Report of the
Joint Legislative Audit and Review Commission
To the Governor and
The General Assembly of Virginia

Special Report:

Review of Selected Issues in the Virginia Election and Registration Information System

In Brief

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At the request of the Chairman of the House Appropriations Committee, in early 2008 JLARC staff reviewed two specific issues involving the design and use of the Virginia Election and Registration Information System (VERIS) that had been identified by the Voter Registrars Association of Virginia (VRAV). The State Board of Elections (SBE) operates VERIS, which is used by the registrar in each locality.

The first issue identified by VRAV was the use of the United States Postal Service's (USPS) address database to verify the accuracy of information entered into VERIS. There are known errors in the USPS data, and VRAV asserts that these errors could disenfranchise some voters. Although the number of errors has affected only 1.7 percent of all voters, JLARC staff recommend that SBE modify VERIS to reduce errors and that local governments inform the USPS of known errors.

The second issue involves duplication of Social Security numbers (SSN) in VERIS. More than one voter record can have the same SSN, and VRAV asserts that the lack of a unique SSN for every record could lead to election fraud. Although duplicated SSNs affect only 0.03 percent of voters, JLARC staff recommend that SBE modify VERIS to reduce duplication.

Other recommendations made concern staff training and the use of automatic procedures to accommodate the use of temporary staff during elections.

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This report is available on the JLARC website at http://jlarc.state.va.us

COMMONWEALTH of VIRGINIA

Joint Legislative Audit and Review Commission

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June 17, 2008

The Honorable M. Kirkland Cox
Chairman
Joint Legislative Audit and Review Commission
General Assembly Building
Richmond, Virginia 23219

Dear Delegate Cox:

On January 15, 2008, Delegate Lacey E. Putney, Chairman of the House Appropriations Committee, directed the Joint Legislative Audit and Review Commission staff to review two specific issues involving the design and use of the Virginia Election and Registration Information System. These issues had been brought to Delegate Putney's attention by the Voter Registrars Association of Virginia.

The findings of the staff review were presented to the Commission on June 9, 2008, and are included in this report.

On behalf of the Commission staff, I would like to thank the staff at the State Board of Elections and Voter Registrars Association of Virginia for their assistance during this study.

Sincerely,

Philip A. Leone
Director

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JLARC Report Summary:

Special Report: Review of Selected Issues in the Virginia Election and Registration Information System

Key Findings

- The State Board of Elections' (SBE) use of the U.S. Postal Service address database to verify addresses in the voter registration system is appropriate given the Commonwealth's interest in promoting statewide data standards.
- SBE and local registrars need to work with local governments to correct existing errors in the Postal Service database and to prevent future errors.
- The use of system-generated registration numbers in the voter registration system is reasonable, but SBE should consider modifying the system or take other steps to ensure that two voters do not share the same Social Security number.
- SBE needs to recognize the nature of the work environment for registrars with part-time and volunteer staff, and consider modifying the voter registration system to make more automatic decisions for some registration transactions and to provide more flexibility for registrars to customize staff access to the system.

In early 2007, the State Board of Elections (SBE) implemented the Virginia Election and Registration Information System (VERIS), which is used by registrars to maintain a list of registered voters and manage elections, among other functions. Since that time, some registrars have reported concerns with aspects of VERIS, citing errors in the way it processes voter information. The Voter Registrars Association of Virginia (VRAV) raised two concerns related to the verification of street addresses and the uniqueness of Social Security numbers. In January 2008, the Chairman of the House Appropriations Committee requested that the Joint Legislative Audit and Review Commission (JLARC) review the issues raised by VRAV.

VERIFICATION OF ADDRESSES IN VERIS APPEARS REASONABLE, BUT STATE AND LOCAL ACTION IS NEEDED TO CORRECT ADDRESS ERRORS

The first concern involves the use of the United States Postal System (USPS) address database. VERIS is designed to use this database to check the accuracy of address information entered by registrars. If an address entered into VERIS differs from what is in the USPS database, then VERIS automatically changes the address to agree with the USPS information. Sometimes these changes only involve substituting abbreviations for words, such as AVE for Avenue. But in other cases the correction may involve changing the

spelling of a road name. However, VRAV asserts that errors in the USPS database result in erroneous changes to addresses.

Given the State interest in using geographical information system-based redistricting, which requires conformance to external address standards, it appears reasonable for SBE to have implemented USPS verification in VERIS. The successful implementation of a statewide or "enterprise" system such as VERIS is aided by the use of uniform data standards, as noted by JLARC in the 2002 report *Review of Information Technology Systems Development*.

However, street address errors may limit the extent to which polling places are automatically assigned, because this assignment is based on a voter's address. Therefore, errors in the USPS data, or errors made by the registrar when entering the address, may result in the need to assign polling locations manually. Some registrars state that this opens the door for human error, because the registrar may inadvertently assign a voter to the wrong location. This may be more likely to occur following a reprecincting or redistricting, when polling places are changed.

Because human error may lead to the incorrect assignment of polling locations, some voters may go to the polling location they thought was correct, but find they are not listed in the pollbook for that location. They would therefore not be permitted to vote. In these situations, it is not clear if a provisional ballot would be provided, because of a lack of clarity in the statutory language governing when they can be used. SBE should review the relevant statute and recommend to the General Assembly any necessary changes.

In addition to addressing the availability of a provisional ballot, it appears that corrections to the USPS database are required to prevent these situations. In keeping with their statutory authority, SBE has directed registrars to submit corrections to the USPS. However, some of the apparent errors likely result from situations in which local governments have named roads in ways that do not fit USPS address standards. Because SBE cannot direct local governments to rename roads, some of these problems may persist. Over time, these errors could affect other government functions that use the USPS address database, such as E-911 systems. To resolve these situations, local governments should follow USPS standards where practicable, and SBE should incorporate a secondary address database (known as an alias file) to lower the number of address errors.

VERIS Should Be Modified to Enforce Unique Social Security Numbers

The second concern raised by VRAV is that VERIS does not keep registrars from assigning the same Social Security number (SSN) to two different voters. (The previous registration system, which VERIS is replacing, blocked the entry of an SSN if that number was already assigned to another voter.)

A duplicate SSN may be assigned in VERIS because of inaccurate information submitted on registration applications or typographical errors by the registrars, but VRAV asserts that some of these situations may be cases of voter fraud. A JLARC staff analysis of SBE data indicates that there are presently 150 cases where two people are registered with the same SSN, but in two different localities. There are also 50 cases in which two people in the same locality are registered with the same SSN. The presence of duplicate SSNs could limit the ability of registrars to properly evaluate an individual's eligibility to vote and could facilitate election fraud.

Duplicate SSNs appear to result from SBE's decision to no longer use the SSN as the voter registration number. This decision was made because of concerns expressed by national organizations that the SSN should not be used as a registration number. Instead of the SSN, another number is used. However, SBE also decided to stop blocking registrars from entering duplicate SSNs. Although the decision to not use the SSN as the registration number appears reasonable, SBE should consider modifying VERIS to reduce duplication by either ensuring that every SSN is unique or by implementing a means of verifying each SSN. SBE should also develop appropriate procedures and issue instructions to registrars to eliminate duplicate records in a timely manner.

VERIS Should Be Modified to Enhance Automatic Decision-Making

During the course of this JLARC review, some registrars also raised the concern that VERIS relies too heavily on registrars and their staff to make some decisions that should instead be made automatically. For example, when a voter moves from one locality to another, the registrar in the new locality has to find the correct voter record from the previous locality and update it with the new address. (The previous registration system made some of these "transfers" automatically.)

However, some registrars argue that voters' registrations may be improperly cancelled if registrars or their staff make mistakes during these updates. These errors appear to be more likely during busy times of the year when many registrations are processed by

temporary staff. Therefore, it is argued that human error could be reduced by relying more on automatic decisions made by VERIS. In response, SBE staff state that VERIS is designed to require registrars (and their staffs) to make decisions related to changes in voter registrations, because of problems in other states where voters were erroneously removed from the rolls.

It appears that two changes could be made to VERIS which would address some of the concerns raised by registrars. First, SBE should consider increasing the use of automatic decision-making for certain types of transactions, such as when a voter moves from one locality to another. Second, SBE should consider modifying VERIS to refine the permission levels that can be assigned to temporary staff, or provide training materials on proper procedures that are geared toward the skill level of new staff. Presently, registrars cannot vary the permission or security levels assigned to different staff members. Greater flexibility in this area, or more tailored training material, would allow registrars to match the permission level with an employee's level of experience.

Special Report: Review of Selected Issues in the Virginia Election and Registration Information System

In early 2007, the State Board of Elections (SBE) implemented the Virginia Election and Registration Information System (VERIS), which is used by registrars to maintain a list of registered voters and manage elections, among other functions. Since that time, some registrars have reported concerns with aspects of VERIS, citing errors in the way it processes voter information. The Voter Registrars Association of Virginia (VRAV) raised concerns related to the verification of street addresses and the uniqueness of Social Security numbers.

In January 2008, the Chairman of the House Appropriations Committee requested that the Joint Legislative Audit and Review Commission (JLARC) review the two issues raised by VRAV (Appendix A). In addition to the specific concerns raised by VRAV, a recurring concern among registrars contacted by JLARC staff is that the design of VERIS has changed the way registrations are processed, and that these changes create greater opportunities for human error. This has reduced the confidence that some registrars have in the accuracy of voter registration data.

BACKGROUND

The *Constitution of Virginia* requires the General Assembly to "provide for maintenance of accurate and current registration records" (Article II, Section 4). The General Assembly was first given this responsibility by the 1851 *Constitution*, and the 1902 *Constitution* also required the legislature to provide for "the correction of illegal or fraudulent registration." More recently, the people approved amendments to Article II in 1994, deleting the constitutional requirement that voters register in person and adding penalties for illegal, fraudulent, or false registrations, and the proper transfer of all registered voters.

In 1946, the State Board of Elections (SBE) was created to facilitate these activities. According to its first enabling statute, SBE was required to "supervise and coordinate the work of the county and city electoral boards and of the regis-

trars to obtain uniformity in their practices and proceedings and legality and purity in all elections." In addition other statutory duties of SBE presently include the adoption of policies and procedures, and the issuance of instructions to local electoral boards and registrars in order to promote the proper administration of election laws (§ 24.2-103 of the *Code of Virginia*).

State Board of Elections Is Responsible for Uniform Voter Registration

In 1969, following recommendations issued by the Election Law Study Commission, legislation was adopted which directed SBE to operate a statewide Central Record Keeping System containing the names of all registered voters (Chapter 462, 1969 Acts of Assembly). The legislation centralized voter registration by creating a general registrar for each locality and by transferring control of voter lists from localities to SBE. The record keeping system created by SBE was known as the Virginia Voter Registration System (VVRS). By the late 1990s, VVRS was considered obsolete and several studies, including a 1998 JLARC review, recommended its replacement. Development of a replacement known as VVRS2 began in July 1999 but ultimately halted in December 2001 following several delays in the scheduled completion date.

Subsequently, SBE issued an request for proposals in June 2004 for a Virginia Election and Registration Information System (VERIS), noting that VVRS failed to comply with the federal Help America Vote Act of 2002. VERIS was implemented in early 2007 and has been successfully used in at least two statewide primaries and one general election, as well as six other local primaries and elections. VERIS performs many functions other than maintaining a list of registered voters. VERIS manages a library of addresses known as a street file, and is designed to be used for reprecincting and redistricting. Registrars also use VERIS to manage petitions and elections, including the processing of absentee ballots, the creation of pollbooks (lists of all registered voters for use at polling locations), and the tabulation of election results.

Registrars and local electoral boards used VVRS year-round, and it is expected that VERIS will be used in a similar manner. According to data reported by SBE to the United States Election Assistance Commission, about 525,000 voter registration applications are received annually in Virginia. Of this amount, 13 percent result from in-person registration at

a local voter registration office and another 23 percent result from mail-in applications. The balance of the applications are forwarded from other voter registration agencies designated under § 24.2-411.2 of the *Code of Virginia*. Of these, the vast majority are initially processed by the Department of Motor Vehicles (DMV), which processes about 340,000 applications annually. Presently, there are approximately 4.6 million registered voters in Virginia.

As part of its statutory requirement to "provide for the continuing operation and maintenance of a central record-keeping system, SBE also provides support and information to registrars, including lists of "prohibited voters" (§ 24.2-404). These lists indicate which persons should be removed from a locality's registration records because they have either died, have been convicted of a felony or adjudicated mentally incompetent, or have moved to another jurisdiction. These lists typically contain Social Security numbers (SSN), and the use of SSNs for maintenance of registration records is facilitated by the requirement in the *Constitution of Virginia* that persons registering to vote provide their SSN, if they have one (Article II, Section 2). This requirement is codified in § 24.2-418 of the *Code of Virginia.*

Registrars Have Raised Several Concerns About VERIS

Two specific concerns identified by VRAV correspond to the way in which the design of VERIS has changed the processing of applications for voter registration:

- VERIS uses the U.S. Postal System's (USPS) address database to verify that a voter's address is accurate and automatically changes the address to conform to USPS address standards. Therefore, the accuracy of a voter's address is checked by a computer, not a human. Under the old voter registration system, the VVRS user (registrar or staff) checked the validity of a voter's address by referencing a locally-maintained list of addresses. VRAV asserts that the USPS database is unreliable, which introduces errors into registration records that may result in the disenfranchisement of voters.
- VERIS does not block the entry of a duplicate SSN. Therefore, the accuracy of a voter's reported SSN must now be checked by a human, not a computer. Under VVRS, an SSN could not be entered if the number was already assigned to another voter. If the VVRS user attempted to enter a duplicate SSN, VVRS prompted the

user that a typographical error may have occurred or that the voter may have provided the wrong SSN. Because VERIS allows the same SSN to be assigned to more than one voter, the matching of voters with lists of prohibited voters is affected, which VRAV asserts could lead to voter fraud.

