VEST VA 2018

RDH Criteria	Explanation

Is all raw data available?
 	
Yes
	Accessible files:
	• VEST Data File
	    ○ Accessed: 03/01/2021, Source: VEST
	    ○ https://dataverse.harvard.edu/file.xhtml?persistentId=doi:10.7910/DVN/UBKYRU/FQDLOO&version=33.0
	• VEST documentation
	    ○ Accessed: 03/01/2021, Source: VEST
	    ○ https://dataverse.harvard.edu/file.xhtml?fileId=4366213&version=33.0
	• VA Precinct-Level Election Results
	    ○ Accessed: 03/02/2021, Source: VA Dept. of Elections
	    ○ https://historical.elections.virginia.gov/elections/search/year_from:2018/year_to:2018/office_id:5/stage:General
	    ○ Note: The various files need to be downloaded for all the different Congressional Districts by clicking on the candidates value, then "See Details for Election", "Download this Election" (on the left side of the screen under "Actions") and finally "Precinct Results".
	• U.S. Census Bureau's 2020 Redistricting Data Program Phase 2 release
	    ○ Accessed: 03/02/2021, Source: U.S. Census
	    ○ https://www.census.gov/geo/partnerships/pvs/partnership20v2/st51_va.html
	    ○ Note: One can download five county VTD shapefiles at a time. These files were aggregated together as part of this analysis.
	
	Note: There were a handful of local municipal files that VEST describes in laying out their precinct shapefile changes. We did not attempt to locate these due to

	minimal direction from VEST as to where to locate these files and how exactly to use them.
Processing steps available? Yes	<u>Description of processing steps:</u> ● VEST's full processing steps were accessed on 03/01/2021 and can be found via the link above. VEST uses one documentation file for their three VA 2018 files. ● Description of VEST process: ○ VEST describes the source files for their election results and precinct shapefiles, which match those listed above. ○ For election results, VEST also mentions that: ■ "Absentee ballots and provisional votes were reported at the county or city level throughout the state. These were distributed by candidate to precincts based on their share of the precinct-level reported vote." ○ For the precinct shapefiles, VEST also mentions that: ■ "Virginia election reports often include precinct splits that are obsolete or unused in practice. These have been omitted. In cases where voters were incorrectly assigned to the wrong district the de facto precinct split has been included for that election." ○ Then VEST lists out the various modifications they made to the 2018 precinct boundaries. This full list can be found in their documentation file. ○ Lastly, VEST notes that "results are divided across three files. Because precincts can be split across legislative districts, the legislative races are reported with their own geography that divides these split precincts, resulting in shapes that are assigned to exactly one district." <u>Information not in their processing steps:</u> ● A full list of name changes used to join shapefiles and election results.
Able to replicate joining election data and shapefiles? No	2438 out of 2462 precincts originally in each file successfully joined between the election data and shapefile. The RDH did not attempt to replicate the geometry changes noted in VEST's documentation that required an external source for a single change. The discrepancies are likely accounted for in the manual shapefile changes noted in the documentation that the RDH did not attempt to replicate.

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 validated election results?
 	
Yes
	Election results:
	● We validated election results at the column total, county and precinct levels.
	● Totals matched exactly at the column total and county levels.
	● VEST's party vote totals for the US House matched the VA Department of Elections in all cases except write-in votes where VEST's reported total was 23454 and the Department of State's total was 23199. (https://results.elections.virginia.gov/vaelections/2018%20November%20General/Site/Congress.html)
	● There are 2463 precincts in VEST's file. When we joined VEST's file to the source file, we were able to match 2462 precincts. The one unjoined precinct is a zero-vote precinct called Fairfax Court. Of these 2462:
	    ○ 1006 of these precincts have election result differences
	    ○ 1457 of these precincts are the same
	    ○ The max difference between any one shared column in a row is: 1.0
	    ○ The average difference is: 1.0
	● Given the max difference of 1 and equivalent county and race totals, we can conclude that the precinct-by-precinct differences are due to rounding differences in allocating votes.
	
	Geographies:
	● 2440 precinct geometries compared between the two files, of these:

- 1791 precincts w/ a difference of 0 km^2
- 531 precincts w/ a difference between 0 and 0.1 km^2
- 60 precincts w/ a difference between 0.1 and 0.5 km^2
- 18 precincts w/ a difference between 0.5 and 1 km^2
- 17 precincts w/ a difference between 1 and 2 km^2
- 20 precincts w/ a difference between 2 and 5 km^2
- 3 precincts w/ a difference greater than 5 km^2