

VEST GA 2020

State: Georgia

Organization: Voting and Election Science Team (VEST)

Summary of Races included: Presidential [General & Recount], Public Service Commission District 4 [General & Runoff], Public Service Commission District 1 [General] U.S. Senate [General & Runoff], U.S. Senate Special Election [General & Runoff]

Date File Updated: 06/28/2021

Date Report Updated: 12/17/2021

RDH Validation Code (Github): <https://github.com/nonpartisan-redistricting-datahub/pdv-ga>

RDH Criteria	Explanation
<p>Is all raw data available?</p> <p>Yes</p>	<p><u>Accessible files:</u></p> <ul style="list-style-type: none"> ● VEST Georgia 2020 Data File <ul style="list-style-type: none"> ○ Accessed: 12/16/2021, Source: VEST on the Harvard Dataverse ○ https://dataverse.harvard.edu/file.xhtml?fileId=4863164&version=28.0 ● VEST Georgia 2020 Documentation <ul style="list-style-type: none"> ○ Accessed: 12/16/2021, Source: VEST on the Harvard Dataverse ○ https://dataverse.harvard.edu/file.xhtml?fileId=5595328&version=28.0 ● General Election results for Georgia, November 3, 2020: <ul style="list-style-type: none"> ○ Accessed, 06/07/2021, Source: Georgia SOS Elections Division ○ https://results.enr.clarityelections.com/GA/105369/web.264614/#/summary ○ Note: Precinct-level results are only available county-by-county. From the link above, click “Results by County”, and for every county, click its name and then click the download button next to “Detail XML” in the “Reports” section. ● General Election - Recount results for Georgia, November 3, 2020: <ul style="list-style-type: none"> ○ Accessed, 06/07/2021, Source: Georgia SOS Elections Division ○ https://results.enr.clarityelections.com/GA/107231/web.264614/#/summary ○ Note: Precinct-level results are only available county-by-county. From the link above, click “Results by County”, and for every county, click its name and then click the download button next to “Detail XML” in the “Reports” section.

- Runoff Election:
 - Accessed, 12/16/2021, Source: Georgia SOS Elections Division
 - <https://results.enr.clarityelections.com/GA/107556/web.264614/#/summary>
 - Note: Precinct-level results are only available county-by-county. From the link above, click “Results by County”, and for every county, click its name and then click the download button next to “Detail XML” in the “Reports” section. Four counties, Camden, Chattooga, Grady, and Greene, did not have a "Detail XML" file available, and these counties' precinct-level votes were added to a spreadsheet by hand.
- Precinct Shapefile for Georgia
 - Accessed, 06/07/2021, Source: Georgia General Assembly
 - <https://www.legis.ga.gov/joint-office/reapportionment>
 - Note: To download this file, click “Precincts” and then “Statewide Voting Precincts (2020)”
- U.S. Census Bureau 2020 Redistricting Data Program Phase 2 release
 - Accessed: 06/07/21, Source: Census
 - https://www.census.gov/geo/partnerships/pvs/partnership19v2/st13_ga.html
 - Note: Only Cobb, DeKalb, and Gwinnett counties are needed from this source.
- Precinct Shapefile for Forsyth County
 - Accessed: 06/08/2021, Source: Forsyth County GIS Office
 - <https://geo-forsythcoga.opendata.arcgis.com/datasets/forsythcoga::voting-precinct/about>
 - Note: Click “Download” and then under “Shapefile” click “Download” again.
- Precinct Shapefile for Fulton County
 - Accessed: 06/08/2021, Source: Fulton County GIS Office
 - <https://gisdata.fultoncountyga.gov/datasets/fulcogis::voting-precincts/about>
 - Note: Click “Download” and then under “Shapefile” click “Download” again.
- Chattooga County USGS Topographical Map #1
 - Accessed: 02/10/21, Source: USGS
 - <https://apps.nationalmap.gov/downloader/#/>
 - Note: Scroll 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

