An Analysis of the

Request for Proposals (RFP) for Voting Machines in Connecticut

By TrueVoteCT, Sept 30, 2005

The State of Connecticut cannot continue using lever machines in federal elections past 1/1/06 and must provide accessibility to the disabled to comply with the federal requirements of the Help America Vote Act (HAVA).

The State currently has an RFP that calls for one accessible, HAVA compliant DRE voting machine per polling place. However, there is no mention of Optical Scan or Ballot Marking devices in this RFP. TrueVoteCT is concerned that if one accessible DRE machine is purchased for each voting place, all of the lever machines may need to be replaced by DREs.

TrueVoteCT[1] believes that the current RFP is a costly mistake and that it should be amended or reissued for the following reasons:

- DREs are the most expensive voting machine to **purchase.** There is $24M of HAVA funds available for voting machines and the estimated cost to replace the lever machines with DREs is $42M [2]. This creates an $18M shortfall that will have to be picked up by the state and municipalities.
- DREs are the most expensive option to **operate and maintain**. Large expenditures will have to be made by municipalities every election cycle[3].
- DREs have had numerous, documented **problems** (see following pages).
- DREs are extremely **complex**. Local election officials are almost totally dependent on the manufacturers of the DREs to run elections.
- DREs **lack transparency**. No one is allowed to examine their code.

Other technologies are available that comply with HAVA.

- Optical Scan technologies are available at about **half the cost** of DREs[2]. The Secretary of State has received enough HAVA money to pay for them outright[2] – **at no cost to us**.
- Optical Scan technologies have **much lower election cycle costs** than DREs.
- Optical Scan technologies are **mature** and known.
- Optical Scan technologies combined with ballot marking devices are available that are more **accessible** to the disabled than any other available system.
- Optical Scan technologies are available that provide **voting integrity**.
- Optical Scan technologies are available that **comply with HAVA**.
- Optical Scan technologies are available that **do not have the problems** listed above.

We ask you to read the following document, and if you agree that DREs are the wrong option, please contact the Secretary of the State's office and ask Susan Bysiewisz, to scrap or amend the current RFP. In the past, Ms. Bysiewisz has claimed that the RFP cannot be amended or reissued, but the RFP itself (section 8.3) contains language allowing either action if it is in the best interests of the State.

Details

HAVA Compliance

To comply with HAVA, the state will be required to replace the lever machines that are currently used in Connecticut's elections and provide accessibility for the disabled. There are three potential replacement options:

1) **Replace all lever machines with sufficiently many DREs**
2) **Use DREs for disabled voters and Optical Scanners for others**
3) **Use Ballot Marking Devices for disabled voters and Optical Scanners to count all ballots**

Option (1) is the most expensive, least reliable option to replace all the lever machines. At this point it seems that the state is favoring option (2) that puts one accessible DRE in each polling place and replaces lever machines with optical scan systems. This solution would keep the purchase cost of replacement machines down but it would result in two different voting technologies for each voting place. Many towns would resist this. There are also concerns that if the State goes ahead and purchases one accessible DRE per voting place, HAVA may require that all the lever machines be replaced with DREs. For these reasons, we believe that this is a poor choice.

Option (3) will provide the most economical, reliable and accessible voting system for the citizens of the State of Connecticut. This system will also provide a consistent voter verified paper ballot for all voters which can be easily reviewed in recounts or sample audits.

DRE Voting Machines

A Direct Recording Electronic or DRE voting machine is a computer that displays the ballot on a screen. A voter votes by touching the screen or by making a keystroke or activating a switch or button. Once the voter performs one of these functions, his or her vote is then recorded electronically into a memory card inside of the computer. While inside the machine, it is under the complete control of the software running on the voting machine. There is no way to verify that the electronic form of the ballot agrees with the screen(s) that captured the voter's intent. If the electronic record is not correctly recorded or is later damaged or lost for any reason, there is no way to recover the voter's intent or to perform a meaningful recount unless there is paper back-up. In Connecticut, a paper record for each vote cast will now legally be required, but it is important to note that the vote of record will be the electronic vote stored in the memory card and not the paper record, unless an audit of the machine reveals a problem with the electronic vote or the electronic votes are lost or damaged.

