DENISE W. MERRILL

SECRETARY OF THE STATE

CONNECTICUT

ELECTRONIC ELECTIONS MANAGEMENT AND ELECTION NIGHT REPORTING PROGRESS REPORT

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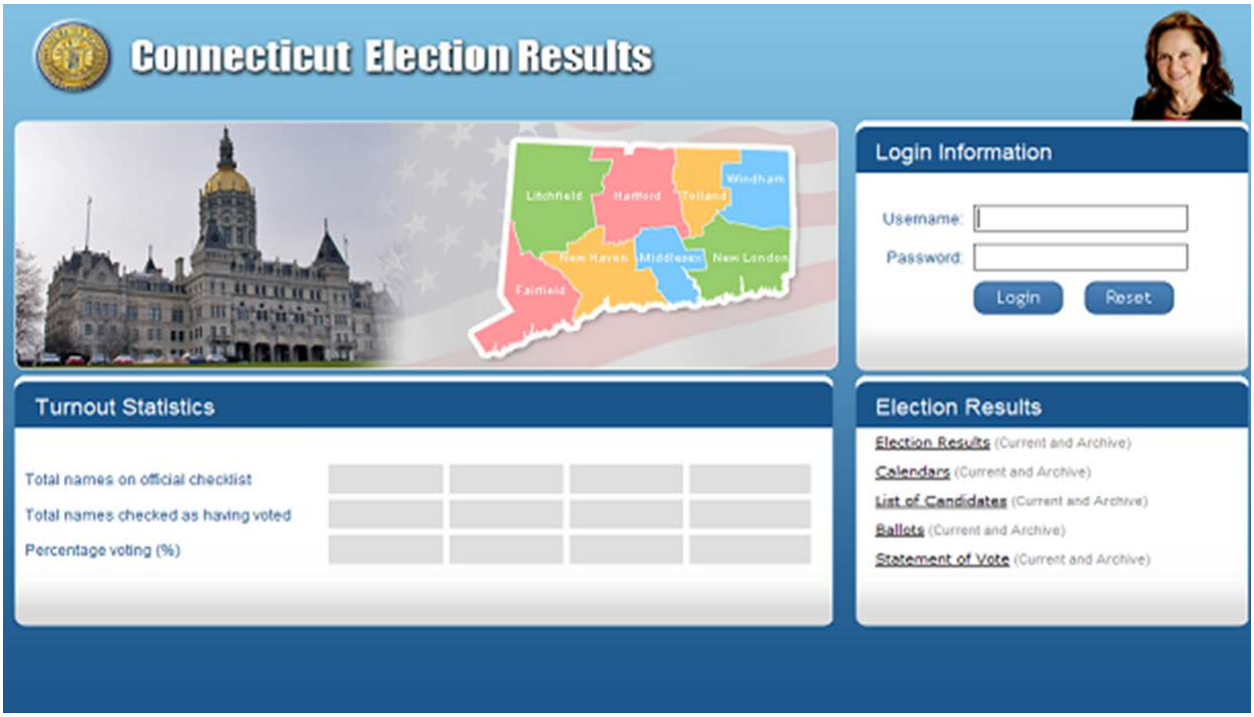

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BACKGROUND AND CONCEPT

Secretary of the State Denise W. Merrill took office on January 5, 2011, and the need for a more efficient, timely election night reporting (ENR) tool became evident in less than 60 days. On February 22, 2011, special elections were held for several seats in the General Assembly due to resignations of members who were appointed to posts in the executive branch. As returns came in to the Office of the Secretary of the State (SOTS) that night, it became clear that the current methods of receiving election returns from the 169 cities and towns in Connecticut did not take advantage of modern technology and did not meet the expectations and needs of contemporary news services, the general public and political campaigns.

Under Connecticut law, the towns could send their head moderators' returns by hand delivery, facsimile transmission (fax) or by sending a state trooper to Hartford with the returns. Most towns opted for sending the returns by fax, leading to busy signals, backed-up fax machines and a slow process. The idea of using the resources of the state police to deliver election returns seemed antiquated and not the best use of troopers' valuable time. Effective use of modern technology was imperative and overdue. By statute, the Secretary could prescribe the method for sending returns. In her first year, Secretary Merrill directed that the municipalities use email; very few did.

