RAAV – EDS Project

What follows is Election Data Services, Inc.'s report on its activities in the Research Alliance for Accessible Voting (RAAV) project funded by the EAC.

Background

Election Data Services Inc**.** is a consulting firm that specializes in redistricting, election administration, and the analysis and presentation of census and political data. The firm was founded by Kimball Brace in 1977 and provides political information products and consulting services to businesses, associations, and governmental organizations, including state and local legislatures, and federal, state, and local election departments, boards, and commissions. Over the past 37 years, Election Data Services Inc. has monitored developments in election administration and conducted a wide variety of studies for federal and state governments. We have provided strategic assistance for voting equipment purchases, and conducted studies on voting equipment and voter registration systems. These have included feasibility studies, needs assessments, and systems requirements analysis for election organizations to develop or acquire new voting equipment or voter registration systems. During the 1990s, Election Data Services Inc studied various computer network options for statewide voter registration systems and models for integrating local voter registration systems into a statewide network. These studies were developed for both the federal government and several state governments. In 2004 and 2006 Election Data Services Inc tabulated and analyzed responses to three nationwide surveys distributed by the United States Election Assistance Commission (EAC) to Congress and state and local election jurisdictions under HAVA (Help American Vote Act). Election Data Services Inc. continued as a subcontractor to be involved in the 2008 and 2010 surveys and reports. Election Data Services Inc has also participated in EAC studies on poll workers and ballot counting and recounting procedures. Following heavy involvement in the 2010-12 round of redistricting around the nation, EDS's Brace returned to the election administration field within his own jurisdiction. First as a poll worker starting in 2008, Brace was appointed to a Task Force on Long Lines following the 2012 election and then served as Acting General Registrar for Prince William County, VA for five months in 2013 as they sought a full time Registrar.

Since 1980, Election Data Services Inc. has maintained two nationwide election databases. An Election Administration Database provides contact information for state and local election officials and information on voting equipment used by over 10,000 election jurisdictions in the U.S. In addition to voting equipment types—electronic and optical scan systems, DataVote and Votomatic style punch cards, and hand-counted paper ballots—the database identifies voting equipment vendors and models for early, absentee, precinct (Election Day), and accessible voting. The system keeps track of when a jurisdiction has changed characteristics of their voting

process. The other database provides county-level election returns and voting statistics for federal and statewide offices, plus total and voting age population (VAP), voter registration, and voter turnout data.

The Project

Building on the long history of data collection and analysis, Election Data Services, Inc. involvement in the RAAV project was geared towards updating and making publically available information on voting equipment usage around the nation, particularly as it relates to machines and systems designed for disabled voters. The goal of this project is to expand and build a database of disabled voting equipment usage around the nation. Anticipating the need for public access to the database, Election Data Services Inc. undertook an initial effort to upgrade and expand both our computer server and software, along with upgrading the Sequel (SQL) database software that currently housed our election administration database. Because the prior system was over 15 years old there were a number of improvements in both software and database design that we were able to take advantage of by upgrading various aspects of the operation.

The heart of the election administration system is built upon the geography where voting decisions are made … the counties for most of the country and townships in New England states.


Internally the data is indexed with the Federal FIPS code, which allows other datasets (such as Census information) to be linked to the geography. This also includes the capability of joining the data to geographic mapping files that can be used in Geographic Information Systems (GIS) to create thematic maps of the information. For every jurisdiction we keep tract of contact information (see sample to left) for not only the main election administrator, but also the individuals in charge of registration and mapping operations. For the RAAV project we also added individuals that deal with the disabled community, if that exists in the jurisdiction.
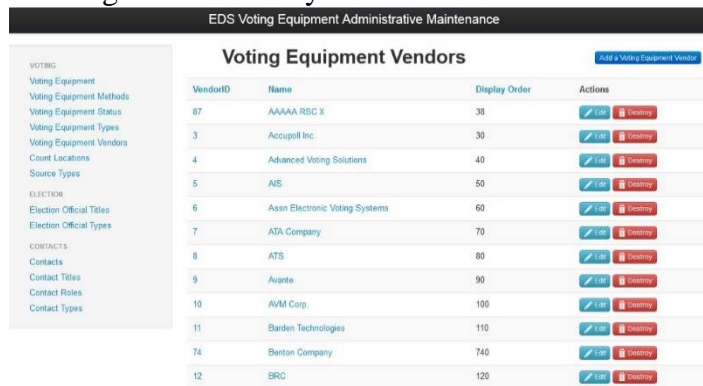
The most extensive part of the election administration system is the collection of what kind of voting system is used in each jurisdiction. We started the database in 1980 as the result of a contract we had with the Federal Election Commissions' Office of Election Administration (FEC) in the later part of the 1970s. We helped manage a series of regional workshops that the FEC conducted around the nation. One of the sessions at each workshop dealt with the differences in voting equipment in use in that region. For that, we collected what voting equipment was being used in each county or jurisdiction in every state of the region and the information was provided to the participants as a handout.