Optical Scan Voting Systems

In a precinct optical scan system, the voter marks a paper ballot, either with a pen or with the assistance of a computerized *ballot marking device*. The voter then inserts the marked ballot into a scanner, which reads the ballot and also warns the voter of overvotes and undervotes for any office. If any problems are detected, the voter has the option of requesting a new ballot and starting over. After the polls close, the ballots are optically counted at the precinct level. In case of a recount, the ballots can be rescanned by the same or different scanner, or they can be counted by hand. It is important to note that the paper ballot, manually completed by the voter, is the vote of record.

One big advantage that optical scan has over DREs is that it is a very mature technology. Optical scan has been used to grade standardized tests, like the SAT, for decades and almost all of the bugs have been worked out of this technology. DREs, on the other hand, are relatively new and they are experiencing many functional problems due to both software and hardware glitches.

A *ballot marking device* allows voters with various disabilities to mark and verify the paper optical scan ballots without assistance. It is similar to a disabled-accessible DRE machine except that the voter's selections are *not* recorded internally but are instead printed on a ballot form suitable for optical scan. After the ballot is marked, it can be scanned by the ballot marking device and verified by the voter, thereby making even the verification process accessible to the disabled. The voter then inserts it into a scanner for validation, just as one does with a hand-marked ballot. In either case, the ballot is checked for readability and other problems and the voter is given the opportunity to request a new ballot. Voters with mobility impairment may require assistance from poll workers to move the paper from the ballot marking device to the scanner. Nevertheless, their ability to vote privately and independently is preserved through the use of approved privacy sleeves into which the ballot is inserted while being transported to the scanner.

Cost to Purchase

The current RFP calls for the purchase of one accessible DRE voting machine per polling place for the disabled in Connecticut. At the time the RFP was issued, the Secretary of State's office believed that Connecticut only had to purchase one accessible voting machine per polling place for the disabled and the rest of the population could use the lever machines. However, the State has recently learned that all of the lever machines also have to be replaced by 1/1/06, so Connecticut is faced with a monumental decision that could affect voters for decades to come.

Because voters using a DRE machine occupy the machine while making their voting decisions, each DRE machine can accommodate only a small number of voters on election day. Estimates of this number vary between 170 and 350 voters, depending on the type of DRE machine and the complexity of the ballot. With optical scan, the able voter marks a ballot in a voting booth and runs the ballot through the scanner only after all decisions have been made. Because a scanner requires only seconds to read and verify

the ballot, one scanner can handle the ballots of 3000 voters on election day. An all-DRE polling place expecting 3000 voters on election day would require between 9 and 18 DRE machines. That same polling place using optical scan technology would require only one optical scanner and one ballot marking device.

Of course, whatever technology is adopted, it is prudent for a municipality to have spares on hand in case of equipment malfunction on election day. With failure rates as high as 10% being experienced by other states using DRE machines, the current plan of providing only one accessible DRE machine in each polling place virtually assures that a considerable number of Connecticut's disabled voters will arrive at the polls only to discover that, once again, they will be denied the opportunity to vote privately and independently because their accessible DRE machine is out of service. We believe that prudence would put at least one spare of each machine type in each polling place so that if needed, it could be put into service promptly without needing to be moved in from elsewhere in town. Thus, if using DREs then each polling place needs at least two, not the one currently planned, and if using optical scan with ballot marking devices, then each polling place needs at least two scanners and two ballot marking devices.

A cost analysis[2] performed by TrueVoteCT founder and Yale Computer Scientist, Dr. Michael Fischer, states that the cost to replace the lever machines with accessible optical scan systems consisting of scanners and ballot marking devices would be $24 million and the cost to replace them with DREs would be $42 million. **The state currently has $33 million of HAVA funding of which $24M is available to spend on upgrading election systems. Based on Dr. Fischer's analysis it is plain to see that the local municipalities will be faced with substantial capital outlays if DREs are chosen, while HAVA funds would cover the entire cost for optical scan systems with ballot marking devices.** His analysis also shows that the available funding would be sufficient for option (2), DRE machines for the disabled and optical scanners for able voters. However, we cannot recommend that alternative because of the high costs running elections using multiple technologies, the lack of transparency of DRE machines, the many problems they have experienced, and the inferiority of DRE machines compared to ballot marking devices for providing accessible voting to the disabled.

