STATE OF NEW YORK

STATE BOARD OF ELECTIONS

Integrated Master Program Plan

For

NYSBOE Voting System Examination And Certification Testing

Author:	Rex Reed, PMP, Senior Project Manager
Creation Date:	13-December-2007
Date Last Updated:	13-May-2008
Version:	5.0

Suite 700
216 Sixteenth Street
Denver, CO 80202
Voice: 303.575.6881
Fax: 303.575.6882
Web: www.systest.com

Document Revision History

The following is a record of the changes that have occurred in this document since the time of its original approval.

Version	*Change Description*	*Author(s)*	*Date*
2.0	❑ Section 1.4: Removed references to VSTL certification test efforts ❑ Enhanced Section 1.4 to include high-level description of master test plan, vendor-specific test plans, and vendor-specific test cases ❑ Added Section 1.5 to introduce SysTest Labs' ATOM methodology ❑ Enhancements and additions to Section 2.2: In-Scope ❑ Added Section 4.1 to introduce detailed implementation plan and included the implementation plan in Appendix 8.2 ❑ Section 4.2: Added NYS laws and requirements to list of schedule factors ❑ Section 5.2.2: Added responsibilities for security specialist	Rex Reed	03-Apr-08
3.0	❑ Expanded Section 3.2 to note that the mapping of requirements to test cases/test steps will be stored and maintained in the Master Requirements Matrix ❑ Expanded the Functional Configuration Audit table in Section 4.1 to define the initial functional test pass, the regression test pass, and the run for the record test pass ❑ Outdent Section 6.2.2 (now Section 6.5) to produce a separate section for list of deliverables, deliverable development, cm and versioning, and deliverable submittal and acceptance by the NYSBOE ❑ Added Section 6.3 to define the hardware testing change control ❑ Added Section 6.4 to reference change management during test execution to the Master Test Plan and Master Technical Data Package Review Plan ❑ Updated Detailed Project Implementation Plan in Appendix 8.2	Rex Reed	29-Apr-08
4.0	❑ Removed Section 1.5 to eliminate all specific references to SysTest Labs' proprietary quality assurance methodologies and processes. The Quality Management Plan is referenced in Section 6.6.	Rex Reed	05-May-08
5.0	❑ Updated Section 2.4 to note that the deliverable due dates are the court-mandated dates ❑ Updated the order of project activities and start / finish dates in the Overall Project Schedule in Section 4.1 ❑ Expanded Section 6.3.4.1 to verify that the hardware test cases will be mapped to the Master Requirements Matrix ❑ Included an updated detailed project implementation plan in Section 8.1.	Rex Reed	13-May-08

Table of Contents

1 PROJECT DESCRIPTION

1.1 Project Overview

Project Name	NYSBOE Voting System Examination and Certification Testing
NYSBOE Administrative Project Manager	Tarry Breads
NYSBOE Compliance Project Manager	Robert Warren
SysTest Labs Program Manager	Rex Reed, PMP
SysTest Labs Functional Test Managers	Jennifer Garcia and James "Jet" Henry
SysTest Labs Hardware Test Manager	Al Backlund
SysTest Labs Project Director	Glenn Truglio
Project Dates	11-December-2007 through 10-December-2010

1.2 Project Background

The Help America Vote Act of 2002 was approved by Congress to address the issues of timely and accurate elections in the United States. Specifically, the act was established to:

… "provide funds to States to replace punch card voting systems, to establish the Election Assistance Commission to assist in the administration of Federal elections and to otherwise provide assistance with the administration of certain Federal election laws and programs, to establish minimum election administration standards for States and units of local government with responsibility for the administration of Federal elections, and for other purposes."

Congress subsequently allocated $ 3.6 billion to support the Act. These funds are being allocated to states for a number of purposes – especially to update voting systems (ballot creation, vote recording, vote tallying, and voter reporting) and to establish a central, statewide list of all registered voters in each state.

New York State has passed its own HAVA legislation in July 2005 mirroring many requirements of the Federal legislation.

Before any voting system may be eligible for purchase in New York State (NYS), it must be certified by the New York State Board Of Elections (NYSBOE) that such system(s) meet the requirements of the New York State election law (Section 6209 of Subtitle V of Title 9 of the Official Compilation of Codes, Rules and Regulations of the State of New York) and the federal 2005 Voluntary Voting System Guidelines (2005 VVSG).

SysTest Labs has been contracted by the NYSBOE to act as the State's federally certified Independent Testing Authority (ITA) for the purpose of examination and testing for the State Board's certification, decertification, and re-certification of voting systems.

1.3 Project Purpose and Objectives

The purpose of the NYSBOE Voting System Examination and Certification Testing project is the examination and testing of voting systems that have been submitted for purchase to New York State. The objective of this project is to subject each voting system to complete and thorough testing to verify that each system satisfies the standards and requirements of the Election Assistance Commission (EAC) 2005 VVSG, plus the additional requirements specified by New York State Law and 6209 regulations.

1.4 Program Plan Purpose

This integrated Master Program Plan shall be used to guide project planning, project execution, and project controlling and monitoring. It is structured to ensure that the various elements of the project are properly coordinated and managed.

This master program plan will reference other specific project plans (i.e. Communications Management Plan, Quality Management Plan, Master Test Plan, Vendor-Specific Test Plans, etc.). Where there is a discrepancy between the plans, this Master Program Plan shall prevail.

To manage the anticipated workload, SysTest Labs has assigned a Senior Project Manager, Rex Reed, PMP, as the program manager for the entire NYSBOE Voting System Examination and Certification Testing project. In this role, Mr. Reed is responsible for the delivery of each of the voting systems submitted for testing, overall program and project management, day-to-day management of the program, management of the test managers, status reporting, and attendance at the NYSBOE meetings. Mr. Reed will be the primary project contact with the NYSBOE.

Each of the voting systems submitted to SysTest Labs will be established as an individual test project within the scope of the overall program. A test manager will initiate and execute the project as a typical SysTest Labs' voting system certification test effort. (However; this test effort differs from a typical certification test effort because of the inclusion of testing for New York State requirements). This will allow for the use of SysTest Labs' standard procedures and repeatable processes. SysTest Labs' standard document templates (test plans, test cases, discrepancy reports, certification reports, etc.) shall be utilized and modified as required to satisfy NYSBOE requirements. This will assure that each system submitted for testing will receive full attention from the program manager and assigned test manager to verify that all testing is thorough and complete.

1.5 Master Test Plan, Vendor-Specific Test Plans and Vendor-Specific Test Cases

In addition to this Master Program Plan, SysTest Labs shall develop a Master Test Plan, Vendor-Specific Test Plans, and Vendor-Specific Test Cases.

The purpose of the Master Test Plan is to create clear and precise documentation of the test methods and processes that SysTest Labs, as NYSBOE's Independent Test Authority (ITA), will use throughout the course of the NYSBOE Voting System Examination and Certification Testing project. The Master Test Plan will be developed to IEEE and 2005 VVSG standards

Documenting the test methods and processes will serve as the basis for ensuring that all major milestones and activities required for effective verification testing can effectively and successfully be accomplished. The Master Test Plan will be modified and enhanced as required throughout the test effort.

The overall purpose of the Master Test Plan is as follows:

- Defines the overall test approach
- Identifies required voting system hardware and software to be tested
- Identifies hardware, software, and tools to be used to support the testing efforts
- Defines the types of tests to be performed
- Defines the types of election and vote data required for effective testing
- Defines the types of security threats and vulnerabilities against which each voting system will be tested
- Identifies and establishes traceability from the Requirements Matrix to test cases, and from test cases to the Requirements Matrix
- Defines the process for recording and reporting of test results
- Defines the process for regression testing and the closure of discrepancies

As part of the test effort for each Vendor, a Vendor-Specific Test Plan shall be developed. The purpose of the Vendor-Specific Test Plan is to create a clear and precise plan of the specific test methods and processes that SysTest Labs will use to test the Vendor-specific election procedures. All Vendor proprietary and confidential information will be included in this test plan.

Utilizing the Master Test Plan and the Vendor-Specific Test Plan, SysTest Labs will develop a suite of detailed and repeatable test cases for each Vendor that will ensure that the voting system meets all applicable requirements of the 2005 VVSG, NYS laws and 6209 regulations, and associated Vendor specific requirements.

2 SCOPE

2.1 Objectives and Scope Statement

NYSBOE currently anticipates that ten to fourteen voting systems may be initially submitted for certification testing – consisting of both optical scan systems and DRE systems, each with assistive devices for persons with disabilities. Subsequent tasks will be sporadic, occurring as new systems are submitted for full certification, or when upgrades and/or modifications are made to previously certified systems.

The project scope defines all the work required, and only the work required, to successfully complete the NYSBOE Voting System Examination and Certification Testing project. The following sections shall serve to define and control what is, and what is not, included as part of this project.

2.2 In-Scope

The following program tasks shall be considered in-scope for the NYSBOE Voting System Examination and Certification Testing project.

- Project kick-off meeting
- Master Program Plan (this document) containing the following deliverables:
  - SysTest Project Organization Chart
  - Program Schedule
  - Program Quality Assurance Plan
  - Program Change Control Plan
  - Program Communications Plan
  - Program Issue and Risk Management Plan
- On-going project management tasks and activities
- On-going project status reporting and meetings
- On-going project issue and risk management
- Requirements traceability (to include all VVSG and NYSBOE requirements), management, and verification of testing
- Evaluation of prior ITA/VSTL artifacts for possible re-use
- Evaluation of prior SysTest Labs' VSTL testing artifacts for possible re-use
- Review of Technical Data Packages (TDP's) as part of each individual test project
- Creation and maintenance of the Master Test Plan and Master TDP Review Plan
- Voting system specific test plans, as part of each individual test project
- Voting system specific test cases (to verify all VVSG and NYSBOE requirements), as part of each individual test project
- Voting system specific test execution and regression testing (to verify all VVSG and NYSBOE requirements), as part of each individual test project
- Voting system specific final test reports, as part of each individual test project
- Project closure activities, including hash-checking, software escrow, return of hardware, archival of all project artifacts, lessons learned, etc.

Voting system manufacturers will submit systems to the NYSBOE in one of two configurations:

- Lot 1 – full system testing
- Lot 2 – ballot marking device and election management system testing
- Newly submitted systems – full system testing of Vendor voting systems submitted after the Lot I test effort
- Vendor modifications – system testing of NYSBOE approved Vendor modifications and enhancements

To successfully manage the anticipated workload, each of the voting systems submitted to SysTest Labs for testing will be established as an individual test project. Project management, test management, and test tasks that shall be considered in-scope for each individual test effort are:

- Internal test kick-off meeting
- Creation of the vendor-specific test plan and schedule
- Customization of test cases with vendor-specific modifications
- Delivery management

- Documentation review
- Source code review
- Functional testing
- Discrepancy reporting, tracking, and regression testing
- Test reporting and status meetings
- Creation of the final test report

2.3 Out-Of-Scope

Any work that is outside of the agreed-upon work defined in the "In-Scope" section is considered out of scope and must be processed through the change control process.

2.4 Major Project Deliverables

The following is a summary of the major project activities and deliverables and the court-mandated deliverable due dates.

Project Activity / Deliverable	*Deliverable Due Date*	*Approver(s)*
Deliverable 1 - Project Kick-Off Meeting	January 08, 2008	NYSBOE
Deliverable 1 - Integrated Master Program Plan (this document), to include the following deliverables: ❑ SysTest Project Organizational Chart ❑ Program Schedule ❑ Program Quality Assurance Plan ❑ Program Change Control Plan ❑ Program Communications Plan ❑ Program Issue and Risk Management Plan	February 28, 2008	NYSBOE
Deliverable 2 – Ongoing Project Management Services, consisting of the following: ❑ Regularly scheduled project status meetings with NYSBOE ❑ Weekly written project status reports ❑ Participation in regularly scheduled Project Steering Committee meetings ❑ Project issue and risk tracking and management	On-going	NYSBOE
Deliverable 3 – Testing Requirements Confirmation Matrix containing 2005 VVSG standards and NYSBOE requirements	February 07, 2008	NYSBOE
Deliverable 4 – Evaluation Of Prior certification testing artifacts developed by former ITA	May 15, 2008	NYSBOE
Deliverable 5- Review Of Manufacturer's Technical Data Packages (TDP's)	June 26, 2008	NYSBOE
Deliverable 6 – Master Test Plan	April 10, 2008	NYSBOE
Deliverable 7 – Voting System Specific Test Plans	July 17, 2008	NYSBOE
Deliverable 8 – Voting System Specific Test Execution	October 01, 2008	NYSBOE
Deliverable 9 – Voting System Specific Individual Test Reports	October 06, 2008	NYSBOE
Deliverable 10 – Voting System Specific Final Test Reports	October 22, 2008	NYSBOE

2.5 Completion Criteria

A project activity and/or deliverable shall be considered complete when the following tasks have been accomplished:

1. The activity and all corresponding documentation are complete.
2. The deliverable(s) for the activity has been forwarded to the NYSBOE for review and approval.
3. The deliverable(s) for the activity has been approved and accepted by the specified NYSBOE reviewer(s) and approver(s).

