# STATE BOARD OF ELECTION'S VIRGINIA VOTER REGISTRATION SYSTEM DEVELOPMENT PROJECT

**SPECIAL REPORT**

**DECEMBER 2001**

Auditor of Public Accounts
COMMONWEALTH OF VIRGINIA

# AUDIT SUMMARY

We reviewed the progress of the State Board of Election's Virginia Voter Registration System Development Project to determine if the board had and followed a formal project management process and if the development project management could meet the project plan's goals.

Our report includes the following recommendations:

- The project management team should establish a detailed project plan that addresses all technical requirements and documentation needs.
- The project management team should develop a complete and accurate budget that includes all anticipated costs.
- The General Assembly may wish to consider additional funding so the project may be completed within a reasonable timeframe.

Our recommendations address the following findings:

- The project management team has not developed a detailed project plan that addresses all technical requirements and documentation needs.
- The project management team has not established a comprehensive budgeting mechanism.
- The project lacks adequate funding to complete the project.

Commonwealth of Virginia

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December 18, 2001

The Honorable James S. Gilmore, III
Governor of Virginia

The Honorable Vincent F. Callahan, Jr.
Chairman, Joint Legislative Audit
and Review Commission

Board Members
State Board of Elections

## AGENCY BACKGROUND

The State Board of Elections (the board) is responsible for establishing and implementing policies and procedures to properly register voters and maintain voter registration records. In meeting its legal responsibilities of ensuring uniformity, fairness, and legality of the registration processes, the board operates and administers a computerized central record-keeping system, the Virginia Voter Registration System (VVRS), that includes all voters registered in the Commonwealth. The board does not register voters, but supervises and coordinates the work of 134 localities, which carry out registration activities in their jurisdictions.

**SYSTEM PURPOSE**

The primary purpose of a centralized system is to enable general registrars and the board to maintain a current and accurate record of each person registered to vote in the Commonwealth. The system is accessible by all local registrars and their staff who must change or correct registration records as necessary. In addition to maintaining individual registration records, VVRS generates voter information cards. The voter information cards confirm registration information for new registrants and notify current registrants of changes or corrections to their record.

Further, the board uses VVRS to provide each registrar with a computer-generated roster of all registered voters in their jurisdiction prior to each general, primary, or special election. The Code of Virginia also requires the board to compile and distribute registration reports and statistics for the entire state. The board provides these reports and statistics, at a reasonable cost, to legally qualified purchasers including candidates, incumbents, political parties, courts, and non-profit organizations that promote voter registration or participation.

## CURRENT SYSTEM

The current VVRS, implemented in 1970, resides on a Unisys mainframe at the Department of Information Technology's data center and meets all record requirements of the Code of Virginia. A major system update completed in 1988 allows the system to have real-time connections, providing information on voters to the local registrars at the time of registration.

However, since 1994, several studies have concluded that VVRS should be fully redesigned. These studies indicate that the current system does not adequately meet the demands of the users or allow the ad hoc reporting capabilities now needed. In addition, costs to maintain the aging technology have risen steadily over the past few years. The 1998 session of the Virginia General Assembly included language in the appropriations bill for the board to study VVRS and determine the best option for replacement.

## PROPOSED SYSTEM

The study, completed in December 1998, concluded that the new system should mirror the functionality available in the current VVRS, offer the capability for ad hoc reporting, and allow the downloading of data and printing ability at local registrar offices. The new system would also need to provide electronic interfaces with other state systems from whom the board receives data, including the Virginia Department of Health, the Department of State Police, and the Department of Motor Vehicles. The study noted many other functions that database technology could provide, such as the capability to compute the number of absentee ballots requested, mailed, and returned. The report envisioned that the new system would generate better statistical data and offer general registrars and the board greater online capabilities, including the reporting of election results.

An additional study completed in 1999 recommended that the new VVRS should be migrated into a relational database and developed using a two-phased project approach managed by a dedicated project manager. The first phase would address the current system's functionality, establish electronic interfaces with critical external systems, and provide localities the ability to generate and print selected reports, including ad-hoc reporting on an as-needed basis. The second phase would address specific user-defined functions. Based on this study, the software for this system would be developed specifically for the board through existing "body shop" contracts, which purchase the services of outside systems development contractors.

# PURPOSE AND METHODOLOGY

We reviewed the progress of the VVRS systems development project. The review objectives were to determine if the board had and was following a formally documented project management process and if the VVRS development project management could meet the project plan's goals. Further, we considered whether the current and planned development would successfully provide for a system that is able to maintain a complete and accurate centralized record of registered voters in an efficient and cost effective manner.

