VEST VA 2017

State: Virginia
Organization: Voting and Election Science Team (VEST)
Summary of Races included: State House of Delegates [General]
Date File Updated: 10/25/2019
Date Report Updated: 08/03/2021
RDH Validation Code (Github): https://github.com/nonpartisan-redistricting-datahub/pdv-va

RDH Criteria	Explanation

Is all raw data available?
 	
Yes
	<u>Accessible files:</u>
	● VA 2017 Precinct and State House District Level Election Results
	    ○ Accessed: 06/24/2021, Source: ex: Virginia Department of Elections
	    ○ https://historical.elections.virginia.gov/elections/search/year_from:2017/year_to:2017/office_id:8/stage:General
	    ○ Note: For each district, click "Candidates", "See Details for this Election" and then "Download this Election" and "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.
	● VEST Virginia 2017 Data File
	    ○ Accessed: 06/24/2021, Source: VEST on the Harvard Dataverse
	    ○ https://dataverse.harvard.edu/file.xhtml?persistentId=doi:10.7910/DVN/VNJAB1/WRJM7V&version=5.1
	● VEST Virginia 2017 Documentation
	    ○ Accessed: 06/24/2021, Source: VEST on the Harvard Dataverse
	    ○ https://dataverse.harvard.edu/file.xhtml?fileId=4751070&version=5.1
	
	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 06/24/2021 and can be found via the link above. VEST uses one documentation file for their three VA 2017 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."
	      ■ In order to match VEST's results, the RDH split counties along congressional district lines for the absentee vote re-allocation. This step was not noted in VEST's documentation.
	   ○ 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 2017 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	2566 precincts out of 2585 election result precincts and 2815 shapefile precincts 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.

	There are a handful of precincts where the geometry line changes are clear based on printing out the overlap, however for the remaining changes it is less clear that there are matches between the two files. For more information, see the file "vest_va_2017_statehouse.ipynb" on our Github.
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> **Yes**
	● We validated election results at three different levels:
	  ○ Statewide candidate vote totals
	  ○ Countywide candidate vote totals
	  ○ Precinct-level candidate votes
	● At the statewide total level, the election results matched VEST's. The totals matched Ballotpedia's for districts 1-5 and 96-100 which chosen as a spot-check (https://ballotpedia.org/Virginia_House_of_Delegates_elections,_2017).
	● At the countywide total level, the RDH election result totals matched VEST's.
	● At the precinct-level, the election results matched VEST's by plus or minus one vote. This small discrepancy can be accounted for by differences in the rounding techniques employed by the RDH as compared to VEST. There are 827 precincts where the results match perfectly and 1,757 where the results are off by one vote.

Geographies: No

- Out of 2566 total precincts:
  - 1754 precincts w/ a difference of 0 km^2
  - 684 precincts w/ a difference between 0 and .1 km^2
  - 64 precincts w/ a difference between .1 and .5 km^2
  - 20 precincts w/ a difference between .5 and 1 km^2
  - 17 precincts w/ a difference between 1 and 2 km^2
  - 17 precincts w/ a difference between 2 and 5 km^2
  - 9 precincts w/ a difference greater than 5 km^2
- Notice that some differences are due to modifications that VEST noted in documentation that RDH did not attempt to replicate