A third concern raised by the registrars during the course of this JLARC review relates to the automatic actions taken by the system when processing registrations:

- VERIS relies on local staff to make decisions about duplicate registrations, transfers of registrations from one locality to another, and other changes to the registration database. Under VVRS, many of these actions were processed automatically by the system. SBE believes that having staff make decisions about changes to voter records will enhance the accuracy of the records and ensure that voters are not improperly removed from the voter rolls. However, some registrars are concerned that their volunteer and part-time staffs have inadequate training and experience to make the necessary decisions required of them by VERIS.

As a result of these changes, some registrars now report that they have less confidence in the accuracy of the voter rolls. Because VERIS automatically standardizes addresses based on USPS data, registrars and their staff must now pay closer attention when each address is entered into the computer. On the other hand, because VERIS no longer blocks the entry of a duplicate SSN, staff must ensure that a new voter registration does not match an existing registration and take appropriate action if this occurs.

Although these requirements would not appear to be unreasonable requirements, some registrars assert that the requirements do not take into consideration the reality of their work environments. In the periods of time immediately preceding elections, many registrars hire large numbers of temporary staff to perform data entry in VERIS. These staff do not have the necessary knowledge or experience to make decisions about voter eligibility and the accuracy of a voter's address, but the design of VERIS gives them this decision-making authority. At other times of the year, the registrar and their full-time staff perform these duties, but report that the amount of training required to competently use VERIS is much greater than compared to VVRS. As described by those registrars who prefer the way in which VVRS functioned, it is not simply a matter of accommodating themselves to new workflow and training requirements, but instead a case

where the design of VERIS may actually reduce the accuracy of voter information.

From SBE's perspective, however, the accuracy of registration data is enhanced by a voter registration system that requires a human, not a computer, to approve any change that could affect a voter's registration status. As stated by SBE:

> As a policy matter, VERIS is designed to have some level of human interaction before changing any voter record. While VERIS has a lot of business logic built into the system, the identification of a person is highly complex and is left to the judgment of humans. As opposed to a fully automated system, VERIS is designed to provide as much relevant and organized information [as possible] and let a person make the ultimate decision.

The shift to greater human involvement results from concerns following the 2000 presidential election in Florida, where thousands of voters were erroneously removed from the rolls because an incorrect list of prohibited voters was provided to registrars. Reflecting these concerns, VERIS is designed to rely heavily on the diligence and accuracy of registrars and their staff.

The design of VERIS has also been affected by the distinct but closely related areas of responsibility assigned by statute to SBE and the registrars. As the agency responsible for maintaining a central record-keeping system (VERIS) and issuing instructions to electoral boards and registrars, SBE has determined that certain decisions need to be made by humans, not a computer. SBE has also determined that the humans who are ultimately responsible for approving changes to a voter's registration status are the registrars themselves. This is in keeping with the statutory responsibility of registrars to "maintain the official registration records for his county or city in the system approved by, and in accordance with the instructions of, the State Board" (§ 24.2-114).

JLARC Review

In conducting this review, JLARC staff primarily interviewed registrars in four localities: the Cities of Norfolk and Richmond, and the Counties of Chesterfield and Henrico. Registrars and planning staff in several other localities were also contacted regarding specific issues. JLARC staff also interviewed SBE staff, reviewed available literature on VERIS

and voting procedures in Virginia, and analyzed data provided by registrars, SBE, and local planning departments. The scope of this review does not include issues associated with the procurement or development of VERIS. Previous JLARC reviews on related issues include a 1998 review of SBE and a 2002 review of VVRS2 as part of a larger review of information technology systems development.

REGISTRARS' CONCERN NO. 1: U. S. POSTAL SERVICE ADDRESS DATABASE MAKES VERIS INFORMATION UNRELIABLE

According to some registrars, errors are introduced into the registration file and the street file because VERIS is designed to use the USPS address database to verify the accuracy of addresses, instead of relying upon local knowledge and planning department information. As a result, some registrars are concerned that some voters may be disenfranchised.

When VVRS was in use, registrars maintained two key databases, or files:

- An overall "registration file" containing the individual registration records for every person registered to vote in their locality; and
- A "street file" containing the individual street records for every road in their locality. A locality could only create a street file if it was completely "streeted," meaning that every residential address had to consist of a house number and street name, and no rural routes or boxes were allowed.

A common component of each file was data on street addresses. Every registration record contained a voter's address, and a street record existed for every road. An individual street record also contained the precinct and district assigned to that road. After a voter record was added or modified, VVRS looked for a street record that matched the voter's address. Once a match was found, VVRS automatically added the precinct and district information to the voter's registration record. If a match could not be found, the registrar was required to add this information manually.

VERIS continues this basic framework, but with the addition of a new step in the process—the USPS address database is now used to automatically correct address information as it is entered into VERIS. This step should not have been added, according to VRAV, because errors in the USPS

database frequently result in the inability of VERIS to find a matching street record.

When a match cannot be found, the user must intervene in order for automatic precinct and district assignments to be made. This could create an opportunity for human error if the user fails to notice that the USPS validation was in error, or enters an address that differs from the address in the street file. If these errors are made, the precinct and district information may be incorrect.

These errors could result in some voters being unable to vote if they are assigned to the wrong polling location during registration or following reprecincting or redistricting. If these errors occur, some voters may not be allowed to vote in the precinct they thought was correct.

SBE staff note that voter cards are automatically created whenever changes are made to a voter's address or precinct assignment. The registrar can then review the voter card and mail it to the voter. The voter cards serve as a notice to the voter of their current registration as processed by the registrar. (The voter card also includes the street address of the assigned polling location.) However, because some voters may not review their voter card, they may not realize that their precinct assignment has changed.

When a voter arrives to vote, his or her name is checked in the precinct's pollbook. If the voter's name cannot be found in that precinct's pollbook, an officer of election contacts the general registrar. If the registrar confirms that the person is registered in another precinct, the officer of election refers the voter to the correct precinct. In cases where the voter has been erroneously assigned to a different precinct, he or she would then be required to travel to that location before the polls closed.

Alternatively, a person who feels he or she was erroneously excluded from a pollbook may be provided with a provisional ballot. Provisional voting (previously called "conditional voting" in the *Code of Virginia*) is allowed when the general registrar is not available, or cannot state that the person is in fact registered to vote. An officer of election informs the voter that a determination of the voter's right to vote shall be made by the electoral board on the following day.

It appears that a provisional ballot may not be available if the registrar confirms that the person is registered to vote, but cannot confirm that an error in precinct assignment oc-

curred. The statute requires a provisional ballot be provided when a person offers to vote "and the general registrar is not available or cannot state that the person is registered to vote" (§ 24.2-653 of the *Code of Virginia*). However, this language does not address errors in precinct assignment. If the registrar confirms only that the person is registered to vote and does not investigate or determine the correct precinct assignment, it is not clear whether a ballot would be provided. Because the statute does not appear to contemplate a remedy for an error on the part of the registrar, it appears incumbent upon registrars to ensure that all precinct assignments are made correctly and that voters are informed of any changes.

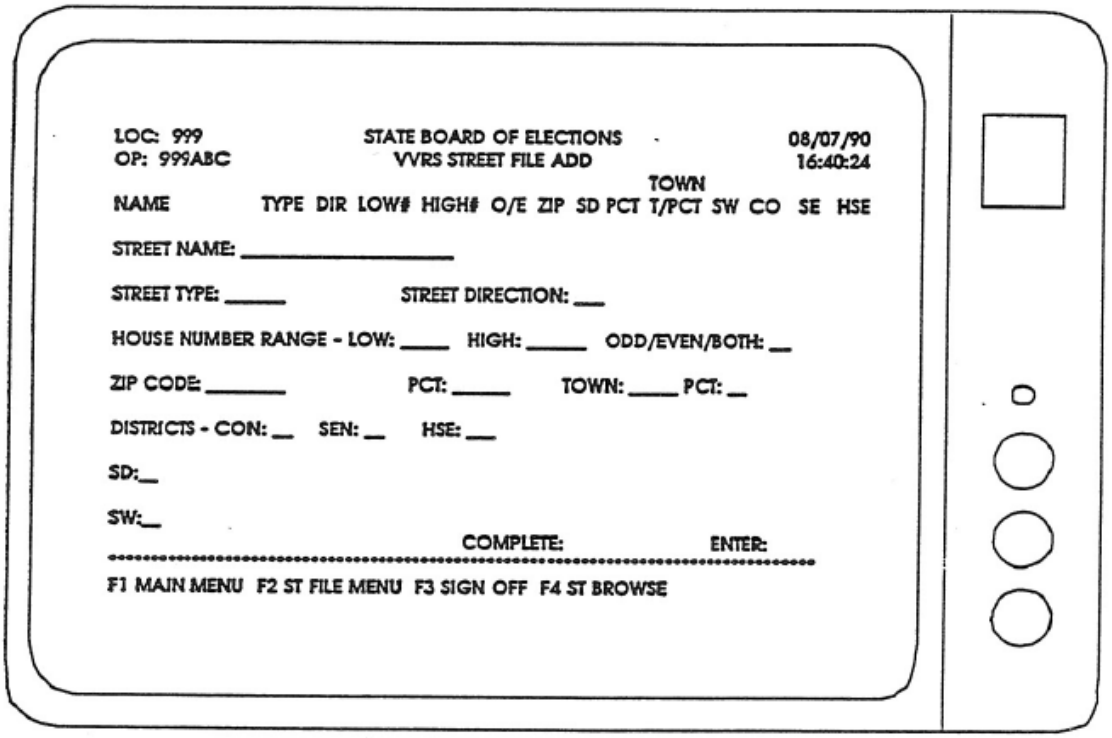
Recommendation (1). The State Board of Elections should review the statutory language in § 24.2-653 of the Code of Virginia regarding provisional voting and make any legislative recommendations necessary to ensure that voters are not disenfranchised because of erroneous precinct assignments.

Because errors in precinct assignment are alleged to result from differences between VVRS and VERIS in the verification of addresses, the next two sections provide background information on how these systems process address information. This is followed by a discussion of existing address errors found in VERIS and their apparent causes.

VVRS Largely Relied Upon Local Knowledge to Verify Street Addresses

In VVRS, the street file had a record for every road in the locality which was known to the registrar. The record for a given street did not list every address number, but instead listed the range of address numbers from low to high (Figure 1). To illustrate this, consider a hypothetical locality with a road called Main Street. That locality's street file would have a record for Main Street, and the record would indicate that the lowest address was 100 and the highest address was 200. It would also indicate that *Main* was the road name and *Street* was the type of road, or "suffix." In VVRS, each registrar was required to keep his or her street file up-to-date. Therefore, if a new road was built or new houses were added to the road, then the street file would have to be updated. For example, new houses might be built on Main Street that had address numbers above 200, and so the range would have to be increased to reflect this.

Figure 1: VVRS Screen for Street File Maintenance



Source: VVRS Manual.

After the registrar created or updated a record in the street file, VVRS was designed to "validate" the information to check for invalid data or missing values. For instance, a valid record must use an abbreviation "previously approved by SBE" for all road suffixes. The VVRS manual noted that these validation criteria were established "in conformance with the requirements of the U.S. Postal Service," and provided the three- or four-letter abbreviations for all acceptable suffixes. These included both the most common suffixes (Avenue, Drive, Court) but also less commonly used suffixes (Arch, Quay, or Turn). Words which indicated the direction of a road (known as "directionals") also had standard abbreviations, such as E for East. Standard abbreviations were used because computer databases had limited storage and data processing capacity, and also to ensure that printed addresses would fit onto mailing labels.

An important component of maintaining the street file was the need to ensure that both a *residential* address and a *mailing* address (if different) existed for every voter, to enable accurate reprecincting and redistricting. Although some voters may receive mail at their place of business or at a

post office, these locations may not be in the same precinct or locality as their residences. Importantly, this applied equally to persons who lived on a rural route, or in an area where the post office did not make residential deliveries. For these voters, a description of their residential location was required in addition to a mailing address (for example, "on SR 518 two miles south of US 11").

The use of residential addresses also helped to prevent voter fraud, and SBE directed registrars to ensure that only residential addresses were included:

> Never enter any house number range which includes non-existent addresses or commercial addresses at which no residences exist. Always correct your street file to remove addresses that are condemned or destroyed. If these types of addresses are not entered on your street file, it will not be possible for anyone to register and vote fraudulently from addresses that contain no residences.

