

State of Wisconsin \ Government Accountability Board

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MEMORANDUM

DATE: January 13, 2012

TO: Wisconsin Municipal Clerks
City of Milwaukee Election Commission
Wisconsin County Clerks
Milwaukee County Election Commission

FROM: Kevin J. Kennedy
Director and General Counsel
Government Accountability Board

Nathaniel E. Robinson
Elections Division Administrator
Government Accountability Board

SUBJECT: Redistricting Anomalies—Municipal and Ward Boundaries

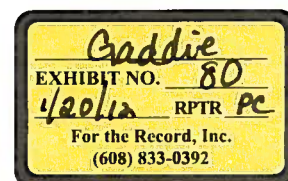
Introduction

It is critical to have the most accurate municipal and voting district boundary lines possible in SVRS, in order to assure voters are assigned to correct districts, avoid voter and election official confusion, and to have a manageable workflow for clerks during this redistricting process. Through the conversations we have had with local election officials, as well as state and local geographic information specialists, municipal and ward boundaries anomalies have been brought to our attention that directly impact the G.A.B. Redistricting Initiative. This Memorandum identifies these anomalies, provides some examples and a detailed analysis, and provides guidance to help reduce the consequential impact of the anomalies. If you discover that your jurisdiction is affected by these anomalies and you have not already contacted the G.A.B., please be sure to immediately raise it to the attention of Elections Supervisor, Ross Hein.

In preparation to implement the voting districts established after the 2010 Federal Decennial Census in SVRS for the December 1, 2012 release, some geographic information specialists and clerks had contacted the G.A.B. with questions regarding municipal and ward boundaries anomalies resulting from differences between Census data and actual municipal and ward boundaries. On November 18, 2011 and in light of these known anomalies, the G.A.B. provided all clerks with "Redistricting Update #5: Municipal and Ward Boundaries." At that time, the G.A.B. advised you as follows:

Census Data Accuracy

Some geographic information specialists and clerks have contacted G.A.B. with questions regarding anomalies between census data and the actual municipal boundaries and geography. According to the Census Bureau, the Census geographic data is accurate to approximately 50 meters. 50 meters can be enough for a house to potentially appear in the wrong district, so to address this, G.A.B. is allowing



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counties to provide us with wards from their county GIS systems that have been adjusted to reflect actual physical municipal boundaries and geography.

Using County GIS Data

The data from the county GIS systems tends to be highly accurate, and in some cases at a survey level of accuracy. So far, approximately 15 counties have provided us with adjusted wards. For those counties, we will use the adjusted wards instead of the census-based wards we receive from WISE-LR. Using the adjusted wards also ensures that all other districts that are built upon those wards (aldermanic, county supervisory, State Assembly, State Senate, and Congressional) will also follow the correct municipal boundaries. We will continue to implement corrected wards as counties are able to provide them to us. If we get corrected wards from a county after December 1, we will work with the impacted clerks so you know if your boundary lines will be changing.

Correcting Exceptions

For counties that were not able to provide us with adjusted wards from their county GIS systems, clerks may see some discrepancies with municipal boundaries in SVRS on December 1 when the new districts become available. G.A.B. is creating a special exception report specifically to identify any registered voters who appear in the incorrect municipality after we implement the new district maps. Clerks will be given instructions and training on how to correct any registered voters who are inadvertently placed in the wrong municipality. Future guidance will also provide instructions as to any new voter registration issues that may arise.

Approximately 20 counties have now taken advantage of the G.A.B.'s direction and coordinated the loading of their more accurate municipal and ward boundaries from their county GIS systems into SVRS. This resulted in a dramatic reduction of exceptions that had to be corrected by the municipalities within those involved counties. This Memorandum provides a more detailed explanation of the anomalies and reaffirm G.A.B.'s direction from November 18, 2011 regarding the use of county GIS municipal and ward boundaries in SVRS to minimize exceptions requiring further action by clerks.

