Analysis of WISE-LR and Adjusted GAB datasets

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The goal of this analysis is find the approximate number of active registered voters who are located in the difference between the 2011 Wisconsin Shape Editor for Local Redistricting (WISE-LR) data and the adjusted county data that was submitted to the Government Accountability Board (GAB). We will perform this analysis by comparing the 2011 WISE-LR municipal layer to the adjusted municipal layers submitted to the GAB. Once the difference in the two municipal layers is found we will then select registered voters who are located in the affected areas.

This analysis will result in the following.

1. A GIS file of difference in the WISE-LR and adjusted GAB municipal lines.
2. A GIS file of difference that intersects or is adjacent to an Act 43 or Act 44 line.
3. The total number of all active registered voters affected by the total difference GIS file.
4. The total number of all active registered voters affected by the difference that intersects or is adjacent to an Act 43 or Act 44 line.

Analysis Steps

WISE-LR Data Processing

1. Create a WISE-LR municipal layer from the most current WISE-LR ward layer.
    1. Extract the 19 counties from this layer to compare to the adjusted county data given to GAB.

GAB Dataset processing

1. Create a MCD layer from the data GAB gave us on disk.
    a) 12 counties submitted a municipal layer
    b) 7 Counties submitted a ward layer only
    c) Dissolve the 7 ward only counties into municipalities.
    d) Merge the 12 county and 7 county municipal layers.
    e) Fix the municipal name field to match the WISE-LR municipal name field.
2. Voter Data
    a) Geocode the most current Voter database received from GAB.
        a. Approximately 3.9 million records were standardized and geocoded.
        b. Create a voter feature dataset and project it to Wisconsin Transverse Mercator (meter).

Perform Spatial Intersection

A spatial intersection will combine the geometry and attributes of both the WISE-LR and the GAB municipal files. It is then possible to select locations in the files that have a different municipal attribute.

1) Perform the spatial intersection with the WISE-LR and GAB municipal files.
2) Perform an attribute selection of area with different municipal names.
    a. This will result in a file that contains all the geography that has a different municipal coding in the WISE-LR and GAB files.
3) Explode the difference file into multipart polygons. This will allow us to look at contiguous difference areas.
4) Find all geography in the difference file that is adjacent to or intersects a 2011 Wisconsin Act 43 or 44 line.
    a. The selection tolerance of 15 feet was used to offset error associated with GIS files.

Voter Selection

Approximately 3.9 million voters were used in this analysis. These voters were selected and totaled for each of the following cases. These totals are based on 19 counties of WISE-LR and GAB datasets.

1) Voters that are affected by the differences between GAB and WISE-LR data:
    a. 4,204
2) Voters that are affected by the differences between GAB and WISE-LR data, AND are in a contiguous difference zone where a portion of the area is within 15 feet of an Act 43 Assembly district boundary
    a. 1,071
3) Voters that are affected by the differences between GAB and WISE-LR data, AND are in a contiguous difference zone where a portion of the area is within 15 feet of an Act 44 Congressional district boundary
    a. 66
4) Voters that are affected by the differences between GAB and WISE-LR data, AND are in a contiguous difference zone where a portion of the area is within 15 feet of BOTH an Act 43 Assembly district and Act 44 Congressional district boundary
    a. 43