

VEST IA 2018

State: Iowa

Organization: VEST

Date Updated: Report Date: 04/12/2021, File Date: 01/16/2020

1. Is all raw data available?

Yes

- Shapefiles
 - Iowa SoS Shapefile Data
 - Date accessed: 03/23/2021
 - <https://sos.iowa.gov/shapefiles/Statewide%20Precinct%20Layer/>
 - Dallas county shapefile
 - Date accessed: 03/23/2021
 - <http://geodallas.dallascountyiowa.gov/SpatialDownload/Default.aspx>
 - Linn county shapefile
 - Date accessed: 03/23/2021
 - <https://opendata-linncounty-gis.opendata.arcgis.com/datasets/voting-precinct-split-1?geometry=-92.535%2C41.808%2C-90.777%2C42.165>
 - Story county shapefile
 - Date accessed: 03/23/2021
 - [No public link]
 - This shapefile was attained by contacting Story county GIS coordinator Matt Boeck, <https://www.storycountyiowa.gov/Directory.aspx?did=31>, who provided the shapefile data by email.
 - Johnson county shapefile
 - Date accessed: 03/23/2021
 - <https://www.iowagisdata.org/index.php/apps/files/?dir=/County/Johnson/Open&fileid=854>
 - Census county shapefiles

- VEST reported that they used the U.S. Census Bureau's 2020 Redistricting Data Program Phase 2 release for the following counties: Dubuque, Marion, Muscatine, Polk, Pottawattamie, Scott.
- Election data file
 - Data is downloaded individually and combined for use.
 - Date accessed: 03/23/2021
 - <https://results.vote.IA.gov/>
 - This data can only be downloaded on a county by county basis, and is distributed in deprecates .xls format spreadsheets. Scraping the data and subsequent processing can be found in the **vest-ia-2018-data-accumulation.ipynb** notebook.
- VEST files
 - ia_2018.shp
 - Date accessed: 03/23/2021
 - <https://dataverse.harvard.edu/file.xhtml?persistentId=doi:10.7910/DVN/UBKYRU/CVWIH1>

2. Processing steps available?

Yes

- Description of processing steps:
 - VEST highlights their processing with the exception of the counties for which they use the census phase 2 shapefiles. As such, there are 4 counties, Scott, Dubuque, Linn, and Polk, which contains shapefile alterations that we are unable to trace.
 - “The following counties used shapefiles sourced from the respective county governments instead: Dallas, Johnson, Linn, Story.
 - The following counties were revised to reflect updated municipal boundaries using shapefiles from the U.S. Census Bureau's 2020 Redistricting Data Program Phase 2 release: Dubuque, Marion, Muscatine, Polk, Pottawattamie, Scott.
 - The following precincts were merged to match the 2018 election reports:
 - Appanoose: Udell/Union
 - Black Hawk: Cedar Falls W2P2/Cedar Falls Twp
 - Des Moines: Burlington 1/Tama, Burlington 8/Concordia
 - Fremont: Hamburg/Washington, Farragut/Shenandoah1
 - Lee: Fort Madison 4A/4B, Keokuk 2A/2B, FCM/Harrison
 - Polk: Grimes 2/Urbandale 12
 - Tama: Toledo 1/2/3”

3. Able to replicate joining election data and shapefiles?

Mostly, with some exceptions. We did not attempt to join election and shapefile results for Polk, Scott, Linn, or Dubuque county, as these counties had undergone substantial changes from the raw shapefiles to VEST's shapefiles.

Then, the following election precincts were unable to be associated cleanly with one raw shapefile:

- Pottawattamie Carter Lake 2
- Pottawattamie Carter Lake 1
- Pottawattamie Council Bluffs 1
- Muscatine West Liberty 2
- Marion Knoxville 1
- Marion Knoxville 2
- Marion Pella 4
- Marion Knoxville 3
- Marion Pella 1
- Marion Pella 2
- Marion Knoxville
- Tama Tama 13 - Howard/Toledo
- Benton Belle Plaine 1

In all of these cases, the election precincts consisted of a small portion of the raw shapefile data, for example, Carter Lake in Pottawattamie county's shapefile covered 4 election precincts, and was divided by VEST in an unknown way.

Then, the following shapefiles did not have election results associated with them:

- Johnson IOWA CITY 08 ANX
- Johnson WEST BRANCH
- Pottawattamie MCCLELLAND
- Pottawattamie NEOLA
- Pottawattamie OAKLAND W/BELKNAP TWP PART
- Pottawattamie SHELBY IN POTTAWATTAMIE COUNTY
- Marion HARVEY
- Muscatine BLUEGRASS IN MUSCATINE COUNTY
- Muscatine WALCOTT IN MUSCATINE COUNTY

Because these shapefiles did not show up in VEST's shapefiles, it is assumed that the vote totals for these plots of land were 0, supported by the fact that the other vote totals sum to the expected vote totals for the state.

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

N/A

5. Able to replicate joining boundary data?

N/A

6. Successfully validated election results?

Election results - Yes

- There are 1686 VEST precincts, all had correct vote totals.
- There are too many precinct name differences between the VEST data and downloaded data to enumerate here. Extensive processing was done to match VEST data to raw data, including treating the geometries and vote counts themselves as unique IDs in some cases.

Shapefile results - Mostly

- Scott, Polk, Dubuque, and Linn had some precincts that aligned with VEST's data, but also contained many precincts that drastically differed. In all aforementioned counties, raw precincts were combined, split, and altered. As such, we recommend that parties hoping to use VEST data for these counties reach out to VEST to confirm their shapefile updates are intentional and valid.
- Of the 1686 precincts, 1105 shapefiles matched exactly. Of the remaining 581 mismatched, 361 precincts are located in Scott, Polk, Dubuque, and Linn counties. After filtering out these precincts and investigating the remaining 220 that contained shape mis-matches, 172 precincts had a difference in area of less than .1 km². 195 precincts had a difference in area of less than 1 km².
- Otherwise, these counties and precincts had significant shapefile changes greater than 1 km²:
 - Benton: Belle Plaine 1 3.07km²
 - Dallas: Adel 2 Precinct 2.22km²
 - Dallas: Van Meter 2.6km²
 - Fayette: Fairbank 172.57km²
 - Marion: Clay 3.11km²
 - Marion: Knoxville 1 500.24km²
 - Marion: Pella 4 29.22km²
 - Muscatine: Muscatine County West Liberty 1/ Wapsi Prec 4.43km²
 - Pottawattamie: Avoca 4.04km²
 - Pottawattamie: Carter Lake 1 10.6km²
 - Pottawattamie: Council Bluffs 4 1.38km²
 - Pottawattamie: Neola 3.08km²
 - Pottawattamie: Oakland 9.73km²

Tama: Tama 13 - Howard/Toledo 2.29km²

Tama: Tama 14 - Toledo City 2.29km²

The shape differences of each county are explained in VEST-ia-2018-validation.ipynb. The large differences in precinct area are due to raw precincts being split into 4-5 VEST precincts.