

EXHIBIT 2

IN THE UNITED STATES DISTRICT COURT FOR
THE NORTHERN DISTRICT OF ALABAMA
SOUTHERN DIVISION

STATE OF ALABAMA, et al.,

Plaintiffs,

v.

UNITED STATES DEPARTMENT OF
COMMERCE, et al.,

Defendants,

and

DIANA MARTINEZ, et al.,

COUNTY OF SANTA CLARA,
CALIFORNIA, et al.,

STATE OF NEW YORK, et al.,

Defendant-Intervenors.

Civil Action No. 2:18-cv-00772-RDP

RULE 26(A)(2)(B) EXPERT REPORT AND DECLARATION OF KIMBALL W. BRACE

**EXPERT REPORT AND DECLARATION OF KIMBALL W. BRACE
MARCH 13, 2020**

I. Introduction

My name is Kimball William Brace. I am the president of Election Data Services, Inc. (“Election Data Services” or “EDS, Inc.”), a Manassas, Virginia-based consulting firm whose specialty is reapportionment, redistricting matters, election administration issues, and the census.

I have been retained by all of the Defendant-Intervenors in *Alabama, et al. v. Department of Commerce, et al.*, 2:18-cv-00772-RDP. My understanding of the case is that Alabama seeks to require the federal government to exclude undocumented immigrants from congressional reapportionment calculations, and that Alabama alleges that it will lose a congressional seat that it otherwise would have kept following the 2020 census if undocumented immigrants are not excluded from the apportionment count. I have been asked by Defendant-Intervenors to provide background and history on the congressional reapportionment process, including my continuing involvement with creating EDS, Inc.’s yearly reapportionment reports based on United States Census Bureau (“Census Bureau”) population estimates from the Population Estimates Program that are also released yearly. I have also been asked to review and opine on the report and supplemental report submitted by Plaintiff’s expert witness, Dr. Dudley Poston, in this case.

All the materials considered in forming the opinions contained herein are identified in this report. I am being compensated at an hourly rate of \$275 per hour for my work, and at an hourly rate of \$185 for work performed by another Election Data Services staffer.

II. Background and Qualifications

I attended American University in Washington, D.C., from 1969 through 1974 (having taken a year off for the 1972 campaign), where I earned a B.A. degree in Political Science. I started Election Data Services in 1977 and have been with the company since that time. Prior to 1977, I was a journalist and was employed by such companies as NBC News, Congressional Quarterly, and Plus Publications.

As president of Election Data Services I supervise and direct all major projects in which the company is involved. Election Data Services has been viewed by clients, the press, academics, and the general public as a research facility and consulting firm dealing with many aspects of the electoral process. The company and its staff have been hired by state and local governments across the nation to provide software, database development services, and consulting services for the creation of districting plans and the analysis of many aspects of the redistricting process.

Since 1979, I, individually and with Election Data Services, have been actively involved in many aspects of the redistricting process, having gone through four full census and redistricting cycles. I have been a consultant to many state and local governmental organizations around the nation, providing strategic advice and consulting on redistricting matters, coordinating the development of extensive databases used in the redistricting process, creating

and assisting others with the creation of districting plans, and analyzing many aspects of districts and district configurations. Over the past 41 years, Election Data Services's clients for redistricting services have come from more than half the states in the nation. In addition, over the past four decades I have been called upon to provide reports, expert witness testimony, and assistance to attorneys in more than 75 different court cases.

I frequently give speeches to groups and organizations and participate in numerous conferences and panels on various aspects of apportionment, redistricting, and the census. Since the early 1980s, I have been a regular participant and speaker at annual and bi-annual meetings of the Task Force on Redistricting of the National Conference of State Legislatures ("NCSL"). I have also been on their faculty, as NCSL has conducted five regional "Get Ready for Redistricting" seminars each decade since 1980. I was also appointed by the U.S. Secretary of Commerce to the 2010 Census Advisory Committee, a 20-person advisory board to the Director of the Census Bureau. Just this week I was asked to be NCSL's representative on a series of half-day small-group expert meetings, being arranged by the Committee on National Statistics (CNSTAT), to delve deeply into and provide informal discussion/feedback with Census Bureau staff as they continue to develop the differential privacy-based Disclosure Avoidance System for the 2020 census. I am regularly called upon by members of the press with questions on redistricting, reapportionment, the census, election administration issues, and politics in general.

