VEST GA 2016

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State: GA

Organization: VEST

Date Updated: Report: 02/26/21, File: 12/28/20

1. Is all raw data available?

No, the Fulton County 2016 precinct boundaries are not publicly accessible, but were accessed through a conversation with a county employee.

1. Accessible files:
    a. File: Chattooga County USGS Topographical Map #1
        i. Online: USGS Link (note: no source for this on VEST documentation)
        ii. Accessed: 02/10/21
        iii. Note: To access this file, scroll down under "Data" and select "Topo Map Data and Topo Stylesheet" and then change the file format to "Shapefile". Next, next to "Area of Interest", click "Selectable Polygon" and then "County or Equivalent" and then either type in on the map or navigate to "Chattooga County". Then, under "Area of Interest", click the blue "Search Products". For this file, download: "USGS Topo Map Vector Data (Vector) 22375 Jamestown, Alabama 20180619 for 7.5 x 7.5 minute Shapefile"
    b. File: Chattooga County USGS Topographical Map #2
        i. Online: USGS Link (note: no source for this on VEST documentation)
        ii. Accessed: 02/10/21
        iii. Note: Same as above, but download "USGS Topo Map Vector Data (Vector) 12652 Dougherty Gap, Georgia 20200914 for 7.5 x 7.5 minute FileGDB 10.1"
    c. File: US Congressional Districts
        i. Online: Census Link (note: no source for this on VEST documentation)
        ii. Accessed: 02/10/21
        iii. Note: Georgia's Congressional Districts haven't changed since 2013, so this file, from 2018 rather than 2016, works.

      d. File: MEDSL precinct-level senate election results
- i. Online: Harvard Dataverse Link (see note section below for more info)
- ii. Accessed: 02/09/21
- iii. Note: Multiple download format options, we chose ".tab"

      e. File: MEDSL precinct-level state election results
- i. Online: Harvard Dataverse Link (see note section below for more info)
- ii. Accessed: 02/09/21
- iii. Note: Multiple download format options, we chose ".tab"

      f. File: MEDSL precinct-level presidential election results
- i. Online: Harvard Dataverse Link (see note section below for more info)
- ii. Accessed: 02/08/21
- iii. Note: Multiple download format options, we chose ".tab"

      g. File: Georgia precinct shapefile
- i. Online: Georgia Legislative and Congressional Reapportionment Office (same link)
- ii. Accessed: 02/08/21
- iii. Note: On the website, click on "Precincts" and then "Statewide Voting Precincts (2016)"

      h. File: VEST GA 16 data file
- i. Online: Harvard Dataverse Link
- ii. Accessed: 02/08/21

      i. File: VEST GA 16 documentation file
- i. Online: Harvard Dataverse Link
- ii. Accessed: 02/08/21

2. Inaccessible files:
   a. Fulton County 2016 precinct shapefile was not available publicly, but I was able to access through a 2/19 email conversation with Hyun Hee Kwak, a Geospatial Program Project Manager for Fulton County.
   b. Note: The Fulton County GIS site does work, although the precincts available are the current ones (2020) and not from 2016.

3. Note:
   a. VEST lists the GA secretary of state's office as the source for its election results. The GA SOS website does not have a place where all the precinct-level election results can be downloaded at once (that must be done county-by-county) and there are downloading issues when attempting county-by-county downloads. To resolve this, we turned to MEDSL's precinct-level election results, which we confirmed had the same total number of votes for each race as VEST's file.

2. Processing steps available?

No, not all of the processing steps are available.

    4. Description of processing steps:

        a. VEST lists 4 main processing steps on their documentation (accessed 02/08). These are:

            i. Fulton County uses shapefiles and maps sourced from the county GIS program. Precincts CH01/CH04B, CP07A/CP07D, SS29A/SS29B, UC031/UC035 were merged to match how voters were registered in the 2016 voter file.

            ii. The following precincts were split by congressional district to match the 2016 election results: Avondale High, Glennwood, Wadsworth in Dekalb County; Cates D in Gwinnett County.

            iii. Cloudland and Teloga precincts in Chattooga County were split along the ridgeline that marks the boundary between them with the USGS Topographic Contour shapefile.

            iv. Three of the four VTDs in Chattahoochee County are comprised of Fort Benning. However, the county only has one polling location for all voters, including residents of Fort Benning that vote within the county. The four Chattahoochee County VTDs have therefore been merged in the shapefile.

            v. Note: For the above steps, VEST did not specify what the exact name of the merged or split precincts was or should be, this had to be determined by carefully considering the precinct names in the shapefile and VEST's final file.

        b. In terms of completing these steps:

            i. We completed #1, #2 and #4

            ii. For #3, we were able to confirm that this was how the precincts were split, but did not attempt to split the precincts like this ourselves, because it had been digitized and did not exactly follow the ridgeline. We combined the precincts in the VEST file to check the election results, which matched.

    5. Information not in their processing steps:

        a. It is clear from looking at the precinct-level and election results and the precinct shapefile that there was not one naming convention and that sometimes the precinct name was used to create a unique ID and other times the precinct ID was used. While it was possible to recreate when and where VEST did this, VEST did not supply any explanation as to when they made one choice over another.

        b. Lastly, there appear to be some very minor shapefile differences in a handful of precincts. While all of these look like they are minor adjustments and not significantly affecting things, VEST did not mention any small changes to precincts. As a percentage of the state of GA, the area of precinct shapefile differences is .0011% (roughly .65 square miles) and as a percentage of precincts where there are differences, the percentage is .06%

c. VEST also did not explicitly state that they appear to have merged election results for some precincts and why this was the case, although it was clear when they did so, by looking at their final file and the precinct names and IDs.

3. Able to replicate joining election data and shapefiles?

Yes
- After following VEST's steps, making a large number of precinct name changes (mainly basic string manipulation to fix the precinct name vs. ID unique identifier issue), merging some election results that were reported at sections of precincts, and merging we were able to match 100% of the election data and shapefile precincts.These steps also included the work done to complete VEST's processing step #3 above, where I aggregated election results to undo the ridgeline split that had be digitized.

4. Able to replicate joining demographic data to block-level shapefiles?

N/A

5. Able to replicate joining boundary data?

N/A

6. Successfully validated election results?

Yes
- To start, the VEST file had 2697 precincts. After combining two precincts to check the totals in the precinct that was split on the ridgeline (see VEST step #3 above). The election results matched perfectly with all 2696 precincts having the exact same totals and line-by-line results.
- Topologically, 2477 of the precincts matched up exactly, while 219 of them had minor differences (using geom_almost_equals with decimal = 0). These all appeared to be very minor differences as the total area of differences across the state was ~.65 square miles (calculated by dividing the area of the precinct differences by the area of the whole state and then multiplying by the area of Georgia).