It was also evident in that first year, and in every subsequent election cycle, that moderators' returns contain many human errors, mistakes that are common when tired poll workers are filling out forms by hand from hand-written tally sheets after a long day. Each year scores of amended moderators' returns are filed; in 2013 there were, at last count, at least 80 amended returns filed in the weeks following the election.

In her first year in office, Secretary Merrill secured 5 million dollars in bond funds for information technology upgrades in all divisions of the office. Some of these funds were devoted to upgrades to the Centralized Voter Registration System (CVRS), a system required by state and federal law to keep track of the state's entire voter file. CVRS also serves as an election management tool.

The need for an election night reporting tool was underscored with the passage of legislation in the 2011 session of the General Assembly regarding the attribution of so-called "unknown votes." Unknown votes occur when a voter marks a ballot for a candidate on a major party line and on the line of a minor party that cross-endorsed the candidate. For example, a voter might vote for a candidate on the Republican Party line and the Independent Party line. The tabulator summarizes voters for candidates by party, but when the ballot is marked twice for the same candidate, puts those votes in a category called "unknown," or "UNK" on the tabulator tape. The votes are not counted twice. Under the prior administration, SOTS had advised local officials to attribute unknown votes to the minor parties in the interest of allowing minor parties to qualify for the ballot and in recognition of the voter's intent to support a minor party.

In 2011 the legislature passed a law requiring that unknown votes be attributed proportionally to the major and minor parties based upon the non-unknown vote ratios. This necessitated additional calculations on election night requiring the use of ratios for multiple races

and the attribution of votes to parties. It was determined that an application for these new calculations should be included in the ENR system to eliminate cumbersome math on election night. The application was commonly referred to as the "widget" during development and the term is used in this report.

Connecticut uses optical scan machines to read and tabulate paper ballots, and has done so since the mid-2000's. Those tabulators are simple computers, and are technically capable of being linked to a wider computer network and even the internet. Upon adoption of optical scan technology the electronic transmission of election results was considered because it would provide for rapid reporting of results. However, after careful evaluation, advice of technical experts and public input, the agency ruled out such a system because of security concerns. [1] A system which exposed tabulators and their memory cards to other computers and the internet would expose the election results to viruses, malware and hacking that could alter the election results and severely damage the machines and memory cards. SOTS remains mindful that the

[1] The UConn Voting Technology Research Center issued a report entitled "Security Assessment of the Diebold Optical Scan Voting Terminal" on October 30, 2006. The report stated in part, "It is important to seal in a tamper evident fashion not only the memory card slot but also the serial port and the phone jacks of the terminal...A complete approach involves protecting the entire AV-OS device within a tamper-evident enclosure at all times other than the actual deployment in an election. This approach is being taken in Connecticut where the system carrying case is secured by a tamper-resistant numbered seal, with the seal number checked at all transit points."

If any one of the parts of the optical scan machine listed above is not sealed in a tamper-evident manner, UConn warns that the machine is vulnerable to attacks, including "the possibility to modify the code that prints the results." In other words, optical scan machines that are connected via their serial or telephone ports to a network or another machine are vulnerable to hackers who then could manipulate election results. The machine would display false results at the end of the night and moderators would not be able to tell that the system had been compromised.

http://voter.engr.uconn.edu/voter/wp-content/uploads/uconn_report-os.pdf

interest of speedy election returns must be weighed against the need to achieve accuracy and maintain security.

The project was also conceived as a way to increase the transparency of elections by allowing the press and public to see the data appear in real time, as it comes in from the precincts. In 2013, knowing the project was still in the testing stage, SOTS decided to use an internet-based fax system to receive returns. Any fax sent to the number provided by SOTS would arrive as an email attachment in the inbox of a SOTS staff member. In addition to eliminating busy signals and jammed fax machines, this process allowed SOTS to post the moderators' returns on its website within minutes of receipt. This sped up the process of announcing returns significantly, and gave the press and public a firsthand view of the current process and its inherent flaws: scratched-out numbers, poor handwriting, transposed numbers, and amended returns. Any member of the general public with a computer could see exactly what SOTS receives every election night. It was a great step toward transparency that also underscored the need for a new system.

DEVELOPMENT, TESTING AND TRAINING

The Election Night Reporting tool was designed to be used at the precinct level and enable moderators to input the final results of their polling places instead of handwriting the numbers on the moderator forms and then faxing, mailing or hand-delivering, by trooper, hard copies. This process would decrease the chance of human error after a long Election Day. The automatic vote calculations of the unknown votes (the widget) and allocation to the appropriate candidate would also increase accuracy and efficiency. The program template was intended to ease the transition for moderators, who would be looking at familiar boxes and questions.