REDISTRICTING ANOMALIES: MUNICIPAL AND WARD BOUNDARIES

Background

Every ten years, as part of the decennial Census, the U.S. Census Bureau collects demographic and geographic information from across the country and compiles the data for use by states, counties, and municipalities to draw new district lines. The census data is broken down by census blocks, which provide the basic building block for electoral districts. Census blocks contain population and demographic information necessary to draw fair and balanced districts. The boundaries for the census blocks frequently follow administrative boundaries such as municipal and school boundaries, and physical geographic features such as roads and waterways. Census blocks are used in Wisconsin to build wards. Sec. 5.15(1)(b), Wis. Stats.; 2011 Act 39, Sec. 2. These wards are then combined to form aldermanic, county supervisory, State Assembly, State Senate, and Congressional districts. 2011 Act 39, Secs. 3, 9, 11, 13, 15, 23; 2011 Act 43, Sec. 6; 2011 Act 44, Sec. 2.

The geographic information that results from the census, including census blocks, roads and waterways, municipal and school district boundaries, and other geographic data sets maintained by Census are

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provided to states in the form of Topologically Integrated Geographic Encoding and Referencing (TIGER) map files. According to the US Census website (www.census.gov), the boundaries shown in the TIGER map files are for Census Bureau statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or entitlement.

In Wisconsin, the Census TIGER map files and demographic information are loaded into a tool called WISE-LR, which is administered by the Legislative Technology Services Bureau (LTSB). WISE-LR is then used by the Wisconsin State Legislature, as well as counties and municipalities, to create new districts.

Accuracy of TIGER and WISE-LR Maps

After the 2000 Census redistricting effort, there was widespread complaints that the TIGER data from the 2000 census was inaccurate in both geography and administrative boundaries. Specifically, when the TIGER data was overlaid with actual municipal boundaries, road lines, and bodies of water, the TIGER data placed those features in the wrong place. This caused exceptions, such as voters who appeared on the legislative maps to be in one district, but actually live in a different district. This also became apparent during the 2011 recall elections where addresses that were challenged using the legislative maps were then overturned by G.A.B. based on the more accurate information in Statewide Voter Registration System (SVRS).

From information gathered from localities thus far related to the 2010 redistricting, there appears to be consensus that the TIGER data from the 2010 census was more accurate in terms of geography (roads, waterways) than it was in 2000. However, it still contains substantial inaccuracies with administrative boundaries, specifically municipal boundaries and school district boundaries. Municipal boundary inaccuracies are usually due to either projection issues (the correct boundaries appearing in the wrong place), or annexations that were not included in the TIGER 2010 data. According to the 2010 Census TIGER/Line® Shapefiles Technical Documentation, the positional accuracy of the TIGER 2010 data meets a standard of approximately +/- 50 meters (+/- 167 feet). This appears to have been achieved in some cases, but there are other cases where the data is off by more than 50 meters. Even if lines are within 50 meters, that margin of error allows for multiple houses to be placed in the wrong district all along the boundary line. This becomes problematic particularly for municipal boundaries, because many voters can be affected if the Census municipal boundary is 50 meters or more away from its actual location.

The LTSB loaded the TIGER maps into WISE-LR, which was then used by the Wisconsin State Legislature, as well as counties and municipalities, to create new district and ward maps. In addition to the municipal and school district boundary inaccuracies inherited from the TIGER maps, the district and ward maps created in WISE-LR are also subject to inaccuracies due to projection issues or the positional accuracy limitations of the TIGER and WISE-LR maps. The G.A.B. Redistricting Initiative has implemented a SVRS update that includes the WISE-LR GIS shape files (maps,) but also specific geo-codes for each registered elector. The geo-code of a registered elector determines in which ward and districts the elector is assigned. Use of geo-codes results in a very high location accuracy for each registered elector; however, this high location accuracy further enhances the identification of the positional accuracy limitations of the TIGER and WISE-LR maps. This becomes problematic for similar reasons as the problems caused by inaccurate municipal boundaries because many voters can be affected if the district or ward maps are 50 meters or more away from its actual location. For most of the state, SVRS contains the GIS shape files of the district and ward maps exclusively from the WISE-LR maps. For about 1/3 of the state, SVRS contains GIS shape files from County or municipal GIS personnel, which are more precise than the WISE-LR maps and can also be loaded into SVRS.