3 REQUIREMENTS AND TRACEABILITY

3.1 NYSBOE Requirements

Each of the voting systems submitted to SysTest Labs for testing shall be tested to verify compliance with the 2005 VVSG standards and all New York State elections laws and 6209 regulations.

The NYSBOE will provide a requirements matrix. As part of the program kick-off meeting and subsequent work sessions, the NYSBOE and SysTest Labs will discuss the requirements and jointly develop a final Master Requirements Matrix, which will be used to verify compliance with the requirements for each of the vendor-specific test projects.

3.2 Requirements Traceability

SysTest Labs will develop traceability for all 2005 VVSG standards, New York state election laws, and 6209 regulations to their respective test artifacts and test cases. This traceability will confirm that all 2005 VVSG standards and NYSBOE requirements that are in scope for this project have corresponding tests of the proper type, and that all standards and requirements have been satisfied as part of the test execution of each of the vendor-specific test projects.

The traceability of each requirement to its corresponding test case(s) and test step(s) will be stored and maintained in Borland's CaliberRM requirement management tool, and the NYSBOE Master Requirements Matrix.

4 SCHEDULE

4.1 Overall Project Schedule

The following table displays all of the high-level tasks required to complete the NYSBOE Voting System Examination and Certification Testing project, and the start and finish date for each task.

Project Activity / Task	*Start Date*	*Finish Date*
Initial Project Planning – Completion of the review and analysis of NYSBOE requirements matrix	January 11, 2008	January 24, 2008
Initial Project Planning – Meetings with NYSBOE to discuss requirements and jointly develop the final Master Requirements Matrix	January 25, 2008	February 07, 2008
Development of the Master Program Plan (this document)	February 08, 2008	February 28, 2008
NYSBOE review and approval of the Master Program Plan	February 29, 2008	March 20, 2008
Development of the Master Test Plan	March 21, 2008	April 10, 2008
NYSBOE review and approval of the Master Test Plan	April 11, 2008	May 01, 2008
Physical Configuration Audit – Pre-Hardware Testing System Configuration Review	May 04, 2008	May 04, 2008
Hardware test planning and execution	May 05, 2008	June 06, 2008
Physical Configuration Audit - System Configuration Review	June 09, 2008	June 09, 2008
Physical Configuration Audit – PCA Document Review	April 30, 2008	June 18, 2008
Development of Vendor-Specific Test Plans	April 29, 2008	May 20, 2008
NYSBOE review and approval of Vendor-Specific Test Plans	May 21, 2008	June 11, 2008
Physical Configuration Audit – PCA source code review	May 22, 2008	June 11, 2008
Functional Configuration Audit – consisting of:	N/A	N/A
Development of Vendor-Specific Test Cases	April 25, 2008	June 10, 2008
Physical Configuration Audit – Pre-Functional Testing System Configuration Review	June 09, 2008	June 09, 2008
Functional Testing / Trusted Build Before Initial Test Pass	May 30, 2008	June 11, 2008
Functional Testing / Initial Test Pass – consisting of test execution of all test cases	June 12, 2008	July 18, 2008
Functional Testing / Trusted Build Before Regression Test Pass	July 23, 2008	July 24, 2008
Functional Testing / Regression Test Pass – consisting of testing of discrepancy fixes	July 25, 2008	August 15, 2008
Functional Testing / Trusted Build Before Run For The Record Test Pass	August 20, 2008	August 22, 2008
Functional Testing / Run For The Record – consisting of vendor code freeze and test execution of required test cases	August 25, 2008	September 29, 2008
Development of Vendor-Specific Final Test Report	September 08, 2008	October 01, 2008
NYSBOE review and approval of Vendor-Specific Test Report	October 02, 2008	October 22, 2008

4.1 Detailed Project Implementation Plan

Appendix 8.2 – Detailed Project Implementation Plan contains the implementation plan (in Microsoft Project) including the deliverables, activities and tasks, dependencies, durations, and resources.

The first sections of the implementation plan include the project and test planning tasks and cover the following deliverables:

- Deliverable 1 – Initial Project Management Deliverables
- Deliverable 3 – Testing Requirements Confirmation Matrix
- Deliverable 4 – Evaluation Of Prior Work
- Deliverable 5 – Review Of Technical Data Package
- Deliverable 6 – Master Test Plan

The remaining sections of the implementation plan include the Vendor-specific tasks and cover the following deliverables:

- Deliverable 2 – On-Going Project Management Services
- Deliverable 4 – Evaluation Of Prior Work

- Deliverable 5 – Review Of Technical Data Package
- Deliverable 7 – Vendor-Specific Test Plans
- Deliverable 8 – Vendor-Specific Test Execution
- Deliverable 9 – Draft Vendor-Specific Test Reports
- Deliverable 10 – Final Vendor-Specific Test Reports

While the activities will remain the same for all Vendor-specific activities, the duration and resources will change for each Vendor, based on the factors specified in the next section. The schedule and detailed implementation plan for the testing of each Vendor-specific voting system shall be included as part of each Vendor-specific test plan.

4.2 Schedules of Vendor-Specific Test Efforts

The schedule for the testing of the vendor-specific voting systems will vary based on a number of factors; including, but not limited to:

- The size, complexity, and quality of the Vendor's voting system and the number of components that make up the entire voting system
- The number of lines of code included in the Vendor's source code, the number of languages utilized, and the quality of the code
- The number of documents included in the Vendor's TDP package, the size of the documents, and the quality of the documentation
- The increased level of test planning and test execution required by the inclusion of all New York State Law and 6209 requirements
- The amount of source code review, documentation review, and system testing that can be leveraged from the previous ITA's or other VSTL labs' artifacts, assuming that there have been no hardware or software changes since the system was submitted to the previous ITA or VSTL
- The amount of source code review, documentation review, and system testing that can be leveraged from previous or current testing being performed by SysTest Labs, assuming that there have been no hardware or software changes since the system was submitted to SysTest Labs

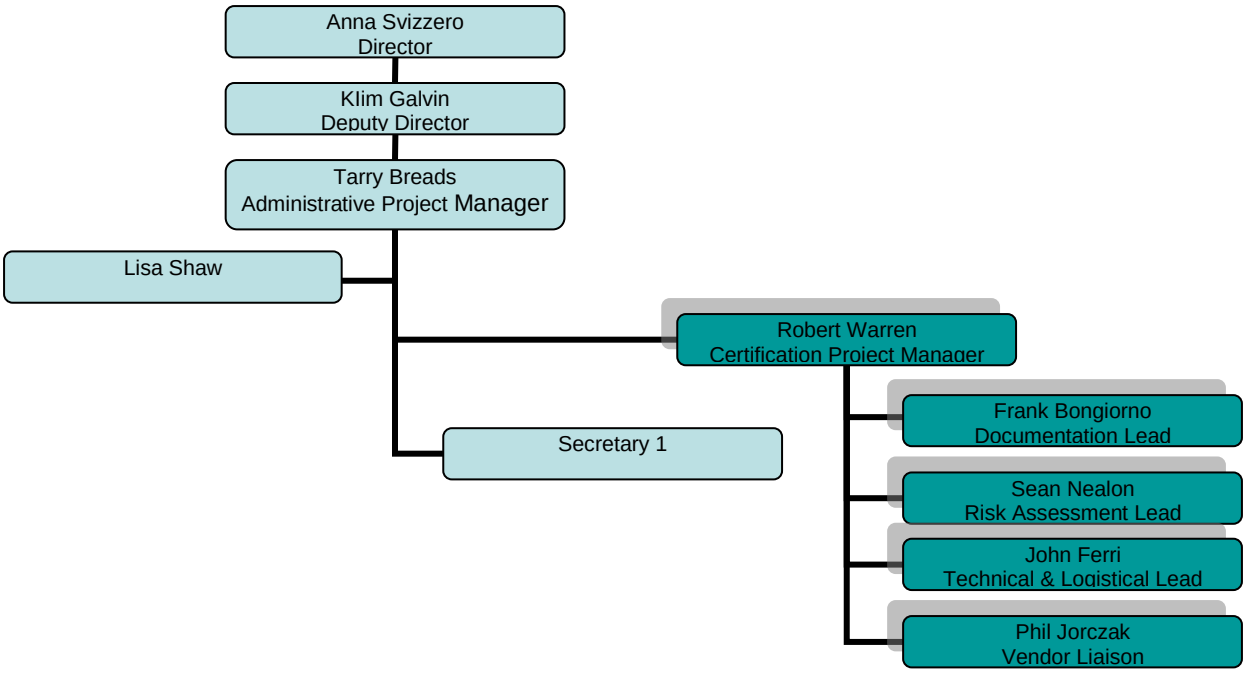
The schedule and detailed implementation plan for the testing of each Vendor-specific voting system shall be included in each Vendor-specific test plan.

5 ORGANIZATION AND RESOURCE MANAGEMENT

5.1 Project Team Composition

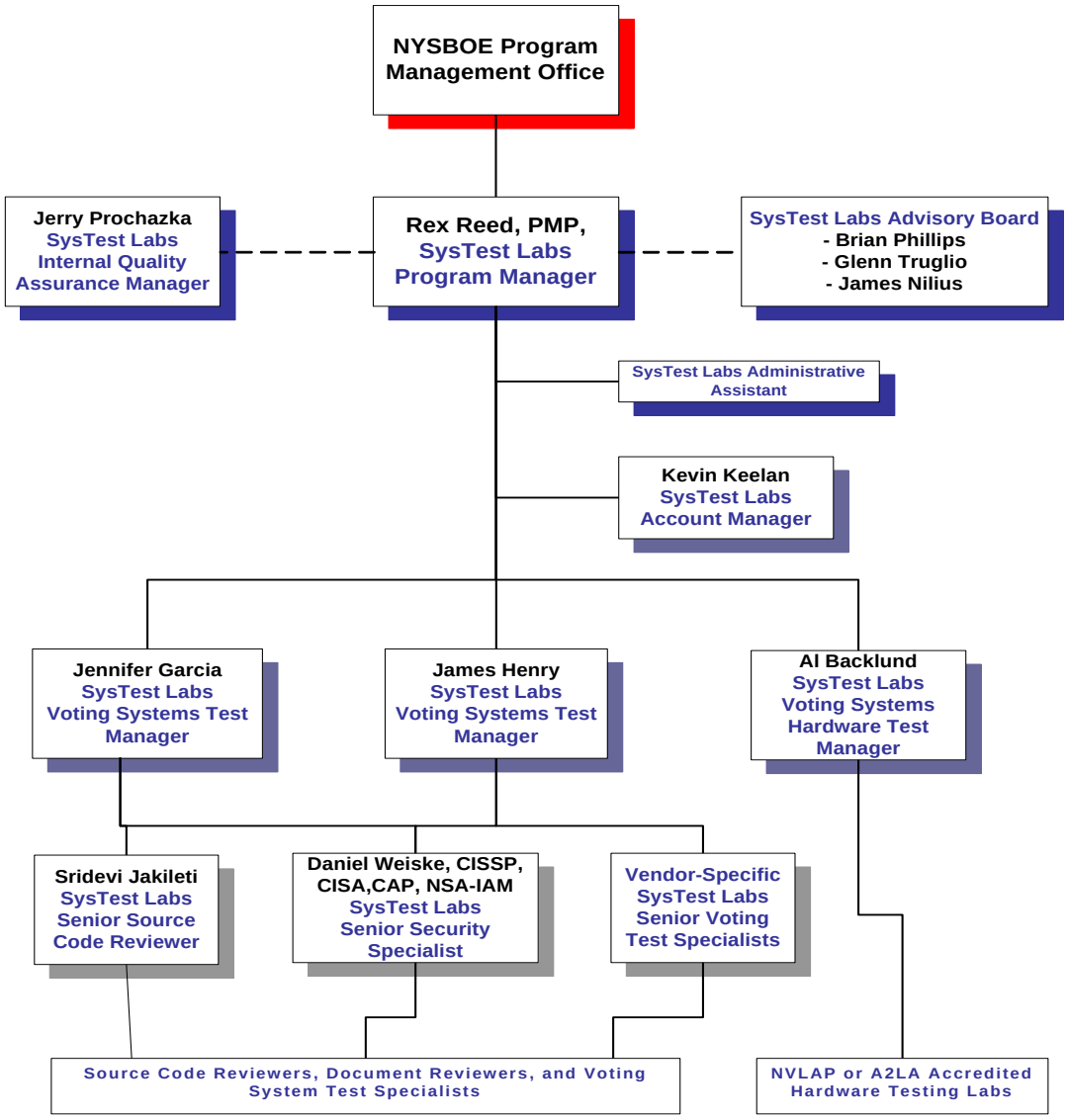
5.1.1 NYSBOE Project Team Composition

The following chart identifies the members of the NYSBOE Election Operations Unit.



