IMMEDIATE STEPS TO AVOID LOST VOTES IN THE 2004 PRESIDENTIAL ELECTION:

RECOMMENDATIONS FOR THE ELECTION ASSISTANCE COMMISSION

CALTECH/MIT

VOTING TECHNOLOGY PROJECT

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We recommend four immediate steps that the Election Assistance Commission (EAC) should take to improve the electoral process for the November 2004 presidential election. We also provide below a number of other steps that we believe are necessary for avoiding lost votes in the presidential election this fall. However, as time and resources are limited, we recognize that these additional steps might be difficult to achieve nationwide by November.

Immediate steps that the Election Assistance Commission (EAC) should take to improve the November 2004 election:

Require reporting of election data

The EAC should require from each election jurisdiction (county and state) a report of total ballots cast and votes cast for each federal office. These reports should also include the number of registered voters, and the number of absentee and provisional ballots cast. All election jurisdictions should also report on the voting technologies they use for precinct and absentee voting in each federal election. The Secretaries of State should include these figures in their statements of certified votes. Currently, eleven states do not report total ballots cast, making it nearly impossible to track the performance of equipment and election procedures in these states. Furthermore, reporting of statistics on absentee and provisional voting and voting technologies are inconsistent across the nation. Reporting these basic statistics on elections should be made a contingency for receiving future federal funds, as this information is critical for evaluating the performance of voting systems nationwide.

Fix common ballot problems

The EAC should recommend the following:

a. All jurisdictions using optical scanning should use the term "Someone Else (write name)", and should not use the term “Write In”. According to the National Opinion Research Center's study of ballots in Florida, the most common source of overvoting with optically scanned ballots arose when people chose one candidate and also wrote in that candidate's name.
b. If a ballot covers more than one side of the paper, printing must note in very large font that the voter should vote the front and the back of the ballot on each page.
c. In-precinct counting machines should not turn off the ballot overvote and error checking features of these machines.
d. Convene a group of ballot design experts to make recommendations concerning the format of ballots on electronic voting machines and distribute these recommendations to all jurisdictions by the end of August. This group should make recommendations regarding the design of optical scan ballots as well.

Produce provisional voting guidelines quickly

The EAC should develop guidelines for provisional ballots by mid-August. By the end of August, the EAC should contact each Secretary of State where provisional ballots are being implemented for the first time to insure that these states are implementing provisional ballots consistent with the EAC's guidelines.

Develop common complaint procedures and election monitoring processes

The EAC should establish a procedure for managing complaints and addressing problem areas. We anticipate that the EAC will be inundated with complaints following the November election, especially if there are any controversial counts. Complaints should be dealt with locally or by an outside agency, such as the Justice Department. However, we believe that the EAC will be expected by the public to serve in an ombudsman role, subsequently the commission should develop procedures to receive, to investigate, and to follow up on complaints.

Other recommendations:

Improving elections can be accomplished both by solving local and short-term, as well as systemic and long-term, problems in the electoral process. The "Help America Vote Act" (HAVA) promises to bring tremendous improvement to recording and counting Americans' intended election choices. Most problems that have plagued recent elections in the United States can be ameliorated with process improvements. If we diligently commit to resolving these process problems, many voters who were disenfranchised in the past may be re-enfranchised this fall. Analysis of the voting process from start to finish can expose problems that must be addressed. Ultimately, how well a voting system performs in an actual election is the final test of its performance. We are convinced that the EAC can improve this year's election quality by tying HAVA funding to compliance with improvements.

To help achieve these goals, and to insure that the November elections are conducted with as few lost votes as possible, we offer the following additional recommendations. We believe these changes are necessary, but since time and resources are limited, we are aware that it may not be possible to achieve all of these additional changes by November across the nation. We offer these recommendations with the hope that the EAC will work with election officials throughout the nation and assist their implementation of these recommendations as thoroughly possible before balloting begins this fall.

Process

Many problems have occurred when a single unsupervised person has been responsible for some aspect of the election. Every stage of the process should require that more than one person be involved. Representatives who are approved by each of the major parties should be included. The areas that need such oversight include purchasing; equipment setup and testing; ballot development; moving, storing, activating, using, shutting down, and accumulating votes from voting equipment; setting up polling places; testing and using registration and back-end software; and designing and deploying education materials for poll workers and election officials.

Ballots

Ballot problems prevented an estimated one million votes from being counted in 2000. Candidates were left off of ballots or associated with the incorrect party. Although both parties approved Palm Beach County's butterfly ballot, it was responsible for a significant number of lost votes in earlier elections. Our research has also documented that ballot design issues arise when ballots are long and complicated, as in the recent California recall election. Every ballot design should be tested on real voters from the locality where the ballot will be used. This testing must show the ballot to be fully accessible and to allow voters to record their intentions accurately. Last, ballot designs should be available on web pages for public review and input before the election.

