VEST AL 2017

State: Alabama
Organization: Voting and Election Science Team (VEST)
Summary of Races included: U.S. Senate [Special]
Date File Updated: 05/28/2021
Date Report Updated: 09/16/2021
RDH Validation Code (Github): https://github.com/nonpartisan-redistricting-datahub/pdv-al

RDH Criteria	Explanation

Is all raw data available?
 	
No
	<u>**Accessible files:**</u>
	● VEST AL 2017 file
	    ○ Accessed: 6/8/2021
	    ○ https://dataverse.harvard.edu/file.xhtml?fileId=4751071&datasetVersionId=247478
	● VEST documentation file, 2017
	    ○ Accessed: 6/8/2021
	    ○ https://dataverse.harvard.edu/file.xhtml?fileId=4751070&version=5.1
	● Election Results, SOS 2017
	    ○ Accessed: 6/8/2021
	    ○ https://www.sos.alabama.gov/alabama-votes/voter/election-data
	    ○ Note:selected '2017 Special General Election Results - Precinct Level', file contains a separate xls file for every county
	● TIGER/Line VTD File, 2020
	    ○ Accessed: 6/3/2021
	    ○ https://www2.census.gov/geo/tiger/TIGER2020PL/STATE/01_ALABAMA/01/
	    ○ Note:VEST refers to their precinct shapefile source as 'the U.S. Census Bureau's 2020 Redistricting Data Program final release'. We believe this is the 2020 TIGER/Line VTD file.
	● Baldwin County Shapefile
	    ○ Accessed: 6/3/2021
	    ○ https://baldwincountyal.gov/government/probate-office/elections/district-maps-voting-precincts

- ○ Note:they have a GIS department but only PDF map available on the website at that link.
- Calhoun County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ https://www.calhouncounty.org/forms/Commission_Districts_Voting.pdf
  - ○ Note:only finding a PDF map on their website.
- Limestone County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ https://www.votelimestone.com/related-links/limestone-county-beat-map-with-polling-locations/
  - ○ Note:only finding a PDF map on their website.
- Madison County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ https://www.madisoncountyvotes.com/voter-resources/polling-locations/
  - ○ Note:their interactive precinct map only shows the polling locations, but not precinct boundaries.
- Mobile County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ https://www.mobilecountyal.gov/government/departments/administration/gis-mapping/election-maps/
  - ○ Note:only finding a PDF map on their website. You can request GIS maps by mail request form.
- Morgan County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ https://www.morgancountyelections.com/election-information/precinct-maps/
  - ○ Note:there is an interactive arcgis precinct map, but there is no download option. Emailed Kate Terry, the Chief Clerk at kterry@morgancounty-al.gov.
- St. Clair County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ https://stclair.maps.arcgis.com/apps/webappviewer/index.html?id=63f82a53398c49d38bf0e036e163e08a
  - ○ Note:there is an interactive argis precinct map, but there is no download option. Emailed gissupport@stclairco.com
- Shelby County Shapefile
  - ○ Accessed: 6/4/2021
  - ○ https://maps.shelbyal.com/html5/

- ○ Note:there is an interactive arcgis precinct map, but there is no download option. Called the county IT Services (205-670-6981), and told to call back and ask for Victoria at 1pm (6/4/2021).
- Talladega County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ https://www.talladegacountyal.org/departments/voter_registration/county_district_maps.php
  - ○ Note:only finding a PDF map from 2013. Unlikely that they have a shapefile because the map looks like a scan of a physical copy.
- County Canvass Report, 2017
  - ○ Accessed: 8/27/2021
  - ○ https://www.sos.alabama.gov/sites/default/files/voter-pdfs/2017%20Official%20General%20Election%20Results%20with%20Write-In%20Appendix%20-%202017-12-28.pdf

Inaccessible files:
- Blount County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ https://blountcountyal.gov/departments-services/elections-and-voting
  - ○ Note:not finding any precinct maps on their website.
- Cullman County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ Note:not finding a precinct map on their county website, there is a jpg map in the Cullman Times from 2014 at this link: https://www.cullmantimes.com/cullman-county-voting-precincts-map/image_0269f200-6231-11e4-9024-af8efe886238.html
- DeKalb County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ Note:not finding a precinct map on their website.
- Franklin County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ Note:not finding any precinct maps on their website.
- Jefferson County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ https://jeffcoprobatecourt.com/elections/voting-precinct-changes/
  - ○ Note:not finding a precinct map on their website, but they do list precinct changes over time.
- Lee County Shapefile
  - ○ Accessed: 6/3/2021
  - ○ Note:not finding a precinct map on their website.