5.1.2 SysTest Labs Project Team Composition

The following chart identifies the members of the SysTest Labs NYSBOE Voting System Examination and Certification Testing project team.



5.2 Roles and Responsibilities

5.2.1 NYSBOE Project Team and Roles

The following table identifies the NYSBOE project team (as identified in the Communications Management Plan) and defines each team member's role within the New York State Board of Elections.

Team Member	*Role*
Robert Warren	Certification Project Manager
Tarry Breads	Administrative Project Manager
Douglas Kellner	Commissioner
Stanley Zalen	Co-Executive Director
Anna Svizzero	Director Of Election Operations
Kim Galvin	Deputy Director Of Election Operations
Allison Carr	Special Counsel
Lee Daghlian	Public Information Officer

Team Member	Role
Robert Brehm	Deputy Public Information Officer
Todd Valentine	Co-Executive Director
Paul Collins	Deputy Counsel
Robert Groncznіak, PMP, NYSTEC	Consultant to the NYSBOE
Nils Ekberg, NYSTEC	Consultant to the NYSBOE
Rob Zeglen, CISSP, NYSTEC	Consultant to the NYSBOE

5.2.2 SysTest Labs Project Team Roles and Responsibilities

The following table identifies the SysTest Labs project team and defines each team member's roles and responsibilities within the project.

Team Member	Role	Responsibilities
Rex Reed, PMP	Program Manager	❑ Primary SysTest Labs contact with NYSBOE ❑ Overall program management and project delivery ❑ Development, delivery, and maintenance of all project deliverables ❑ Verification of quality assurance throughout the project
Brian Phillips, CEO	Project Advisory Board	❑ Project support with ITA process, business policy-related matters, management issues and concerns ❑ Quality review of project deliverables ❑ Backup for project team
Glenn Truglio, COO and Project Director	Project Advisory Board	❑ Project support with ITA process, business policy-related matters, management issues and concerns ❑ Quality review of project deliverables ❑ Backup for project team ❑ Contract management
Jim Nilius, VP of Compliance	Project Advisory Board	❑ Project support with ITA process, business policy-related matters, management issues and concerns ❑ Quality review of project deliverables ❑ Backup for project team
Jerry Prochazka, Quality Assurance Manager	Internal Quality Assurance	❑ Quality Assurance Subject Matter Expert ❑ Provide QA oversight, coordination, and support ❑ Assure adherence to all quality standards ❑ In-house quality audits ❑ Maintenance of SysTest Labs Quality System Manual and Standard Lab Procedures

Team Member	Role	Responsibilities
Jennifer Garcia, Voting Systems Test Manager	Individual Test Project Management	❑ Functional testing and requirements Subject Matter Expert ❑ Management of vendor-specific test efforts ❑ Functional test input into Master Test Plan and Master TDP Review Plan ❑ Development and management of requirements traceability ❑ Development of vendor-specific test plans and test cases ❑ Management of test leads and test analysts ❑ Development of vendor-specific test reports ❑ Responsibility for all technical aspects of the project ❑ Verification of quality assurance throughout testing
James Henry, Voting Systems Test Manager	Individual Test Project Management	❑ Management of vendor-specific test efforts ❑ Management of Master Test Plan development effort ❑ Development and management of requirements traceability ❑ Development of vendor-specific test plans and test cases ❑ Management of test leads and test analysts ❑ Development of vendor-specific test reports ❑ Responsibility for all technical aspects of the project ❑ Verification of quality assurance throughout testing
Al Backlund, Hardware Test Manager	Hardware Test Management For All Individual Test Projects	❑ Hardware testing Subject Matter Expert ❑ Management of vendor-specific hardware test efforts ❑ Development of vendor-specific hardware test plans and test cases ❑ Management of hardware testing and liaison with hardware test labs ❑ Development of vendor-specific test reports ❑ Verification of quality assurance throughout testing
Daniel Weiske, CISSP, CISA, CAP, NSA-IAM	Senior Security Specialist	❑ Security testing Subject Matter Expert ❑ Security test input into Master Test Plan and Master TDP Review Plan ❑ Development and management of requirements traceability ❑ Security input into development of vendor-specific test plans and test cases ❑ Development of security specific test cases ❑ Security input into development of vendor-specific test reports ❑ Responsibility for all security technical aspects of the project and monitoring of security testing
Kevin Kealan, SysTest Labs Account Manager	Account Management	❑ Account management ❑ Primary contact with NYSBOE contracting office

6 PROJECT MANAGEMENT PROCESSES

6.1 Communications Management Plan

The Communications Management Plan describes the communications requirements and expectations for the project; how and in what format information will be communicated and stored; when and where each communication will be made; which stakeholders require what information; and who is responsible for providing each type of communication.

The Communications Management Plan for the NYSBOE Voting System Examination and Certification Testing project is contained in a separate document titled "Communications Management Plan For NYSBOE Voting System Examination and Certification Testing".

6.2 TDP Check-In and Change Control

This change control plan describes the process for the receipt, check-in, and storage of Technical Data Package (TDP) documents and source code that is received from the Vendors, as well as the receipt and storage of other Vendor-specific documentation.

6.2.1 Scope

This procedure pertains to all vendor TDP deliverable check-in activities performed by SysTest Labs as part of the NYSBOE Voting System Examination and Certification Testing project.

These deliverables include documents, source code, executables, and software. The vendor also provides items that do not require check-in or version control, but are saved in the project folder on the NYSBOE server. These items include the TDP trace, Supported Functionality Declaration (SFD), development status reports, and other correspondence from the vendor.

6.2.2 Description of the Supported Functionality Declaration (SFD)

6.2.2.1 A list of vendor-supported functionality and vendor-specific requirements is supplied to SysTest Labs by each vendor via the Supported Functionality Declaration (SFD) Form. This form contains a fixed set of voting system functional features, based on the Voluntary Voting System Guidelines (VVSG 2005). The vendor completes the form by marking which listed features are included or excluded from the system's functionality set. The completed SFD form then becomes the set of vendor-supplied requirements, and shall be a scope-defining artifact for that vendor-specific test engagement.

The SFD form is received from the vendor at project startup and shall be stored in the non-TDP folder on the secured NYSBOE server. The SFD form is then used, unchanged, throughout the project.

If the vendor chooses to revise the SFD after its initial submittal, the prior form shall be dated and labeled "Do Not Use", and retained in the project directory. The updated submittal shall become the SFD form of record.

6.2.3 Objectives

TDP check-in for the NYSBOE Voting System Examination and Certification Testing project involves the following tasks and subtasks.

- Check-in of documents, source code, and executable code
  - Identifying what to check-in and storing non-TDP items
  - Placing electronic files in the Project sub-folder of the TDP folder
  - Providing a receipt and notifying SysTest Labs Managers
  - Entering TDP items into the check-in system
  - Storing or returning removable media used to convey electronic files
- Running TDP reports as needed

6.2.4 Responsibilities

The check-in of TDP documents, code, and executables shall be performed by the Delivery Manager or a Voting Specialist(s) assigned by the Project Manager.

The execution of TDP reports shall be performed by the Delivery Manager, Chief Engineer, or a Voting Specialist who has access to the reporting system.

6.2.5 Check-In of TDP Documents and Code

The acceptance and check-in of TDP items shall be governed by SysTest Labs standard quality assurance policies and procedures. TDP items from a Vendor or from another voting test laboratory arrive via an FTP site (with email notification from the provider), via email using encryption, or on removable media such as CD-ROMs. TDP items must be checked-in as soon as possible, preferably within one (1) business day of receipt, to maintain accurate records and to facilitate assessment. This task addresses the check-in of TDP documentation, source code, and executable code.

6.2.6 Resources and Locations for Document and Code Check-In

Items to be checked in shall be stored on the secured NYSBOE server, in the TDP folder, in a sub-folder created for the specific Vendor. All TDP items shall be stored in folders named according to the date of receipt.

6.2.7 Identifying What to Check-In and Storing Non-TDP Items

The following items received from the vendor do not need to be checked-in or kept under version control. The following items shall be stored in a sub-folder, within the vendor folder, named **Non-TDP Items**:

- Supported Functionality Declaration (SFD)
- Vendor trace
- Discrepancy report responses

The following items received from the vendor do not need to be checked-in or kept under version control. The following shall be stored in a sub-folder, within the vendor folder, named **Correspondence**:

- Vendor status reports, such as schedule of code delivery
- Other emailed or scanned correspondence between SysTest Labs, the NYSBOE and the vendor; if the Project Manager or Vice President of Compliance Services deems these necessary to be saved based on relevance to the project

The following vendor delivered items shall be checked-in and stored in the vendor folder and kept under strict version control:

- TDP documents corresponding to the VVSG Volume 2 Section 2 and related supporting documents
- Source code
- Witnessed builds
- Other electronic files provided for testing, such as ballots and configuration files
- Reports, source code, documentation, and other TDP items from other ITA/VSTL labs

6.2.8 Storing Electronic Files in the Vendor TDP Folder

In the vendor sub-folder within the TDP folder on the secured NYSBOE server; a new folder shall be created. The name of this new folder shall identify:

- The date the materials were received by SysTest Labs, in the format YYYYMMDD
- The item type (SC for source code, D for documentation, TB for trusted build, O for other items)
- The three-letter code assigned to the vendor, subcontractor, or hardware lab

The received files shall be stored in the newly created sub-folder. If the vendor provides files in a compressed format, such as a zip or tar file, the file shall be unzipped into a folder that has the same name as the zipped file. When source code files are decompressed, the zip or tar file shall be retained. The compressed source code file shall always be retained.

6.2.9 Notification of Receipt of TDP Items

The vendor and the NYSBOE shall be notified, via email, of the receipt of TDP item(s) and source code. The SysTest Labs Project Manager and Test Manager (and the Source Code Review Lead if source code was submitted) shall be included in this notification.

6.2.10 Voting Check-In System

The SysTest Labs Delivery Manager shall check-in and manage all new and existing TDP items received from the Vendors.

As stated in the 2005 VVSG, Volume 2, Section 2.1.1.1, the following is the minimal documentation required for inclusion in a vendor's TDP package:

- System configuration overview
- System functionality description
- System hardware specifications
- Software design and specifications
- System test and verification specifications
- System security specifications
- User/system operations procedures
- System maintenance procedures
- Personnel deployment and training requirements
- Configuration management plan
- Quality assurance program
- System change notes

Items that are supplemental to the TDP and include multiple related files (such as hardware schematics or manuals for the vendor's configuration management software) shall be checked in as a group rather than individually.

6.2.11 Storage of Removable Media Used to Convey Electronic Files

After checking-in electronic files to the TDP sub-folder, the Delivery Manager shall archive all CD-ROMs, disks, and other media in the secure voting repository, unless the Project Manager authorizes returning them to the vendor.

6.2.12 Running TDP Reports

In the Voting Check-In system, users shall be able to generate reports of documents or deliveries by date. This is helpful to track receipt of items or audit check-in activities. The report lists all items delivered for the project in order by TDP submission date. The Document Report lists documents submitted in alphabetical order, omitting documents flagged as "replaced". The reports can be saved in PDF format using FileMaker Pro. Reports shall be saved on an as-needed basis, as authorized by a SysTest Labs Manager.

6.3 Hardware Testing and Change Control

This procedure documents SysTest Labs' processes and procedures to verify a consistent method for hardware test management and change control throughout hardware test execution.

6.3.1 Scope

This procedure pertains to the management of all environmental hardware tests that will be performed by SysTest Labs as part of the NYSBOE Voting System Examination and Certification Testing project, including the change control methodology for the review, evaluation, testing, and tracking of hardware engineering changes.

6.3.2 Objectives

Hardware test management involves the following primary tasks and multiple subtasks.

- Hardware Test Definition
  - Define the hardware test effort
  - Develop the hardware test plans
- PCA System Configuration Audit
  - Perform system configuration – environmental audit
  - Photograph system components
  - Take accessibility measurements
  - Coordinate with the Vendor to complete the audit
- FCA Hardware Test Review

- Track Hardware Lab Status
- Process Engineering Changes
    - Check-in engineering changes approved by the NYSBOE
    - Test execution of the engineering change
    - Receive completed engineering change form from hardware lab
    - Track status of engineering change and testing
    - Provide regular status report of engineering change testing to Project Manager
    - Provide input from engineering change to Vendor Final Test Report
- Receive and review test report from hardware lab
- Provide input to Vendor-Specific Final Test Report

6.3.3 Responsibilities

To complete the hardware test definition, the SysTest Labs Hardware Test Manager creates a list of the test set requirements and generates the hardware test plans for each Vendor.

The Hardware Test Manager and/or the Lead Voting Test Specialist is responsible for conducting the PCA System Configuration Environmental Audit.