Although SBE required registrars to use USPS standards when abbreviating certain words, such as suffixes and directionals, the data used to create and maintain the street file came from local sources. The registrar was likely familiar with the area, and the street file reflected the accumulated knowledge of local spellings and customs. In many localities, local custom may result in the use of more than one name to designate the same road. For example, residents of Albemarle County commonly use both "29 North" and "Seminole Trail" to refer to U.S. Highway 29.

Information about road names could also have been given to the registrar from the locality's planning office, which exercised its statutory authority to name roads. According to § 15.2-2019 of the *Code of Virginia*:

> Every locality may name streets, roads and alleys. Such names shall take precedence over any other designation except those primary highways conforming to § 33.1-12, and shall be employed in references to property abutting thereon.

This section would appear to give local governments a great degree of latitude in naming roads because there is no requirement to adhere to any standards or conventions.

Because local governments have had different preferences, there is considerable variation statewide in how roads have

been officially named. For instance, the official name of one road in Manassas Park is South Whitt Drive. In this case, *South* appears to be a directional, but is not. (There is no North Whitt Drive, nor is there a Whitt Drive.) However, when VVRS was in place, the only standardization imposed on records in the registration and street files was that the appropriate abbreviation be used. No external matching of road names to outside databases was conducted as voter information was entered. Therefore, standardization of road names was less important.

It is important to note that local governments inform the USPS about the correct names of roads, including suffixes and directionals. This information is then used by the USPS in developing its address databases, and the information in them conforms to USPS addressing standards. In the case of South Whitt Drive, USPS standards would normally require two abbreviations, with the result being *S Whitt Dr*. However, if the locality informed USPS that the name of the road is South Whitt, only the suffix would be abbreviated, with the result being *South Whitt Dr*.

VERIS Uses USPS Data to Verify Street Addresses

The appropriate use of USPS standards, along with the need to determine if words that appear to be directionals or suffixes are in fact part of a road's name, is an important means of assuring that a match will be made between two databases. This was true in VVRS, which looked for a match between the registration file and the street file, and remains true in VERIS.

VERIS reflects the basic approach to street file maintenance used in VVRS. As addresses are entered into street records, VERIS "verifies" them to ensure that USPS standard abbreviations are used for directionals and suffixes. However, there are two key differences between VVRS and VERIS with regard to address verification:

- VERIS expands the purpose of verification beyond just the use of standard abbreviations to include verification that the name of the road is spelled correctly and that the address is residential (not a commercial structure or vacant lot).
- Verification in VERIS is done by comparing address information with the USPS address database. In contrast, address information in VVRS was not compared to an external database to ensure the information was

accurate. By using the USPS database for this purpose, the USPS is relied upon not only as the standard for determining correct abbreviations but also for externally validating information in the street file. However, SBE notes that each registrar still controls the contents of their street file even if it differs from the USPS database.

SBE staff report that this approach to address verification was included in VERIS for two primary reasons. First, some (but not all) registrars requested this feature to enable their localities to receive bulk mail discounts. The USPS offers discounted rates to organizations that use USPS standards, including addressing standards, formatting standards (such as bar codes on envelopes), and standards for envelope dimensions. The use of a bar code, for example, could reduce the cost of postage from 41¢ to 13.5¢ per piece.

Second, VERIS was intended to allow more precise redistricting by using individual voter addresses to create districts rather than larger areas, such as Census Blocks. The intention is to use geographic information systems (GIS) maps maintained by the Virginia Geographic Information Network for redistricting. In order to use GIS maps, a match must be made between the location of a residence on the map and the residential address in the street file. Adherence to USPS standards, which are used by the software companies which create GIS maps, supports this effort. The use of automated address verification, including adherence to USPS standards, provided a means of implementing a robust set of address data standards where none had existed.

State Agencies Increasingly Follow USPS Standards. Many other State agencies have begun to implement USPS addressing standards. The Department of Human Resource Management recently converted all addresses to USPS standards, and the Virginia Department of Taxation recommends that taxpayers use this format. As discussed below, the USPS standard is being used by Virginia's E-911 system. Lastly, two recent studies of State agency mail operations conducted by the Department of General Services recommended that agencies be "instruct[ed] on the proper ways to address mail – both outgoing postal mail and interagency mail. If more agencies followed established standards, their mail could be delivered more efficiently."

A key part of the overall effort to decrease the cost of mail services is the use of USPS address databases, known as Address Information System (AIS) products. The AIS files

are raw databases that contain varying amounts of information on streets and postal routes, all entered according to USPS addressing standards. One of the more detailed AIS products, the ZIP+4 database, contains several elements that exist in the VERIS street file, including the road name, suffix, directional, and low to high address range. The ZIP+4 database also indicates the locality an address is located within, as well as the congressional district.

The USPS recommends that organizations verify addresses as they are entered into a database, such as the VERIS street file, by matching each address to one of the AIS products. The USPS defines a match as a situation where "suffixes, directionals, spellings, and city names as found in the files are correct." If address verification is not performed, an organization's mailing list database will not match the USPS address database as it is updated, and this will lead to lower matching rates. And as noted by the USPS, "lower match rates equal higher postage rates."

Since the implementation of VERIS, the USPS has placed further requirements on organizations that wish to receive discounted rates. For instance, the use of a Delivery Point Validation (DPV) indicator has been required since August 2007. The DPV acts as an extension of the ZIP+4 code, as illustrated by the following example. Returning to the hypothetical example of Main Street, the address range runs from 100 to 200 and a ZIP+4 code is assigned by the USPS to that range. However, not every number between 100 and 200 corresponds to an actual building. For instance, there may be only five buildings on Main Street, and only those numbers would have a DPV indicator. Moreover, if one of those buildings is demolished, the DPV indicator for that address would reflect that it was no longer a "deliverable" address. Another indicator, known as the Residential Delivery Indicator (RDI), designates whether a building is commercial, residential, or vacant.

Although anyone can use the online ZIP+4 database for an individual address, automated address verification requires one of the AIS products. The USPS provides its AIS products to third-party vendors who pay a licensing fee. These vendors then enhance the files with user-friendly interfaces and additional demographic information. In turn, organizations such as SBE purchase these third-party products, and SBE has purchased a product from Semaphore Corporation known as ZP4.

VERIS Uses USPS Data to Verify Addresses in the Street File and the Registration File. In VERIS, address verification using USPS data is performed on two occasions. The first occurs when a record is created in the street file. The second occurs after a voter's address is entered into the voter record. In both cases, VERIS checks the address against the ZP4 database to verify compliance with standard abbreviations and to check that the street name is spelled correctly. An example of a verified (and changed) address is shown in Exhibit 1.

Exhibit 1: Example of an Address That Has Been Verified and Changed

Original Address:	**Verified and Changed Address:**
Suite 101, 200 North 9th Street	200 N 9TH ST STE 101
Richmond, Virginia	RICHMOND VA 23219-3411

Source: Result of ZIP+4 address verification at http://zip4.usps.com/zip4/welcome.jsp

This kind of address verification has become a common means of reducing errors in both the public and private sectors. According to the website of Pitney-Bowes, a manufacturer of mail delivery systems, about 40 percent of address errors result from data entry errors, including misspelled names and abbreviations that do not follow USPS standards.

The VERIS verification process also checks to see whether the address is deliverable and residential (using DPV and RDI indicators). The use of DPV and RDI indicators is in keeping with SBE's long-standing instructions regarding the need to exclude non-residential addresses from the street file, and may increase the accuracy of reprecincting and reduce voter fraud.

After a user has entered or modified a voter's registration record, as shown in Figure 2, VERIS then verifies the address. Next, VERIS looks for that address in the street file and automatically assigns the precinct and district information. This is similar to the automatic precinct/district assignment performed by VVRS. In theory, there should always be an exact match between addresses in voter records and street records because VERIS verifies addresses as they are entered into both the street file and the registration file. Therefore, automatic precinct assignments should always occur.

Figure 2: VERIS Screen Showing Fields to Add a New Voter

Source: VERIS Manual.

However, some registrars have asserted that users of VERIS need to be vigilant and not assume that the address verification process is consistently correct. This is because the address verification process may alter an address incorrectly, either by changing the spelling of a road or altering the suffix, among other possibilities. For instance, the registrar in Chesterfield County told JLARC staff that when he enters the address for voters living on Evon Avenue, the verification process automatically changes the suffix from Avenue to Road. This requires the registrar to "override" VERIS to change the suffix back to Avenue until such time as the USPS database is corrected.

Because these errors could potentially occur every time the verification process is used, the user always needs to double-check the verified address. In those instances where the verified address is incorrect, the user must override the verified address and re-enter the correct address. Although VERIS looks for a match in the street file after an address override is used, and automatically assigns precinct and district information, this will not occur if the user fails to notice that the USPS address was in error, or enters an address that differs from the addresses in the street file.

The need for the user to pay careful attention is complicated by the fact that some registrars depend upon temporary and part-time staff to enter voter registration information into VERIS. These individuals may not recognize that a verified address is incorrect or may mistakenly assume that it is incorrect. For example, staff who are unfamiliar with USPS standards may override the verified address shown in Ex-

hibit 1 if they do not recognize that STE is an abbreviation for Suite.

Registrars are responsible for ensuring that all information in their registration file and street file is correct. However, registrars have less control over the accuracy of the USPS database. For this reason, some registrars have advocated a return to the process used in VVRS, where address information was not verified against an external database. However, this would appear to reduce the ability of registrars to obtain discounted postage rates and may hinder the use of GIS-based redistricting.

According to an analysis of statewide data conducted by JLARC staff, address overrides were used approximately 78,000 times in the first 12 months after VERIS was implemented. This corresponds to about 5,500 overrides per month, and this rate has remained steady, suggesting that the reasons for overrides continue to exist. However, SBE staff report that overrides have been used for only 1.7 percent of all voter records, and that some of these overrides may not have been required. Although the low percentage suggests that very few voters are affected by overrides, it is important to identify and reduce the instances in which an override is necessary. In some instances, overrides appear to result from errors in the USPS database, but other factors may be at work, as discussed in the next section.

Some Registrars Have Noted Problems Involving Street Addresses

Following the implementation of VERIS in early 2007, certain problems were noted by some registrars with the accuracy of the USPS address database, which VRAV characterizes as "the most unreliable address database known to all." Common concerns indicated by registrars were that VERIS would change a road suffix to an incorrect suffix, alter the spelling of a road name, assign an address to the wrong locality, or fail to verify that an address was deliverable or residential when the registrar knew that to be correct.

As discussed above, in each of these instances the user would need to notice that an override was required and enter the correct information in order to ensure that precinct and district assignments are made automatically. If the user fails to correctly perform these actions, and a manual assignment is required, the assignment of precinct and district information must also be performed correctly. As a result,

some registrars state that human error may lead to the disenfranchisement of voters.

However, manual assignments were sometimes required in VVRS as well, which could also have led to voters being incorrectly removed from the voter rolls. As noted above, if a locality did not have a street file in VVRS, it appears that precinct and district information was always added manually. This appears to have been common practice under VVRS, given that only 65 localities had street files in VVRS as of June 2004.

VRAV is critical of SBE's decision to use the USPS database "despite the well-known and acknowledged accuracy of the locality street files." The solution advanced by some registrars is to stop using the USPS database. However, an analysis by JLARC staff of address errors that led to overrides indicates that these errors result from several factors, and that there is not a single reason for overrides. In some instances, an error appears to exist in the USPS database, but in other cases an error was made by registrars or their staff. Because there are multiple reasons for overrides, more than one solution will be needed to address the concerns raised by the registrars.

Address Overrides May Result From USPS Database Errors and Other Causes. Whenever a user attempts to override the verified address, VERIS prompts the user to enter the reason for the override. According to SBE data which listed every override used in the first 12 months after VERIS was implemented, in more than 85 percent of all overrides, the default answer of "USPS validation incorrect" was given and the user provided no further information. In other instances, enough information was given to suggest that many of the overrides resulted from errors in the USPS database. However, some overrides do not appear to have been issued for valid reasons and may reflect errors by registrars and their staff. Another group of overrides may result from the manner in which VERIS was designed.

Based upon interviews with registrars and a review of SBE data, there appear to be at least seven types of address-related errors involving the USPS database. The examples shown in Exhibit 2 all occur in the USPS ZIP+4 database, suggesting that the errors were included in the data sold to third-party licensees such as Semaphore. As shown in Exhibit 2, these errors occur statewide in localities that have recently become "streeted" and no longer use rural route addresses, and also in those that have had street networks for

some time. Although the examples represent a non-random sample, in each instance a specific reason was given for the override, and JLARC staff contacted local planning officials or referenced GIS and assessment data to confirm that the USPS data are in error.

Exhibit 2: Examples of Confirmed USPS Database Errors for Addresses in Virginia

Wrong Locality (Zip Code Errors):

- Albemarle County: Park Drive is assigned to Charlottesville;
- Danville: Lockett Circle is assigned to Pittsylvania County; and
- Tazewell County: Jeter Lane is assigned to Buchanan County.