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Reports and Analyses of Municipal and Ward Boundaries Anomalies

Several counties maintain electoral districts such as wards and county supervisory districts in their local Geographic Information Systems (GIS) systems. The local GIS systems tend to be highly accurate, based on survey data for the parcels of land in their county. Many of these counties took the census block based wards and county supervisory districts, and loaded them into their local GIS systems. They then corrected the ward lines to reflect the actual physical municipal boundaries, local geography, and parcel lines. These corrected districts no longer strictly follow the census blocks from the TIGER and WISE-LR maps, but instead follow the more accurate geography and administrative boundaries that actually exist for that county. This is similar to what local clerks have done via their address ranges in SVRS in the past. The address ranges in SVRS reflect the actual municipal boundaries, and are not based strictly on census blocks from the TIGER and WISE-LR maps.

Based on initial analysis, Rock County (which at the time relied exclusively on GIS shape files of the district and ward maps from WISE-LR) reported identifying approximately 200 addresses that were placed in the wrong municipality based on the TIGER 2010 data. Rock County provided a specific example of some corrections to municipal boundaries that directly conflict with census blocks and the specific statutory language of Acts 43 and 44, affecting State Assembly, State Senate, and Congressional districts. In this case, the municipal boundary between the Town of Harmony and the City of Janesville was approximately 0.1 mile off (528 feet) in the census data. This caused census blocks containing 9 houses that are in the City of Janesville to be incorrectly placed in the Town of Harmony. In addition, the same error caused census blocks containing one house or farm in the Town of Harmony to be incorrectly placed in the City of Janesville. Obviously, this situation also creates the likelihood of a shift in the population for the City of Janesville and Town of Harmony under Acts 43 and 44, which specifically attributed certain census blocks to incorrect municipalities. Please see the attached map for a visual representation of the discrepancy.

This situation is repeated in many other counties, if not all counties. In fact, the LTSB conducted a limited analysis of 19 counties comparing the circumference of municipal boundaries from the WISE-LR maps to the circumference of municipal boundaries in county shape file maps as they relate to legislative and congressional districts and concluded that 4,204 voters were affected by incorrect municipal boundaries, 1,071 of which likely change Assembly districts and 66 of which likely change Congressional districts.

The G.A.B. conducted a more comprehensive analysis of 16 counties to include district lines that bisect a municipality and also district boundaries for voting districts including Senate districts and those below Assembly districts. Based on initial analysis by the G.A.B. of Dane County, a comparison of the positional accuracy of the TIGER and WISE-LR maps with County GIS shape files for district and ward maps produced the following results:

1. 1,266 registered voters were placed in the wrong municipality in the WISE-LR maps.
2. 1,601 registered voters were placed in the wrong Assembly district in the WISE-LR maps.
3. 902 registered voters were placed in the wrong Senate district in the WISE-LR maps.
4. 12 registered voters were placed in the wrong Congressional district in the WISE-LR maps.
5. 6,737 registered voters were placed in the wrong wards in the WISE-LR maps. (This figure excludes any anomalies for the City of Fitchburg Wards 6-12 and Village of Black Earth Wards 1-2, which were not part of the analysis.)

Status of Municipal and Ward Boundaries Anomalies

The G.A.B. analysis, and as supported by the limited LTSB analysis, has identified specific voters that were placed in incorrect municipalities or voting districts as a result of the positional accuracy

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limitations of the TIGER and WISE-LR maps. The G.A.B. has worked closely with County GIS personnel from approximately 20 counties to receive their more accurate County GIS shape files to load into SVRS, which will correct a large portion of these anomalies. However, this currently addresses the issue for approximately 1/3 of the State, leaving 2/3 of the State in exclusive reliance upon the less accurate TIGER and WISE-LR maps for districts and wards. For that 2/3 of the State that relies exclusively on the less accurate TIGER and WISE-LR maps and to ensure that voters appear on the proper poll books, the affected clerks will have to manually assign voting district combinations to any registered voter's address that appears on the municipal or ward boundaries exception reports. This manual correction does not impact the district and ward lines, which means that it will be difficult to assign an applicant wishing to register with the Clerk or at the polls to the proper voting district combination. Near these affected district and ward boundaries, if the applicant were to enter his or her address in VPA, it is likely that the applicant's voting districts and polling location would be misidentified and result in additional confusion. While the Clerks will have a SVRS boundary management tool in the future which can correct all affected residences rather than just those with registered voters, such a tool will not be available until after the Spring Election. The G.A.B. continues to work toward a solution to help resolve this issue for elections occurring through the Spring Election in April 2012.