The Hardware Test Manager is responsible for the evaluation and review of engineering changes approved by the NYSBOE.

The Hardware Test Manager or Lead Voting Test Specialist is responsible for the check-in and review of engineering changes.

The Hardware Test Manager or Lead Voting Test Specialist is responsible for completing the engineering change report, reporting the status to the NYSBOE, and providing input from the report for the Vendor-Specific Final Test Report.

The Hardware Test Manager is responsible for regular status reports to the Project Manager and input of hardware test results into the Vendor-Specific Final Test Report.

6.3.4 PCA System Configuration Audit

6.3.4.1 Defining the Hardware Test Effort

The Hardware Test Manager will review the hardware testing that was performed by the prior ITA, as well as prior and/or current hardware testing performed by SysTest Labs for the purpose of identifying previous hardware testing that may be leveraged.

The acceptance and use of previous hardware environmental testing will be based on the following criteria:

- The configuration of the equipment being presented for testing is substantially identical to the equipment that was previously tested and certified and that all changes made to the hardware configuration of the equipment being presented for testing, from the hardware that was previously tested and certified, are confirmed to be de minimis changes.
- The standards and requirements under which the previous testing and verification was performed are equal to or more demanding than the current requirements.
- There have been no significant changes to the test methods.
- The lab that completed the hardware environmental testing and verification meets the NYSBOE's requirements for accreditation as defined in NIST HANDBOOK 150-22: 2005.

The Hardware Test Plans shall contain the results of this evaluation and display a list of the hardware testing that SysTest Labs recommends be accepted by the NYSBOE. The hardware test reports from the prior testing will be included as part of the Hardware Test Plans.

All hardware tests shall be executed, except for prior hardware tests that have been accepted by SysTest Labs and the NYSBOE.

All hardware tests shall be mapped to the corresponding 2005 VVSG requirements, NYS Laws, and 6209 regulations in the Master Requirements Matrix.

The following table displays the list of hardware tests and the corresponding VVSG requirement(s) satisfied by each.

Test	*Task*	*2005 VSSG Requirement*
Non-Operating		
	Maintainability	V2, 4.7.2
	Safety Evaluation	V1, 3.4.8
Environmental - Non-Operating		
	Bench Handling	V2, 4.6.2
	Vibration	V2, 4.6.3
	Low Temperature	V2, 4.6.4
	High Temperature	V2, 4.6.5
	Humidity (85%) Soak	V2, 4.6.6
Environmental - Operating		
	Accessibility and Human Engineering Evaluation	V1, 3.4.9, V1, 2.2.7.2
	Temperature/Power Variation and Reliability	V2, 4.7.1
	Data Accuracy	V2, 4.7.1.1
Other Environmental Tests (Electrical)		
	Power Disturbance	V2, 4.8.1
	Electromagnetic Radiation	V2, 4.8.2
	Electrostatic Disruption	V2, 4.8.3
	Electromagnetic Susceptibility	V2, 4.8.4
	Electrical Fast Transient	V2, 4.8.5
	Lightning Surge	V2, 4.8.6
	Conducted RF Immunity	V2, 4.8.7
	Magnetic Fields Immunity	V2, 4.8.8

6.3.4.2 Developing the Hardware Test Plans

The Hardware Test Manager will develop the Hardware Test Plans.

The purpose of the Hardware Test Plans is to document the testing requirements of the Vendor's voting system. The Hardware Test Plans will be used by the Hardware Test Lab to perform all required testing and verify that all 2005 VVSG and New York State requirements are satisfied.

The following two (2) Hardware Test Plans shall be developed for each Vendor:

- Hardware EMC Test Plan
- Hardware Environmental Test Plan

The Hardware EMC Test Plan consists of the following sections:

- Introduction
  - Overview
  - Qualifications
  - Vendor
  - Vendor Restricted Information
  - Reference Documents
- Test Summary
- Product Description
  - Intended Use
  - Equipment Under Test
  - Power Supplies
  - Accessories
  - Oscillator Frequencies
  - Interconnecting cables
  - Software
- Test Plan
  - Operating Modes and Configurations For EMC Testing

- Treatment of Test Failures
- Test Documentation
- Test Facility Location

- EMC Tests
  - Electromagnetic Emissions
  - Electromagnetic Immunity
- List of Tables
- List of Figures

The Hardware Environmental Test Plan consists of the following sections:

- Introduction
  - Overview
  - Qualifications
  - Vendor
  - Vendor Restricted Information
  - Reference Documents
- Test Summary
- Test Hardware and Software
  - Equipment Under Test
  - Power Supplies
  - Accessories
  - Software
- Test Requirements
  - Test Procedures
  - Non-Operating Environmental Tests
  - Operating Environmental Tests

6.3.4.3 PCA System Configuration Audit

The PCA System Configuration Checklist_HW_Traveler (called the PCA Traveler) template contains the following tabs for the relevant hardware tests.

- Test Case tab: The Hardware Test Manager completes this tab upon completion of all hardware testing. The purpose of this tab is document all hardware tests performed.
- System Configuration – Environmental tab: The Hardware Test Manager or Lead Voting Test specialist completes this tab. The hardware contents of this worksheet are entered when the equipment is received from the vendor for testing and is updated by the functional test team with software configuration information prior to the start of functional testing.
- Operational Status Check tab: The steps required to perform an operational status check are defined for the hardware equipment under test. The operational status check is performed before and after each non-operational test to verify proper operation of the equipment.
- Accessibility Test tab: The Common Standards section is completed by the Hardware Test Manager for all other requirements where applicable.
- Maintainability Test tab: The Hardware Test Manager completes the applicable sections of this tab.

The Hardware Test Manager reviews the information received from the Hardware Test Lab and the SysTest Labs voting test team to ensure accuracy, then combines the worksheets into one PCA document.

6.3.4.4 Storage Location for System Configuration Audit

The test environment hardware configuration and accessibility measurements are documented in the PCA System Configuration Checklist_HW_Traveler (called the PCA Traveler). The traveler for each Vendor is stored in the "PCA Hardware-Software Audit" folder on the secured SysTest Labs NYSBOE server.

6.3.4.5 Auditing the System Configuration for Environmental Hardware Testing

The Hardware Test Manager will complete the System Configuration – Environmental tab of the PCA Traveler. This tab contains instructions for completing the form to reflect the system configuration and all components and versions of the Vendor's hardware.

6.3.4.6 Photographing the System Components

The Hardware Test Manager will photograph the Vendor's voting system while completing the system configuration audit. All components of the voting system shall be photographed with the serial numbers visible. The digital photographs are stored in the same folder as the PCA Traveler and will be referenced in the PCA Traveler.

6.3.4.7 Performing HAVA Accessibility Measurements

The Hardware Test Manager will measure the Vendor's voting system to verify compliance with the HAVA 301 accessibility requirements for height, clearance, and reach. The measurements and pass/fail status are recorded in the Common Standards area of the Accessibility Test tab of the PCA Traveler.

6.3.5 Hardware Test Execution

The Hardware Test Manager or the Lead Voting Test Specialist will always be on-site at the Hardware Test Lab throughout the execution of the Vendor hardware test effort. The purpose is to track the status of the testing being performed by the Hardware Test Lab and to identify and follow up on any issues that arise so that the NYSBOE and the SysTest Labs Project Manager will always be informed of test progress.

Discrepancies discovered during test execution will be documented and forwarded to the NYSBOE and the Vendor for review, analysis, and resolution.

The Hardware Test Manager is responsible for daily status reports to the SysTest Labs Project Manager and input into the weekly status report to the NYSBOE.

Upon completion of the hardware tests, the Hardware Test Manager will record the test results and pass/fail status in the System Configuration – Environmental tab of the PCA Traveler.

6.3.6 Change Control and Processing Engineering Changes

6.3.6.1 Definitions

When issues are identified during hardware environmental testing, a SysTest Labs discrepancy report is forwarded to the NYSBOE and the Vendor. An Engineering Change (EC) is provided by the Vendor in response to the hardware related discrepancy. The Hardware Test Manager shall review the discrepancy resolution to ensure that the changes documented in the EC are equivalent to any change implemented as a result of mitigating an issue during hardware testing.

If the Vendor desires to make a hardware change to the voting system that is not included in their original application to the NYSBOE, the Vendor must submit an update to their application to the NYSBOE explaining the scope and purpose of the change. Upon approval by the NYSBOE, an engineering change may then be submitted to SysTest Labs. The Hardware Test Manager shall evaluate the change and determine which hardware tests require execution to completely and thoroughly test the modification.

6.3.6.2 Process

For an engineering change, the Vendor shall describe the change and the reason for the change. The Vendor shall also provide all documentation for the affected subassembly, and the top-level BOM or configuration showing where the subassembly is used in the voting system. The Hardware Test Manager will evaluate the change and document the results of the evaluation using the SysTest Labs' Engineering Change Evaluation Review form.

The objectives of the evaluation are to:

- Describe the change(s)
- Describe the testing, test methodology, and /or documentation updates required
- Upon completion of the testing, describe the test results
- Document the results, provide status to the SysTest Labs Project Manager and the NYSBOE, and provide input for the Vendor Final Test Report

The status of the engineering change is tracked on the Engineering Change Report Log.

The Hardware Test Manager will download the engineering changes and all associated documentation, prepare the Engineering Change Evaluation and Review form, update the Engineering Change Report Log, and schedule testing with the Hardware Test Lab.

The Hardware Test Lab will complete the testing and the Hardware Test Manager shall update the Engineering Change Report Log.

When there are outstanding ECs, the status of the engineering change will be reported as part of the weekly status report to the NYSBOE.

6.3.6.3 De Minimis Determination

The Hardware Test Manager will make an independent determination of a Vendor claim that an engineering change is de minimis and therefore does not require hardware testing. The evaluation will be forwarded to the NYSBOE for review and approval.

SysTest Labs' determination for the NYSBOE will be based on the following EAC 2007 Guideline, Section 3.5:

> "Manufacturers must submit any proposed de minimis change to an EAC VSTL for review and endorsement. The Manufacturer will provide the VSTL (1) a detailed description of the change; (2) a description of the facts giving rise to or necessitating the change; (3) the basis for its determination that the change will not alter the system's reliability, functionality, or operation; and (4) upon request of the VSTL, a sample voting system at issue or any relevant technical information needed to make the determination. The VSTL will review the proposed de minimis change and make an independent determination as to whether the change meets the definition of de minimis change or requires the voting system to go through additional testing as a system modification. If the VSTL determines that a de minimis change is appropriate, it shall endorse the proposed change as a de minimis change. If the VSTL determines that modification testing and certification should be performed, it shall reject the proposed change. Endorsed changes shall be forwarded to the EAC Program Director for final approval, per document "Testing and Certification Program Manual, Version 1.0, OMB 3265-0004, Section 3.5.2.1." Rejected changes shall be returned to the Manufacturer for resubmission as system modifications."

6.3.6.4 Check-In Of Engineering Changes

The following process shall govern the check-in of engineering changes.

- Upon approval of the engineering change by the NYSBOE, the Vendor will forward the engineering change via email, on a CD-ROM, or posted to the Vendor's FTP site.
- The Documentation Coordinator will download the engineering change and store all Vendor-supplied documentation in the EC folder set up in the Vendor's "Other" directory on the secured SysTest Labs NYSBOE server.
- The Hardware Test Manager will check-in the engineering change on the Change Report Log.
    - A line will be added at the top of the table in the log so that the latest engineering change appears first.
    - Enter the EC ID, date received, and the date the evaluation is due.
- Complete the Description field from the Vendor's documentation that has been input into the engineering change.
- In the System column, complete the system and component fields. Review the changes and forward to the Hardware Test Lab.
- Review the documentation supplied by the Vendor to determine the nature and extent of the change(s).
- For each engineering change:
    - Complete the top portion of the Engineering Change Evaluation and Review form.
    - Complete the information regarding the Date Created, Created By, Evaluation Response Due, Vendor, Engineering Change ID, Relevant Hardware, Systems, Revision/Version, Serial Numbers or Part(s), Description of Change and the section titled "EC Package From Vendor".

6.3.6.5 Determination Of Required Testing

The Hardware Test Manager will evaluate the engineering change to determine what testing is required and what documentation is required. The Hardware Test Manager will complete the evaluation, identify testing, documentation, and other action required, and document the reasons. This evaluation will be completed within five (5) business days and will be forwarded to the NYSBOE for review and approval.

De Minimis Changes: A de minimis change is a change to voting system hardware, which is so minor in nature and effect that it requires no additional testing and certification. Such changes require SysTest Labs review and the NYSBOE approval. Any proposed change not accepted as a de minimis change is a modification and shall be submitted for the appropriate review and hardware testing. An approved de minimis change is not considered a modification.

The time required for testing depends on when the hardware equipment, with the required change(s), is received, and the extent of testing required.

Upon completion of the hardware testing, the Hardware Test Manager will complete the Validation Required, Test Execution, and Signature sections of the Engineering Change Evaluation and Review form. The form is forwarded to the Hardware Test Manager.