For the past four decades I and Election Data Services have studied and issued yearly reports on the apportionment process using new population estimates released by the Census Bureau and private demographic firms. All of our reports can be found at our website: www.electiondataservices.com, under the "Research" tab. We have become a staple for the press and others to cite when looking at the shift that is occurring in population between different states.

A copy of my curriculum vitae is attached as **Exhibit A**, which includes a complete list of cases in which, during the previous four years, I have testified as an expert at trial or by deposition.

III. Summary of Conclusions

Based upon my decades of experience with congressional reapportionment, population projections, and the census generally, it is my opinion that Dr. Poston does not show with any level of certainty that Alabama will lose its seventh congressional seat following the 2020 census if undocumented immigrants are not excluded from the population counts. In addition, it is my opinion that Dr. Poston does not show with any level of certainty that Alabama will retain a seventh congressional seat following the 2020 Census as a result of excluding undocumented immigrants from the apportionment count. Finally, it is my opinion that Dr. Poston's argument that all states should have the same average congressional district population size, and that this is better achieved by excluding the undocumented population, is specious. Dr. Poston ignores the constitutional requirement that each state be assigned at least one congressional seat, which results in a wide range of congressional district sizes across states.

With respect to his apportionment calculations, Dr. Poston makes the following series of mistakes and assumptions that render his ultimate conclusions unreliable:

First, Dr. Poston's projections of the 2020 resident populations of each state are not a reliable projection of the resident population of each state on Census Day, or April 1, 2020. Dr. Poston uses a long-term trend line to project the 2020 resident population of each state, notwithstanding the fact that such a projection incorporates population changes early in the decade which may not apply to more recent conditions. More importantly, Dr. Poston's projections are not a projection of the resident population of each state on April 1, 2020, the count of the population necessary for congressional reapportionment, but instead appear to be a projection of the resident population of each state on July 1, 2020, three months past census day.

Second, Dr. Poston's projections of the overseas population of each state are not reliable projections of the overseas population of each state on April 1, 2020. Dr. Poston assumes, without any basis, that the proportion of the overseas population of each state on April 1, 2020, will be the same proportion of the overseas population of each state on July 1, 2010. Not only did Dr. Poston fail to explore whether this assumption was appropriate, Dr. Poston was unaware that the Census Bureau changed the way that it will count certain portions of the overseas population from the 2010 census to the 2020 census. Dr. Poston then added his unreliable projections of the 2020 overseas population of each state to his unreliable projections of the 2020 resident population of each state to calculate an unreliable 2020 apportionment population.

Third, Dr. Poston's projections of the undocumented population of each state are not reliable projections of the undocumented population of each state on April 1, 2020. Dr. Poston assumes, without any basis, that the proportion of the undocumented population of each state on April 1, 2020, will be the same proportion of the undocumented population of each state in 2016. Dr. Poston then subtracted his unreliable projections of the 2020 undocumented population from his unreliable projections of the 2020 apportionment population and used these numbers to run a flawed apportionment calculation.

Fourth, even if Dr. Poston had developed a way to more reliably project the 2020 apportionment population and his calculations showed Alabama would lose a seat, the issue still remains whether he can reliably claim with any level of certainty that the loss would come about, because the apportionment process is so susceptible to small changes. As explained in more detail below, because Alabama is so close to gaining its seventh seat back under any of the projections in Election Data Service's 2019 Reapportionment Analysis ("2019 EDS, Inc. Report"), Alabama could very possibly keep or lose its seventh seat when the new numbers become available.

Finally, Dr. Poston compares his apportionment results in his first report to the 2019 EDS, Inc. Report results. But these comparisons are not appropriate because the calculations are based on different inputs.

