



Analysis Report to the
New York State Board of Elections
for
**An Analysis of Changes to the
Electronic Voting Machine
Implementation Timeline**

NYSTEC

November 2, 2006



New York State Technology Enterprise Corporation

Presents an

**Analysis of Changes to the Electronic Voting Machine
Implementation Timeline**

for

**New York State Project to Implement
an Electronic Voting System**

Submitted to:

Mr. Peter Kosinski

Mr. Stanley Zalen

New York State Board of Elections

40 Steuben Place

Albany NY 12207

November 2, 2006

Version 1

Analysis of Changes to the Electronic Voting Machine Implementation TimelineHistory:

To comply with Federal legislation, a timeline estimate was created in August 2006. Because at the time this was created there were a large number of unknowns, a number of assumptions had to be made in order to identify the tasks and their durations.

Initial Assumptions for August 2006 Timeline:

1. Voting Machine manufacturers would be able to provide SBOE with voting machines for testing, along with all necessary supporting documentation and software by the end of August 2006. Voting Machine manufacturers were initially told that they would be required to provide these things by July 2006.
2. Voting Machine manufacturers would provide the funding for certification testing of their own machines.
3. Security testing would be done by one security-testing vendor.

The initial security testing task and time estimates are listed in Table 1.

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Table 1, Original Timeline Estimate, in August 2006

Task Name	Resource	Target Start Date	Target Finish Date
Develop Independent Security Testing (done in parallel with Phase I testing)	Third Party Vendor	8/22/06	11/20/06
- Create security test master plan	Third Party Vendor	8/22/06	9/11/06
- Create security test plan software per machine	Third Party Vendor	9/12/06	10/2/06
- Create security test plan hardware per machine	Third Party Vendor	10/3/06	10/16/06
- Test all machines	Third Party Vendor	10/17/06	11/6/06
Submit SBOE security report identifying security risks and recommended remediation per machine	Third Party Vendor	11/7/06	11/20/06

During late August and September 2006, SBOE worked with the selected Security Testing Vendor (CIBER) to firm up a schedule for creating security testing plans and security certification testing. Finalizing the scope of work for security testing required knowing how many machines would be tested and what machines would be tested, because individual test plans needed to be developed. SBOE continued to hold weekly status meetings to monitor the timeline and continually followed up with each voting machine vendor to request the necessary equipment, software, documentation, and funding for testing. Despite repeated phone calls, emails, and letters, not one voting machine vendor was able to send in a complete submission during August and September.

Also, in late August 2006, the SBOE began reviewing the security certification testing process and decided that, due to the critical importance of voting machine security, adding another security testing vendor to do an independent review of the initial security plans and testing was prudent. The intent was to have two security firms review all test plans and tests to ensure that all required security requirements were properly tested. Additional security-related tasks were added to the timeline at this time. Those changes are listed in Table 2:

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Table 2, Revised Timeline Estimate, in September 2006

Task Name	Resource	Target Start Date	Target Finish Date
Develop Independent Security Testing		9/5/06	12/12/06
Test Planning		9/5/06	11/20/06
- Create security test master plan	CIBER	9/5/06	9/14/06
- Independent review of test master plan with documented findings	NYSTEC	9/15/06	9/26/06
- Final revisions to test master plan	CIBER	9/27/06	9/29/06
- Create security test plan per machine	CIBER	10/2/06	10/31/06
- Independent review of test plan per machine with documented findings	NYSTEC	11/1/06	11/20/06
Source Code Security Testing		10/2/06	12/12/06
- Test all machines	CIBER	10/2/06	12/12/06
- Independent review of Source Code Security Testing including selective sampling	NYSTEC	10/2/06	12/12/06
- Document independent review findings and present to SBOE	NYSTEC	10/2/06	12/12/06
Functional Security Testing		10/27/06	12/12/06
- Test all machines	NYSTEC	10/27/06	12/12/06
- Independent review of Functional Security Testing	CIBER	10/27/06	12/12/06
- Document independent review findings and present to SBOE	CIBER	10/27/06	12/12/06

The Table 2 timeline still allows enough time to finish all security certification testing by a date that allows sufficient time to order and receive machines for use in the next election. When these timeline changes were made, the assumption was that the first security task would start on 9/5/06.