Incorrect Road Suffix:

- Chesterfield County: Evon Avenue is changed to Evon Road;
- Fairfax County: Otter Run Road is changed to Otter Run Lane; and
- Montgomery County: Canterbury Street is changed to Canterbury Court.

Road Misspellings:

- Colonial Heights: Hope Ridge is spelled as Hoperidge;
- Fauquier County: Ashlee Brooke is spelled as Ashley Brook; and
- Prince George County: Quail Hill is spelled as Quaill Hill.

Truncated Suffix:

- Franklin County: Keiths Place Drive is truncated to Keiths Place;
- Loudoun County: Paddock Trail Place is truncated to Paddock Trail; and
- York County: Rolling Hills Drive is truncated to Rolling Hills.

Extra or Missing Directional:

- Augusta County: Johnson Street is listed as North Johnson Street;
- Giles County: Woodrum Street is listed as South Woodrum Street; and
- Winchester: West Cedarmeade Avenue is listed as Cedarmeade Avenue.

Road Name Mistaken for Directional or Suffix:

- Fauquier County: *North* View is part of the road name, not a directional;
- Manassas Park: *South* Whitt is part of the road name, not a directional; and
- Rockbridge County: Pleasant *Hill* is part of the road name, not a suffix.

Erroneous Delivery Point Validation Indicator (DPV):

- Brunswick County: No information available on Governor Harrison Parkway;
- Caroline County: No information available on Antique Drive; and
- Washington County: No information available on Wellsley Street.

Source: JLARC staff analysis of data provided by the State Board of Elections.

The most common type of error specifically identified by registrars in the SBE data were Zip Code errors in the USPS data used by VERIS. According to the SBE data, at least 45 localities have reported that the USPS data assigned an address to the wrong locality. In some instances, the address was assigned to a town within a county, and in other instances it was assigned to a neighboring jurisdiction (another county or city). It appears that this may affect the assignment of a precinct or district. To illustrate, if the registrar in Tazewell County enters voter information VERIS is designed to query the Tazewell street file. However, if the USPS validation changes the locality to Buchanan County, the registrar must notice this error and override the verified address. This type of error appears to result from the fact that Zip Code boundaries cross locality boundaries, and many roads meander between adjacent jurisdictions. This problem is not unique to Virginia. A national study comparing errors involving address verification in state cancer registries found that 88 percent of address errors resulted from locality-spanning Zip Codes.

The second and third most common types of errors involved road suffix errors and road misspellings. These types of errors have been reported by at least 31 localities. The other errors indicated in Exhibit 2 occur less frequently, but each occurrence would still prevent an automatic assignment of precinct and district information.

DPV errors occur when an override is used because the USPS database indicates that mail is not delivered to the given address. In other words, the address is not "deliverable." For the three instances of DPV errors listed in Exhibit 2, JLARC staff contacted the planning department in the respective localities. In Brunswick County, the planner stated that a house has existed at the address for many years and should be in the USPS database. In Caroline County, the address is for mobile homes located on the same lot as an antique shop, but the mail is delivered to mail boxes on a nearby street. In the case of the Washington County address, the post office does not offer residential delivery to that part of the Town of Emory.

The latter two examples of DPV errors illustrate the limitations of using a database of *mailing* addresses to verify the accuracy of *residential* addresses. Although the USPS is responsible for delivering mail, it does not maintain information on every physical address in the United States. For instance, millions of households receive mail at a post office box or at a rural box in communities that do not offer resi-

dential mail delivery. The USPS has no record of the residential addresses of these persons in its database, even though they exist.

SBE staff note that Title 24.2 of the *Code of Virginia* requires registrars to mail the voter card, and that this process served as a means of verifying residential addresses before USPS validation was available. The use of mail delivery to verify a person's residence will also be used by DMV, which is moving toward central issuance of driver's licenses. As a result, drivers will no longer be able to obtain their driver's license from individual DMV offices. This process will depend upon the use of valid residential addresses.

However, not all of the overrides resulted from errors in the USPS database, and some appear to result from errors by registrars and their staff. In some cases, the verified address was changed because the user was not sufficiently familiar with USPS standards for abbreviations. In Franklin County, an override was used because VERIS changed the spelling of First Street to 1st, although 1st is correct according to USPS standards. A locality may use either First or 1st, but if there is more than one road with that name the USPS requires that alternate spellings be used. For example, Chesterfield County has a Second Avenue and a 2nd Street.

Other instances of misunderstandings include the spelling of Valle D'oro Court in Fauquier County. The user overrode the verification to add the apostrophe, although apostrophes are excluded according to USPS standards. In addition, registrars and their staff in several localities prefer to use abbreviations where USPS standards call for the complete spelling. Several roads in Virginia include the words Mount, Fort, or Saint. In Petersburg, for instance, an override was used to change the verified address of Saint Matthew to St Matthew. In this case, because ST is used to abbreviate Street, USPS standards call for Saint to be spelled out.

To investigate overrides, JLARC staff contacted local planning departments to determine official road names and other information. Based on this information, it appears that some overrides result from misunderstandings by registrars and their staff about official road names, and that the USPS data were correct. One example occurred in Chesterfield County, where the registrar mistakenly overrode an address on Michaels Ridge, which is the correct spelling, and changed it to Michael Ridge. In other situations, the verification process may indicate that an address is in one county when the registrar mistakenly believes it is in another. This occurred in

Louisa County, where the registrar mistakenly overrode an Albemarle County address to indicate it was in Louisa County. In this instance, the border between the two localities was not clear, and it has recently been settled by the respective local governments.

In addition to the use of overrides because of errors in the USPS database and errors made by registrars and their staff, it appears that some errors may result from the design of VERIS itself. As shown in Figure 2, when a user enters an address into VERIS, all address information (directional, road name, suffix) is entered in the same field. (SBE staff state that this design was done to streamline the data entry process.) VERIS is designed to parse out this information into separate database fields. For example, if a registrar entered 100 North Main Street, VERIS would parse North into the directional field and Street into the suffix field as part of that voter's registration record.

In some cases, it appears that VERIS is incorrectly parsing road names. For example, some roads have words that appear to be directionals but are actually part of the road name, such as West Ox Road in Fairfax County, South Village Drive in Loudoun County, and East Point Road in Fluvanna County. According to the reasons given for using an override and a review of USPS and other information on road names, it appears that overrides were needed because VERIS incorrectly parsed the first word into the directional field. Similarly, suffixes for some roads appear to be incorrectly parsed, such as "The Terrace" and "The Plaza" in the City of Richmond, where Terrace and Plaza are part of the official road name.

Overrides May Lead to a Database Exception, Which Requires the Manual Assignment of Precinct and District Information. Whenever the registration and street files do not agree, which occurs when a voter's address in the registration record does not match any address in the street file, a database "exception" occurs. Overrides may lead to a database exception. Whenever an exception exists, the voter's record is not linked to the street file, and as a result automatic updates to precinct and district assignments do not occur. As of February 2008, there were about 210,000 street file exceptions in VERIS.

In some cases, it appears that a voter's address may be listed as an exception even though the address complies with USPS standards. For example, voters on the list of exceptions in the City of Richmond include Governor Kaine and

his family, although their address in the voter record fits USPS standards: the street name is "Capitol" and the street type is "Square." The reason for an exception in this case is that even though the address in the voter record was verified, the address in the street file was not. It appears that when a record was created for Capitol Square, the verified address was overridden and "Capitol Square" was entered as the name of the road, and no suffix was entered. This kind of disagreement between the registration file and the street file can lead to exceptions, but they should diminish as the two files are brought into agreement.

In addition to the reasons listed above which resulted in overrides, SBE staff indicate that an exception could occur as a result of several other potential reasons:

- *Errors may have occurred during the data conversion process*. When VERIS was implemented, addresses in the VVRS registration records were entered into the registration records in VERIS. These types of errors are not uncommon when a database is moved to a new system, and should diminish with time. For example, Meadowburm Road in Chesterfield County was misspelled during conversion as Meadownburn. However, the reason for some conversion errors are less obvious, and these errors have raised concern among registrars about the quality of the data in VERIS. According to data provided by SBE at the end of February 2008, there are 118 voters listed as living on South Ridge Road in Chesterfield County. Based on information provided by the Chesterfield County Planning Department, it appears that some of those voters actually live on roads with similar but fundamentally different names such as Hunters Ridge and Andrews Ridge. The reason for this kind of conversion error is not clear.
- USPS standardized the voter address to something other than what is in the street file and the user did not override the change. In the case of voters living on Meadowburm Road, if the registrar in Chesterfield County failed to notice that VERIS changed the road name from Meadowburm to Meadowburn and did not override this result, an exception would occur if the road name in the street file was listed as Meadownburm. This is the situation that existed on Capitol Square, as discussed above.
- *Address is not in the street file maintained by the registrar*. Localities that are just now assigning street names and numbers to all roads are reported to have a

large number of exceptions because many voters live at new addresses that have not yet been entered into the locality's street file.

- *USPS address database is out of date*. In some instances, particularly in fast-growing localities, the USPS address database may not yet include a road. This is because a three- to four-month delay exists between the time a road is named, the locality informs the USPS, the licensee obtains the update, and SBE purchases the update from the licensee. SBE has addressed this problem by purchasing updates to the USPS database on a monthly rather than bimonthly basis.

Another type of exception results from the use of non-standard road types by localities, in which a road has a suffix that no longer fits USPS standards. According to USPS Publication Number 28, *Postal Addressing Standards*, which was published in 2006, a road can be called Street, Avenue, Drive, or any of 203 other suffixes. However, as noted by the Federal Geographic Data Committee, which is responsible for coordinating geographic data and associated standards, the USPS standards are known to be incomplete and "a few examples of street types missing from the USPS list include: Alcove, Close, Connector, Downs, Exchange, and Promenade." In Virginia, certain suffixes which were listed in the VVRS manual no longer meet USPS standards. This means that a standard abbreviation no longer exists for these suffixes, which in turn means that a match cannot be found between an address in VERIS and a corresponding address in the USPS database.

The five most frequent non-standard suffixes used in Virginia are Arch, Close, Reach, Quay, and Turn. The number of voters who may be affected by the use of non-standard road types can be estimated from the number of properties on those streets. Fifteen localities use one or more of these suffixes, and a review of real estate assessment data indicate that there are 6,809 addresses with these suffixes (Table 1). These addresses appear to be mostly residential, including apartment buildings. However, the use of non-standard suffixes only affects 1,261 voters in these 15 localities, which is about 0.03 percent of registered voters statewide.

According to SBE staff, registrars in some localities have addressed the effect of non-standard suffixes by working with their local planning department. For example, James City County has several roads with non-standard suffixes but no voter records required an override, as shown in Table

Table 1: Most Frequently Used Non-Standard Road Types in Virginia

Locality	Number of Addresses with Nonstandard Road Types [a]	Number of Voter Records Requiring an Override	Percentage of Registered Voters
Albemarle Co.	20	0	0%
Chesapeake City	2,606	70	0.1
Chesterfield Co.	296	313	0.2
Fauquier Co.	37	67	0.2
Hampton City	225	184	0.2
Isle of Wight Co.	18	145	0.6
James City Co.	214	0	0
Norfolk City	180	0	0
Portsmouth City	363	295	0.5
Powhatan Co.	12	0	0
Prince William Co.	56	1	0.0
Suffolk Co.	184	186	0.4
Virginia Beach City	2,159	0	0
Williamsburg City	54	0	0
York Co.	385	0	0
TOTAL	**6,809**	**1,261**	

[a] Nonstandard road types included are Arch, Close, Reach, Turn, and Quay. Numbers indicated are approximations.

Source: JLARC staff analysis of 2007 Road Center Line data maintained by the Virginia Geographic Information Network, and data provided by the State Board of Elections on February 28, 2008.

1. This is because the planning department has altered the official name of the streets to include the non-standard suffix. For example, the street named "Saint Erics" used to have a suffix of "Turn," but now the official name is "Saint Erics Turn" and no suffix is assigned.

Registrars' Concerns About Street Addresses Will Require State and Local Action

When VERIS was implemented, there were no standards for street addressing in Virginia. Furthermore, although § 56-484.16 of the *Code of Virginia* directed "every county, city or town in the Commonwealth" to adopt an E-911 system by 2003, not all localities appear to have complied. Given the State interest in using GIS-based redistricting, which requires conformance to an external address standard, it appears reasonable for SBE to have implemented USPS verification in VERIS in the absence of statewide standards for street addressing. The successful implementation of a statewide or "enterprise" system such as VERIS is aided by the use of uniform data standards, as noted by JLARC in the 2002 report *Review of Information Technology Systems Development*. States that have developed statewide data standards include Georgia, Maryland, Tennessee, and West Virginia.

SBE asserts that it has the statutory authority to direct registrars to adhere to USPS standards when entering data into VERIS, which is a State system. SBE has been responsible for maintaining a statewide Central Record Keeping System since 1969, when control over voter lists was transferred from localities. SBE is presently charged by the *Code of Virginia* with supervising and coordinating local electoral boards and registrars "to obtain uniformity in their practices and proceedings" and is granted the authority to "make rules and regulations and issue instructions…to the electoral boards and registrars to promote the proper administration of election laws (§ 24.2-103). As a result, SBE states that it "has the authority to determine that a certain level of address standards is necessary in order to provide and maintain a central list of voters and the proper administration of elections in Virginia."