IV. United States Congressional Reapportionment and the Method of Equal Proportions

As required by the Constitution, each state is provided at least one initial seat in the House of Representatives. The apportionment of the remaining 385 congressional districts or seats to the states is governed by the “method of equal proportions” formula that was adopted by Congress in 1941. The formula works as follows:

The [remaining 385] seats are handed out based on statistical “priority values” assigned to each additional seat that a state might get. In as close to plain English as the formula will allow, these priority values are calculated in a two-step process that requires dividing a state’s population by the square root of the product of the number of seats it’s already been assigned and that number plus one. The priority numbers are then rank ordered: “State A” will get an additional seat if its priority value for that seat is greater than any other state’s. The seats are disbursed to states based on these rankings until all 435 have been awarded.¹

Each decade, by December 31, in the year ending in zero, the Census Bureau releases the initial state-level resident total population results, counts of military and other U.S. government employees and their families living abroad, and the resulting apportionment population counts for each state by December 31, in the year ending in zero. At the same time, the Census Bureau performs the administrative task of running the state numbers through an apportionment program that is based on the method of equal proportions to determine the number of representatives to which each state is entitled. They release the results of both the census counts (by state) and the apportionment results that same day.

Some states and many commentators interchange the terms reapportionment and redistricting to describe the process that occurs each decade with the taking of the census. However, they are two different and rather distinct processes. I always say that reapportionment is the process by which seats or districts are assigned to an area, such as congressional districts being assigned to different states. Redistricting, however, is the process whereby districts are drawn or created within that area. Before the Supreme Court’s one-person, one-vote rulings in the 1960s relating to state legislative districts, a number of states allocated State Senate districts to their counties, hence they called the process “reapportionment,” even though the process was in fact redistricting.

V. EDS, Inc.’s Reapportionment Work

A. EDS, Inc.’s Initial Involvement with Reapportionment

As noted above, EDS, Inc. first developed a computer program to calculate apportionment results according to the method of equal proportions in the early 1990s. We also

¹ Greg Giroux, *Before Redistricting, That Other ‘R’ Word*, CQ Weekly (Nov. 30, 2009); see also Kristin D. Burnett, *Congressional Apportionment: 2010 Census Briefs*, U.S. Census Bureau (Nov. 2011), <https://www.census.gov/prod/cen2010/briefs/c2010br-08.pdf>.

programmed options so that we could, for example, include the District of Columbia in an apportionment calculation or change the total number of congressional seats. We did this in the event additional states came into existence, or in the event someone inquired about the impact of adding seats to the House of Representatives.

Since the early 1990s we have studied and issued yearly reports on the apportionment process as new population estimates have been released both by the Census Bureau (as part of the Bureau's Population Estimates Program, discussed below), and by private demographic firms. Our annual studies are usually released the same day the Census Bureau releases its population estimates (usually in late December) and can be found on our website: <http://www.electiondataservices.com/>, under the "Research" tab. All our historical studies (back to when we started them in 1994) and press releases are also kept on our website, available for all to see. The same tables have also been generated from the final official decennial population numbers for each decade from 1940 to 2010. Our website also has a historical table, that we have continued to update, showing the number of seats given to each state each decade back to the nation's founding in 1789.

B. EDS, Inc.'s Reapportionment Reports

When the Census Bureau releases the final state apportionment population counts by December 31 of any year ending in zero, the Census Bureau also reports its apportionment calculations. However, the Census Bureau does not report any calculations for how close or how far away each state was from gaining or losing an additional seat. In addition to reporting its apportionment calculations, the Census Bureau also reports as a separate column of the overseas counts (both military and non-military overseas residents), so EDS, Inc. is able to create a separate apportionment table showing whether the overseas numbers caused a state to gain or lose a seat.

In contrast to the Census Bureau's apportionment counts and calculations, EDS, Inc.'s reapportionment program calculates not only how many seats each state would receive based on the population or other numbers put into the formula, but it also calculates and reports the number of people a state gained its last seat by or lost the next seat by. EDS, Inc.'s program, using the Census Bureau's reporting creates a separate apportionment table showing whether the overseas numbers caused a state to gain or lose a seat. It also reports the last seat number that is given to a state, as well as what number seat the next district would be if the calculations continued past the 435 seat cut-off. The program allows the user to change the maximum number of seats to be calculated. Finally, the program calculates the ideal district size for each state, by taking the state's total population and dividing it by the number of seats that the state has been awarded.

Our current report was generated on December 30, 2019 and is available on the front page of EDS, Inc.'s webpage. A copy of the 2019 EDS, Inc. Report is also attached to this document as **Exhibit B**.

