

Methodology and Sources

1. In the preparation of this declaration, I analyzed population and geographic data from the 1990 to 2010 decennial Censuses, as well as 2016 U.S. Census Bureau (“Census Bureau”) population estimates. I also reviewed and used data from the American Community Survey (“ACS”) conducted by the Census Bureau – specifically, the 5-year 2011-2015 ACS. In addition, I used the Special Tabulation of citizen population and voting age population prepared by the Census Bureau for the U.S. Department of Justice available from the link below:

https://www.census.gov/rdo/data/voting_age_population_by_citizenship_and_race_cvap.html

2. For my redistricting analysis, I used a geographic information system (GIS) software package called *Maptitude for Redistricting*, developed by the Caliper Corporation. This software is deployed by many local and state governing bodies across the country for redistricting and other types of demographic analysis.

3. The geographic boundary files that I used with *Maptitude* are created from the U.S. Census 2000, 2010, and 2016 TIGER (Topologically Integrated Geographic Encoding and Referencing) files.

4. I used population data from the U. S. Census 1990, 2000 and 2010 PL 94-171 data files. The PL 94-171 dataset is published in electronic format and is the complete count population file designed by the Census Bureau for use in legislative redistricting. The file contains basic race and ethnicity data on the total

population and voting-age population found in units of Census geography such as states, counties, municipalities, townships, reservations, school districts, census tracts, census block groups, precincts (called voting districts or “VTDs” by the Census Bureau) and census blocks.

5. The *Mapitude for Redistricting* software processes the TIGER files to produce a map for display on a computer screen. The software also merges demographic data from the PL 94-171 files to match the relevant decennial Census geography.

6. I obtained GIS shapefiles depicting 2010, 2012, 2014 and 2016 VTDs for Georgia from the Georgia Legislative and Congressional Reapportionment Office via the links below:

2016: <http://www.legis.ga.gov/Joint/reapportionment/Documents/VTD2016-Shape.zip>

2014: <http://www.legis.ga.gov/Joint/reapportionment/Documents/VTD2014-Shape.zip>

2012: <http://www.legis.ga.gov/Joint/reapportionment/Documents/VTD2012-Shape.zip>

2010: www.legis.ga.gov/Joint/reapportionment/Documents/VTD2010-Shape.zip

7. I also obtained GIS shapefiles of the 2012 and 2015 State House plans from the Georgia Legislative and Congressional Reapportionment Office via the links below:

<http://www.legis.ga.gov/Joint/reapportionment/en-US/default.aspx>

8. In order to calculate citizenship by district, I disaggregated the block group-level Special Tabulation of citizenship by race and ethnicity (noted in ¶1 above) to the block level based on 2010 voting age population by race and ethnicity,

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