- Marengo County Shapefile
  - Accessed: 6/3/2021
  - Note:not finding a precinct map on their website.
- Marshall County Shapefile
  - Accessed: 6/3/2021
  - Note:only finding the list of polling locations, but no precinct map on their website.
- Tuscaloosa County Shapefile
  - Accessed: 6/3/2021
  - Note:they have a list of polling locations, but not finding a precinct map on their website.
- Dallas, Chilton, Covington, Lauderdale, Lawrence, Marion, Monroe, and Tuscaloosa county canvass reports (precinct-level data)
  - Note: While we were able to find a state canvass report, we could not locate canvass reports for these counties that had data at the precinct level.

Note: VEST mentions, but does not provide links to a handful of local files that it uses as part of its shapefile manipulations. Given the absence of documentation explaining how to find or use the files, we did not attempt to locate these.

| Processing steps available?

Yes | **Description of processing steps:**
- Overview of VEST's documentation:
  - File Locations:
    - Election results from the Alabama Secretary of State Elections Division (https://www.sos.alabama.gov/alabama-votes/voter/election-data).
    - Precinct shapefiles primarily from the U.S. Census Bureau's 2020 Redistricting Data Program final release, except the following counties use shapefiles sourced from the respective county governments instead: Baldwin, Blount, Calhoun, Cullman, DeKalb, Franklin, Jefferson, Lee, Limestone, Madison, Marengo, Marshall, Mobile, Morgan, St. Clair, Shelby, Talladega, Tuscaloosa.
  - Election Results Processing:
    - Incorrect or incomplete data was replaced using the county canvass reports for the following counties: Dallas, Chilton, Covington, Lauderdale, Lawrence, Marion, Monroe, Tuscaloosa. |

- - ■ Absentee and provisional ballots were reported countywide in all counties. These were distributed by candidate to precincts based on their share of the precinct-level reported vote.
      - ■ The Clay County precinct results include total write in votes by precinct whereas the certified state canvass only includes official write in totals for Clay County. For DeKalb County the certified state canvass omits the provisional votes. For Monroe County the certified state canvass appears to have a typographic error that adds 10 votes for Jones (D).
    - ○ Shapefile Processing:
      - ■ Precinct boundaries were adjusted where appropriate to align with county maps, municipal boundaries, or commission districts. Precinct boundaries throughout the state were further reviewed with the voter registration file in effect for the November 2017 general election. Voting districts in nearly all counties were edited accordingly to align with reporting units in the 2017 election results. In many counties the resulting boundaries bear little resemblance to the 2020 Census VTDs. As these boundary revisions were so extensive only splits and merges are specified below by precinct.
      - ■ Many precincts have outdated names in the Census VTDs. The Census VTDs also have at least some precinct names in wrong locations for the following counties: Clarke, Clay, Cleburne, Conecuh, Dallas, Escambia, Geneva, Greene, Jefferson, Lauderdale, Limestone, Marion, Marshall, Monroe, Perry, Randolph, Russell, Tallapoosa, Walker, Washington, Wilcox. Moreover, many precinct numbers and consequently the VTD GeoIDs are also incorrect throughout much of the state in the Census shapefiles. All precinct names and numbers have been edited to match the 2017 voter file.
      - ■ The following splits and merges were made to align voting district boundaries with reporting units in the 2017 election results.

<u>Information not in their processing steps:</u>
- ● Detailed list of precinct and shapefile changes.
- ● More information about the county canvass reports in Dallas, Chilton, Covington, Lauderdale, Lawrence, Marion, Monroe and Tuscaloosa counties.
- ● More information about how they dealt with absentee and provisional ballots that don't appear to be reported countywide.

Able to replicate joining election data and shapefiles? No	We were not able to replicate joining election data and precinct boundaries because we did not have precinct boundary data for every county. In particular: ● There were (8) counties where we were unable to find either a shapefile or any maps to validate against: DeKalb, Franklin, Blount, Jefferson, Lee, Marengo, Marshall, and Tuscaloosa. ● There were (10) counties where we were able to find precinct boundary data, although not in shapefile format: Baldwin, Calhoun, Limestone, Madison, Mobile, Morgan, St. Clair, Shelby, Talladega and Cullman. ○ For these counties we print both the map and VEST's shapefile in the notebook. ● In the remaining (49) counties, where VEST uses data from the US Census Bureau, we were able to join 1012 precincts, with 127 precinct election results and 66 precinct boundaries unjoined. It should be noted that VEST does mention that some counties have incorrect precinct names in the Census VTD file.
Able to replicate joining demographic data to block-level shapefiles? N/A	There is no demographic data on the file.
Able to replicate joining boundary data? N/A	There is no boundary data on the file.