This new study follows our normal practice of taking the census's new state-level total resident population estimates, using a straight line projection to move the estimates forward to be

as of April 1 in the year ending in zero (to correspond to when the census is taken), and then using the resulting state resident population projections as input to the apportionment program. We have always recognized the importance of showing population estimates to correspond to Census Day (April 1) because this is the population count necessary for apportionment, and have always projected the last year of estimates to be 9/12th of a year (i.e., from July 1 to April 1, or nine months). EDS, Inc. has never, however, included any projections in its yearly apportionment studies for the overseas population because there have not been any reliable numbers available for such projections. EDS, Inc. has also never attempted to calculate projections of the undocumented population because available estimates of this population vary widely.

It is important to note that estimates from the Population Estimates Program are based on the premise of a data date of July 1 for each year (i.e., different from Census Day of April 1).² While the Census Bureau uses the enumerated resident population from the 2010 census as a starting point for all post-2010 population estimates, they modify the data to produce the “April 1, 2010 Population Estimates base” so that the data reflect the following information:

- 1) Changes brought about by the Count Question Resolution program, where local jurisdictions can challenge their decennial census results. Successful changes are incorporated into the estimates base.
- 2) Legal boundary changes. While this does not impact state-level population numbers, it will impact county, city or town boundaries within a state (these jurisdictions also see population estimates being generated over the decade).
- 3) Revisions to racial categorizations, most significantly the “Some other race” category. Again, this does not impact the state-level total population estimates used in the reapportionment studies.³

Each year when the Census Bureau releases their state estimates for the current year, part of the Population Estimates Program also revises all past year’s estimates in that decade. As the Census Bureau’s documentation notes:

With each annual release of population estimates, the Population Estimates Program revises and updates the entire time series of estimates from April 1, 2010 to July 1 of the current year, which we refer to as the vintage year. We use the term “vintage” to denote an entire time series created with a consistent population starting point and methodology. The release of a new vintage of estimates supersedes any previous series and incorporates the most up-to-date input data and methodological improvements.⁴

² U.S. Census Bureau, *Methodology for the United States Population Estimates: Vintage 2019, Nation, States, Counties, and Puerto Rico – April 1, 2010 to July 1, 2019* (2019), available at <https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/2010-2019/2019-natstcopr-meth.pdf> (hereinafter “Methodology for the U.S. Population Estimates”).

³ *Id.* at 2-3.

⁴ *Id.* at 1.

These revisions to the estimates reflect new information Census Bureau staff may have received from the states on their births, deaths and migration estimates in previous time periods.⁵ As a result, EDS, Inc. always completely replaces the entire decade's estimates for each state for each year with the Census Bureau's new tables.

Over the decades, EDS, Inc. has also developed a spreadsheet that automatically calculates both raw number and percentage changes for individual yearly population data, as well as multiple time period changes. This allows us to test multiple time period ranges to see whether different time periods will yield different apportionment results. In each of the past two decades we have observed that different national events have caused changes in population movements. For example, we could see how the 2008 recession significantly changed the nation's growth pattern for not only that year, but for several subsequent years into the next decade.

As a result of these observed changes, for the past several years we have generated different trend line scenarios, and given them easily recognized names (such as "long-term trend," "mid-term trend," and "short-term trend") and then utilized them in our studies. With each new year's estimates, the years covered by these trends may change, but generally the "long-term trend" looks at the entire decade's worth of change to calculate. Usually the "short-term trend" period only covers the immediate one or two years of change, in order to project the population estimates forward.