SOTS staff met with 65 towns and attended several registrar and town clerk county meetings from June through October in 2013. At each meeting, the main objective was to familiarize the registrars and/or town clerks—and in some cases moderators—with the program.

SOTS staff prepared a PowerPoint presentation that had step by step instructions for the town clerks, the registrars and the moderators/head moderators. This proved to be a great resource for towns as they tried to practice this on their own and allowed them to be more proactive. Each town was given a specific PowerPoint presentation with their usernames and passwords.

The goal was to have the four towns with May elections participate and then work with towns having primaries in September 2013 and then finally have some towns pilot the program in the November 2013 election. Unfortunately, a technical problem arose due to an erroneous business rule inserted by the developer affecting the system's clock and calendar. The system could therefore not be used for the May election towns. Nevertheless, the four towns, all of whom participated in training, were still positive and supportive of the program's goal.

The testing then focused on the special election in June for the 53rd state representative seat, comprised of 3 towns: Tolland, Ashford and Willington. Trainers met with the three towns and they agreed to participate as it would be an optimal time to test the program on a legislative multi-town district. As with the majority of special elections, turnout was not that high but each town was able to use the program successfully.

A follow up test was then designed for the November 2013 municipal elections. The test necessarily involved a "duplicate" system, so those towns that chose to participate were instructed that they would need to both fill in the usual forms and also fill in the new electronic forms. This would, of course, mean additional time in some cases where officials had not

already designed their own electronic spreadsheet or worked with other electronic election programs. In the meantime, legislation passed allowing Election Day registration. This new function had to be incorporated into the program, which proved to be a difficult integration task for the program developers. It was decided to test without the Election Day registration numbers incorporated since it would still be meaningful to test the remainder of the program in real time.

As SOTS selected the test towns for November it became apparent that towns that had specific district elections, ward elections or Representative Town Meeting (RTM) elections would not be able to participate. The initial design of the function was for statewide elections, and secondarily for local elections. It was therefore not designed to accommodate local district races, which immediately eliminated most large cities. For the November 2013 election, SOTS narrowed the list down to the towns most eager to participate: about 55 towns. In all, 28 towns used the program with varying degrees of success and a few more put in results as a 'trial'.

OBSERVATIONS FROM TESTING RESULTS

A great deal of hard work goes into a smoothly run election. The process takes several months and has many moving parts. State election years and municipal election years have several differences. Developing a system that could be used uniformly across the state is challenging because there are so many variables among the towns, including, for example, the offices up for election and the number of candidates, ballot design, and processes such as counting absentee ballots centrally or in each district.

Beginning in June 2013, SOTS staff assigned for training local officials on the new Election Night Results functions attended county meetings for the towns clerks and the registrars of voters, meeting with several elections officials one on one or in small group settings. The

staff was able to reach each part of the state. SOTS was aware early on that some towns would not be able to participate in the election night reporting function because of the restrictions on the first version of the program, or might not be inclined to participate. SOTS received valuable feedback at each training meeting. Trainings included a mock election demonstration and question and answer session, with no limit to ongoing assistance for local officials. SOTS also conducted many hours of in-house testing, challenging the system to fail; these tests exposed certain flaws to be addressed.

Connecticut's election administration system is localized. There are 169 municipalities, 169 town clerks (some appointed and some elected) and 339 registrars of voters. These officials represent a wide range of education, training, experience, age and computer literacy. Their full-time versus part-time status and staff support levels vary greatly as well. The state has an estimated 750 polling places, each with a moderator.

In a municipal election year there is less uniformity than in a state election year, so it was a challenge to build a 'one size fits all' program for the entire state when each town has its set of unique circumstances, including the number and type of office on the ballot based on local ordinances and charters and the application of minority party representation laws. No towns were opposed to the goal of the program, but concerns and skepticism are to be expected when working with such a large and diverse group of local officials.

The lack of consistent, standardized technology either at the polling places or even in the town halls means that requiring the use of electronic transmission of election results in real time is very challenging. Other states that have implemented this type of election night reporting have county systems that integrate the use of technology statewide, which Connecticut does not. Funding previously provided by the federal government through HAVA (Help America Vote

Act) to do training and purchase technology and other equipment such as voting machines has not been renewed. Without consistent technology it is difficult to require all municipalities to conform to a complex, standard electronic system.