Districts Created by Acts 43 and 44 and Conflict with Act 39

Because Acts 43 and 44 were passed creating the new State Senate, Assembly, and Congressional districts before municipalities had finished creating their local wards, these districts were built using census blocks. The text of these Acts, now in statute, specifies the district boundaries according to individual census blocks. For the City of Janesville/Town of Harmony example, the statute clearly states that the given Assembly district includes the Town of Harmony census blocks 3004 and 3059. This is problematic for practical purposes because those census blocks do not reflect the correct municipal boundaries and the results of implementing these incorrect boundaries in SVRS would place voters on the wrong poll books for each election. In fact, the practical impacts of municipal and ward boundary anomalies have already been experienced by Rock County, where the County Clerk has reported publicly on the Clerk List-serve that she relied upon the WISE-LR district and ward maps in SVRS to her detriment. The Rock County Clerk initially struck signatures on two separate sets of nomination papers because SVRS identified those signers as being outside the relevant County Supervisory district. The Rock County Clerk actually disqualified two County Supervisor candidates as a result because she initially thought the candidates did not have enough valid signatures, but the G.A.B. believes that she later relied upon the County GIS shape files to rehabilitate the sufficient stricken signatures and grant ballot access to the two affected candidates.

After the G.A.B. and/or local clerks make these corrections, the districts in SVRS may not match Acts 43 and 44 precisely. In addition, these corrections also require splitting census blocks, which may conflict with Act 39's prohibition on splitting census blocks. Secs. 59.10(2)(a), 59.10(3)(b)1, 62.08(1), Wis. Stats.; 2011 Act 29, Secs. 13, 15, 23.

G.A.B. Redistricting Initiative in SVRS

To update SVRS with the new districts resulting from 2011 Acts 39, 43, and 44, the G.A.B. technical team has loaded the new census based wards, county supervisory districts, aldermanic districts (in some cases), State Assembly districts, State Senate districts, Congressional districts, and municipal boundaries from WISE-LR, into SVRS.

Due to the inaccuracies of the TIGER and WISE-LR data, some municipal and voting district boundary lines will appear in the wrong place in SVRS, which will cause some registered voters to be assigned to the wrong voting districts. This will ultimately result in some voters appearing on the wrong poll lists

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and potentially receiving the wrong ballots. Clerks have been given exception reports that identify voters who may have been put in the wrong districts and the clerks were asked to correct them. Therefore, the more accurate the municipal and voting district boundary lines are in SVRS, the less manual work clerks need to perform and the more likely it is that voters appear on the correct poll list and receive the correct ballot. In addition, it is more likely ensure the accuracy of VPA for applicants and the public. Finally, it is more likely that Clerks and Election Inspectors will correctly identify voting districts for applicants.

Phase 1 of the SVRS updates that are part of the G.A.B. Redistricting Initiative were available to clerks on December 1st. In Phase 1, clerks were able to fix addresses that were put in the wrong place on the map. Phase 2 of the SVRS updates that are part of the G.A.B. Redistricting Initiative were available to clerks on January 9, 2012. Clerks are now able to override the voting district assignment, if it is not assigned correctly (due to municipal or voting district boundary line issues). Clerks will not be able to move the boundary lines themselves. If a municipal or voting district boundary line is in the wrong place in SVRS, a clerk should work with the G.A.B. technical staff to determine whether there is a feasible way to correct the boundary. The most efficient way to correct this municipal and ward boundaries exceptions is with local GIS shape files from County or Municipal GIS personnel. The ability to correct municipal and voting district boundary lines in SVRS will not be available to clerks after the Spring 2012 elections.

