

Voting System Requirements and Other Considerations in System Selection
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On Behalf of the
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1. HAVA, Sec. 301(a)(3)—Must provide disability access on at least one machine per polling place
 - *Accessible DRE voting systems (with audio and other features) clearly appear to qualify as fulfilling this requirement.*
 - *Audio equipped ballot markers used to enable a blind voter to mark an optical scan ballot appear to be equally accessible; however, the marked ballot still must be inserted into the precinct tabulator.*
 - *Accessible DRE can be combined with optical scan to meet this requirement.*

2. NCGS 163-165.7(a)—Voting system must generate either a paper ballot or a paper record by which voters may verify their votes before casting them and which provides a backup means of counting the vote that the voter casts.
 - *As a result of this requirement, most existing DRE voting systems in NC were recently decertified by the State Board of Elections. Guilford's current system was among them. A new voting system meeting this and the disability access requirement, needs to be purchased by mid-January 2006 to enable the county to conduct the 2006 primaries in May. (A number of optical scan systems were also decertified for other reasons.)*
 - *Generally, capital costs associated with DRE voting systems are higher than with optical scan systems. On the other hand, operating costs, primarily resulting from ballot printing costs, appear to be higher for optical scan than for DRE.*

3. NCGS 163-165.7(a) & NCGS 163-132.5G--voting system must have the capacity to include in precinct returns the votes cast by a voter outside of the voter's precinct. The reporting by precinct may be delayed until up to 60 days after the election.
 - *In order for absentee (by mail or in-person) votes to be reported by precinct, each precinct and ballot style within a precinct must either be represented by a unique ballots style or be physically identified, manually separated and counted by precinct.*
 - *For the 2004 general election, Guilford County would have had 242 ballot styles rather than the 75 we had when precinct reporting of absentees was not required.*
 - *DRE systems are designed to contain all ballots types for an election and the ballot style can be coded directly from the voter registration system into the activating device for each voter.*

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- *Optical scan systems would require that each ballot style be printed and manually selected by polling place officials for each voter. The more ballot styles, the more complex and error prone this becomes.*
4. NCGS 163-182.1(b)-- Provides for a sample hand-to-eye count of the paper ballots or paper records of a statewide ballot item in every county.
- *The resources needed to accomplish the required audit in the one-week timeframe allowed are, at this time, unknown. The number of precincts that will have to be included in this sample is likely to be higher than most might presuppose. For larger counties, this sample size will almost certainly be in the tens of thousands of ballots in a presidential election and in smaller counties the sample size will certainly be in the thousands.*
5. NCGS 163-182.7A(a)—Expands recount rights to include a hand-to-eye recount in a sample of 3% of the precincts. If the results of the hand-to-eye recount differ from the previous results within those precincts to the extent that extrapolating the amount of the change to the entire jurisdiction would result in the reversing of the results, then a hand-to-eye recount of the entire jurisdiction in which the election is held may be required. There shall be no cost to the candidate for that recount in the entire jurisdiction.
- *In a close election, a minor mistake in a manual recount of only 3% of the precincts could easily be extrapolated to indicate a reversal of election results and lead to a full manual recount of all ballots.*
 - *A complete manual recount of one contest will be roughly \$350 per 1,000 ballots based on the experience in Washington State during the recent Gubernatorial recount. In an election the size of the November 2004 general election, that amounts to near \$70,000 in a county with 200,000 votes (Guilford in 2004) and \$1.25 million statewide. If two or more contests are recounted, as was the case in 2004, the associated costs will be multiples of the single race recount costs.*
6. “Early Voting”-- The emergence of “Early Voting” as a major form of voting in Guilford County (72,000 or 36% in 2004), and in North Carolina in general, has a major impact on election administration and voting system decisions. During “Early Voting” any registered voter may appear to vote at any voting site. Thus, a sufficient quantity of all ballot styles must be available at each site.
- *As mentioned under Item 3, DRE voting machines can automatically provide every voter with the proper ballot and, obviously, an adequate number of DRE machines can “provide” as many ballots as needed.*
 - *With optical scan systems, an “adequate quantity” of ballots would still need to be printed ahead of time. In addition, the proper ballot style for each voter would have to be manually retrieved and provided to the voter.*
 - *Further, if manual separation of ballots by precinct is to be used with optical scan systems, the voter’s precinct would need to be recorded on the ballot for every early voter so that these could later be separated and counted by precinct.*