Beginning in 1980 we updated and compiled all the information into a database, and then in advance of each subsequent general election we would recanvass every state to update the information. The structure of the database allows us to keep historical information in the system on when changes were made. For example, the picture to the right shows which election the equipment was changed within. With the data kept in this manner, it is possible to pull information for any given election and be able to match voting equipment to election returns, for example. During the 1990s we began noticing that absentee voting was gaining in the share of the balloting. Because many different voting equipment types are not conducive to the absentee process (for example, electronic machines, lever machines), we added an additional data item for each jurisdiction and began recording the type of equipment used for absentees. With the passage of the Help America Vote Act in 2002 and one of its focuses on disabled voters, we again expanded the database structure to keep track of the voting system being allocated for disabled voters. The focus of the RAAV-EDS project was to expand the information in the disabled category, both from collecting information from the jurisdictions as well as expanding the equipment being followed.
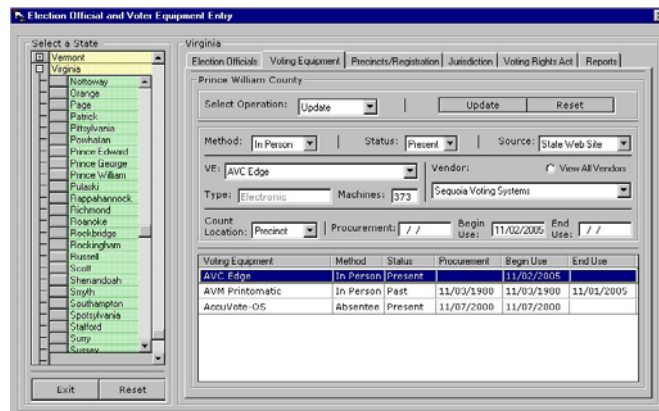
The original database system was created so that most fields were represented as being drop down menu options. This allowed for uniformity in data entry and avoided any misspellings. But the original system was set up by a programmer who has long ago left employment of Election Data Services Inc. and attempting to update the drop-down menu options proved more difficult for our current programmers and sub-contractors. As a result, they have built a process that allows staff to update the system so that additional data items can be added to the various data tables. Here are pictures of several of the update screens that have been developed and are in use by our staff to update the datafiles. We could then add to the overall types of voting equipment in use, as well the actual names of the equipment. There have been more names of different vendors in the marketplace over the past decade, and now this information was updated
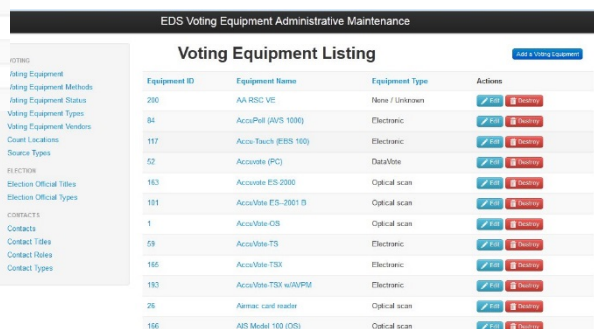
and tracked. In addition, the flexible nature of the new database allowed us to add an entirely new type of vendor, that of the company who provides maintenance of the equipment. Before it was assumed that the seller of the equipment would continue with the jurisdiction, but the more modern market place has allowed for smaller companies that are providing just maintenance services on the hardware.