6.3.6.6 Engineering Change Acceptance

Upon receipt of the Engineering Change Evaluation and Review form, the Hardware Test Manager will update the Engineering Change Report Log in the Vendor's EC folder.

The Hardware Test Manager shall review and accept the completed testing and the engineering change by signing and dating the Engineering Change Evaluation and Review form.

The Hardware Test Manager shall inform the SysTest Labs Project Manager of the completion and acceptance of the engineering change for inclusion in the weekly status report to the NYSBOE.

6.3.6.7 Tracking the Status of the Engineering Change Evaluation and Review Form

The file name of the Engineering Change Evaluation and Review form identifies the status of the EC, along with its location in one of five directories:

- 1EC Received: Vendors have forwarded an engineering change that requires an Engineering Change Evaluation Review form be prepared.
- 2EC Evaluating & Validating: The EC is currently being evaluated. The file is named "Evaluation Vendor EC #". If the evaluation determines that hardware testing is required, the file remains in this folder, but the file name is changed to "Testing Vendor EC #".
- 3EC Completed: The engineering change has been completed, either with no requirement for further validation or after testing has been completed. It has been submitted to the NYSBOE for review and approval. The file remains in the folder, but the file name is changed to "Completed Vendor EC #".
- Withdrawn or rejected EC's will be archived to a "Withdrawn" folder and returned to the vendor. The "Withdrawn" status will also be reflected in the Engineering Change Report Log form.
- A copy of the EC's requiring de minimis changes will be sorted in the "De Minimis Changes" folder.
- 4EC Returned: The EC and report log have been forwarded to the NYSBOE. The file name remains unchanged but is moved to a folder named with the current date. The EC form and report log will be converted to PDF format before being forwarded to the NYSBOE.

6.3.7 Receipt and Acceptance of Hardware Test Lab Reports

When SysTest Labs receives the hardware test reports from the Hardware Test Labs, the Hardware Test Manager will review each report for content, completeness, and accuracy. The approved hardware test reports shall become attachments to each Vendor-Specific Final Test Report.

The hardware test reports shall be archived to the secured SysTest Labs NYSBOE server in the following path:

FAC Test Plan & Cases \ Environmental Hardware Testing \ HW Test Results

The Hardware Test Manager shall convert all hardware test reports to PDF format and archive each in the path above.

The Hardware Test Manager shall provide input concerning the results of the Vendor's hardware testing for the Vendor-Specific Final Test Report.

6.4 Functional Testing and Change Control

The SysTest Labs' process and procedures for the check-in and change control of documentation, source code, and software is documented in Section 6.2 of this Master Program Plan – TDP Change Control Plan. The process and procedures for the management of changes to the voting system application during the three phases of test execution is documented in the SysTest Labs' test plans "Final Master Test Plan" and "Master Technical Data Package Review Plan".

6.5 Project Deliverables Provided to the NYSBOE

This section of the Master Program Plan describes the process and procedures to be used by SysTest Labs to track, modify, and control the versioning of the project deliverables to be delivered to the NYSBOE throughout the life of the project and provide the NYSBOE with updated versions.

6.5.1 List of Deliverables

The following is a summary of the major project deliverables.

Project Deliverable
Deliverable 1 - Project Kick-Off Meeting
Deliverable 1 - Integrated Master Program Plan (this document), to include the following deliverables: ❑ SysTest Project Organizational Chart ❑ Program Schedule ❑ Program Quality Assurance Plan ❑ Program Change Control Plan ❑ Program Communications Plan ❑ Program Issue and Risk Management Plan
Deliverable 2 – Ongoing Project Management Services, consisting of the following: ❑ Regularly scheduled project status meetings with NYSBOE ❑ Weekly written project status reports ❑ Participation in regularly scheduled Project Steering Committee meetings ❑ Project issue and risk tracking and management
Deliverable 3 – Testing Requirements Confirmation Matrix containing 2005 VVSG standards and NYSBOE requirements
Deliverable 4 – Evaluation Of Prior certification testing artifacts developed by former ITA
Deliverable 5 - Review Of Manufacturer's Technical Data Packages (TDP's)
Deliverable 6 – Master Test Plan
Deliverable 7 – Voting System Specific Test Plans
Deliverable 8 – Voting System Specific Test Execution
Deliverable 9 – Voting System Specific Individual Test Reports
Deliverable 10 – Voting System Specific Final Test Reports

6.5.2 Responsibilities

The SysTest Labs Program Manager is ultimately responsible for the development, maintenance and change control of all project deliverables. The Program Manager is responsible for the delivery of all project deliverables to the NYSBOE, following the process as documented in Section 6.2.3 below.

6.5.3 Development of Project Documentation

The following deliverables are project documents that shall be developed by SysTest Labs for delivery to the NYSBOE.

- ❑ Deliverable 1 – Integrated Master Program Plan
- ❑ Deliverable 6 – Master Test Plan
- ❑ Deliverable 7 – Voting System Specific Test Plans
- ❑ Deliverable 9 and 10 – Voting System Specific Final Test Reports

6.5.4 Document Configuration Management and Versioning

All SysTest Labs project plans, test plans, test cases, and test reports are developed directly from SysTest Labs' approved quality templates.

All project documents for the NYSBOE Voting System Examination and Certification Testing project shall be stored on the secured NYSBOE server at SysTest Labs. Access to the project deliverables is limited to authorized staff that are developing, reviewing, maintaining, or referencing the documents.

As draft versions of project documents are developed in-house, each document will be initially labeled as Version 1.0 and dated with the date of creation.

Draft documents shall be labeled as DRAFT in the filename, with a DRAFT watermark displayed on each page of the document. The version of the draft document shall be displayed as Version 1.0_DRAFT. Draft documents submitted for review are not subject to formal submission as documented in Section 6.2.3. Draft documents may be forwarded to the entire NYSBOE communications list, as documented in the Communications Management Plan, or a subset of the list as instructed by the NYSBOE.

Draft documents shall be submitted for internal SysTest Labs review before submittal to the NYSBOE for review. Upon completion of the internal review, modifications and updates to the draft document will be made. The date shall display the date of the latest modifications and the version of the document shall be incremented as follows:

- Major modifications, updates, additions, or deletions shall increment the first number of the version number (i.e. Version 1.0 will increment to 2.0)
- Minor modifications, formatting corrections, spelling corrections, etc. shall increment the second number of the version number (i.e. Version 1.0 will increment to 1.1)

All versions of draft and formally submitted documents shall be stored and archived on the secured NYSBOE server at SysTest Labs for historical purposes.

After the internal reviews are complete and all modifications have been made, the draft documents may be delivered to the NYSBOE for review and feedback.

Subsequent modifications and updates to these draft documents shall be governed by the same versioning control as specified for in-house documents above.

Upon completion of the NYSBOE review, modifications may be made to the draft document. The deliverable shall then be formally submitted to the NYSBOE as defined in Section 6.2.3 below. The version of the document shall be returned to Version 1.0 and all references to "Draft" shall be removed from the filename, version number, and watermark. Formally submitted documents and deliverables shall be forwarded to the entire NYSBOE communications list, as documented in the Communications Management Plan.

Subsequent modifications and updates to formally submitted documents shall be governed by the same versioning control as specified for in-house documents above and formally re-submitted as defined in Section 6.2.3 below.

6.5.5 Process of Deliverable Acceptance by NYSBOE

All SysTest Labs deliverables shall undergo a formal review process by the NYSBOE. The deliverables for the NYSBOE Voting System Examination and Certification Testing project are defined in Section 2.4 – Major Project Deliverables.

All deliverables shall be delivered to the NYSBOE Administrative Project Manager (Tarry Breads), via email, on or before the deliverable due date; with a cc: to the entire NYSBOE communications list, as documented in the Communications Management Plan.

A NYSBOE "Deliverable Transmittal Form" shall be completed and attached with each deliverable or re-submission of a deliverable.

The process for the delivery and review of deliverables has been established by the NYSBOE and has been adopted by SysTest Labs. The following is copied directly from the NYSBOE document "SBOE Deliverable Transmittal And Review Procedures".

"Each deliverable will undergo a formal review in order to assess that it has satisfactorily met the project's requirements. Below are the steps in the transmittal and review process:

1) ITA Project Manager submits required deliverables in both MS Word and Adobe to SBOE's Administrative Project Manager on or before the due date.
    a) A "Deliverable Transmittal Form" shall be attached, with "Consultant Deliverable Information" section completed.
2) The Administrative Project Manager receives the deliverable.
    a) Documents the receipt of the deliverable in the "Deliverable Review Log".
    b) Saves an electronic copy to the Project's Library in the shared drive folder.
    c) Assigns Reviewer(s) and due dates for response, following the designated schedule of identified Reviewers and timeframes for each deliverable.
    d) Distributes informational copies.

e) Internal meetings, conference calls, and other communications take place. As needed, the Administrative Project Manager will schedule meetings and arrange for space.

3) Reviewer(s) formally evaluate/analyze deliverables assigned.

   a) Provide written assessment and comments via the "Deliverable Transmittal Form" in the "SBOE Reviewer" or "Other Reviewer" section, as appropriate.

   b) Submit "Deliverable Transmittal Form" to the Administrative Project Manager on or before the scheduled due date.

4) The Administrative Project Manager receives the deliverable review(s) and forwards them to the Director and Deputy Director for formal determination.

   a) Documents the receipt of the deliverable review(s) in the "Deliverable Review Log".

5) The Director and Deputy Director may render formal determination regarding the deliverable, or make a formal recommendation to the State Board's Commissioners for their approval.

   a) Director and Deputy Director enter comments (recommending acceptance, rejection, modifications, or referral to the State Board regarding the submitted deliverable) via the "Deliverable Transmittal Form" in the "Formal Determination" section.

   b) Submit "Deliverable Transmittal Form" to the Administrative Project Manager on or before the scheduled due date.

   c) Administrative Project Manager saves an electronic copy to the Project's Library on the shared drive folder.

   d) Administrative Project Manager assigns formal recommendation to the State Board, as appropriate and forwards documentation to Board Members for review and decision-making.

   e) Administrative Project Manager documents the receipt of the "Formal Determination" in the "Deliverable Review Log".

6) Administrative Project Manager prepares formal response (acceptance, rejection, modifications requested) to consultant.

   a) Drafts response (acceptance, rejection, modification requested) for review by Executive Staff and shepherds it through to final version / decision.

   b) Sends response, including formal determination and reviewer comments to ITA Project Manager.

   c) Documents decision in the "Deliverable Review Log".

   d) Saves an electronic copy to the Project's Library on the shared drive folder.

Distributes copies as appropriate, including notification to agency Administration, to authorize payments tied to the accepted deliverables."

6.6 Quality Management Plan

The Quality Management Plan describes SysTest Labs' internal quality management practices and policies.

The Quality Management Plan documents SysTest Labs' Quality Assurance methodologies, processes, and procedures, which consist of a systematic quality assurance approach that has been audited and approved by the EAC as the methodology used for conducting Voting System Test Lab (VSTL) Certification Testing of electronic voting systems.

SysTest Labs' Quality Management Plan is based on best practices and industry standards articulated by the PMI® PMBOK®, CMMI, IEEE, and ISO.

The Quality Management Plan for the NYSBOE Voting System Examination and Certification Testing project is contained in a separate document titled "Quality Management Plan for NYSBOE Voting System Examination and Certification Testing".

6.7 Issue and Risk Management Plan

Project risk management includes the processes concerned with conducting risk management planning, identification, analysis, response, and monitoring and control of a project. The objectives of project risk management are to increase the probability and impact of positive events, and decrease the probability and impact of events adverse to the project.

The SysTest Labs' Project Risk Management Plan includes the following:

- **Risk Management Planning –** deciding how to approach, plan and execute the risk management activities for a project

- **Risk Identification –** determining which risks might affect the project and documenting their characteristics
- **Qualitative Risk Analysis –** prioritizing risk for subsequent further analysis or action by assessing and combining their probability of occurrence and impact
- **Quantitative Risk Analysis –** numerically analyzing the effect on overall project objectives of identified risks
- **Risk Response Planning –** developing options and actions to enhance opportunities, and to reduce threats to project objectives

Project risk is an uncertain event or condition that, if it occurs, has a positive or a negative effect on at least one project objective, such as time, cost, scope, or quality. A risk may have one or more causes and, if it occurs, one or more impacts. If either of these uncertain events occurs, there may be an impact on the project cost, schedule, or performance. Risk conditions could include aspects of the project's or organization's environment that may contribute to project risk, such as poor project management practices, lack of integrated management systems, concurrent multiple projects, or dependency on external participants who cannot be controlled.

Project risk has its origins in the uncertainty that is present in all projects. Known risks are those that have been identified and analyzed, and it may be possible to plan for those risks using the aforementioned processes. Unknown risks cannot be managed proactively, and a prudent response by the project team will be to allocate general contingency against such risks, as well as against any known risks for which it may not be cost-effective or possible to develop a proactive response.

