

Cost Information about Voting Systems

Experience and evidence show that Direct Record Electronic (DRE) voting machines are more expensive than paper-based systems, such as optical scanners:

- ◆ Acquisition costs of DREs are higher than paper-based systems.
- ◆ Operating costs of DREs are higher.
- ◆ Hidden costs of DREs are higher and often unexpected by local officials.

Acquisition Costs

One touch screen DRE can serve about 150 voters during a 12-hour election day,¹ so most polling places using DREs require multiple units. Modern DREs have options or standard features that allow individuals with some types of disabilities to vote independently.

One precinct optical scanner can serve as many as 3000 voters. Since optical scanners, like DREs, can handle multiple ballot styles and multiple languages, most polling places require only one optical scanner. Each polling place using optical scanners also needs one method, such as a tactile ballot template system² or a assistive ballot-marking device, by which individuals with disabilities can vote independently.

The following table compares the approximate acquisition costs of the major equipment needed for five different types of voting systems that could be used in a polling place expecting 750 voters.

System Type	750-Voter Polling Place ³
5 touch screen DREs with integrated VVPAT Printer	\$20,000
5 Paperless touch screen DREs	\$17,500
1 Optical Scanner + 1 Ballot-Marking Device	\$11,150
1 Optical Scanner + Tactile Ballots	\$5,750
Paper Ballots + Tactile Ballots	\$750

Operating Costs

A recent study by Rosemarie Myerson⁴ compared six years of operating expenses of the election offices of two Florida counties: Sarasota with punch cards for 3 years and then touch screen DREs for 3 years to Manatee with optical scanners for 6 years. The results show that the operating costs for DREs were about 1.5 times more than the operating costs for either of the other two types of voting systems.

County	Year	Total Costs	Reg Voters	Cost/Voter
Sarasota (punch cards)	'99-'01 Average	\$1,776,736	216,228	\$8.22
Sarasota (DREs)	'02-'04 Average	\$2,883,658	232,360	\$12.41
Manatee (optical scanners)	'99-'01 Average	\$1,110,911	177,130 ⁵	\$6.27 ⁵
Manatee (optical scanners)	'02-'04 Average	\$1,379,405	182,399	\$7.56

¹ Observations in the Clark County, Nevada election in November 2004 showed voters averaged 5 minutes, 13 seconds to vote for 21 contests.

² http://www.electionaccess.org/Bp/Ballot_Templates.htm

³ One DRE costs about \$3,500. An attached VVPAT printer costs about \$500. A precinct optical scanner costs about \$5,000. A ballot-marking device costs about \$5,400. A simple privacy booth costs about \$150.

⁴ Myerson's complete study is posted at <http://www.votersunite.org/info/costcomparison.asp>

⁵ "Reg Voters" is not available for '99-'01, the number used is from 2002; "Cost/Voter" is an estimate only.

The significantly greater cost of operating DREs has also become apparent in Miami-Dade County, Florida. A recent analysis by the Supervisor of Elections, Lester Sola, shows that election costs — expected to decrease with the use of DREs — have instead soared since the county purchased ES&S iVotronic DREs in 2000 to replace its punch card system.

Mr. Sola says, "Countywide elections through 2000 had generally cost approximately \$1.5 million." He points out that, in contrast, the November 2002 election cost about \$8 million, and the November 2004 election cost about \$7.27 million.⁶

Mr. Sola compared the operating costs of the county's touch screen system to the costs of optical scan systems. He found that the operating costs of optical scanners were so much lower than DREs that the county would save over \$13 million in the next five years if they purchased optical scanners and removed the touch screens from service, even while paying off the \$20 million outstanding debts for the touch screens.⁷

Hidden Costs of DREs

In Mr. Sola's report to the county manager, he recommended replacing the DREs with optical scanners. Among his reasons, he details some of the hidden costs of DREs:

Instead of yielding future savings, as was reasonably expected, the \$24.5 million expenditure led to more required expenditures. Indications are that still more expenditures, never envisioned when the equipment was purchased, are impending. For example, ES&S has informed me that we must replace the back-up batteries in our 7,200 iVotronic terminals at a cost of \$147.50 per unit, or approximately \$1 million, and the batteries in our 7,688 Personal Electronic Ballot (PEB) cartridges at a cost of \$8.00 per unit, or \$61,504.⁸

In contrast to those who claim that the use of DREs reduces election costs by eliminating the cost of printing paper ballots, Mr. Sola estimates **lower** costs for printing, postage, and office supplies when optical scanners are used.⁹

Some of the other costs of DREs, often not anticipated by county officials, include:

- ◆ Secure, environmentally-controlled storage for the machines when they are not in use.
- ◆ Energy costs for keeping the backup batteries charged between elections.
- ◆ Labor costs for security when machines are stored at polling places before an election.
- ◆ Hardware maintenance and repairs and software upgrades for each of the machines. (Optical scanners require much less maintenance and fewer repairs.)
- ◆ Labor costs for hiring additional poll workers (San Diego doubled the number of poll workers when it switched to DREs).
- ◆ Poll worker training, both for longer training sessions and larger number of poll workers to train on using a much more complicated system.
- ◆ Massive costs for replacing the machines when they age and the technology they employ is no longer maintainable or supported by the vendor. (Historically, optical scanners have a useful life of 15 years or longer.)

⁶ <http://www.votersunite.org/info/MiamiInitialReportfromSoE.pdf>, page 4.

⁷ <http://www.votersunite.org/info/MiamiInitialReportfromSoE.pdf>, page 12.

⁸ <http://www.votersunite.org/info/MiamiInitialReportfromSoE.pdf>, page 4.

⁹ <http://www.votersunite.org/info/MiamiInitialReportfromSoE.pdf>, page 22.