Ongoing Costs to Run Elections

It was thought that because DRE machines did not use paper ballots they would be less expensive to run elections with than optical scan systems, which used paper ballots. This has not turned out to be the case. According to Lester Sola,[3] the Miami-Dade County Elections Supervisor, costs to run elections with DREs tripled from the cost associated with their previous voting system. In fact, due to the excessive costs of running elections with DREs and the problems they experienced with these machines, Mr. Sola and other Miami-Dade Election officials have recommended scrapping the DREs that they spent $24.5 million on only 3 years earlier. They recommend replacing the DREs with optical scan and their forecasts predict that this change will save them money in the long run even when you factor in the $24.5 million that will effectively have been wasted. In addition, the Miami-Dade Election officials believe that this change will produce more accurate elections.

Another study[4] was performed by Dr. Rosemarie Myerson, a retired psycholinguist. Dr. Myerson compared the costs of Manatee County, FL that used optical scan technology to

the costs of Sarasota County, FL that used DREs. After adjusting for population differences, Doctor Myerson found that it cost more than $1,000,000 more or 36% additional cost to run elections with DREs than it did with optical scanners. These additional costs will be passed on to every municipality in Connecticut if the state stays on its current course and purchases DREs.

The excessive costs to purchase and run elections with DREs amount to **unfunded mandates** to the local municipalities in Connecticut.

Documented Problems with DREs

In the November 2004 and other recent elections there have been a disturbing number of problems experienced by voters on DRE voting machines. Here is a sample of just some of these problems:

- In a precinct in Miami-Dade County there was a touchscreen or DRE machine malfunction on one machine that counted votes 3 times creating a discrepancy of 171 votes that became part of the certified canvass in the November 2004 election.[5]
- In Maryland 403 trained pollwatchers at 108 precincts noted 201 machine problems that included machines crashing or freezing, smart card encoder failures, touchscreen failures that included vote switching, review screen malfunctions and many other problems. This number is more alarming when you consider that only 108 out of a total of 1,737 precincts were observed and also because of the difficulty of reviewing how a DRE machine is internally tabulating the vote totals.[6]
- More than 4,500 votes were lost in Carteret County, NC in the November 2004 election because of insufficient memory in the DRE voting machines.[7]
- An error with an electronic voting system gave President Bush an extra 3,893 votes in a precinct where only 638 voters cast ballots in the November 2004 election.[8]
- Voters reported some 1,100 problems with electronic voting machines on November 2, 2004 including trouble choosing their intended candidate.[9]

Complexity of DREs

Because DREs are so complex, local election officials are extremely dependent on employees from the companies that manufacture the DRE voting machines to program, perform maintenance and fix any problems on the DREs. In addition when problems occur on Election Day, DREs have limited options. For instance, if DREs in a local precinct do not work due to loss of power, machine malfunction, etc., voting will be very difficult unless spare ballots were purchased. However, because voters mark paper ballots before processing them through scanners when optical scan is used, a machine malfunction or loss of power will not hamper the act of voting although it will take longer to count the votes. As noted earlier DRE machine malfunctions on Election Day are not uncommon and these problems can wreck havoc with the voting process.

Disabled Voters

DREs have functions that allow certain disabled voters to vote independently and privately. This is the biggest selling point about this type of voting machine. However, there are ballot marking machines that are now available that have the same or better accessibility as DREs.[10] These machines have full federal certification[11] and they produce a voter verified paper ballot. The ballot produced by a ballot marking machine can be processed through a scanner or deposited into a secure ballot box and counted manually. Curtis Chong, the President of the National Federation for the Blind in Computer Science, had this to say about one ballot marking device, the AutoMark machine, "ES&S AutoMark system provides non-visual access to the voting process and I would highly recommend its use in all elections, local, state and federal."[12]