Equipment testing

All voting machines should be tested and shown to work as designed before use in any election. They should have new ballots inserted, show zero counts, show that all controls, indicators and displays work, that they can accurately record the votes made, and that any back-up system in them works. After any physical change or software rebuild, the voting machine should be retested and recertified for use; Also, a random subset of voting materials should be used for a test election to verify accurate counting of known votes. Additionally, any new ballot design should be demonstrated to work and produce an accurate total.

Best practices for using voting equipment should be compiled across jurisdictions, including input from local election officials, voting experts, and voting machine vendors. They should be distributed to all jurisdictions using or considering the purchase of those machines.

If a voting machine has no clock or a clock in it that can be set, it should be tested in voting mode as though it were the day of election. A sample of machines should be selected at random (and the identity of these selected machines should not be known to anyone other than the audit team) to record a known set of test votes. The sample should be selected with sufficient numbers of test machines and test voters to insure robust statistical power. Tests for incorrect vote recording can then be conducted by looking for discrepancies between selections and reported votes in the actual voting conditions. In this way, effective tests for malicious or poorly-written software can be conducted before the election. If the machine can discern that it is the day of election, this test should be a "parallel test": taking randomly selected voting machines out of service on the day of election, at various points in time during the day of the election.

Election machines should be controlled by the election officials, not the vendors. To do this,

officials need to identify, train and certify representatives who are competent at overseeing voting machines. Software/hardware updates and general maintenance should be performed only when authorized by and overseen by a trained election official. Election machines (and ballots where ballots exist) should be well secured. Ideally, numbered seals should be used as closures for the equipment. Signatures of people who come into contact with them should be kept on file.

Poll workers should be required to check and report that the ballots match the official ballot at the beginning of the election.

All software (including source code) for voting equipment should be placed in escrow in case of questionable election outcomes and made available for independent review.

Polling place operations

According to the U.S. Census in 2000, approximately one million registered voters said that they did not vote because the polling place lines were too long or the hours for voting were too short. Tactics for ameliorating peak load problems on election day can be developed and implemented. Guidelines for optimal polling place locations, layouts, and staffing should also be produced and utilized. Broadcasting current information on wait times at various polls for example might help people decide when to go to a poll place.

Poll workers should be trained with procedure-oriented teaching materials and have ways of looking up answers to important questions in a reasonable time. Poll workers must pledge that they will not act in a partisan way and be shown to be competent at required tasks. Materials with large tabs and fonts, images and diagrams that are easy to follow, and simple steps are critical. Training materials should be available in electronic form for public distribution and commentary, as well as for last-minute use by poll workers. Poll workers who check for registration must demonstrate their ability to find a name on the registration list as they would on the day of election in a reasonable time (for example, twenty seconds). Any time that poll workers are handling or transporting ballots, they should be physically accompanied by observers who are approved by all political parties. Live voting machines should never be used for teaching voters.

Materials for teaching voters should be oriented so that they will be easily observable to voters in polling places.

Clear protocols for detecting and resolving both registration list and provisional balloting problems should be published and followed. Web based registration checking should be available in all jurisdictions.

Last, as required by HAVA, clear and concise "Voter Bill of Rights" materials must be made readily available to the public before the election (published by election officials and included in materials distributed to registered voters before the election). Such materials must be available to both precinct and absentee voters. Auditing procedures to insure that administrative complaints are resolved in a consistent, equitable, and timely fashion must be developed.

Tallying and back-end election software

Computers used for elections should be restricted to the sole purpose of election administration, and not used for other purposes. After a fresh operating system is installed, software unrelated to elections should not be installed. Tests of the voting software should be made before and on the day of election. Back-ups of all data files before and after ballots are brought to the machine should be made and kept. Audit logs of individuals with access to the computer must be performed and retained after each election. Every time an electronic procedure relating to an election is conducted on a computer, that procedure must be witnessed by more than one individual.

HAVA compliance

Precinct Optical Character Recognition systems should never turn off their "rejection of overvote ballots" feature (where the scanner will reject overvoted ballots so the voters may correct them), as this will compromise mandated second chance voting.

Poll workers must know how to set up booths and administer voting to preserve the secrecy of ballots, provide physical access, handle literacy problems, and assist people with disabilities, in a fair and equitable manner.

Effective practices for dealing with disabled voters should be demonstrated during training for poll workers at every polling place. All poll workers need to be informed about where a person with disabilities can cast a secret ballot.

Administrative improvements

Currently, eleven states do not report the total number of voters. All counties and states should provide an accurate and complete count of the total number of people who voted. This count should be based on two lists: voter registration check-in lists and tabulations of the total number of ballots (or on mechanical and electronic voting machines, the total number of voting sessions). All jurisdictions and states should provide a public listing of all persons voting. The EAC should collect and post certified results from all states. Forensic analysis of this data has already been the basis of much improvement in election equipment and processes in the past few years.