Organizations perceive risk as it relates to threats to project success, or to opportunities to enhance chances of project success. Risks that are threats to the project may be accepted if the risk is in balance with the reward that may be gained by taking the risk.

To be successful, SysTest Labs is committed to addressing the management of all risks proactively and consistently throughout the project.

6.7.1 Risk Management Plan

SysTest Labs recognizes the immense importance that each Vendor-Specific test effort has to the State of New York and understands that identifying any and all risks that may affect the successful completion of each voting system test effort is one of the most important activities our team will bring to the NYSBOE Voting System Examination and Certification Testing project.

The SysTest Labs' risk management methodology is based on industry standards (Mil-Std 882D), the PMI® PMBOK®, and industry best practices.

6.7.1.1 Risk Planning and Identification

Although the SysTest Labs' Risk Management Plan addresses risks, issues, and problems, it categorizes any threat to the project as a risk.

The specific definitions of each are as follows:

- **Risk -** A risk is an area of concern that can potentially become a problem later in the project. Risks can include budget overruns, schedule slippage, staffing shortages, miscommunications, and even company politics. An identified risk that is not addressed can become an issue, and eventually a problem.
- **Issue -** An issue is a risk that has a probability of occurring, with a measurable impact if the risk actually occurs. An identified issue that is not addressed most likely turns into a problem.
- **Problem -** A problem is an event that is causing a negative impact on the project and must be corrected immediately. Problems that are not resolved in a timely manner have the potential to significantly impact the budget, schedule, and ultimately the success of the project.

Risks may be internal (within the project scope) or external (outside the influence of the project). Risks can be identified during any phase of the project. The SysTest Labs' Risk Management Methodology makes the Project Team aware and helps to identify risks throughout the life of the project. Once risks are identified, they are assessed by the Program Manager and Test Managers, often in concert with the entire Project Team, to help determine the appropriate response.

The SysTest Labs risk assessment process uses the combination of the probability of occurrence and the impact of the occurrence to the business, should it occur, to assess the risk. These factors depend on an analysis of both qualitative and quantitative data. For example, qualitative data sources can be based on the experience of the Project Team members at the time the risk is identified because experienced staff is sensitive to routine pitfalls of compliance test efforts. On the quantitative side, the risk assessment may depend on an analysis of more concrete data such as budget and cost information. This data gathering is part of the risk assessment activity.

Project risks relating to schedule, costs, and/or quality shall be identified, documented, analyzed, and tracked. SysTest Labs uses a risk assessment methodology based on Mil-Std 882D that utilizes the combination of the probability of occurrence and the impact to the project should the risk occur.

The objectives of risk assessment are to:

- Eliminate the risk
- Prevent or minimize the occurrence of the risk
- Control the risk if it occurs
- Minimize the damage if the risk occurs

The risk assessment methodology identifies each potential software, human, hardware, or interface failure or error by reviewing the system and component level requirements.

Each potential failure or error is recorded and assigned a probability of occurrence.

Level	*Probability*	*Definition*
A	Frequent	Likely to occur frequently
B	Probable	Likely to occur several times in the life of the system
C	Occasional	Likely to occur in the life of the system
D	Remote	Unlikely, but possible to occur in the life of the software
E	Improbable	So unlikely that it may be assumed that the occurrence may not be experienced

Then each potential failure or error is assessed for system impact, including an assessment of any mitigating factors.

Category	*Impact*	*Definition*
1	Catastrophic	A failure that will cause loss of a major business function, data corruption, and/or system crash
2	Major	A failure that will cause loss of business function, data loss, and/or system performance
3	Minor	A failure that will cause loss of an auxiliary business function, minor impact to system performance, and/or negative impact usability
4	No Effect	No effect on system performance or business function within the system design, but cumbersome to the user

Once the probability and impact are identified, the risk is classified using the following color-coding scheme:

- Red indicates an unacceptable risk; one that SysTest Labs highly recommends be addressed
- Yellow indicates a risk that may be acceptable to NYSBOE, but requires a team decision
- Green indicates an acceptable risk

Probability Of Occurrence	*System Impact*			
	1 - Catastrophic	**2 - Major**	**3 - Minor**	**4 – No Effect**
A	**1A**	**2A**	**3A**	**4A**
B	**1B**	**2B**	**3B**	**4B**
C	**1C**	**2C**	**3C**	**4C**
D	**1D**	**2D**	**3D**	**4D**
E	**1E**	**2E**	**3E**	**4E**

6.7.1.2 Risk Response Planning

The assessment of the risk determines which risks need the most attention and priority to select and plan the appropriate response.

The objectives of Risk Response Planning are to:

- Avoid or eliminate the risk through project planning or other means
- Mitigate or minimize the occurrence of the risk and/or impact
- Accept/Control the risk if it occurs

- Minimize the damage (Contingency)

The reporting of both types of risk assessment ratings (probability and impact) provide insight into the potential risk, the probability of the risk occurring, the impact should it materialize, and a plan for its mitigation, so a decision as to the implementation of the mitigating factor can be assessed. Once the mitigation is planned, the SysTest Labs Project Manager, Test Managers, and Project Team continue to track the risk to assure that the mitigating actions are completed.

6.7.1.3 Risk Monitoring and Control

Monitoring and control of risk(s) must be effectively managed over the course of the project. As changes occur during the project, new risks may be identified, as well as impacts to previously identified risks. This is part of the iterative process of Risk Management that is encompassed in this methodology. When an identified risk occurs, the previously defined response is adapted as needed and executed. Regular reports are published to the Project Team on the status of all identified risks and their associated impact. This allows team members to be part of the process of monitoring risks and encourages them to communicate information that may impact a risk.

All risks, mitigation strategies, and updates will be posted using SharePoint on the following SysTest Labs' web site (location):

https://portal.systest.com/compliance/nysboe/lot1testing/default.aspx

6.7.1.4 Risk and Mitigation Strategies Tracking

As part of the Risk Mitigation Monitoring and Control function, it is important to track and monitor risks as well as their mitigation strategies. Because risks and mitigating actions may change over time, it is also necessary to constantly assess their effectiveness on reducing risk and adjust the approach as needed. SysTest Labs shall employ the NYSBOE SharePoint portal for this purpose. The use of SharePoint shall maintain a consistent method for performing risk identification, analysis, mitigation and monitoring. It shall also allow NYSBOE 24/7 access to view and respond to all known project risks.

As risks are identified, SharePoint provides a means for the identification of the risk, the probability of the risk occurring, the failure impact level, mitigating factors assessment, the probability after mitigation, and a classification of each risk. Also included is a status for the implementation of the mitigating factors, as well as a notes field for documenting any discussions and decisions for each identified risk.

Fields used to track and reports risks include:

- Risk Identifier (unique, sequential number)
- Title
- Risk Description
- Vendor (if applicable)
- Risk Status
- System Impact
- Probability of Occurrence
- Risk Category
- Mitigation Plans
- Resolution Description

In summary, SysTest Labs Risk Management Methodology provides for:

- Ongoing identification and assessment from an overall project perspective and for each vendor-specific test effort
- A mechanism to ensure that risks are communicated to the NYSBOE in an easily understandable format
- A complete risk assessment
- The information required for SysTest Labs and the NYSBOE management to make risk mitigation decisions in a timely manner

7 PROJECT PLAN APPROVAL SIGNATURES

Signing below indicates approval of this master program plan for the NYSBOE Voting System Examination and Certification Testing project.

08-may-2008

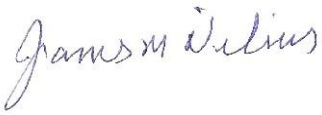
Rex Reed, PMP, SysTest Labs, Senior Project Manager
Project Plan Author and Program Manager

Date

08-may-2008

Glenn Truglio, SysTest Labs, Chief Operating Officer
Project Director

Date



08-may-2008

Jim Nilius, SysTest Labs, Vice-President of Compliance
Project Advisory Board

Date

Robert Warren, NYSBOE,
Certification Project Manager

Date

Tarry Breads, NYSBOE,
Administrative Project Manager

Date

Anna Svizzero, NYSBOE,
Director Of Election Operations

Date

Kim Galvin, NYSBOE
Deputy Director Of Election Operations

Date

8 APPENDICES

8.1 Acronyms and Definitions

The following table identifies acronyms and other definitions relative to the NYSBOE Voting System Examination And Certification Testing project.

Term Or Acronym	*Definition*
EAC	Election Assistance Commission
HAVA	Help America Vote Act of 2002
IEEE	Institute Of Electrical And Electronic Engineers
ITA	Independent Testing Authority
NYS	New York State
NYSBOE	New York State Board Of Elections
NYSTEC	New York State Technology Enterprise Corporation
PMI®	Project Management Institute
PMBOK®	Project Management Body Of Knowledge from the Project Management Institute (PMI®)
PMP®	Project Management Professional certification from the Project Management Institute (PMI®)
MCDL	Master Controlled Document List
NASED	National Association of State Election Directors
NIST	National Institute of Standards and Technology
NVLAP	National Voluntary Laboratory Accreditation Program
SFD	Supported Functional Declaration
TDP	Technical Data Package
VSTL	Voting System Test Lab

8.2 Detailed Project Implementation Plan

The following Detailed Project Implementation Plan contains the implementation plan including the deliverables, activities and tasks, dependencies, durations, and resources.

The first sections of the implementation plan include the project and test planning tasks and cover Deliverables 1, 3, 4, 5, and 6.

The remaining sections of the plan include the Vendor-specific tasks and cover deliverables 2, 4, 5, 7, 8, 9, and 10.

While the activities will remain the same for all Vendor-specific activities, the duration and resources will change for each Vendor, based on the factors specified in the next section. The schedule and detailed implementation plan for the testing of each Vendor-specific voting system shall be included as part of each Vendor-specific test plan.

NYSBOE Voting System Examination And Certification Testing *Lot 1 Project Timeline*