The AutoMark provides accessibility to more types of voters than most DRE machines currently on the market. Adopting the AutoMark for Connecticut would make voting **accessible to more disabled voters** than any of the DRE machines made by Diebold, Sequoia, and other major manufacturers. In addition to tactile keypads, the AutoMark provides binary-switch interfaces, such as sip-and-puff devices, foot pedals, and jelly switches, while most DREs do not. Thus, an AutoMark would be accessible to voters with manual dexterity disabilities who can only vote using a sip-and-puff interface, an option not available on Diebold and Sequoia DREs. The Automark enjoys widespread and growing support within the disability community, and was the top-rated voting system according to a recent survey of disabled voters conducted by the Oregon Secretary of State's office**.**

HAVA Deadline

The Help America Vote Act (HAVA) requires that all lever machines be replaced and that all polling places have a voting machine accessible to the disabled by 1/1/2006. For this reason, it is imperative that the SOTS and the state procurement department work as quickly as possible to amend the current RFP or the State of Connecticut will be stuck with extremely expensive, faulty voting equipment for many years. A new RFP for other technologies, including ballot marking devices for the disabled and optical scan, can still be accomplished but only if the Secretary of the State can be convinced to do what so many believe is best for all of Connecticut.

Why did the Secretary of State Limit the RFP to Only DREs?

You may be asking yourself why would the Secretary of the State (SOTS) not include an option for ballot marking devices and optical scan in the RFP when it appears that this option is so superior to DREs? The main reason that Secretary Bysiewicsz has said is that at the time the RFP was issued, no ballot marking system for the disabled had federal certification. If the state purchased the ballot marking system that was not federally certified, the state would not have been able to use federal HAVA funds for this system and Connecticut would have had to pay for the ballot marking system with state money. This was a very real and legitimate concern.

However, the AutoMark ballot marking system was federally certified in June 2005 and HAVA funds can be used to purchase these machines that are accessible to the disabled. If the state moves quickly, the RFP can be amended to include an option for a ballot marking system for the disabled. This would also allow the state to purchase hand-marked optical scan ballots for the rest of the population. If this solution is implemented then all voters will use an identical paper ballot voting system. It is important to note that many other states and localities are implementing this solution. This would be the best thing for Connecticut for all of the reasons discussed in this report but the only way this might happen is if many local election officials and concerned citizens support this initiative by contacting the Secretary of State's office and writing letters to local newspapers as soon as possible.

Conclusion

In conclusion, TrueVoteCT, as well as many other computer scientists, local election officials, voting activists and concerned citizens across the country have serious reservations about DRE voting machines. DREs are an immature technology that are expensive to purchase, very costly to run elections with, very complex and are prone to glitches and errors. Purchasing DREs at this time is comparable to buying the first PCs to hit the market. Consumers who purchased these PCs paid top dollar for inferior technology and replaced them often as the technology improved and prices came down. This is what the state will be facing if they move forward with the current plan to purchase DREs. A TrueVoteCT representative personally spoke to one of the election officials in Miami-Dade County, the County that has recommended scrapping $24.5 million of DRE voting machines. The Miami-Dade election official said **"any state or municipality that purchases DREs today would have to be crazy".**

In 2004, more jurisdictions used optical scan than any other voting technology, and more ballots were cast using that technology than any other. Some states, including ones as diverse as Oklahoma and Rhode Island, have exclusively used optical scan voting systems. Michigan is now in the process of implementing a statewide optical scan voting system to replace its DRE voting systems with optical scan. In 2005, sales of optical scan voting systems have so far outpaced those of DRE voting systems. Based on the experience that other states have had with optical scan technology and DREs, TrueVoteCT believes that optical scan voting machines, with ballot marking devices for the disabled, would provide the most cost effective and reliable solution for the State of Connecticut.

We ask you to review the facts about DREs and if you agree that the State should amend or scrap the current RFP to include an option for ballot marking devices and optical scan, please contact the Secretary of the State's office and let them know. In addition, a letter to the editor in your local paper would be very helpful in educating the public about voting machines. Thank you for your consideration on this extremely important issue. Contact information for the Secretary of the State's office follows.

TrueVoteCT

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