Successfully ran validation?
 	
No
	<u>Election results:</u> No
	● We validated election results at three different levels:
	    ○ Statewide candidate vote totals
	    ○ Countywide candidate vote totals
	    ○ Precinct-level candidate votes

- As is mentioned in VEST's documentation the source election results do not match neither VEST's nor the state's summary report (https://www.sos.alabama.gov/sites/default/files/voter-pdfs/2017%20Official%20General%20Election%20Results%20with%20Write-In%20Appendix%20-%202017-12-28.pdf). VEST's totals do not match the state summary report either.

Election Name	VEST Data Total	SOS Summary Report	Difference (VEST & SOS)
S17USSRMOO	651,983	651,972	+11
S17USSDJON	673,889	673,896	-7
S17USSOWRI	22,877	22,852	+25

- At the countywide total level, Chilton, Covington, Dallas, Escambia, Lawrence, Marion, Lauderdale, Tuscaloosa values do not match.
- In their processing, VEST writes:
  - *Incorrect or incomplete data was replaced using the county canvass reports for the following counties: Dallas, Chilton, Covington, Lauderdale, Lawrence, Marion, Monroe, Tuscaloosa. The Clay County precinct results include total write in votes by precinct whereas the certified state canvass only includes official write in totals for Clay County. For DeKalb County the certified state canvass omits the provisional votes. For Monroe County the certified state canvass appears to have a typographic error that adds 10 votes for Jones (D).*
- In comparing VEST's totals to the SOS totals, there are the following differences, VEST appears to address all of these differences in their documentation:
  - *The Clay County precinct results include total write in votes by precinct whereas the certified state canvass only includes official write in totals for Clay County. For DeKalb County the certified state canvass omits the provisional votes. For Monroe County the certified state canvass appears to have a typographic error that adds 10 votes for Jones (D).*

Election Name	County	VEST Data Total	SOS	Difference (VEST & SOS)
S17USSOWRI	Clay	44	19	+25

S17USSDJON	DeKalb	3,562	3,559	+3
S17USSRMOO	DeKalb	10,108	10,097	+11
S17USSDJON	Monroe	3,256	3,266	-10

- At the precinct-level, there were 1995 total precincts (all but 1 zero-vote precinct) we checked:
  - 742 of these precincts have election result differences
  - 1253 of these precincts are the same
  - The max difference between any one shared column in a precinct is: 75 votes
  - The average difference is: 1.6 votes
  - There are 18 precinct results with a difference greater than 10
- Incomplete data in Dallas, Chilton, Covington, Lauderdale, Lawrence, Marion, Monroe, Tuscaloosa counties and the possibly different allocations in Jefferson county likely explain these differences.
- Outside of those counties, the greatest difference in a precinct is 4 votes, and that is likely due to precinct merges and when allocation is applied relative to the merge.

Geographies: No
- We were not able to run the validation on all precinct geographies due to inaccessible shapefiles.
- Of the 1012 precincts we were able to check (out of 1996 total precincts in VEST's file):
  - 422 precincts w/ a difference of 0 km^2
  - 135 precincts w/ a difference between 0 and .1 km^2
  - 106 precincts w/ a difference between .1 and .5 km^2
  - 49 precincts w/ a difference between .5 and 1 km^2
  - 74 precincts w/ a difference between 1 and 2 km^2
  - 98 precincts w/ a difference between 2 and 5 km^2
  - 128 precincts w/ a difference greater than 5 km^2
- As VEST describes in their documentation, there were significant shapefile changes that we were not able to validate given either a lack of files or detail in documentation.
- We were unable to find either a shapefile or any map to validate against in DeKalb, Franklin, Jefferson, Lee, Marengo, Marshall, Blount, and Tuscaloosa counties.

	● Baldwin, Calhoun, Limestone, Madison, Mobile, Morgan, St. Clair, Shelby, Talladega, Cullman Counties all had some sort of map, but not a shape file on their website.