	<p>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".</p> <ul style="list-style-type: none"> ● Chattooga County USGS Topographical Map #2 <ul style="list-style-type: none"> ○ Accessed: 02/10/21, Source: USGS ○ https://apps.nationalmap.gov/downloader/#/ ○ 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". <p>Note: In their documentation, VEST mentions a handful of local government files that they used as part of shapefile merges. We did not attempt to locate these files as and in many cases, it turned out they were not needed.</p>
<p>Processing steps available?</p> <p>Yes</p>	<p><u>Description of processing steps:</u></p> <ul style="list-style-type: none"> ● VEST's processing steps, which can be accessed at the link above, were accessed on 12/17/21. ● The first part of their processing steps mentions the sources for their election results and precinct shapefile. <ul style="list-style-type: none"> ○ VEST mentions they obtained their election results from the GA Secretary of State Elections Division via Reuters. We were able to obtain the results directly from the GA Secretary of State Elections Division, at the link above. ○ VEST mentions that their precinct shapefile comes primarily from the Georgia General Assembly Reapportionment Office, with data for Cobb, DeKalb, and Gwinnett counties coming from the U.S. Census Bureau's 2020 Redistricting Data Program Phase 2 release and data Forsyth and Fulton coming from the respective counties. ○ In validating their file, we found that using Fulton County data from the Georgia General Assembly Reapportionment Office led to a closer result than using the data from Fulton County directly. ● Lastly, VEST's documentation lists a number of precinct shapefile modifications they performed to create their final file. Interestingly, many of these precinct modifications did not need to be performed and appeared to already be present in the source shapefiles we downloaded from the Georgia General Assembly Reapportionment Office. We were able to carry out the other modifications listed except for the Wilkes adjustment that used the voter file. <ul style="list-style-type: none"> ○ One of the changes that VEST mentions involves splitting a precinct (Cloudland-Teloga) on a ridgeline. While we were able to visually

	<p>confirm that VEST did approximately this, we did not perform the split and as part of the shapefile validation below, merged the two precincts in VEST's file.</p> <p><u>Information not in their processing steps:</u></p> <ul style="list-style-type: none"> • A list of name changes / modifications used to join precincts and election results as well as more details on certain shapefile adjustments.
<p>Able to replicate joining election data and shapefiles?</p> <p>Yes</p>	<p>Yes, we were able to fully replicate the join between the election data and shapefiles. As part of this, we had to add 23 zero-vote precincts to the election results, a full list of which can be found in the validation notebook.</p>
<p>Able to replicate joining demographic data to block-level shapefiles?</p> <p>N/A</p>	<p>There is no demographic data on the file.</p>
<p>Able to replicate joining boundary data?</p> <p>N/A</p>	<p>There is no boundary data on the file.</p>
<p>Successfully ran validation?</p> <p>No</p>	<p><u>Election results:</u> Yes</p> <ul style="list-style-type: none"> • We validated election results at three different levels: <ul style="list-style-type: none"> ○ Statewide (candidate totals) ○ Countywide (candidate totals) ○ Precinct (candidate votes)

- At each of these three levels, VEST's election result data matched our work.
- In addition, we compared the statewide and countywide candidate totals in our work and VEST's against the results on the GA SOS website (<https://results.enr.clarityelections.com/GA/107231/web.264614/#/summary>, <https://results.enr.clarityelections.com/GA/105369/web.264614/#/summary>, <https://results.enr.clarityelections.com/GA/107556/web.264614/#/summary>) and they matched exactly.

Geographies: No

There were originally 2679 precincts in VEST's file. After merging the two Cloudland-Teloga precincts, there were 2678 precincts in this validation. Our validation code was not able to run on one precinct (089-GLENNWOOD) due to an invalid geometry caused by a self-intersection, and on manual inspection, this precinct does contain a non-zero area difference, but is not included below.

- 1641 precincts w/ a difference of 0 km²
- 993 precincts w/ a difference between 0 and .1 km²
- 26 precincts w/ a difference between .1 and .5 km²
- 4 precincts w/ a difference between .5 and 1 km²
- 7 precincts w/ a difference between 1 and 2 km²
- 5 precincts w/ a difference between 2 and 5 km²
- 1 precincts w/ a difference greater than 5 km²

Of the precincts with an area difference of greater than .5 km²:

- 5 of them are in Bibb County
- 2 of them are in Chatham County
- 2 of them are in Columbia County
- 2 of them are in DeKalb County
- 2 of them are in Paulding County
- 2 of them are in Troup County
- 2 of them are in Wilkes County

Given VEST's instructions, we were not able to explain the presence of these differences for any of the above except Wilkes County, where the differences involve an adjustment using the voter file that we did not recreate.