In conducting this review, we researched the voter registration requirements in the Code of Virginia and evaluated the functionality of current system. We reviewed the project plan, schedule, and budget of the system under development to determine whether the documentation was complete and reasonable. We also interviewed members of the Project Delivery Committee, including the chair of the End-User Committee, the chair of the Project Management Committee, and other members of the project team. These individuals are responsible for providing overall direction and ensuring the project adheres to the required standards and all deliverables are appropriate and on time.

## FINDINGS

Our review identified several critical issues that could affect the success of this project. A previous report issued by the Virginia Electronic Government Implementation Division (E-Gov) also identified many of these issues. Their report, "Risk Review of the VVRS-II Project: Supplemental Report," dated January 24, 2001, identified 21 existing or potential risks to the planned schedule, cost, and performance of the VVRS-II development project. The report included a series of recommendations based upon industry "Best Practices" including the following:

- Establish a formally documented software development process
- Complete a set of design and system documentation
- Designate the Office of the Secretary of the Board of Elections accountable for the project's performance
- Consolidate the development team to the Richmond office

The board implemented the majority of these recommendations. However, our study found that major project management issues remain, including inadequate project budgeting and lack of approved funding.

### PROJECT MANAGEMENT

The 1999 VVRS Study Committee identified the technical, cost, and time requirements for the new database system and made significant recommendations for the project's software and hardware purchases. However, the study documents did not fully define all critical functional requirements or provide detailed phases, tasks, activities, and deliverables with accurate time, cost, and resource estimates to support the project. Though the study documentation lacked the detail needed for the success of this project, it was used as the initial project plan.

The project plan, schedule, and budget serve as the architectural design and blueprint of the project, outlining the critical information for both management and the project team to control and manage the work. Not having a strong organizational foundation from the beginning, the VVRS-II development team has struggled with changing project requirements, missed milestones, and crisis management rather than progressing in a defined pro-active manner.

As a result of the E-Gov report, the board replaced the original project committee structure with a three-committee structure, the Project Delivery Committee, the Project Management Committee, and the End User Committee. The board identified a new Project Delivery Chairperson and Project Manager and gave them the ultimate responsibility for the direction of the project. To meet the phase one project target date, the Project Delivery Committee decided not to revisit accomplished tasks, but rather move forward with the remaining tasks. Consequently, the requirement documentation for the Registration Services component remains incomplete. The Project Manager did develop technical reference guides and user-training materials for Registration Services, which the Project Delivery Committee believes adequately documents the functionality of this component.

The new Project Delivery Chairperson and Project Manager worked with the Project Delivery, Technical and User committees to develop a detailed function plan and system requirements documents with approval milestones for the uncompleted phase one components. These components include Petition Services, Election Services, and Administration Services. However, these documents do not address all application program specifications to support minimum user requirements or the external system interface requirements originally planned for phase one. The Project Delivery Committee (the Committee) shifted some of these functionalities to phase two, which will increase the costs of the second phase and delay its completion.

Even with these changes, the project continues to miss major milestone dates forcing the Committee to establish new project timelines. For example, the Committee presentation on July 24, 2001, indicated phase one was near completion. However, there has never been a successful completion of the data conversion, one of the first phase one milestones. There were no edit controls developed during data conversion to ensure data integrity. Project management has recently addressed and resolved data conversion, except for two major areas.

Furthermore, system testing is still encountering performance issues, including database lock-ups and poor response times. While these issues have declined recently, the Committee will need to resolve all of these issues before it can consider phase one completed.

Because of these issues, the Project Oversight committee determined that the system would not be ready for the November 2001 elections and delayed the phase one implementation date to December. In preparation for the December implementation, the Committee performed a controlled test of the new system during the month preceding the elections by parallel testing eight localities on the old and new systems. This limited trial may not adequately test the new system; since the test was less than one tenth of the total traffic load that the database would normally handle during an election.

The Committee has performed weekly stress tests of the system to identify any performance issues and resolve previously identified issues. The Committee also performed a system-wide post-election reporting stress test involving over 80 of the 134 localities. Each of these testing methods have identified and rated deficiencies within the new system as minor, medium, current functionality, critical, or "show stoppers."

As previously mentioned, the Committee had a system "go-live" date within 30 days of this limited parallel test. These various tests have continued to identify critical deficiencies in the new system and in one instance a show stopping deficiency. Given these conditions, the project would take on an inappropriate risk of failure if it moved forward with the December implementation plan.

