VEST AK 2018

State: Alaska

Organization: Voting and Election Science Team

Date Updated: Report Date: 05/10/2021, VEST File Date: 06/08/2020

1. Is all raw data available?

Yes

- Accessible files:
  - VEST, Alaska 2018
    - Accessed, 04/26/2021
    - Source: VEST on the Harvard Dataverse
    - Direct link: https://dataverse.harvard.edu/api/access/datafile/:persistentId?persistentId=doi:10.7910/DVN/UBKYRU/ZAKJY9
    - Link to VEST 2018 Datasets: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/UBKYRU
  - Precinct Shapefile for Alaska
    - Accessed, 04/26/2021
    - Source: Alaska Division of Elections
    - Direct download link: http://www.elections.alaska.gov/doc/info/2013-SW-Precinct-Proc-Plan.zip
    - Dataset page: https://www.elections.alaska.gov/Core/districtmaps.php
    - Note: On the dataset page link (above) select the hyperlink for "Statewide Precinct Shape files" and the file will download.
  - Election results for Alaska, November 6, 2018:
    - Accessed, 04/26/2021
    - Source: Alaska Division of Elections
    - Direct download link: https://www.elections.alaska.gov/results/18GENR/data/resultsbyprecinct.txt

- ■ Dataset page: https://www.elections.alaska.gov/results/18GENR/index.php
- ■ Note: On the dataset page link (above) select the hyperlink for "TEXT BY PRECINCT" under "Statewide Summary" and the file will download.
- Inaccessible files:
  - ○ N/A

2. Processing steps available?

Yes

- Description of processing steps:
  - ○ VEST did not have extensive processing steps but they did note the processing of early vote precincts:
    - ■ "Early, Absentee, and Questioned votes are only reported at the State House district level (since Alaska has portions of the state with no lower level of government, HDs serve a similar purpose as counties do in other states for the purpose of reporting votes). These votes are apportioned to precincts by candidate in the same shares that the Election Day vote was split among precincts within an HD. Similarly, federal-only ballots that are reported at the statewide level were apportioned to precincts by candidate based on their share of the precinct-level vote."
- Processing steps not available:
  - ○ There is one field that is in the VEST file that is not listed in the documentation: G18GOVIWAL, representing Independent Governor candidate, Bill Walker.
  - ○ VEST does not indicate their rounding method after assigning early/provisional votes.

3. Able to replicate joining election data and shapefiles?

Yes

- Prior to joining the precinct shapefile with the election data, there were a number of modifications made:
  - ○ A field that concatenates a candidate's name and race was created in the election data, to ensure uniqueness for column names (primarily so write-ins do not get grouped together in a pivot).
  - ○ Prior to pivoting, there were duplicate results for the overseas/federal ballots cast so the all 0 values (the first set) were removed (index range 31,125 to 31,134).
  - ○ Election data was pivoted using pandas pivot_table function with the index being the precinct field (first column) and the columns parameter being the concatenated name/race field.
  - ○ Null values in the pivot are set to 0.
  - ○ Using a list of last names of candidates, the columns that contained those names (or the race's write-in) were appended to a list, which was then used to subset the pivoted data.
  - ○ The column names were dropped to just the second part of the tuple.
  - ○ The column names were renamed to fit VEST nomenclature.

- The NAME for "HD99 Fed Overseas Absentee" was renamed to "HD99-Absentee"
- A DISTRICT field was created by using just the numeric assignment for a precinct (e.g. 11-075, 12-220, 16-Absentee).
- A House District field was created by getting the first part of the DISTRICT field. A leading zero was added if the values were under 10.
- A DESCRIPTION field was created by getting the second part of the precinct field that was pivoted on.
- The overseas votes (row HD99-Absentee) were removed from the dataframe and saved as its own dataframe.
- Early votes were assigned using VEST method of assignment based on candidate performance. To do this, we created a dictionary of each house district and corresponding dataframe associated with the house district. For each item in the dictionary, the total votes for each column, the in person votes, and the early vote totals, were all retrieved. Each precinct was reassigned votes based on this formulta: ((precinct votes for candidate/total in person votes for candidate in the house district) * total early votes in the house district) + the precinct votes for candidate. Each precinct was then modified again based on a largest remainder method to ensure that no votes were lost or added in the reallocation process. All of the values in the dictionary (the house district dataframes) were concatenated together to create a new dataframe.
- The overseas votes were allocated in a similar way as the early/absentee/question votes, however, this process was just applied to the whole dataframe rather than by house district.
- The shapefile and the modified election data was merged on the DISTRICT field and all 441 precincts successfully joined.

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

N/A
- There was no demographic data in the VEST WI 2016 shapefile

5. Able to replicate joining boundary data?

N/A
- There was no additional boundary information in the VEST WI 2016 shapefile

6. Successfully validated election results?

Yes
- Election results:
  - Candidate totals:
    - All of the candidate totals we were able to match exactly.

- ■ After confirming with results on multiple other sources that race totals are readily available (Ballotpedia, Washington Post, Politico), all totals appear to be correct for both the RDH and VEST

Table 1.

Column	VEST Total	RDH Total	Difference
G18GOVRDUN	145,631	145,631	0
G18GOVDBEG	125,739	125,739	0
G18GOVLTOI	5,402	5,402	0
G18GOVIWAL	5,757	5,757	0
G18GOVOWRI	605	605	0
G18HALRYOU	149,779	149,779	0
G18HALDGAL	131,199	131,199	0
G18HALOWRI	1,188	1,188	0

- ○ Precinct by precinct:
  - ■ After validating precinct by precinct, many of the 441 precincts have differences of one vote (347 precincts) or two votes (80 precincts), likely due to rounding differences. No precincts have more than two votes that are mismatched. 14 precincts are exactly the same.
- ● Geographies:
  - ○ All 441 geographies are exactly the same between the VEST and RDH files when sorted by DISTRICT, using the geopandas geom_almost_equals function.