The examples given above of overrides and other exceptions suggest that there are many causes behind the "USPS database" concerns identified by registrars. As shown in Exhibit 2, overrides can result from errors in the USPS database itself or from the lag between an address change at the local level and its appearance in VERIS. In other instances, local staff appear not to be familiar with USPS standards or the official names of local roads and erroneously override the verified address. Other errors result from data conversion by SBE, or from errors during data entry by local staff. In some cases, the design of VERIS may result in errors, such as the incorrect parsing of street names, and not all road suffixes conform to current USPS standards.

Because there are many causes of overrides and exceptions, some of the solutions may rest with local officials and some may need to be addressed by SBE. Larger issues are at work, however, such as the apparent tension between the authority of SBE to direct the use of USPS standards and the authority granted to local governments to name roads. Resolution of these larger issues may require legislative action.

Local Governments Should Correct the USPS Database. Given that the examples of overrides shown in Exhibit 2 all occur in the USPS ZIP+4 database, it appears that the errors are in the USPS data. Yet it is not clear why the USPS data are in error. In some instances, local governments may have provided incorrect information. In other instances, these errors may have occurred when the USPS entered locality data into the ZIP+4 database.

SBE states that the general registrar in each locality is responsible for ensuring that corrections are made to the USPS database. SBE bases their specific authority in this matter upon § 24.2-404 of the *Code of Virginia*, which directs SBE to "require the general registrars to enter the names of all registered voters into the system and to change or correct registration records as necessary." In addition, SBE staff note that registrars should correct all exceptions before any reprecincting or redistricting occurs if the registrar wants precinct and district assignments to be made automatically.

In opposition to this, some registrars have asserted that only the general registrar is in charge of voter records. This assertion is based upon § 24.2-114 (8) of the *Code of Virginia*, which states that the general registrar shall "maintain the official registration records for his county or city in the system approved by, and in accordance with the instructions of, the State Board…." However, although the language in § 24.2-114 (8) grants general registrars the authority to maintain registration records, this must be done in accordance with the instructions of SBE. Therefore, it appears reasonable for SBE to instruct general registrars as to how registration records should be maintained.

By implementing address verification in VERIS, SBE has effectively instructed registrars to use USPS standards. Yet SBE's authority is limited to issuing instructions to registrars and electoral boards, and SBE does not have the authority to direct local governments to name roads in conformance to USPS standards. Road naming remains a local function under § 15.2-2019. However, since this section was last amended the General Assembly has directed "every county, city or town in the Commonwealth" to adopt an E-911 system (§ 56-484.16). This latter section requires the use of E-911 by 2003 unless an extension is granted. At the present time, it appears that not all localities have implemented a street addressing system. According to SBE staff, the following four counties do not have a street file in VERIS: Bland, Craig, Dickenson, and Lee. Four other counties have a partial street file: Buchanan, Cumberland, Prince Edward, and Scott. Nine other counties have a street file that is almost complete: Buckingham, Highland, King and Queen, Madison, Mathews, Middlesex, Russell, Tazewell, and Wise.

Because local governments are required to implement a street addressing system, it appears that local planning officials are in the best position to inform the USPS of changes that are needed in USPS address data. This would help to reduce the need for address overrides in VERIS. The use of

USPS standards, where practicable, could potentially reduce the need to inform the USPS of some changes. For example, the Town of Purceville in Loudoun County has a road named East E Street. According to town officials, no West E Street exists although this may have been contemplated when the town was founded. Confusion has arisen because of the standardized form of the street name: "E E ST". If in the future, local governments avoid naming roads with single letters, then this confusion could be avoided.

In addition, the use of USPS standards would support the development of another statewide enterprise system. The Wireless E-911 Services Board has worked with local E-911 coordinators and Virginia Geographic Information Network (VGIN) to "develop a comprehensive single, statewide electronic addressing database" (§ 56-484.14). This is the GIS database that is anticipated for use in redistricting. VGIN and local E-911 coordinators appear to support the use of USPS address standards, in agreement with national protocols adopted by the National Emergency Number Association. The use of non-standard addresses and failure to correct USPS data therefore appear to conflict with the goal of a statewide E-911 system.

SBE should offer assistance to registrars or electoral boards as requested to assure that corrections are made to the USPS database, and to generally support the adoption of USPS standards. Given that SBE is statutorily required to "supervise and coordinate the work of the county and city electoral boards and of the registrars to obtain uniformity in their practices and proceedings and legality and purity in all elections," and to "provide for the continuing operation and maintenance of a central record-keeping system," it appears incumbent upon SBE to take all reasonable steps to assure that address data in VERIS are accurate.

However, because the effectiveness of State agency use of USPS standards is limited by the extent to which local governments name roads in accordance with these standards, further legislative consideration may need to be given to reconciling any potential conflicts between State and local responsibility and authority in this area.

Recommendation (2). General registrars in each locality should work with other local government officials to make corrections to U. S. Postal System (USPS) data and to ensure that the USPS is informed of changes to local street names as quickly as possible. Local governments should consider adopting USPS standards as widely as practicable to assure proper

address matching with State voter records and E-911 records. The State Board of Elections should offer assistance to registrars as requested in effecting these changes.

SBE Should Implement an Address Alias File in VERIS. One of the AIS database products sold by USPS to third-party licensees is a street "alias" file. The alias file contains non-standard street names, and these aliases can be used to help ensure the correct road has been identified. For example, if a match cannot be made with a street in the ZIP+4 product, VERIS can look for a match in the alias file. Four types of alias road names are available:

- An abbreviated form of a road name, such as St for Saint.
- An old road name which the local government has officially changed but which still may be used by some voters. For example, Fairfax County changed a road name from Northdown to Stone Terrace.
- A nickname or other name by which a road is locally known. For example, one road in Albemarle County is referred to as Seminole Trail or U.S. Route 29 interchangeably by residents.
- A locally preferred format for a road name. This could occur when a road's official name does not comply with USPS standards because it includes a directional (for example, North Shore) or a suffix (for example, Pleasant Hill).

It is important to note that non-standard street names are entered in the USPS alias file only when a local government notifies USPS that an alias is necessary.

SBE indicates that VERIS could be modified to use an alias file as part of the verification process. In implementing this change, SBE staff report that an interface could be designed which would allow registrars to maintain street aliases, and make changes and edits to the street file. Presently, only the override option is available, and this requires a registrar to change the address of each voter individually, instead of being able to make corrections to all voters on a given street at the same time. (SBE staff report that a workaround process is already available which allows registrars to make this kind of batch change, and greater training on how to use this process would be beneficial.)

In addition, the alias file could be used as a "holding tank" for newly-named streets, especially in fast-growing localities

which are not yet in the USPS address database. According to SBE staff, this could be done by giving registrars the authority to edit the alias file but with automatic expiration of these edits. Such changes should not be permanent because this could serve as a means to avoid compliance with USPS standards. SBE staff report they are working with the software vendor which developed VERIS to write a change request to implement the alias file. In order to ensure the stability of the software, the alias file will not be implemented until after the November 2008 elections. SBE staff estimate that this change will require roughly $150,000 to $250,000.

Recommendation (3). The State Board of Elections (SBE) should proceed with the anticipated change request to implement the U.S. Postal System (USPS) "alias" file as part of the address verification process in the Virginia Election and Registration Information System. As part of this implementation, SBE should consider the use of temporary street records until USPS data reflect local changes.

SBE Should Modify VERIS to Notify Users of Address Alterations During Verification. Some registrars have informed JLARC staff that exceptions may occur when VERIS alters a voter's address but the user is not aware of this change. Presently, when VERIS changes a road suffix (such as changing Evon Avenue to Evon Road) or other aspect of a voter's address during the verification process, the user is not alerted with a visual cue. Instead, the user must scan all of the address fields and compare them with the address entered to ensure that no changes were made. This is a time-consuming and cumbersome process, and if the user does not notice that a change has been made, as may occur during periods of intensive data entry prior to an election or primary, then an error may go undetected.

SBE should initiate a change request so that VERIS visually highlights those address fields that have been altered (such as altering Road to Avenue). This form of highlighting is done in other VERIS modules to indicate items for which there is a match between two records. An audible notification should also be considered. Notification should exclude instances where an abbreviation is substituted for the correct road type (such as AVE for Avenue). Immediate notification that a change has occurred because of verification would allow for timely corrections or overrides if they are required.

SBE should also address the possibility that road names are incorrectly parsed when entered into the single address field on the Add/Maintain Voter screen. This could be accomplished by providing separate fields for directionals and suffixes, as provided in the override and street file screens. However, SBE staff state that a single field was used to improve the workflow when adding or updating voter records, and that separate fields may hinder the workflow. Alternatively, an alias file may be used to correct for any incorrect parsing. SBE staff state that these changes could cost roughly $20,000 to $70,000 to implement.

Recommendation (4). The State Board of Elections should modify the Virginia Election and Registration Information System (VERIS) to provide visual and audible cues to registrars and other users of VERIS when an address is changed as part of the verification process. Appropriate changes to VERIS should also be made to eliminate incorrect parsing of road names.

REGISTRARS' CONCERN NO. 2: LACK OF UNIQUE SOCIAL SECURITY NUMBERS IN VERIS COULD RESULT IN IMPROPER REGISTRATIONS

With the implementation of VERIS, the use of the Social Security number (SSN) as a unique field was discontinued, which means that more than one voter record can have the same SSN. As a result, voters may be misidentified when registrars update voter records or look for persons who are ineligible to vote. Some registrars are also concerned that this may lead to instances of voter fraud.

Persons wishing to vote must submit a properly completed voter registration application, and until their registration is approved they are known as an "applicant." Registrars are responsible for ensuring that applicants who are ineligible to vote are not allowed to register, and that voters are removed from the registration rolls if they subsequently become ineligible. Similarly, if a person moves from one locality to another, or from one precinct to another within the same locality, registrars are responsible for correcting registration records to reflect these changes.

Registrars and their staff perform these responsibilities by reviewing lists of prohibited voters: felons, decedents, and persons who have been adjudicated mentally incompetent. These lists typically contain the name, date of birth (DOB), and SSN of each individual, and this information is matched

to the same information provided by applicants during registration. Registrars also review residential address information and, if necessary, "transfer" the applicant from the locality or precinct where he or she was previously registered to the applicant's new locality.

VERIS Allows More Than One Person to Register With the Same Social Security Number

After an application is approved, VERIS assigns a unique registration number to each voter record, as did VVRS. The systems differ, however, in which number they use. VVRS used the SSN as the registration number. In contrast, VERIS generates a unique registration number. The SSN is not used as the registration number in VERIS, according to SBE staff, because of known problems resulting from using the SSN as a unique identifying number.

Some registrars have indicated concern regarding the shift away from using the SSN as the registration number. These concerns appear to center around the fact that the most unique identifying characteristic of an applicant is his or her SSN, because names and dates of birth are more commonly shared. Therefore, when looking for a match between an applicant and a pre-existing voter record, or a prohibited voter, it is more effective to use the SSN.

However, if a registrar wishes to search for a voter record based on the SSN, this can be done in VERIS even if the SSN is not the registration number. Moreover, since VERIS generates a unique registration number for every record, the shift away from using the SSN as the registration number does not appear to have affected the uniqueness of voter records.

A more salient concern is that VERIS no longer enforces the uniqueness of the SSN itself—that is, more than one voter record can now have the same SSN. This can occur when there are two records for the same person (because he or she is registered more than once in the same locality or different localities) and when there are two records for two different people. Duplicate SSNs could limit the ability of registrars to properly match an applicant (or voter) with a list of prohibited voters or a list of persons already registered in the applicant's own or another locality.

The request for proposals for VERIS stated that a "mandatory" feature of a proposed system was that it must "ensure that each SSN (i.e., registration number) is unique." During

the development of VERIS, the decision was made by SBE to no longer use the SSN as the registration number and also to not require that every SSN entered into the system be unique. According to SBE staff, the decision was made to no longer require the uniqueness of SSNs because it is possible for them to be duplicated. Although this is an unusual occurrence, SBE staff report that applicants may have used their spouses' SSNs to register, particularly older Virginians who may never have been issued an SSN.

However, the likelihood of two people being assigned the same SSN appears to be extremely small. According to the Social Security Administration website,

> We do not re-assign Social Security numbers. We have assigned more than 440 million Social Security numbers and each year we assign about 5.5 million new numbers. Even so, the current system will provide us with enough new numbers for several generations into the future.

On the other hand, it is possible for one person to be assigned two SSNs. As noted on the Social Security Administration website,

> Over the years, some people have been issued more than one Social Security number. This usually happens when the information entered on one application does not match the information on a later application.

In fact, in August 2006 the Inspector General of the Social Security Administration conducted an audit of beneficiaries who received Social Security payments under more than one SSN. The review found 320 cases out of more than 54 million Social Security beneficiaries, which suggests that the assignment of more than one number to the same person is very rare.