The Committee recently recommended delaying system implementation until these issues are resolved. Future testing of the new system should address the identified concerns, trying to closely match expected traffic patterns, in terms of both loads and level of users. Implementation of the system should not occur until the outstanding critical and show stopping errors are resolved and no new errors rated critical or above emerge.

Of additional concern, the system requirements do not fully address database disaster recovery measures. The database architecture is a mirrored arrayed system that keeps duplicate information on two servers in the Department of Information Technology data center. There are no offsite system backup procedures and should an event occur to cause the current site to become unavailable, the board has no means to recover the database or resume operations.

The voter registration system information needs to be accurate, complete, and secure. The information on voter registration rolls must cover all registered voters and have the correct information used for authentication during elections. Errors or conflicts in the data maintained by the voter registration system may prevent some people from voting. The Project Delivery Committee has made the decision to delay VVRS-II implementation as a precaution so that development can take the steps to prevent inaccuracies and other problems with voter information.

## PROJECT BUDGETING

### Current Funding Status

The board requested a total of $4.75 million in the 2000 biennium budget; $2.76 million for the first year and $1.99 million for the second, based on the 1999 VVRS-II study. In 2000, the General Assembly approved $2.3 million in funding for fiscal year 2001 to support the first phase of the project, but there was no funding for fiscal year 2002. Instead, the General Assembly requested that the board provide a status report on the project, including timelines for completion, project costs by fiscal year, and staffing needs.

The board completed a status report for the General Assembly in October 2000, which requested $545,000 in additional funding for fiscal year 2001 and $2.13 million in funding for fiscal year 2002. The Governor's budget amendment recommendations included $420,000 for fiscal year 2001 and $1.7 million for fiscal year 2002, as presented during the 2001 session. The House and Senate budget bills included similar increases of $352,300 for fiscal year 2001 and $1.6 million for fiscal year 2002; however, the General Assembly recessed the 2001 Special Session without amending the biennial budget.

The agency, in collaboration with the Secretary of Administration and Secretary of Technology, authorized the project team to continue its activities without the additional funding. The board is attempting to absorb the expenses of the project's development from its current operating budget.

Fiscal year 2002 cost estimates for completing the first phase of this project are over $1 million. In addition, the project team anticipates that the second phase will require at least $1.5 million in funding. The board would like to complete phase one and begin phase two during fiscal year 2002; however, if current spending trends for the project and normal operating expenses continue, the board will experience significant operating budget deficiencies well before fiscal year end.

### Additional Budget Issues

The Project Team does not have a comprehensive project budget, however, the team is tracking its expenses separately. Current budget estimates do not include all costs for quality assurance, post-implementation staffing needs, or additional payments to the Department of Information Technology's data center for maintenance, programming, and printing services for the old and new systems during the transition. The most recent attempt to complete a comprehensive cost estimate and budget occurred in October 2000. While the October 2000 document began addressing some of the long-term costs, the budget did not anticipate the delays and changes in the project that have occurred since, nor did it provide a concise method of estimating post-implementation costs.

Further complicating budgeting efforts, the board did not separately identify project costs from operating expenses on the Commonwealth's accounting system before July 1, 2001. Therefore, separating project expenses from normal operating costs to calculate future budget needs and show expenses to date will be difficult.

## RECOMMENDATIONS

We support the Project Committee's recommendation to delay the implementation of this project until the Committee can resolve the critical issues. Strong project management and ongoing funding are vital to the success of this project. To ensure both are in place, the board should have the project team review, revise, and update the project plan, as necessary, to include all tasks, activities, and deliverables and revise estimates on time, costs, and resources needed to complete the project. This plan should address all technical requirements including interface development, as well as documentation standards, attainable quality

assurance milestones, system testing, and formal management and end-user approval processes. Finally, the plan revisions should address not only the completion of phase one, but also address the needs for the completion of phase two and the on-going maintenance of the system.

The information provided from the project plan update should allow the project team to develop a complete and accurate budget. In the interim, the project team has already submitted requests for additional funding for consideration in the Governor's budget. Without adequate funding, this project will continue to experience delays, missed milestones, and potential inadequate project management since the board may be unable to maintain a qualified staff and dedicate the resources necessary to complete the project within a reasonable timeframe.

## EXIT CONFERENCE

We discussed this report with management at an exit conference held on December 18, 2001.

AUDITOR OF PUBLIC ACCOUNTS

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