Early voting should be available and encouraged to alleviate poll site problems such as long lines.

All jurisdictions should provide information on a website about where and how to register and vote well in advance of an election. The website should also describe several ways to obtain voting information, in a manner fully accessible to citizens with disabilities and who do not speak English as their primary language.

Problem recovery

All jurisdictions should have plans for addressing polling place problems. While under HAVA states will have "Voter Bills of Rights", we recommend that election officials work to make sure they are usable and accessible to all voters. Clearly visible displays and easily available information should provide voters with immediate steps for solving problems on the day of election. It should be possible to address the problems of registered voters in less than twenty minutes on the day of election.

Typical problems that are likely to need to be addressed include registration, provisional ballots, polling place personnel, back-ups and procedures, ballot confusion, lack of ballots, machine problems, inappropriate canvassing, and violent protests. We strongly support the creation of election disaster recovery websites, phone bank centers, and "rapid response" teams to solve problems immediately on election day and to avoid disenfranchisement of voters.

The EAC should collect and certify problem recovery procedures from voting jurisdictions around the country. This can help jurisdictions improve problem-information recovery procedures based on techniques developed in similar settings. The EAC should also be prepared to investigate and to help resolve problems on November 2, 2004 as we suspect the public will bring problems to the attention of the EAC.

Count, recount and audit control

Perhaps the primary responsibility of election administration is to provide an accurate and complete count of all votes cast. Responsibility for this is shared across many levels of government and administration, from precincts up to the Secretaries of State.

But, in our group's efforts to collect data on elections, it has proved impossible to resolve the accounting in many state reports. It is not uncommon for some states to certify only some votes (e.g., not certifying write-in candidates) or to have simple errors, such as double counting absentee ballots, in the certified vote. The process for counting, certifying, and recounting votes needs clear standards based on fundamental principles of accounting. Improving these procedures will minimize disputes and improve confidence in counts.

There has been much confusion with absentee ballots from overseas citizens in the past. We encourage the EAC to coordinate with the Federal Voting Assistance Program's ongoing efforts to improve absentee balloting of overseas citizens. Local standards for authentication of absentee ballots should be clear and public before the election. Standards for judging the validity of an absentee ballot during recounts should be clear and public. States should present preferred best practices for standards and procedures in the events of challenges to the EAC. Jurisdictions should be asked to explain how their practices vary from these standards and procedures. Any variation in the way that ballots are treated based on how they are submitted should be described and justified. The EAC should convene a panel to make recommendations for the handling of absentee ballots in initial counts and recounts.

Additionally, the EAC should work with states to insure that every election jurisdiction has procedures in place so that their election procedures, voter registration, ballot design, absentee balloting, polling place voting, and vote tabulation and recounting, are fully auditable.

Who We Are

The furor over the 2000 presidential election in Florida brought this group together. David Baltimore, the president of the California Institute of Technology, and Charles Vest, the president of the Massachusetts Institute of Technology, assembled our original team of computer scientists, mechanical engineers, and social scientists to consider what is and what could be. We produced our original report in June 2001.

Our ultimate goal is to develop ideas about what could be. The United States is in the midst of a revolution in communication and computing technology. That revolution is and will transform voting in the future. These technologies hold enormous promise --- to make voting easy, convenient, and accessible, and to allow voters to see that their votes are counted. The current VTP faculty research group who assisted in the production of this report are:

Caltech

R. Michael Alvarez
Co-Director Caltech/MIT Voting Technology Project
Professor of Political Science, Caltech

Jehoshua Bruck
Gordon and Betty Moore Professor of Computation and Neural Systems and Electrical Engineering, Caltech

Jonathan N. Katz
Professor of Political Science, Caltech

D. Roderick Kiewiet
Professor of Political Science, Caltech

Thomas R. Palfrey
Flintridge Foundation Professor of Economics and Political Science, Caltech

MIT

Ted Selker
Co-Director Caltech/MIT Voting Technology Project
Associate Professor of Media Arts and Sciences, MIT

Stephen Ansolabehere
Professor of Political Science, MIT

Adam Berinsky
Associate Professor of Political Science, MIT

Srini Devadas
Professor of Electrical Engineering and Computer Science, MIT

Stephen C. Graves
Abraham J. Siegel Professor of Management Science & Engineering Systems, MIT

Ronald L. Rivest
Andrew and Erna Viterbi Professor of Electrical Engineering and Computer Science, MIT

Charles Stewart III
Professor of Political Science, MIT

Michael Siegal
Principal Research Scientist, MIT

Collaborators

Thad E. Hall
Assistant Professor of Political Science, University of Utah

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For More Information:

Karen Kerbs
Caltech/MIT Voting Technology Project
California Institute of Technology 1200 E. California Boulevard M/C 228-77 Pasadena CA 91125
Tel: 626 395 4089 Fax: 626 793 3257
http://www.vote.caltech.edu