Concerns persist, however, among some national information technology organizations that the use of the SSN as a unique identifier in any database may lead to problems. Literature cited by SBE staff supports their position that the SSN should not be used as a unique identifying number in a database, for several reasons:

- *Social Security numbers may not be unique.* The same person may have more than one number. Also, despite the assurances of the Social Security Administration, there appears to be a concern that the agency may

have re-assigned the same number to more than one person.

- *Not everyone has a Social Security number.* In Virginia, a person only has to provide an SSN if he or she has one.
- *Fraud may occur.* Individuals are rarely asked to prove that a Social Security number is correctly assigned to them, and this information is not always verified against Social Security Administration records. In Virginia, SBE staff state that this occurs for first-time mail applicants as required by the Help America Vote Act, but this would not appear to include in-person applicants.
- *Errors may occur when entering a person's Social Security number into a database.* Even if a voter provides a Social Security card, a typographical error may occur when the registrar enters the information. Alternatively, an applicant may state the wrong SSN, or it may be illegible. In fact, the Internal Revenue Service states that one of the most common errors encountered on income tax returns is "incorrect or missing Social Security numbers." Because only 13 percent of applications occur in person at a voter registration office, registrars have little opportunity to detect these errors at the time of application.

It appears that in light of these concerns, SBE staff decided not to require that the SSN be used as the unique number that distinguishes different registration records in VERIS. However, SBE also took the additional step of dropping the requirement that the SSN be uniquely assigned to only one voter. As a result, registrars must rely more heavily upon other identifying information (such as a person's name, address, gender, and DOB) when establishing a person's identity and matching applicants (or voters) to other lists.

Some Registrars Express Concern Regarding the Effect of Duplicate SSNs

The SSN was very important in VVRS because the system would not create a new registration record if the SSN given by the applicant was already in the registration database. Registrars then worked with the individual to obtain proof that his or her SSN was correct. If it was, the registrar would contact the person who previously registered with the same SSN (if the voter lived in a different locality, the responsible registrar was contacted). Because VVRS blocked the entry of a duplicate SSN, some registrars have asserted

that the registration data in VVRS were unduplicated and therefore more accurate than the records in VERIS.

The Voter Registrars Association of Virginia has stated that VERIS has "created a fertile environment for potential voter fraud since the SSN uniqueness is no longer enforced" (Appendix A). Voter fraud, referred to in statute as election fraud, is defined as "any willfully false material statement or entry made by any person in any statement, form, or report" (§ 24.2-1016). The crime of election fraud is punishable as a class 5 felony, although this appears to occur very rarely. Legal research of published opinions found only three appeals of election fraud cases involving applicants to vote since 1975:

- In *Williams v. Commonwealth* (2004 Va. App. LEXIS 199), in 2004 the Court of Appeals affirmed a lower court's finding that the defendant willingly made a false statement by not indicating on his application that he had been convicted of 19 felonies.
- In *Wilson v. Commonwealth* (2000 Va. App. LEXIS 322), in 2000 the Court of Appeals affirmed a lower court's finding that the defendant willingly made a false statement by falsely indicating that one of her two residences was her primary address, although comparative electricity usage indicated it was not.
- In *Waller v. Commonwealth* (2002 Va. App. LEXIS 316), in 2002 the Court of Appeals overturned a lower court's finding that the defendant willingly made a false statement by giving a false SSN. In this case, the defendant registered to vote twice in one year, but two digits in his SSN were transposed: the first application contained the number xxx-26-xxxx, and the second contained the number xxx-62-xxxx. The Court of Appeals found that willful intent could not be established, and that "the evidence leaves to speculation whether the numbers were honest mistakes of transposition or misstatements of facts designedly made."

SBE staff confirmed that prosecutions of election fraud are rare.

One apparent reason why some registrars want VERIS to ensure that SSNs are unique is to avoid errors made by applicants as well as by users of the system, both their own staff and staff in other localities. As noted above, duplication of SSNs may exist simply because an error occurred when the number was written on the application by the applicant

or entered into VERIS by a user. To the extent that this occurs, the ability to match a new voter with a list of previously-registered or prohibited voters is diminished.

Alternatively, a user may not check to see if the applicant is already registered. As discussed in more detail below, when a voter record is created or updated, VERIS will search for and display pre-existing records that have the same information, such as the same SSN. Therefore, if another voter has the same SSN, it will be displayed on the screen as a potential duplicate, as shown in Figure 3. Based on this information, the user can determine whether a potential duplicate record matches the voter being registered.

However, if the user does not review the list of potential duplicates, or erroneously determines that a duplicate does not exist, then a second record would be created for the same individual even though the SSN was the same in both records. The likelihood of these errors is reported to increase as an election nears because registrars hire large numbers of volunteer and part-time staff, who must quickly be trained on how to use VERIS and how to apply Virginia election laws.

Because the SSN was unique in VVRS, the system is sometimes described as having no duplicated records. But this does not mean that the system was free of errors. For example, not every applicant had an SSN entered into VVRS. In a case where an applicant provided an SSN that was already in VVRS, and the correct SSN could not be determined prior

Figure 3: Hypothetical VERIS Screen Display Showing Potential Matches

Registration Duplicates

	%	Last Name	First Name	Residence Address	Locality	Status	DOB	SSN
☐	100	RANDOLPH	EDMUND	301 KING ST	ALEXANDRIA	Active	08/10/1953	393-93-9393
☐	75	RANDOLPH	EDMUND	301 KING ST	ALEXANDRIA	Active	08/10/1753	393-93-9393
☐	65	RANDOLPH	BEVERLEY	1788 TURKEY IS	HENRICO	Active	08/10/1953	393-93-9393
☐	65	RANDOLPH	THOMAS	1768 TUCKAHOE TL	GOOCHLAND	Active	08/10/1953	393-93-9393

Death Matches

No matches were found.

Felony Conviction Matches

	%	Last Name	First Name	Residence Address	Locality	DOB	SSN
☐	100	RANDOLPH	EDMUND	301 KING ST	ALEXANDRIA	08/10/1953	393939393

Mentally Incapacitated Matches

No matches were found.

Source: JLARC staff presentation of a screen from the VERIS Manual.

to an election, a registrar could direct VVRS to generate a temporary registration number. The VVRS manual states that the registrar "must remember to enter the correct number when it is determined," but no safeguards appear to have ensured that this occurred.

In addition to allowing the use of a temporary number in place of the SSN, VVRS did not entirely prevent duplicate registrations. Although VVRS would block an attempt to enter a pre-existing SSN, it would allow an SSN to be entered if that number did not already exist in the registration database. As a result, VVRS allowed the entry of erroneous SSNs. This is demonstrated by data on duplicate records in VVRS from June 2003, which was provided by SBE. A JLARC staff analysis found that there were as many as 3,300 duplicate registrations at that time. In about 80 per cent of these instances, the source of the error was a transposition of digits in the SSN, either on the application or during data entry. However, the JLARC staff analysis indicates that no two voter records (or voters) had the same SSN.

Duplicate records also exist in VERIS, in part because VERIS also appears to allow erroneous SSNs to be entered. Therefore, a voter can be registered twice because of transposition errors. However, some duplicates in VERIS involve instances in which two records have the same SSN. More importantly, some of these duplicate records involve instances where two people are registered with the same SSN.

JLARC staff analyzed data provided by SBE on all instances in which more than one voter record had the same SSN on the same date in March 2008. The analysis indicates that 1,201 records had duplicate SSNs. Although this equates to only 0.03 percent of all registered voters, it suggests that there are duplicate registrations and that, in some cases, efforts to match an applicant to a list of prohibited voters could be hindered. The duplicate registrations fall into four different groups:

(A) a voter may be registered twice in the same locality (50 percent of the 1,201 voter records);

(B) a voter may be registered simultaneously in two different localities (33 percent);

(C) two different voters with the same SSN may be registered simultaneously in two different localities (13 percent); or

(D) two different voters with the same SSN may be registered in the same locality (four percent).

At the locality level, there are differences in the prevalence of the four groups of duplicated records. Table 2 lists the ten localities with the highest number of voter records with duplicate SSNs. As shown, most of the duplicate records in Fairfax County occur because the same person is registered twice in that locality. (This occurs most frequently in Radford, where two people are registered three times and one person is registered five times.) In contrast, most duplicates in Norfolk result from the same person being registered in Norfolk and in another locality (these records are included in Norfolk's count because the most recent date was in Norfolk, suggesting that staff created a new record instead of transferring the voter).

Table 2: Ten Localities With the Highest Number of Voter Records With Duplicated Social Security Numbers

	Same Person, Registered Twice in the Same Locality (A)	Same Person, Registered in Different Localities[a] (B)	Different People, Registered in Different Localities[a] (C)	Different People, Registered in the Same Locality (D)
	Number of Voter Records			
Fairfax Co.	186	72	22	28
Norfolk City	4	138	10	0
Culpeper Co.	50	36	12	0
Radford City	73	6	4	0
Arlington Co.	34	14	2	0
Chesterfield Co.	6	10	20	4
Buchanan Co.	32	2	0	0
Lynchburg City	24	10	0	0
Scott Co.	18	2	4	6
Prince William Co.	2	4	16	2
TOTAL	**429**	**294**	**90**	**40**

[a] The record was included in the count of the locality with the most recent change in registration records.

Source: JLARC staff analysis of data provided by the State Board of Elections as of March 3, 2008.

Registrars' Concerns About Social Security Numbers May Require Modification of VERIS and of Procedures

It appears that all of these situations occurred because registrars and their staff failed to ensure that a person did not register with a pre-existing SSN. Although the design ofVERIS does not block these duplicate registrations, it is the responsibility of registrars to ensure that the registration data are correct. However, the decision by SBE to require a higher level of decision-making on the part of regis-

trars, while also deciding to stop enforcing the uniqueness of the SSN, appears unwarranted. These decisions diminish data integrity because a key safeguard is removed at the same time that an increased amount of human decision-making is required; the result has been data entry errors.

SBE Should Consider Modifying VERIS to Enforce a Unique SSN or Implement Software Interface to Validate SSNs. Although there are valid reasons for not using the SSN as the registration number, it does not appear reasonable to also stop requiring that every SSN in the voter registration database be unique. The SSN is more likely to be unique than any other type of information available about a voter. A person's last name can change after marriage, and some first and last names are very common. Many people have the same date of birth, and residential addresses can change frequently. The one item of information that is most likely to be unique is the SSN, although it is not guaranteed to be unique.

The uniqueness of the SSN appears to be the best way of assuring that the correct voter is selected when a registrar initiates a transfer from one locality to another, or removes a voter from the rolls because of a match with a list of prohibited voters. Uniqueness may also reduce the number of persons who are registered more than once in the same locality. The uniqueness of the SSN should be given the same level of importance as the requirement that street addresses be verified. At the very least, if VERIS were modified to ensure SSN uniqueness, then cases where typographical errors during data entry produce duplicates could be reduced or eliminated.

SBE appears to have agreed with the need for uniqueness at one time. When a replacement system for VVRS was first proposed, a "mandatory" requirement in the request for proposals was that the system offered by a vendor must ensure that the SSN was unique. At some point after the development contract for VERIS was awarded in 2004, the decision was made to no longer require SSNs to be unique, but SBE was unable to document that a formal change request was created.

SBE staff stated that a presentation was made to registrars at a May 2005 training session that SSNs are not unique, but no other indication was provided that registrars were informed of the change. In January 2006, project documentation indicates that SBE and VITA staff proposed that this mandatory feature be removed from the business require-

ments as part of a contract amendment. However, current SBE staff (who were not involved in this process) could not offer an explanation as to why the resulting contract amendment (number four) did not include this change in functionality.

SBE staff maintain that SSNs can be duplicated, and that it would be cost-prohibitive to modify VERIS to enforce the uniqueness of SSNs. JLARC staff requested that SBE provide documentation of the extent to which SSNs can be duplicated. In turn, SBE staff reported that the only available information from the Social Security Administration indicated that this occurrence was highly improbable but possible.

Instead of modifying VERIS to enforce uniqueness, SBE staff suggested that an interface be developed with the DMV database to verify the validity of the SSNs. This process is envisioned by the Help America Vote Act, which creates a mechanism under federal law for a state's motor vehicle agency to verify SSNs with the Social Security Administration. SBE staff report that a software interface could be developed between VERIS and the DMV databases which would allow verification of SSNs in voter records to occur. Two types of interfaces could be developed: one that verifies SSNs already in DMV records, and one that verifies all SSNs (including those not in DMV's database).

SBE staff also did not provide any information to document the potential cost of modifying VERIS to require the uniqueness of SSNs. However, rough estimates were provided of the cost to implement an interface with DMV. The first type, which verifies SSNs in VERIS by looking at SSNs already in DMV's database, would cost roughly $20,000. The second type, which would query Social Security Administration records and would allow the verification of all SSNs (including those not in DMV's database) would cost roughly $200,000.

Recommendation (5). The State Board of Elections should consider modifying the Virginia Election and Registration Information System to enforce the uniqueness of each Social Security number (SSN), or implement an interface with the Department of Motor Vehicles to verify each SSN.