7. “Voting Centers”-- The voting center concept involves shifting all voting to an “early voting” type of process. With voting centers, a larger number of voting sites would be open for an extended period (perhaps two weeks) prior to “election day.” Any voter could vote at any site. On “election day” additional sites could be opened to insure an equitable and convenient geographic distribution of sites with the vote anywhere procedure remaining in effect.
 - *The chief advantage for the county is that less voting equipment would be needed to conduct an election. A county could likely get by with less than one-half as much voting equipment as would be required for precinct voting.*
 - *As discussed above regarding “Early Voting,” the voting center concept is easier, and probably less expensive, to implement with DRE voting systems than with optical scan systems.*

8. Manual counting of paper ballots/records poses a challenge whether using a DRE or an optical scan voting system. While most DRE paper trail systems appear to be employing, at this point, the continuous roll approach, single sheet paper records may be employed also. Optical scan systems, of course, produce their own paper record on single sheet or multi sheet ballots.
 - *For DRE's with a paper record, a method of efficiently processing the paper record during an audit or recount has not yet been demonstrated. While manually counting optical scan ballot cannot be considered efficient either, at least here there is some experience to rely on.*
 - *On the other hand, an advantage of a paper trail produced from a DRE system is that the candidates voted for would be clearly identified by name.*
 - *With optical scan ballots, straight ticket votes' application to a particular contest must be deciphered and ballots are subject to numerous ambiguous marks that can make determining voter intent difficult.*

9. Logic and accuracy testing will be affected in several ways by the new voting system requirements.
 - *DRE system testing will likely take more time than in the past due to the necessity to also audit the printed ballot records from the L&A testing.*
 - *Testing of optical scan systems will be even more heavily impacted, particularly if ballot styles are used to separate each precinct's ballots. In addition, each precinct's accessible device, whether in the form of an optical scan ballot marker or a DRE machine, also must be tested separately.*

10. Ballot security--Preserving the security of the ballots throughout the process of setting up, executing, counting and recounting an election requires the all potential points of error or mischief be carefully guarded. This requires both physical security and repeated auditing of election inputs and outputs.
 - *Both DRE and optical scan systems generally operate from the same software packages using the same types of computer systems both have the same requirements here.*

- *Both systems require extensive testing and no material advantage appears to accrue to either type of system with regard to testing requirements.*
- *The physical security and integrity of the ballots is often the most difficult to insure. In addition to the required paper record backup, DRE systems preserve electronic copies of the voters' ballots. With optical scan systems, the voters' original ballots are the only copy of the vote.*

11. Ballot integrity is related to the issue of ballot security but extends also to the accurate tabulation of "voter intent."

- *As mentioned above, votes cast on DRE systems result in unambiguous results, both in the electronic record and on the paper record. Properly executed, a manual count of paper records and the electronic count of ballots cast on DRE equipment will yield the same result.*
- *A hand-to-eye recount of optical scan ballots, however, will likely yield material discrepancies from the automated count.² Such discrepancies result from determining voter intent not revealed by the automatic ballot reader, such as mismarked ballots or marks too light to be picked up by the scanner.*

12. Usability: Ease of use by voters and precinct officials is among the most important criteria in selecting a voting system.

- *"Ease of use" is most often perceived to be synonymous with "what we are used to." While familiarity, by voters and precinct officials, is an important consideration, "ease of use" may well not correspond to "what we are used to."*
- *In 2000, the rate of "undervoting" for President on optical scan systems appeared to be lower than the rate of "undervoting" on DRE systems. In 2004, this particular measure of "ease of use" favored DRE systems.*
- *Guilford County's rate of "undervoting" has declined significantly since DRE systems were implemented especially among minority voters.*
- *In 2004, Mecklenburg and Guilford (both using DRE) had "undervoting" rates for President of .4% and 1% respectively. Wake and Forsyth (using optical scan and punch cards) had rates of 2.8% and 1.8% respectively.*

13. Alternative language requirements are emerging in North Carolina as a growing factor. Many counties already must now provide voting instructions in Spanish. Some have been required to provide Spanish translation ballots for referenda.

- *If an optical scan system is used, alternative language requirements substantially increase the cost and complexity of producing and distributing ballots. Using DRE machines, the voter can select the preferred language and have it displayed electronically with insignificant additional costs.*

² R. Michael Alvarez, Jonathan N. Katz, Sarah A. Hill. "Machines Versus Humans: The Counting and Recounting of Pre-Scored Punchcard Ballots;" CalTech/NIT Voting Technology Project; Working Paper #32, September, 2005.