These screens, and others, are being use by Election Data Services Inc staff to update information on equipment specially designed for disabled voters. This includes, for example, special add-on equipment (such as sniff-and-puff devises, headphones, tactile devises for directing screen movements, etc) that work with an already existing electronic voting machines (DRE), or full systems (like the Automark) that are used in a great number of jurisdictions as their "disabled" device. While we have long kept track of how many physical machines are owned by a jurisdiction, we have expanded that information to include how many disabled machines are in use by the jurisdiction.

In order to facilitate the database use on the web, Election Data Services Inc staff and subcontractors have also migrated the system to a newer version of SQL Server. Further development

was done to update the look of the application for the user, as shown in this picture. This included adding pictures of the accessibility features that are utilized with each type of equipment. These features are tied to both the equipment name (so that they appear when the equipment is added to the jurisdiction), and can be over-ridden and adjusted within the individual jurisdiction.

The update to the newer version of SQL Server also meant there was a need to update to a newer version of the report generator software (Crystal Reports) and develop new report templates for the web. We actually implemented a revolutionary new design to the system so that the database

can be viewed, filtered and sorted in a spreadsheet report format by the user. By clicking on the "Report" tab in the main database screen, a user is then taken to the "spreadsheet report" screen, as shown in the picture to the left. All the data items (columns) in the report screen are listed down the first column on the left. By clicking on a data item, a pop-up screen appears that then allows the user to institute a filter for that data column(s). If a data item is not selected for a filter, then all records in the system are eligible to be shown. For example, a user can just look at the jurisdictions in a single state or a combination of states. Or a single or multiple types of equipment or equipment name(s), or vendor(s) can be selected. The "Voter Registration Number" can also be filtered so that the user will see jurisdictions that are within a user defined range or any jurisdictions above or below a certain number of voters. This then allows the user to query the database for any kind of information, or combination, which might be of use.

As a result of all this work, thirty-five years of voting equipment usage is now accessible to the general public, including updates on the use of accessible voting machines. The database can be viewed at: ea.electiondataservices.com. While the system is available in "view only" mode to the public, election administrators can update the information on their jurisdiction by sending an e-mail to login@electiondataservices.com. A User ID and password, specially designed for the individual jurisdiction, will be sent back within a day upon verification.

It must also be noted that Election Data Services, Inc. paid for staff time and subcontractor's time and expenses for the entire three year-long project even though the prime contractor and the EAC cut our budget by a third. As a result, Election Data Services lost over $150,000 on this project, money that had been promised at the beginning of the project.

The Future

If additional funding were to be provided, there are a number of efforts that could be performed to expand and enhance the voting equipment and election administration website.

Because a number of jurisdictions are anticipate to be in the market for new equipment in advance of the 2016 Presidential elections there should be a significant outreach effort to make the site known to all election administrators around the nation. An e-mail campaign to election offices can be conducted with explanations of how the site can be utilized and the type of queries that are possible.

Other possible enhancements include:

- More extensive information on different systems and features specifically of use by disabled voters would also be incorporated into the system.
- Investigate and incorporate changes in the system so that the table results are accessible to JAWS software used by the blind.
- Incorporation of data from the Election Administration Commission's 2014 Election Day survey, as well as expansion with previous year's survey results. In this manner users would be able to identify and track long term trends in the various data and results from the survey.
- Expansion of the website to include information on electronic poll books and their use around the nation.
- Additions to incorporate usage of iPads and other tablets to help poll workers provide information to voters as their wait in the voting line.
- Incorporate web tracking tools to assist in determining the type of users utilizing the site.
- Further research in different aspects of the voting process, including the effectiveness of accessible voting devises. For example, very little research has been done on the actual impact of the disabled machines and whether they are recording the proper votes being cast. On top of that, no research has been done on whether the machines lead to greater or lesser overvotes and undervotes. Part of the problem with this research is that many local jurisdictions simply submerge the disabled and absentee ballots into the normal precinct returns.
- On-going maintenance and improvements to the system.

Questions

Please direct any questions about this report to:

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For more information about the Research Alliance for Accessible Voting, see http://accessiblevoting.org