SBE Needs to Develop Procedures for Registrars to Follow When Duplicate SSNs Are Encountered During Registration. Among the 1,201 cases of voter records with duplicate SSNs are 150 cases where two people are registered with the same

SSN, but in two different localities. There are also 50 cases where two people in the same locality are registered with the same SSN. An analysis of the latter records suggests that many of them involve family members, probably spouses. In 24 of the 50 records, the last names are the same but the first names differ, usually with a clear gender difference such as Jane and John Smith.

It is not clear why registrars thought these duplicate SSNs were correct. It may result from simple human error on the part of the registrar or applicant, such as transposition errors, or these may be cases of election fraud. Regardless of the reason, these cases need to be investigated and appropriate action taken. If these are instances of election fraud, which is the concern raised by VRAV, then the local Commonwealth's Attorney should be informed. Registrations that were approved in error should also be cancelled.

Instead of modifying VERIS, SBE staff assert that registrars should use the existing tools provided with VERIS to ensure that potential duplicates are corrected in a timely manner. For example, registrars can run the "SSN Duplicate Registrant Listing" report. As shown in Exhibit 3, if two voter records had the same SSN, this report would list each record and indicate the locality in which each record existed. In this example, the first record belongs to Henrico County while the second is in James City County. Because the registration date for James City County is more recent, that locality must take action to resolve the duplicate.

In addition to ensuring that registrars remove existing duplicates, SBE needs to implement procedures to direct registrars as to the proper course of action when an applicant reports an SSN which already exists. According to SBE staff, Arlington County is still using a temporary number. How-

Exhibit 3: Hypothetical Example of SSN Duplicate Registration Report Showing Same Voter Registered in Two Localities

SSN	Name	DOB	Locality	Registration Date	Address
334-55-6666	Smith, Truman	07/02/1955	087	01/22/2007	1204 Veritas Ave Richmond, VA 23528
	Smith, Truman	07/02/1955	095	02/06/2007	1129 Mattaponi DR Williamsburg, VA 23888

Source: State Board of Elections document *Resolving Duplicates in VERIS* (March 2007).

ever, the use of temporary numbers may hinder the matching of a voter to a list of prohibited voters, because no SSN would be available in those cases for matching purposes.

Clear procedures also need to be developed for determining how the validity of an SSN already in the system should be confirmed. Lastly, registrars need to be instructed regarding what role (if any) they should play in assisting a voter to obtain an SSN when the one he or she is using is not correct. The development of these procedures is important in order to ensure the integrity of the voter rolls and other State systems, such as DMV records, which accept voter registration cards as proof of Virginia residency.

Recommendation (6). The State Board of Elections (SBE) should develop appropriate procedures and issue instructions to registrars to more quickly eliminate duplicate records. SBE should also work with local registrars and electoral boards to develop consistent statewide procedures on (1) confirming the uniqueness of a voter's Social Security number (SSN) at the time of registration; (2) verifying the validity of SSNs for persons already registered in the Virginia Election and Registration Information System in cases where a duplicate is identified; and (3) processing registrations in cases where a duplicate SSN exists and sufficient time may not exist to confirm the validity of both duplicate numbers prior to an upcoming election.

REGISTRARS' CONCERN NO. 3: VERIS RELIES TOO HEAVILY ON LOCAL STAFF DECISION-MAKING

Some registrars believe that VERIS relies too heavily on the registrars and their staff to determine if a match exists between records, and that because of the likelihood of human error, some voters may be improperly removed from the voter rolls. It is asserted that a greater reliance on automatic decision-making by VERIS would reduce the overall number of errors.

Closely related to the concern that VERIS no longer enforces a unique SSN is the fact that the registration process in VERIS is substantially different than the process in VVRS. The difference centers on the degree of automated decision-making, which was greater in VVRS.

Differences in How VERIS Processes Voter Records Have Reduced Confidence

VVRS produced a higher level of confidence for some registrars because it lowered the opportunity for human errors by enforcing a unique SSN and by automatically making some decisions. Given that voter registration is a statewide enterprise, the needs of registrars will vary, but the integrity of the shared data is most assured when the needs of the largest number of registrars are met. VERIS is reported to be less responsive to the needs of some registrars in comparison to VVRS, which had a higher level of automated decision-making.

VVRS Made More Automatic Decisions During the Processing of Registration Applications. In VVRS, when a registrar received a voter registration application, the first step was to enter the information from the voter's application into the registration file, including the four key elements: SSN, DOB, gender, and last name. After this was completed, the system then searched for a matching record with the applicant's SSN. If no other record was found with that SSN, the system *automatically* created a new registration record.

If another record was found, VVRS compared the DOB, gender, and last name (if the person was male). VVRS would then make one of several automatic decisions:

- If VVRS determined that there was a complete match on all four of the key elements in the same locality, it would automatically re-register the applicant.
- If a complete match was found, but the match occurred with a registration record in another locality, VVRS would automatically "transfer" the applicant by creating a new record in the new locality and deleting the applicant's record from his or her previous locality.
- If, however, an incomplete match was found, where some but not all of the four key elements matched, VVRS would automatically block the user from completing the registration. This applied to both re-registrations and transfers. The VVRS manual stated that the transaction should be cancelled and "conflicts in data can be resolved either by reviewing the printed data, contacting the other locality involved or contacting the applicant."

VERIS Requires More Registrar and Staff Decision-Making. The process in VERIS is intentionally different, because SBE determined that the best way to reduce data errors was

to lessen the reliance on automatic decision-making. Initially, the registration process in VERIS is similar to the process in VVRS. After an applicant's information is entered, VERIS *automatically* looks for matching records in the system. If none are found, VERIS allows the user to select whether to approve the registration, a step which places the decision-making burden on the user, not the computer. (Other options are to deny the application, save an incomplete application for later review, or cancel the process altogether.)

If VERIS finds records which may match the applicant's, VERIS displays the potential matches. However, no automatic *decisions* are made:

- If VERIS determines that there is a complete match on all four of the key elements used in VVRS, plus a match on first name and residential address, it does not automatically re-register the applicant. Instead, a list of all potential matching records is displayed along with a "confidence factor" (a number between 0 and 100). The user must manually determine whether to re-register the applicant by selecting the correct record. The confidence factor is meant to serve as a guide, with a higher percentage indicating a higher likelihood of a match based on identifying information.
- If a complete match is found, but the match occurred with a registration record in another locality, VERIS automatically notifies the other locality that the record has been transferred to the records of the new locality. Although this process automatically updates the records in both localities, it only occurs after the user accepts the match as correct.
- If, however, an incomplete match is found, where some but not all of the elements match, VERIS displays a list of potential matches and the confidence factor. VERIS does not automatically block the user from completing the registration or transfer. If the user determines that the applicant does match an existing record, the correct record must be selected manually. VERIS then merges the two records and updates the existing record to reflect the newly-entered information. Alternatively, if the user determines that the applicant does not match an existing record, then the user approves the registration.

Some registrars assert that VERIS should be modified to make the same automatic decisions made by VVRS, but the

lack of a requirement for the SSN to be unique appears to hinder this ability. The ability to use automatic decision-making in VVRS resulted from the requirement for a unique SSN, which enabled two records to be matched with confidence, notwithstanding the effect of erroneous SSNs.

Registration Process Under VERIS Does Not Reflect Reality of Work Environment. The desire for additional automatic decision-making ties back to issues related to verifying street addresses and the need for unique SSNs, and points to an underlying concern expressed by some registrars. Historically, registrars have relied on seasonal, part-time, and volunteer staff to handle the workload of their offices. With VERIS, these temporary staff are called upon to make decisions about when to transfer a voter's registration from another locality or delete prohibited voters from the rolls. Some registrars believe the design of VERIS places too little reliance upon the system to make decisions, and too much reliance upon temporary staff.

As a result, some registrars assert that human error can lead to mistakes in voter records, which could result in voters being disenfranchised. This outcome could occur if the registrar or a staff member inadvertently selects the wrong name from a list of potential matches. When the list includes ten or more potential matches, users need to scroll through additional screens and may miss the correct match. Yet even with only three potential matches, as shown in Figure 3, users may inadvertently select a match other than the one they intended. By this simple act of human error, some registrars assert that a voter could be disenfranchised because the wrong record would be matched, and the pre-existing record would be updated to reflect the identifying information of another person.

To illustrate the effect of a human error in this instance, consider an example where a voter moves from Charlottesville to Williamsburg. If the registrar in Williamsburg looks for a match with voters that are already entered in VERIS, but inadvertently chooses the wrong voter (say, a voter in Chesapeake with a similar name), then the wrong voter record would be changed. In this event, the voter in Chesapeake would be deleted from the rolls in that city, but the rolls in Charlottesville would not be changed.

A concern expressed by some registrars is that in this kind of situation, the voter in Chesapeake would be disenfranchised. However, SBE staff state that the voter in Chesapeake would be given a provisional ballot, and the electoral

board in Chesapeake would then check the paper voter record with the voter's signature. The paper voter record would indicate that he or she had not moved, and the provisional ballot would be counted. VRAV takes issue with this description of the process, noting that resource limitations and time constraints would hinder the review of paper voter records.

Registrars' Concerns About Automatic Decision-Making May Require Modifications to VERIS or Increased Training

It appears that two changes could be made to VERIS which would address some of the concerns raised by registrars. Both of these changes would have the effect of modifying VERIS to more closely reflect the registration process in VVRS, either by increasing the level of automatic decision-making or by giving registrars more control over the kind of decisions that staff members are authorized to make. If these changes successfully reduce the number of human errors, then it appears that the overall integrity of registration data would be improved. However, SBE staff state that some of these changes would require an extensive and costly revision of VERIS, and that additional training could address many of these concerns.

SBE Should Consider Modifying VERIS to Automatically Transfer or Re-Register a Voter if There Is a Complete Match. Even if provisional ballots provide some protection for voters, errors would still be created in the VERIS database. If these errors are not addressed in a timely manner and on a consistent basis, then the integrity of the data in VERIS could be affected. In essence, some registrars believe that SBE moved too far away from having the voter registration system make automatic decisions, and that the overall number of errors would be reduced if more decisions were made automatically.

One solution advanced by some registrars is to have VERIS act in a manner similar to VVRS, and to automatically transfer a voter from one locality to another when there is a complete match on SSN, name, DOB, and gender. The same approach could be taken for persons who are re-registering and are not on a list of prohibited voters. Another concern is the algorithm used to calculate the confidence factor. Although the factor is displayed as a percentage between 0 and 100, the weights assigned to items such as SSN sum to 140 points. It may be more intuitive if the weights were adjusted so that they summed to 100. SBE staff report that it would cost roughly $25,000 to $50,000 to implement each change.

Recommendation (7). The State Board of Elections (SBE) should consider modifying the Virginia Election and Registration Information System to automatically transfer or re-register a voter when there is a 100 percent match on Social Security number, date of birth, gender, and full name and the voter is not on a list of prohibited voters. SBE should also consider adjusting the weights in the confidence factor algorithm to sum to 100.

SBE Should Consider Implementing Field-Level Security on Individual Screens in VERIS or Provide Additional Training to Registrars. In addition to better balancing the need for decision-making by staff and automated processing of some decisions, a further means of ensuring that human errors are reduced would be to modify VERIS to refine the security levels that can be assigned to users. Presently, VERIS is designed so that the ability of each user to change voter records can be tailored to a degree. For example, the registrar in a locality can be granted permission to make changes to all aspects of voter records in VERIS, but a newly-hired or temporary employee may only be given permission to make certain changes. A temporary employee, for example, may be allowed to enter information about newly-registered voters in the new voter registration module, but not be allowed to access the module where absentee ballots are processed.

However, as described by SBE staff the level of permission granted to users is on an all-or-nothing basis. In other words, if users are given permission to register new voters in the new voter registration module, then they are allowed to make any change or approve any decision. A temporary employee could therefore not only enter a voter's address in the address field, but also decide to override a street address that VERIS indicates did not verify. The only other alternative is to not give that user permission to enter new registrations at all, by granting read-only permission for that module.

If VERIS were modified to provide field-level security, then users could be authorized to enter data but not make decisions that the registrar wishes to limit to certain staff. Field-level security refers to the ability to set permission levels for modifying individual parts of a module or approving certain actions. This allows control over changes to be made at the level of individual fields on a screen, and would be a refinement of the present permission levels in VERIS which consist of either read-only or full access for a given screen or module. Field-level security would let a registrar give a user

permission to enter address information but not approve an override. Similarly, a user could enter information from an application but not approve a match with a pre-existing record. (Some registrars have requested the ability to grant passwords and permission levels themselves, rather than relying on State staff, but this appears to conflict with the security requirements issued by the Virginia Information Technologies Agency (VITA) for State computer systems.)

Similar levels of tailoring for other functions would also let registrars match the level of permission with an employee's level of experience. The introduction of field-level security would allow a registrar to give some users permission to approve a match with pre-existing records (such as matches with prohibited voters) while other users would only have the option of saving an incomplete registration if a potential match existed.

However, SBE staff state that field-level security would be extremely cost-prohibitive to add at this point, because it was not included in the original design for VERIS. SBE staff estimate the cost could potentially exceed $1,000,000. However, SBE staff indicate that the same control over the actions of temporary staff could be obtained through greater training and supervision. To assist registrars, SBE should ensure that training is provided to all users in a manner that accords with their level of skill and experience. This may require that training materials be developed that are suitable for both beginning and more advanced users of VERIS.