ID	Task Name	Pred	Duration	Resources	Work	Start	Finish	'0
1	**Deliverable 1: Initial Project Management Deliverables**		**30 days**		**360 hrs**	**Fri 2/8/08**	**Thu 3/20/08**	
4	**Deliverable 3: Testing Requirements Confirmation Matrix**		**82 days**		**2,333.33 hrs**	**Tue 12/18/07**	**Wed 4/9/08**	
16	**Deliverable 5: Review of Technical Data Packages (TDP)**		**91.63 days**		**34 hrs**	**Tue 12/18/07**	**Wed 4/23/08**	
45	**Deliverable 6: Master Test Plan**		**43 days**		**2,240 hrs**	**Tue 3/4/08**	**Thu 5/1/08**	
111	**Vendor-Specific Tasks (These Tasks Will Be Required For Each Vendor Test Effort And Documented In Each Vendor-Specifc Test Plan)**		**344 days**		**13,343 hrs**	**Thu 1/10/08**	**Fri 5/8/09**	
112	**Deliverable 2 - On-Going Project Management Activities**		**278 days**		**1,148 hrs**	**Fri 4/11/08**	**Fri 5/8/09**	
113	Generate Vendor-Specific WBS	46	5 days	RR	40 hrs	Fri 4/11/08	Thu 4/17/08	
114	Baseline Vendor-Specific WBS	113	1 day	RR	8 hrs	Fri 4/18/08	Fri 4/18/08	
115	Internal Project Kick-off Meeting	114	1 day	TestMgr	8 hrs	Mon 4/21/08	Mon 4/21/08	
116	On-Going Project/Program Management	46	136 days	RR[90%]	980 hrs	Mon 4/21/08	Thu 10/30/08	
117	Project Status Meetings	46	136 days	RR[5%]	56 hrs	Mon 4/21/08	Thu 10/30/08	
118	Project Status Reporting	46	136 days	RR[5%]	56 hrs	Fri 10/31/08	Fri 5/8/09	
119	**Project Execution (PCA and FCA Activiites)**		**202 days**		**11,851 hrs**	**Thu 1/10/08**	**Wed 10/22/08**	
120	**Deliverable 4 - Evaluation Of Prior Work**		**20 days**		**496 hrs**	**Fri 4/11/08**	**Thu 5/8/08**	
121	**Evaluate Prior Test Cases**		**10 days**		**112 hrs**	**Fri 4/11/08**	**Thu 4/24/08**	
122	Evaluate Test Cases And Test Reports From Prior NYSBOE ITA	46	2 days	TS4	16 hrs	Fri 4/11/08	Mon 4/14/08	
123	Evaluate Test Cases And Test Reports From Other Prior VSTL Labs Certifications	46	2 days	TS2	16 hrs	Fri 4/11/08	Mon 4/14/08	
124	Evaluate Test Cases And Test Reports From Prior And/Or Current SysTest Labs Engagements	46	10 days	TS3	80 hrs	Fri 4/11/08	Thu 4/24/08	
125	**Evaluate Prior Vendor-Documentation Review**		**5 days**		**72 hrs**	**Fri 4/11/08**	**Thu 4/17/08**	
126	Evaluate Documentation And Reports From Prior NYSBOE ITA	46	2 days	DR1	16 hrs	Fri 4/11/08	Mon 4/14/08	
127	Evaluate Documentation And Reports From Other Prior VSTL Labs Certifications	46	2 days	DR2	16 hrs	Fri 4/11/08	Mon 4/14/08	
128	Evaluate Documentation And Reports From Prior And/Or Current SysTest Labs Engagements	46	5 days	Dr3	40 hrs	Fri 4/11/08	Thu 4/17/08	
129	**Evaluate Prior Source Code Review**		**5 days**		**72 hrs**	**Fri 4/11/08**	**Thu 4/17/08**	
130	Evaluate Source Code Review And Reports From Prior NYSBOE ITA	46	2 days	SC1	16 hrs	Fri 4/11/08	Mon 4/14/08	
131	Evaluate Source Code Review And Reports From Other Prior VSTL Labs Certifications	46	2 days	SC2	16 hrs	Fri 4/11/08	Mon 4/14/08	
132	Evaluate Source Code Review And Reports From Prior And/Or Current SysTest Labs Engagements	46	5 days	SC3	40 hrs	Fri 4/11/08	Thu 4/17/08	
133	**Evaluate Prior Hardware Testing**		**20 days**		**240 hrs**	**Fri 4/11/08**	**Thu 5/8/08**	
134	Evaluate Hardware Testing And Reports From Prior NYSBOE ITA	46	10 days	HdwrMgr	80 hrs	Fri 4/11/08	Thu 4/24/08	
135	Evaluate Hardware Testing And Reports From Other Prior VSTL Labs Certifications	134	10 days	HdwrMgr	80 hrs	Fri 4/25/08	Thu 5/8/08	
136	Evaluate Hardware Testing And Reports From Prior And/Or Current SysTest Labs Engagements	134	10 days	HdwrMgr2	80 hrs	Fri 4/25/08	Thu 5/8/08	
137	**Deliverable 5 - TDP Review**		**153 days**		**3,792 hrs**	**Thu 1/10/08**	**Wed 8/13/08**	
138	**Physical Configuration Audit (PCA)**		**114 days**		**688 hrs**	**Thu 1/10/08**	**Wed 6/18/08**	
139	Initial Receipt And Check-In Of TDP Documents		1 day	DeliveryMgr1	8 hrs	Thu 1/10/08	Thu 1/10/08	
140	Initial Receipt And Check-In Of TDP Source Code		1 day	DeliveryMgr2	8 hrs	Thu 1/10/08	Thu 1/10/08	
141	Send 2 Encrypted Copies Of Initial TDP To NYSBOE	46	2 days	DeliveryMgr1[50%]	8 hrs	Fri 4/11/08	Mon 4/14/08	
142	**PCA Review - TDP Documents**		**35 days**		**656 hrs**	**Wed 4/30/08**	**Wed 6/18/08**	

Thu 5/15/08 8:05 AM Page 1

NYSBOE Voting System Examination And Certification Testing *Lot 1 Project Timeline*

ID	Task Name	Pred	Duration	Resources	Work	Start	Finish
143	Review TDP contents for completeness		1 day	T2	8 hrs	Wed 4/30/08	Wed 4/30/08
144	**System Overview Documents**		**3 days**		**24 hrs**	**Thu 5/1/08**	**Mon 5/5/08**
145	Documentation Reviews, Discrepancy Reports, And Regression Testing	143	3 days	TS4	24 hrs	Thu 5/1/08	Mon 5/5/08
146	**System Functionality Description Documents**		**9 days**		**72 hrs**	**Tue 5/6/08**	**Fri 5/16/08**
147	Documentation Reviews, Discrepancy Reports, And Regression Testing	145	9 days	TS4	72 hrs	Tue 5/6/08	Fri 5/16/08
148	**System Hardware Specification Documents**		**9 days**		**72 hrs**	**Mon 5/19/08**	**Fri 5/30/08**
149	Documentation Reviews, Discrepancy Reports, And Regression Testing	147	9 days	HW1	72 hrs	Mon 5/19/08	Fri 5/30/08
150	**Software Design And Specifications Documents**		**9 days**		**144 hrs**	**Thu 5/8/08**	**Tue 5/20/08**
151	Documentation Reviews, Discrepancy Reports, And Regression Testing	143FS	9 days	SCR2,SCR1	144 hrs	Thu 5/8/08	Tue 5/20/08
152	**System Security Specification Documents**		**8 days**		**64 hrs**	**Mon 6/2/08**	**Wed 6/11/08**
153	Documentation Reviews, Discrepancy Reports, And Regression Testing	149	8 days	TS4	64 hrs	Mon 6/2/08	Wed 6/11/08
154	**System Test / Verificaton Specification Documents**		**3 days**		**24 hrs**	**Thu 6/12/08**	**Mon 6/16/08**
155	Documentation Reviews, Discrepancy Reports, And Regression Testing	153	3 days	TS4	24 hrs	Thu 6/12/08	Mon 6/16/08
156	**System Operations Procedure Documents**		**8 days**		**64 hrs**	**Mon 5/19/08**	**Thu 5/29/08**
157	Documentation Reviews, Discrepancy Reports, And Regression Testing	147	8 days	TS2	64 hrs	Mon 5/19/08	Thu 5/29/08
158	**System Maintenance Procedures Documents**		**3 days**		**24 hrs**	**Fri 5/30/08**	**Tue 6/3/08**
159	Documentation Reviews, Discrepancy Reports, And Regression Testing	157	3 days	TS2	24 hrs	Fri 5/30/08	Tue 6/3/08
160	**Personnel Deployment / Training Requirements Documents**		**3 days**		**24 hrs**	**Wed 6/4/08**	**Fri 6/6/08**
161	Documentation Reviews, Discrepancy Reports, And Regression Testing	159	3 days	TS2	24 hrs	Wed 6/4/08	Fri 6/6/08
162	**Configuration Management Plan Documents**		**8 days**		**64 hrs**	**Mon 6/9/08**	**Wed 6/18/08**
163	Documentation Reviews, Discrepancy Reports, And Regression Testing	161	8 days	TS2	64 hrs	Mon 6/9/08	Wed 6/18/08
164	**Quality Assurance Program Documents**		**8 days**		**64 hrs**	**Mon 5/19/08**	**Thu 5/29/08**
165	Documentation Reviews, Discrepancy Reports, And Regression Testing	147	8 days	TS3	64 hrs	Mon 5/19/08	Thu 5/29/08
166	**System Change Notes**		**1 day**		**8 hrs**	**Tue 6/17/08**	**Tue 6/17/08**
167	Documentation Reviews, Discrepancy Reports, And Regression Testing	155	1 day	TS1	8 hrs	Tue 6/17/08	Tue 6/17/08
168	Develop Document Review Test Report For Input Into Final Test Report	167	1 day	TstMgr	8 hrs	Wed 6/18/08	Wed 6/18/08
169	**PCA Review - TDP Source Code**		**87 days**		**3,104 hrs**	**Fri 4/11/08**	**Wed 8/13/08**
170	**Source Code Review Preparation**		**9 days**		**72 hrs**	**Fri 4/11/08**	**Wed 4/23/08**
171	Review Vendor Coding Standards	46	2 days	SCMgr	16 hrs	Fri 4/11/08	Mon 4/14/08
172	Create / Customize Review Forms	171	5 days	SCMgr	40 hrs	Tue 4/15/08	Mon 4/21/08
173	COTS Review	172	2 days	SCMgr	16 hrs	Tue 4/22/08	Wed 4/23/08
174	**Source Code Review Of Vendor Applications**		**73 days**		**3,024 hrs**	**Thu 5/1/08**	**Wed 8/13/08**
175	SCR and Functional Team Communication		40 days	PMSC,LSC1	640 hrs	Fri 6/6/08	Fri 8/1/08
176	Source Code Reviews VVSG Section 5, Discrepancy Reports, And Regression Testing		20 days	SC1,SC2,SC3,SC4	640 hrs	Thu 5/1/08	Thu 5/29/08
177	Source Code Reviews VVSG Section 5, Discrepancy Reports, And Regression Testing		3 days	SC19,SC18,SC17	72 hrs	Mon 7/14/08	Wed 7/16/08
178	Source Code Reviews VVSG Section 5, Discrepancy Reports, And Regression Testing		3 days	SC19,SC18,SC17	72 hrs	Mon 8/11/08	Wed 8/13/08
179	Source Code Reviews NYS and NYSTEC Req, Discrepancy Reports, And Regression Testin		40 days	SC1,SC2,SC3,SC4,SC5	1,600 hrs	Thu 6/12/08	Thu 8/7/08
180	Develop Source Code Review Test Report For Input Into Final Test Report	179	1 day	SCMgr	8 hrs	Fri 8/8/08	Fri 8/8/08

Thu 5/15/08 8:05 AM Page 2

NYSBOE Voting System Examination And Certification Testing *Lot 1 Project Timeline*

ID	Task Name	Pred	Duration	Resources	Work	Start	Finish
181	**Deliverable 8 - Perform Hardware Testing**		**43 days**		**595 hrs**	**Fri 4/11/08**	**Wed 6/11/08**
182	**Functional Configuration Audit**		**43 days**		**595 hrs**	**Fri 4/11/08**	**Wed 6/11/08**
183	**System Configuration Management Review**		**1 day**		**8 hrs**	**Fri 4/11/08**	**Fri 4/11/08**
184	HW Team Check-In Hardware And Software Equipment / Update Traveller Form	46	1 day	HdwMgr	8 hrs	Fri 4/11/08	Fri 4/11/08
185	**Hardware Test Preparation**		**8 days**		**64 hrs**	**Mon 5/5/08**	**Wed 5/14/08**
186	Develop Hardware Test Plan		5 days	Hdwr3	40 hrs	Mon 5/5/08	Fri 5/9/08
187	Preparations For Compliance Testing	186	2 days	Hdwr3	16 hrs	Mon 5/12/08	Tue 5/13/08
188	Forward Test Plan To Hardware Test Labs	187	1 day	Hdwr3	8 hrs	Wed 5/14/08	Wed 5/14/08
189	**Hardware Testing**		**22 days**		**451 hrs**	**Mon 5/12/08**	**Wed 6/11/08**
190	**Environmental Testing (1 system)**		**22 days**		**259 hrs**	**Mon 5/12/08**	**Wed 6/11/08**
191	Temperature / Power Variation And Reliablity (163 hr test in chamber, use EMC system	208	5 days		163 hrs	Fri 5/23/08	Sun 5/25/08
192	Humidity (85 %) Soak (Humidity Storage)	186	10 days	Hdwr1[50%]	40 hrs	Mon 5/12/08	Wed 5/28/08
193	Vibration	192	4 hrs	Hdwr1	4 hrs	Thu 5/29/08	Thu 5/29/08
194	Bench Handling	193	2 hrs	Hdwr1	2 hrs	Thu 5/29/08	Thu 5/29/08
195	Low Temperature	194	5 hrs	Hdwr1	5 hrs	Thu 5/29/08	Fri 5/30/08
196	High Temperature	195	5 hrs	Hdwr1	5 hrs	Fri 5/30/08	Fri 5/30/08
197	Rain And Dust		7 days		0 hrs	Tue 5/27/08	Wed 6/4/08
198	Environmental Test Report	197	5 days	Hdwr1	40 hrs	Thu 6/5/08	Wed 6/11/08
199	**EMC Testing (1 system)**		**14.25 days**		**72 hrs**	**Mon 5/12/08**	**Mon 6/2/08**
200	Electromagnetic Radiation		8 hrs	Hdwr2	8 hrs	Mon 5/12/08	Mon 5/12/08
201	Electrostatic Disruption	200	3 hrs	Hdwr2	3 hrs	Tue 5/13/08	Tue 5/13/08
202	Power Disturbance	201	6 hrs	Hdwr2	6 hrs	Tue 5/13/08	Wed 5/14/08
203	Electromagnetic Susceptibility	202	5 hrs	Hdwr2	5 hrs	Wed 5/14/08	Wed 5/14/08
204	Electrical Fast Transient		2 hrs	Hdwr2	2 hrs	Thu 5/22/08	Thu 5/22/08
205	Lighting Surge	204	2 hrs	Hdwr2	2 hrs	Thu 5/22/08	Thu 5/22/08
206	Conducted RF Immunity	205	2 hrs	Hdwr2	2 hrs	Thu 5/22/08	Thu 5/22/08
207	Magnetic Fields Immunity	206	4 hrs	Hdwr2	4 hrs	Thu 5/22/08	Fri 5/23/08
208	MS	207	0 days		0 hrs	Fri 5/23/08	Fri 5/23/08
209	EMC Test Report	207	5 days	Hdwr2	40 hrs	Fri 5/23/08	Mon 6/2/08
210	**Safety Testing (1 system)**		**15 days**		**120 hrs**	**Mon 5/12/08**	**Mon 6/2/08**
211	Safety Evaluation		10 days	HdwrMgr	80 hrs	Mon 5/12/08	Fri 5/23/08
212	Safety Test Report	211	5 days	Hdwr4	40 hrs	Tue 5/27/08	Mon 6/2/08
213	**Receive, Review, And Accept Final Hardware Test Reports From Test Labs**		**9 days**		**72 hrs**	**Tue 5/27/08**	**Fri 6/6/08**
214	Environmental Test Report	191	2 days	Hdwr1	16 hrs	Tue 5/27/08	Wed 5/28/08
215	EMC Test Report	191	2 days	Hdwr2	16 hrs	Mon 6/2/08	Tue 6/3/08
216	Safety Test Report	191	2 days	Hdwr3	16 hrs	Tue 5/27/08	Wed 5/28/08
217	Develop Hardware Test Report For Input Into Final Test Report	191	3 days	HdwrMgr	24 hrs	Wed 6/4/08	Fri 6/6/08
218	**Deliverable 7 - Voting Specific Test Plans And Test Cases**		**33 days**		**1,000 hrs**	**Fri 4/25/08**	**Wed 6/11/08**

