believe that absentee voting would increase dramatically. Being that paper ballots would be needed for absentee voters, our counties would still be hit with the cost of printing many paper ballots and this would add even greater costs to elections.

* North Dakota was not immune to the concerns that a ballot cast on a DRE would not leave a physical ballot for a paper trail. This fear may have developed from people who are not aware of all of the facts, nonetheless it is still something that made people wonder if they could trust the system.

The cost of establishing confidence in DRE's in a state used to optical scan technology could not be determined.

* The AutoMARK has been far and away the voting system of choice for all those who cannot complete their ballots by hand. Time and time again the people in our state with disabilities have said how much they like the fact that they are given the same ballot as someone who can fill out their ballot without the assistance of a machine. And the fact that a ballot marked by the AutoMARK can be reinserted into the AutoMARK for audio verification of votes recorded gives tremendous confidence to blind voters who cannot rely on their sight for verification. Many individuals who are blind are anxiously waiting for June 2006 so that they can vote independently for the first time in their lives.

* It is our opinion that voting with DRE's could only be lower in cost if everyone voted using the machine. Printing the first paper ballot for a precinct is the most expensive ballot of all. The cost per ballot is only decreased by quantity. Since there will always be voters who will choose to vote absentee, a jurisdiction will need to print paper ballots for every election. Therefore, where would any savings be found especially when it is considered that additional equipment would be needed to tabulate absentee ballots.

I apologize that I have not given hard concrete numbers for you to crunch, but I hope my thoughts will be helpful in your deliberations. Our system works in ND, but we realize that it would not necessarily be the best for every other state in these United States. I hope your process goes well.

Jim Silrum, Deputy Secretary of State