Recommendation (8). The State Board of Elections (SBE) should consider modifying the Virginia Election and Registration Information System (VERIS) to allow for field-level security in addition to the screen-level security that presently exists. Alternatively, SBE should develop and provide training on the use of VERIS that is appropriately matched to more than one level of skill and experience.

List of Recommendations:
Special Report: Review of Selected Issues in the Virginia Election and Registration Information System

1. The State Board of Elections should review the statutory language in § 24.2-653 of the *Code of Virginia* regarding provisional voting and make any legislative recommendations necessary to ensure that voters are not disenfranchised because of erroneous precinct assignments.

2. General registrars in each locality should work with other local government officials to make corrections to U. S. Postal System (USPS) data and to ensure that the USPS is informed of changes to local street names as quickly as possible. Local governments should consider adopting USPS standards as widely as practicable to assure proper address matching with State voter records and E-911 records. The State Board of Elections should offer assistance to registrars as requested in effecting these changes.

3. The State Board of Elections (SBE) should proceed with the anticipated change request to implement the U.S. Postal System (USPS) "alias" file as part of the address verification process in the Virginia Election and Registration Information System. As part of this implementation, SBE should consider the use of temporary street records until USPS data reflect local changes.

4. The State Board of Elections should modify the Virginia Election and Registration Information System (VERIS) to provide visual and audible cues to registrars and other users of VERIS when an address is changed as part of the verification process. Appropriate changes to VERIS should also be made to eliminate incorrect parsing of road names.

5. The State Board of Elections should consider modifying the Virginia Election and Registration Information System to enforce the uniqueness of each Social Security number (SSN), or implement an interface with the Department of Motor Vehicles to verify each SSN.

6. The State Board of Elections (SBE) should develop appropriate procedures and issue instructions to registrars to more quickly eliminate duplicate records. SBE should also work with local registrars and electoral boards to develop consistent statewide procedures on (1) confirming the uniqueness of a voter's Social

Security number (SSN) at the time of registration; (2) verifying the validity of SSNs for persons already registered in the Virginia Election and Registration Information System in cases where a duplicate is identified; and (3) processing registrations in cases where a duplicate SSN exists and sufficient time may not exist to confirm the validity of both duplicate numbers prior to an upcoming election.

7. The State Board of Elections (SBE) should consider modifying the Virginia Election and Registration Information System to automatically transfer or re-register a voter when there is a 100 percent match on Social Security number, date of birth, gender, and full name and the voter is not on a list of prohibited voters. SBE should also consider adjusting the weights in the confidence factor algorithm to sum to 100.

8. The State Board of Elections (SBE) should consider modifying the Virginia Election and Registration Information System (VERIS) to allow for field-level security in addition to the screen-level security that presently exists. Alternatively, SBE should develop and provide training on the use of VERIS that is appropriately matched to more than one level of skill and experience.

Appendix A

Study Mandate

This appendix includes correspondence between the Chairman of the House Appropriations Committee and the Voter Registrars Association of Virginia (VRAV):

- letter to the Chairman from VRAV describing their concerns about VERIS; and
- letter from the Chairman to VRAV informing the registrars that JLARC will review their concerns about the Virginia Election and Registration Information System (VERIS).

JAN 15 2008

VOTER REGISTRARS ASSOCIATION OF VIRGINIA
OFFICE OF THE PRESIDENT
E. RANDALL WERTZ
COUNTY OF MONTGOMERY GENERAL REGISTRAR
755 ROANOKE STREET, SUITE 1F
CHRISTIANSBURG, VIRGINIA 24073-3175

January 10, 2008

The Honorable Lacey E. Putney
General Assembly Building
Room 948
P. O. Box 406
Richmond, Virginia 23218

Dear Delegate Putney:

Per your previous conversation with Phyllis Dierschow, the Botetourt County General Registrar and 2nd Vice President of the Voter Registrars Association of Virginia (VRAV), you have heard some of the general concerns of registrars regarding the new voter registration software known as VERIS. I would like to ask your attention and help on 2 very specific issues.

First is the elimination of the social security number as a unique field. Both the Virginia Constitution and the Code of Virginia require a voter to provide their social security number which assists as a means of unique identification. Under the old Virginia Voter Registration System (VVRS), the SSN was indeed required to be unique – there could be no duplicates. VERIS has eliminated this uniqueness and as such has created a fertile environment for potential voter fraud since the SSN uniqueness is no longer enforced.

Secondly, VERIS has been written to rely upon the most unreliable address database known to all, the United Stated Postal Service (USPS) address database. This has been done despite the well-known and acknowledged accuracy of the locality street files used for years to verify voters and assign them to precincts. As it exists, voters whose streets do not match the errors in the USPS database are filed in area such that a street reprecincting would cause them to be eliminated form updates and thus, potentially disenfranchised.

With the upcoming presidential primary and presidential election, our concerns are growing that the data in VERIS is not valid and that voters will be adversely impacted by the design failures of the system. Any assistance you can provide in rectifying these grave situations will be greatly appreciated.

Thank you for your consideration.

Yours truly,

E. Randall Wertz
President

cc: Secretary Nancy Rodrigues, Virginia State Board of Elections
Phil Leone, JLARC

COMMONWEALTH OF VIRGINIA

HOUSE OF DELEGATES

RICHMOND

APPROPRIATIONS COMMITTEE
9TH FLOOR, GENERAL ASSEMBLY BUILDING
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LACEY E. PUTNEY, CHAIRMAN
ROBERT P. VAUGHN, STAFF DIRECTOR

January 15, 2008

Mr. E. Randall Wertz, President
Voter Registrars Association of Virginia
County of Montgomery General Registrar
755 Roanoke Street, Suite 1-F
Christiansburg, Virginia 24073-3175

Dear Mr. Wertz:

I received your letter of January 10, 2008, describing the concerns that registrars have with the VERIS voter registration software. I have asked the staff of the Joint Legislative Audit and Review Commission to look into your concerns and report back to me after they have had enough time to look into these matters.

Sincerely,

Lacey E. Putney
Chairman

LEP/bj

cc: Senator Thomas K. Norment, Jr.
Secretary Nancy Rodriques
Philip A. Leone

Appendix B

Agency Responses

As a part of the extensive evaluation process, State agencies and other entities involved in a JLARC assessment effort are given the opportunity to comment on an exposure draft of the report. Appropriate technical corrections resulting from comments provided by these entities have been made in this version of the report. This appendix includes written responses from

- State Board of Elections, and
- Voter Registrars Association of Virginia.

JUN - 2 2008

COMMONWEALTH of VIRGINIA
STATE BOARD OF ELECTIONS

June 2, 2008

Mr. Philip A. Leone, Director
Joint Legislative Audit and Review Commission
Suite 1100, General Assembly Building, Capital Square
Richmond, VA 23219

Dear Mr. Leone:

I want to express appreciation for the opportunity to review and comment on the *Review of Selected Issues in the Virginia Election and Registration Information System*. The JLARC team, led by Ashley Colvin, Project Leader, worked closely with the State Board of Elections' staff and all comments point toward this report being a well-organized study.

The implementation of the Help America Vote Act (HAVA) and the Virginia Election and Registration Information System (VERIS) signaled a paradigm shift in election administration. While Virginia was at the forefront of election administration for many years, HAVA required a substantial change in state and local practices. Practices which were accepted at the local level were no longer prudent at the state and national levels.

We support JLARC's view of addressing standards as a best practice and look forward with earnest to resolving the issue of who may set statewide address standards. While certain processes can be streamlined or made more user friendly, the use of address standards are an integral component of modern data management systems. The State Board supports JLARC's recommendation of an alias street file. Early estimates indicate that this proposal will cost roughly $150,000 to $200,000 to design and implement. The agency intends to place it in their IT strategic plan and request general fund resources during the next review process.

The State Board agrees with JLARC that the Social Security Number (SSN) is an important personal identifier and highly values our exemption under the 1974 Privacy Act to continue using it; however, the State Board is hesitant to force unique SSNs. Duplicate SSNs occur, however rarely, for a variety of reasons as stated by JLARC.

VERIS currently has 1,201 records with duplicate SSNs (roughly 0.03% of the 4.6 million registered voters) whereas the previous system had 3,300 duplicate registrations in 2003. The State Board does not wish to possibly disenfranchise voters or deny a registration due to a clerical error in another locality. Instead of forcing unique SSNs, the State Board favors verifying SSNs. Technology has progressed along with the trend toward more scrutiny of voter registration rolls. VERIS already cross checks voter information against multiple state and federal databases and verifies the SSN for *some*

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http://www.sbe.virginia.gov

voters. In some ways, the previous voter registration system was more susceptible to voter fraud because it allowed registrars to enter fake SSNs as a means to force unique SSNs. As opposed to forcing unique SSNs, verifying SSNs would help eliminate one of the most common reasons for duplicate SSNs: clerical errors. Early estimates indicate that this proposal will cost up to $200,000. The agency intends to request general fund resources and place this proposal in their IT strategic plan when our IT department is no longer understaffed. In the meantime, numerous tools exist in VERIS for registrars to find, correct and prevent any possible duplicate registrations.

Indeed there are areas in which the system can be made more efficient and streamlined. During the first year of use, much effort went into making the system effective and capable of performing its core functions. The State Board is reluctant to automate too many decisions of the system because it has been the experience of the State Board of Elections that the General Registrars resist any changes or suggested changes to voter data in their locality. In support of this, as JLARC has stated in their report, it is the statutory responsibility of registrars to "maintain the official registration records for his county or city" (§ 24.2-114). The State Board is willing and desires to streamline processes wherever possible but is hesitant to make any changes which could result in a computerized choice contrary to a registrar's decision. Instead of automating decisions, the State Board supports the inclusion of additional audible and visual clues in the system to make it more user friendly. Additionally, the agency supports increased training of end users with a focus on the large number of temporary workers hired for the Presidential election.

The State Board of Elections will work with all involved stakeholders to explore any actions or alternatives that the Governor or General Assembly determine are appropriate responses to these recommendations. I look forward to attending the Commission's meeting and to be available to answer any questions or concerns regarding these comments and recommendations.

Sincerely,

Nancy Rodrigues

Nancy Rodrigues
Secretary

lc. The Honorable Viola Baskerville, Secretary of Administration
Richard Zorn, Deputy Secretary of Administration
The Honorable Jean Cunningham, Chair of Virginia State Board of Elections
Harold Pyon, Vice Chair of Virginia State Board of Elections

MAY 15 2008

VOTER REGISTRARS ASSOCIATION OF VIRGINIA
OFFICE OF THE PRESIDENT
E. RANDALL WERTZ
COUNTY OF MONTGOMERY GENERAL REGISTRAR
755 ROANOKE STREET, SUITE 1F
CHRISTIANSBURG, VIRGINIA 24073-3175

May 14, 2008

Phillip A. Leone, Director
Joint Legislative Audit and Review Commission
Suite 1100, General Assembly Building
Richmond, VA 23219

Dear Mr. Leone:

Thank you for providing a copy of the exposure draft for the special report, *Review of Selected Issues in the Virginia Election Registration and Information System.* I want to express appreciation for the opportunity to review and comment on the study. The JLARC team, led by Ashley Colvin, Principal Legislative Analyst, worked closely with the Voter Registrars Association of Virginia (VRAV) General Registrars offices throughout this study and all findings and recommendations prove this account to be well organized and very informative.

The report addresses a number of key issues involving our Association's concerns in the Virginia Election Registration and Information System (VERIS), verification of the street address by the United States Postal Service (USPS), VERIS failure to recognize the uniqueness of Social Security number and security modification for field-level data entry.

The report clearly expresses the need for address standardization, even beyond the election community. The report also acknowledges the accuracy problems with USPS and the "tension" between the SBE authority to standardize on USPS and the local government authority to name streets as they choose. Perhaps another consideration would be to have the state GIS agency create and maintain a Virginia address standardization database which state agencies could use as a standard and with which localities could work to ensure accuracy.

I also agree with your proposal over our second concern about the uniqueness of the social security number. State Board of Elections should modify VERIS to enforce zero tolerance of duplicates in social security number. I respectfully request you revisit your scenario provided by the SBE on page 42 of the exposure daft. This example suggests that a local Electoral Board would request documents from another locality for signature comparison during the provisional ballot determination to ascertain whether a voter has actually moved their residence. The State Board ought to know this simply does

not occur and can be avoided through comprehensive auditing by General Registrars in transferring voter records.

The JLARC study for VRAV will be a terrific guide mapping the approach the State Board of Elections and General Registrars will have to pursue to ensue the citizens of the Commonwealth of Virginia receive a fair, accurate and professional service in Voter Registration and Elections. Please congratulate the staff of the Commission on the work that has been researched and provided this year.

Sincerely,

E. Randall Wertz
President

cc: Executive Committee

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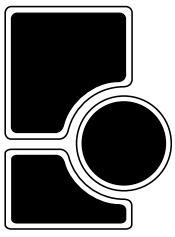

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