Thu 5/15/08 8:05 AM Page 3

NYSBOE Voting System Examination And Certification Testing *Lot 1 Project Timeline*

ID	Task Name	Pred	Duration	Resources	Work	Start	Finish
219	**Vendor-Specific Test Plan Development**	**46**	**31 days**		**256 hrs**	**Tue 4/29/08**	**Wed 6/11/08**
220	Develop Vendor-Specific Test Plan		10 days	TestMgr,TestLead	160 hrs	Tue 4/29/08	Mon 5/12/08
221	Develop Test Execution Schedule	220	1 day	TestMgr,TestLead	16 hrs	Tue 5/13/08	Tue 5/13/08
222	Internal Test Plan Reviews	221	5 days	TestMgr,TestLead	80 hrs	Wed 5/14/08	Tue 5/20/08
223	NYSBOE Review And Approval Of Vendor-Specific Test Plan	222	15 days		0 hrs	Wed 5/21/08	Wed 6/11/08
224	**Vendor-Specific Test Case Modifications**		**32 days**		**744 hrs**	**Fri 4/25/08**	**Tue 6/10/08**
225	Modify Data Accuracy Test Case	227	5 days	AC1	40 hrs	Tue 5/13/08	Mon 5/19/08
226	Modify Gen01 Test Case	67FS+	10 days	TC2	80 hrs	Tue 4/29/08	Mon 5/12/08
227	Modify Gen02 Test Case	67FS+	10 days	TC1	80 hrs	Tue 4/29/08	Mon 5/12/08
228	Modify Gen03 Test Case	227	10 days	TC1	80 hrs	Tue 5/13/08	Tue 5/27/08
229	Modify Prio01 Test Case	226	10 days	TC2	80 hrs	Tue 5/13/08	Tue 5/27/08
230	Modify Pri02 Test Case	229	8 days	TC2	64 hrs	Wed 5/28/08	Fri 6/6/08
231	Modify Security Test Case	108	15 days	SEC1,SEC2	240 hrs	Fri 4/25/08	Thu 5/15/08
232	Modify GenSecurity Test Case	233	5 days	TC1	40 hrs	Wed 6/4/08	Tue 6/10/08
233	Modify Volume/Stress Test Case	228	5 days	TC1	40 hrs	Wed 5/28/08	Tue 6/3/08
234	**Deliverable 8 - Perform Functional Testing**		**87 days**		**5,608 hrs**	**Fri 5/30/08**	**Wed 10/1/08**
235	SW TEAM Check-In Hardware And Software Equipment / Update Traveller Form	217	1 day	HdwrMgr	8 hrs	Mon 6/9/08	Mon 6/9/08
236	SCR and Functional Team Communication		40 days	LST1,FPMSC	640 hrs	Fri 6/6/08	Fri 8/1/08
237	**Initial Test Pass (Will Require 9 Complete Vendor Voting Systems)**		**35 days**		**1,696 hrs**	**Fri 5/30/08**	**Fri 7/18/08**
238	Perform Trusted Build	176	9 days	SC1,SC2	144 hrs	Fri 5/30/08	Wed 6/11/08
239	Execute Gen01 Test Case	238	8 days	TS6,TS5	128 hrs	Thu 6/12/08	Mon 6/23/08
240	Execute Gen02 Test Case	239	8 days	TS6,TS5	128 hrs	Tue 6/24/08	Thu 7/3/08
241	Execute Gen03 Test Case	240	8 days	AT5,ACC1,AT1,AT2,AT3,AT4	384 hrs	Mon 7/7/08	Wed 7/16/08
242	Execute Pri01 Test Case	238	8 days	TS14,TS13	128 hrs	Thu 6/12/08	Mon 6/23/08
243	Execute Pri02 Test Case	242	8 days	TS13,TS14	128 hrs	Tue 6/24/08	Thu 7/3/08
244	Execute Security Test Cases	238	21 days	SEC1,TS15	336 hrs	Thu 6/12/08	Fri 7/11/08
245	Execute GenSecurity Test Cases	240	10 days	TS6,TS5	160 hrs	Mon 7/7/08	Fri 7/18/08
246	Execute Volume / Stress Test Case	243	10 days	TS16,TS17	160 hrs	Mon 7/7/08	Fri 7/18/08
247	**Regression Test Pass**		**18 days**		**1,072 hrs**	**Wed 7/23/08**	**Fri 8/15/08**
248	Perform Trusted Build	246FS	2 days	SC1,SC2,SC3	48 hrs	Wed 7/23/08	Thu 7/24/08
249	Execute Test Cases To Verify Discrepancy Fixes	248	16 days	TS6,TS5,TS7,TS8,TS13,TS14,TS	1,024 hrs	Fri 7/25/08	Fri 8/15/08
250	**ALL Vendor Documentation, Functional, And Security Discrepancies Must Be Addressed And Delivered. This Milestone Is The Cut-Off Date**	248	0 days		0 hrs	Thu 7/24/08	Thu 7/24/08
251	**Run-For-The-Record Test Pass**	**237,24**	**28 days**		**2,160 hrs**	**Wed 8/20/08**	**Mon 9/29/08**
252	Perform Trusted Build	249FS	3 days	SC1,SC2	48 hrs	Wed 8/20/08	Fri 8/22/08
253	Execute Data Accuracy Test	252	20 days	AT4,AT3,AT2,AT1,ACC1,AT5	960 hrs	Mon 8/25/08	Mon 9/22/08
254	Execute Gen01 Test Case (use previous election)	252	5 days	TS6,TS5	80 hrs	Mon 8/25/08	Fri 8/29/08
255	Execute Gen02 Test Case(use previous election)	254	5 days	TS6,TS5	80 hrs	Tue 9/2/08	Mon 9/8/08
256	Execute Gen03 Test Case(use previous election)	253	5 days	AT5,ACC1,AT1,AT2,AT3,AT4	240 hrs	Tue 9/23/08	Mon 9/29/08

Thu 5/15/08 8:05 AM Page 4

NYSBOE Voting System Examination And Certification Testing *Lot 1 Project Timeline*

ID	Task Name	Pred	Duration	Resources	Work	Start	Finish
257	Execute Pri01 Test Case(use previous election)	252	5 days	TS14,TS13	80 hrs	Mon 8/25/08	Fri 8/29/08
258	Execute Pri02 Test Case(use previous election)	257	5 days	TS13,TS14	80 hrs	Tue 9/2/08	Mon 9/8/08
259	Execute Security Test Case	252	21 days	SEC1,TS15	336 hrs	Mon 8/25/08	Tue 9/23/08
260	Execute GenSecurity Test Cases	258	8 days	TS13,TS14	128 hrs	Tue 9/9/08	Thu 9/18/08
261	Execute Volume / Stress Test Case	255	8 days	TS5,TS6	128 hrs	Tue 9/9/08	Thu 9/18/08
262	Input Test Results Into Final Test Report	259	2 days	TestLead	16 hrs	Wed 9/24/08	Thu 9/25/08
263	**Hash-Check**	**251**	**2 days**		**16 hrs**	**Tue 9/30/08**	**Wed 10/1/08**
264	Perform Hash-Check		0.5 days	TestLead	4 hrs	Tue 9/30/08	Tue 9/30/08
265	Forward Hash-Check Results To NYSBOE	264	0.5 days	TestLead	4 hrs	Tue 9/30/08	Tue 9/30/08
266	Input Hash-Check Results Into Final Test Plan	265	1 day	TestLead	8 hrs	Wed 10/1/08	Wed 10/1/08
267	**Deliverable 9 - Draft Vendor-Specific Test Report**		**17 days**		**232 hrs**	**Mon 9/8/08**	**Tue 9/30/08**
268	**Develop Final Test Report**		**12 days**		**192 hrs**	**Mon 9/8/08**	**Tue 9/23/08**
269	Develop Final Test Report	255FS	7 days	TestMgr,TestLead	112 hrs	Mon 9/8/08	Tue 9/16/08
270	Update And Add Appendices	269	0.5 days	TestMgr,TestLead	8 hrs	Wed 9/17/08	Wed 9/17/08
271	Update And Attach PCA Documentation Review Report	270	1.5 days	TestMgr,TestLead	24 hrs	Wed 9/17/08	Thu 9/18/08
272	Update And Attach PCA Source Code Review Summary Report	271	1.5 days	TestMgr,TestLead	24 hrs	Fri 9/19/08	Mon 9/22/08
273	Update And Attach NYSBOE Requirements Matrix	272	0.5 days	TestMgr,TestLead	8 hrs	Mon 9/22/08	Mon 9/22/08
274	Attach Discrepancy Reports	273	0.5 days	TestMgr,TestLead	8 hrs	Tue 9/23/08	Tue 9/23/08
275	Attach TDP Document List	274	0.5 days	TestMgr,TestLead	8 hrs	Tue 9/23/08	Tue 9/23/08
276	Internal Reviews Of Final Test Report	275	5 days	ReviewTeam	40 hrs	Wed 9/24/08	Tue 9/30/08
277	**Deliverable 10 - Final Test Report**	**267**	**16 days**		**128 hrs**	**Wed 10/1/08**	**Wed 10/22/08**
278	Submit Final Test Report To NYSBOE	276	1 day	RexR	8 hrs	Wed 10/1/08	Wed 10/1/08
279	NYSBOE Review And Approval Of Vendor-Specific Test Plan	278	15 days	RexR	120 hrs	Thu 10/2/08	Wed 10/22/08
280	**Deliverable 2- On-Going Project Management Activities/Project Closure Activities**	**277**	**38 days**		**344 hrs**	**Thu 10/23/08**	**Mon 12/15/08**
281	**Project Management Closure**		**37 days**		**336 hrs**	**Thu 10/23/08**	**Fri 12/12/08**
282	Convene And Document Lessons Learned Sessions		5 days	RexR	40 hrs	Thu 10/23/08	Wed 10/29/08
283	**Project Team Closure**	**282**	**18 days**		**144 hrs**	**Thu 10/30/08**	**Mon 11/24/08**
284	Clean Test Lab		5 days	TestLead	40 hrs	Thu 10/30/08	Wed 11/5/08
285	Deliver All Hardcopy And Softcopy Test Artifacts To Delivery Manager For Archival	284	4 days	TestLead	32 hrs	Thu 11/6/08	Tue 11/11/08
286	Destroy All Hardcopy Materials Not Required To Be Archived	285	4 days	TestLead	32 hrs	Wed 11/12/08	Mon 11/17/08
287	Return All Hardware To Vendor	286	5 days	HdwrMgr	40 hrs	Tue 11/18/08	Mon 11/24/08
288	**Delivery Management And Artifact Archival**	**282**	**19 days**		**152 hrs**	**Tue 11/18/08**	**Fri 12/12/08**
289	Forward 2 Encrypted Copies Of Final TDP To NYSBOE	285,28	4 days	DeliveryMgr	32 hrs	Tue 11/18/08	Fri 11/21/08
290	Archive All Softcopy Artifacts To CD-ROM	289	5 days	DeliveryMgr	40 hrs	Mon 11/24/08	Fri 11/28/08
291	Gather All Hardcopy And Softcopy Project Artifacts	290	5 days	DeliveryMgr	40 hrs	Mon 12/1/08	Fri 12/5/08
292	Archive All Hardcopy And Softcopy Project Artifacts	291	5 days	DeliveryMgr	40 hrs	Mon 12/8/08	Fri 12/12/08
293	Notify Director Of PMO Of Test Lab Availability	283,28	1 day	RexR	8 hrs	Mon 12/15/08	Mon 12/15/08

Thu 5/15/08 8:05 AM Page 5