As a result of these issues, the G.A.B. implemented an action plan on November 10, 2011 to address the educational, administrative, and practical problems for the Spring 2012 elections, particularly if clerks have not completed correcting their exceptions prior to printing poll books. For example, many voters will show up to vote, only to find that they are not on the poll list. When attempting to register voters, an election official may be confused and register them in the wrong location or send them to another incorrect location to register. If a voter is not on the poll list (because they appeared on the wrong poll list) they may be asked to re-register at the polls. Many polling places use street range lists printed from SVRS to determine to which polling place a voter should go. If the municipal or voting district boundary lines are inaccurate in SVRS, election workers will not have accurate reports at the polling place and could send voters from polling place to polling place. Finally, inaccuracies and confusion regarding correct voting locations are likely to lead to challenges to voter qualifications and disputes in any recount process.

Use of Corrected Wards in SVRS

Approximately 20 counties thus far have asked that we use their corrected municipal and/or ward boundaries in SVRS, rather than the WISE-LR boundaries to ensure that the lines are placed accurately and thus voters show up on the correct poll lists. Because wards are the building blocks for all the other representational districts, if we use the corrected wards, this also corrects the municipal boundaries, county supervisor, aldermanic, State Senate, State Assembly, and Congressional districts. It is not possible in all cases to maintain census block-based legislative districts simultaneously with corrected wards, as the voting district lines would conflict with each other.

Acts 43 and 44 define the State Senate, State Assembly, and Congressional districts at the census block level. The corrected municipal and ward boundaries deviate from the census blocks from WISE-LR, therefore using the corrected districts will result in less than strict compliance with the Acts. However, strict compliance with the Acts is impossible in practice. Using geo-coded addresses for registered electors (or applicants) has a significantly higher rate of positional accuracy than even the previous address-range-based SVRS voting districts. Using the more accurate local GIS shape files for districts and wards remedies the positional inaccuracies of WISE-LR and helps to ensure that each voter will receive the correct ballot. For example, residents of the City of Janesville cannot be given a Town of Harmony ballot simply because strict compliance with Acts 43 and 44, which were based on Census

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data, define the districts using inaccurate municipal boundaries. At least one representative of the Legislative Reference Bureau has agreed that the specific intent of the Legislature cannot be determined for the municipal boundary exceptions, such as the City of Janesville/Town of Harmony example.

G.A.B. Action Plan

It is critical to have the most accurate municipal and voting district boundary lines possible in SVRS, in order to assure voters are assigned to correct districts, avoid voter and election official confusion, and to have a manageable workflow for clerks. To reach that goal, G.A.B.'s November 10, 2011 action plan directed the technical team to use corrected districts from county GIS shape files wherever it was possible to do so. A more aggressive approach has now been implemented and the technical team will be obtaining additional county GIS shape files for voting district boundary lines. Regardless of when these corrections occur (pre-Spring 2012 election or after), it is likely that the final districts will not strictly match those prescribed by Acts 43 and 44 because census blocks were attributed to incorrect municipalities or voting districts.

For the municipal and ward boundaries anomalies, the G.A.B. has adopted the following action plan:

1. The G.A.B. will aggressively encourage county clerks to contact their GIS personnel to compile corrected ward boundary shape files to load in SVRS. Staff will work with county GIS personnel, or municipal GIS personnel if necessary, that are willing to provide corrected GIS shape files for ward boundaries, then load them in SVRS as soon as practical.
2. As part of the deployment of the G.A.B. Redistricting Initiative, Phase 2 SVRS updates, the G.A.B. will continue to work in a cooperative partnership with local clerks to review their boundary lines. Clerks should report any boundary line issues to the G.A.B. so they can be corrected by the technical team. Clerks should use the incident tracking website that has been in use since September 21, 2011:
 - A. Click on this link: <http://wisapps.wi.gov/sites/GAB/incident>
 - B. Click on "Create a Service Request" on the left-hand side of the page.
 - C. Enter your information into the form. The Service Request Title should be filled in with a general description of what you are entering, such as "redistricting municipal boundary issue". The Details should be filled in with your specific question or any other details you would like to provide. Fill in the remaining fields with your contact information.

Attachment: Rock County Municipal Boundary Exception Map (Janesville/Harmony)

cc: Shane W. Falk
Staff Counsel
Government Accountability Board