Significant Events Affecting Timeline Compliance:

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1. In spite of repeated follow-up efforts by SBOE, no Voting Machine vendors supplied the materials necessary to begin testing during August and September. On 10/4/06, the situation was identified as having a critical effect on the timeline, so a final letter was sent to all voting machine vendors setting 10/6/06 as the deadline for submissions of all voting system materials from all voting system vendors who submitted applications for certification. On 10/12/06, it was announced that five machines would continue with the first round of certification testing. This delay on the part of the voting machine manufacturers is significant for a number of reasons. First, very little leverage could be put on the manufacturers to comply with the timeline, since not even one manufacturer had provided a complete submission. Second, since the voting machine manufacturers are providing the funding for the certification testing, the testing vendor was hesitant to commit resources to preparing for testing without knowing how many machines would actually be tested. In fact, not one machine had a complete submission until the first week in October making it a distinct possibility that there would be no funding available to pay for any testing. Third, without knowing the exact machines that would be tested, creating individual test plans by machine could not begin until after 10/12/06.
2. The testing vendor did not have a completed contract with NY State until 10/12/06. Uncertainty about the number of machines to test made defining the scope of work and price of the contract more time consuming than originally anticipated.
3. Unanticipated delays in completing security test plans. In spite of the delay in deciding what machines would be tested, the prime security vendor, CIBER, began creating a draft security master test plan, which was scheduled to be completed by 9/14/06. It was completed on 9/15/06. An independent review of the draft by NYSTEC was scheduled to be completed by 9/26/06 and was actually finished on 9/28/06. The timeline assumption was that CIBER would include all required security regulations in its first draft so the independent review would not need to recommend substantial changes. This did not turn out to be the case. NYSTEC recommended a substantial number of security requirement additions to both the security master test plan and the overall master test plan (which covered both non-security and security test plans). The timeline assumption was three days for CIBER to make final revisions. CIBER actually completed the next security test plan revision on 10/9/06, taking 9 days.

NYSTEC did a second independent review of what was thought to be the final version of the security master test plan and noted that a large number of security requirements were still missing. During a conference call with SBOE, CIBER, and NYSTEC to discuss the situation on 10/11/06, it was decided that CIBER would travel to Albany the following week to work with NYSTEC for two solid days to resolve the document deficiencies. During these meetings, on 10/18 and 10/19, NYSTEC documented and discussed more than 200 security requirements that still needed to be added to the latest documents. CIBER estimated the changes would be completed by 10/24. The latest revision was received on 10/25 and is currently being reviewed by NYSTEC. The initial estimate for making final revisions to the master security test plan was three days. So far, it has taken

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18 days (9/28 to 10/24), and NYSTEC is still checking to be sure that the latest revision includes all necessary security regulations.

Also during the two-day meeting and subsequent discussions between CIBER and NYSTEC, a new timeline for security planning and testing was created. Because of the delay in identifying what machines to test and the amount of time it actually took to finalize a master test plan, the ending date for security certification has now moved from the 12/12/06 estimate in the revised timeline (in September 2006) to February 2007.

The current estimated timeline for security related tasks is detailed in Table 3.

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Table 3, Timeline Estimate — Revised again in October 2006

Task Name	Resource	Target Start Date	Target Finish Date
Develop Independent Security Testing		9/5/06	2/12/07
Test Planning		9/5/06	12/29/06
- Create security test master plan for all machines	CIBER	9/5/06	9/15/06
- Independent review of test master plan with documented findings	NYSTEC	9/18/06	9/28/06
- Final revisions to test master plan	CIBER	9/29/06	10/25/06
- Create security test plan per machine	CIBER	10/23/06	11/08/06
- Independent review of test plan per machine with documented findings	NYSTEC	11/9/06	11/15/06
- Create final plan	CIBER	11/16/06	11/24/06
- Create Functional Security Test Plans by Machine	CIBER	10/23/06	12/8/06
- Independent review of test plan per machine with documented findings	NYSTEC	12/11/06	12/22/06
- Create final plan	CIBER	12/25/06	12/28/06
Source Code Security Testing		11/28/06	2/7/07
- Test all machines	CIBER	11/28/06	1/17/07
- Independent review of Source Code Security Testing including selective sampling	NYSTEC	1/18/07	1/31/07
- Document independent review findings and present to SBOE	NYSTEC	2/1/07	2/2/07
- Respond to NYSTEC comments, retest / revise if necessary	CIBER	2/5/07	2/7/07
Functional Security Testing		1/2/07	2/6/07
- Test all machines	NYSTEC	1/2/07	1/29/07

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- Independent review of Functional Security Testing	CIBER	1/30/07	2/1/07
- Document independent review findings and present to SBOE	CIBER	2/2/07	2/2/07
- Respond to CIBER comments, retest / revise if necessary	NYSTEC	2/5/07	2/6/07
Document final findings	CIBER	2/8/07	2/12/07