From the outset, the program was designed to enhance the overall elections administration process, and not only the reporting of results. The original concept was based upon the North Carolina Board of Elections program, which includes candidate listings and downloadable data of results and turnout (see: http://www.ncsbe.gov/index.html). For example, using this tool, town clerks can enter lists of offices and names of endorsed candidates early in the election cycle, and then use the program to file the various reports mandated by law to be filed with SOTS. Currently, these are filed on several different forms throughout the cycle. Registrars of voters can enter their polling districts and assign moderators and poll workers to their respective districts, and also use the new system to file mandatory reports for polling place locations, lists of moderators and certification of number of ballots ordered. In short, the registrars of voters and clerks will be able to organize and store information in a central location, easily amend it and keep it current.

The ENR tool represents a significant departure from past practice. It means going from a system of handwritten paper reports—both results and other election administration documents—that are faxed, mailed, hand-delivered or brought by state trooper to SOTS to a seamless, web-based program that entails entering data and reports into an online program. It is the type of change that has been taking place in other parts of state government and in the private sector over at least the past three decades. What makes elections unique is that they take place once, twice or three times a year depending on the type of year and local developments. Besides the clerks and registrars, the elections are run by part-time workers and volunteers. Training this

diverse workforce is a challenge. Another challenge is tailoring the program to the large variety of municipal elections in Connecticut and local customs and methods followed by local officials.

Feedback from test towns follows:

- continue and expand training with towns
- conduct a large mock election where towns can have a 'real time' experience practicing with the program
- create a poll worker database allowing each town to keep a record of all poll workers
- create a summary report at the end in Excel
- prepare a comprehensive user's manual
- provide laptops and tablets for towns to use
- screens should be in same sequence as machines

CONCLUSION

The election management system will go a long way toward streamlining the process, reducing redundant data entry tasks and providing each town with a central management tool to conduct elections. The variables that occur in municipal election years pose a challenge. As the office processes feedback from each town, SOTS will look to simplify the data entry functions to allow ENR to more easily accommodate the variations in local elections. SOTS' testing was able to identify issues in the election system including towns performing statutory functions in different ways, the variety of methods and forms used to produce candidate vote totals and the lack of resources available to each municipality. Each of these variations makes it very difficult

to troubleshoot and to assist municipalities when they need help. The introduction of a more formalized and simplified election management tool that enables each town to utilize the same resources will create a more efficient system and will enable this office to more effectively administer elections.

Connecticut is moving forward on several fronts with election reform, and these changes will also impact the statewide administration of elections. Election Day Registration took effect in 2013, online voter registration is beginning in 2014 and voters will decide whether to allow the legislature to enact early voting through a constitutional referendum in November 2014. With more options for voters will come more responsibility for local officials and SOTS and a more complex elections system. Technology must be harnessed to make the system effective, efficient, transparent and, most importantly, responsive to the needs of 21st century voters. The new enhancements to the CVRS, including the Election Night Results tool, are important in that regard. Other changes implemented in the last two election cycles, such as the move to emailed faxes (e.g., a system where faxes are turned into PDF files and delivered electronically) have already improved the SOTS' ability to process incoming faxed returns in a more efficient way. As mentioned above, publishing the raw data received in this manner has helped both processing time and transparency for the public. Due to the complexities of our election system outlined above, the program is most useable for statewide elections, where the role of the SOTS is more central.

RECOMMENDATIONS

1. The new program should be simplified, based on recommendations from the users, particularly with regard to municipal elections. A "spreadsheet" approach, as opposed to distinct fillable forms, would be easier to design and manage at the local level.

2. Training will continue to be an issue in all elections matters, particularly as there has been a large turnover in local officeholders. As of last count, approximately 1/3 of the registrars were new to their position in the last two years. While there are both state and county associations that help with training and mentoring, there is a more central role to be played at the state level as more and better electronic systems are devised. Specifically, a "train the trainer" model for this particular tool might be more cost effective and fit into the existing local training structure. Using elections officials who have tested the program to train others should be explored going forward.

3. The current rollout of the election night results function should continue to be refined and tested during the 2014 election cycle; however, improvement of all methods of election night results reporting should continue within the current structure to allow the most flexibility possible for quick, accurate, and transparent results in the public's interest.