When we performed the analysis for our 2019 EDS, Inc. Report, we discovered and reported that all the different trend models ultimately produced the same overall outcome results as it relates to reapportionment results. We theorized that this was because of the very short time before April 2020 (basically nine months from the July 1, 2019 date of the 2019 estimates) resulted in the projections not shifting much in the trending forward process. It is unusual for this to happen, but we observed that the different trend models did produce different margins of how much a state gained or lost a seat by, and where states fell at the 435-seat cut-off point. As a result, the EDS, Inc. 2019 Study focused on using the "short-term" trend model to generate 2020 populations for apportionment. A short-term trend projection that focuses on more recent population changes is a better projection of what will happen on April 1, 2020 when compared to a long-term trend projection that incorporates and potentially amplifies population changes earlier in the decade.

i. A Number of States Are Close to Gaining or Losing a Seat in the 2019 EDS, Inc. Report

The apportionment process is very susceptible to small changes in the population. As a result, one of the focuses of our studies is to see which, and how many states are "sitting on the edge" of the 435-seat cut-off for the allocation of seats in Congress, but most importantly by what margin of gain or loss. Each of our studies contains a table that shows which states receive seat numbers 430 through 435, and which states just missed the cut-off by receiving theoretical seats numbers 436 through 440. Each year different states fall into this "watch" category, as population estimates change and different states get seat numbers around the magic 435 cut-off

⁵ See *id.*

each year, particularly if they would have received seat number 436. Any state that falls into seat ranges 429 through 440, particularly if they gained or lost the seat by under 50,000 people, could very possibly change when new numbers become available.

The 2019 EDS, Inc. Report shows the State of Alabama would receive seat number 436, or, in other words, would just miss that last seat (435) by only 10,072 people, assuming all other state populations stay the same.⁶ Although our 2019 EDS, Inc. Report shows Alabama losing a seat, in earlier parts of the decade the margin that Alabama would lose their seventh seat by was much larger than it is in our new study. Our 2015 study showed Alabama would lose that seat by 64,891 people.⁷ By the time of our 2018 study, Alabama's loss margin dropped to just over 40,000 people,⁸ and, as noted above, the margin is now only 10,072.

Other states are also close to the cut-off mark, at least one by a smaller number of people: Montana would gain back their second seat by only 2,402 people to spare.⁹ To demonstrate how susceptible the states are to gain or lose a seat, I took away 2,403 people from the Montana estimate, leaving it with 1,072,507 people, and re-ran the apportionment calculator. In this revision Montana lost its second seat and went back to receiving just a single seat. As a result of this small change, and with every other state keeping the same population estimates, the State of Alabama would avoid losing its seventh seat by a margin of only nine (9) people. This is without adding the overseas population to the resident population, subtracting undocumented immigrants from the apportionment population count, or considering any other factors that may ultimately affect the counting process. **Exhibit C** attached to this report are the results of a revised 2019 apportionment table reflecting the above population changes and resulting apportionment.

Because a number of states are "sitting on the edge" and by relatively close margins, it's very likely that the final official population totals released at the end of the year will produce a different shift in where states fall at the 435-seat cut-off mark. Certainly, the addition of the overseas population, which we have no way of reliably projecting, will also shift these final seat assignments.

ii. Factors That Contribute to Uncertainty in Apportionment Projections

There are a wide range of factors that will ultimately impact the final population numbers. As noted in the 2019 EDS, Inc. Report,¹⁰ there are several factors that govern any apportionment study that deals with population estimates, as well as several factors that govern specifically relevant to the 2020 congressional reapportionment. As explained below, these include:

⁶ Exhibit B at 4.

⁷ Election Data Services, *2015 Reapportionment Analysis* at Appendix 2020Proj10-15 (Dec. 22, 2015), available at https://www.electiondataservices.com/wp-content/uploads/2015/12/NR_Appor15wTables.pdf.

⁸ Election Data Services, *2018 Reapportionment Analysis* 3 (Dec. 19, 2018), available at https://www.electiondataservices.com/wp-content/uploads/2018/12/NR_Appor18.pdf.

⁹ *Id.*

¹⁰ Exhibit B at 3.

- What is the method used to project estimates forward to Census Day, 2020?
- How well will the census be conducted this year? Will the Internet option for filling out the form work?
- Will people respond to the census? Will the citizenship question debate over the past year cause some people to not respond?
- How will the addition of overseas military populations impact apportionment? What impact will the change in method of counting overseas military impact the additional numbers?
- What will be the impact of the current COVID-19 crisis?

a. What is the method used to project estimates forward to Census Day, 2020?

All firms or entities that create population estimates always pick a specific date in time their estimates reflect. Some are good as of January 1 or December 31. For instance, the Census Bureau Population Estimates Program uses July 1, a date which tends to follow state fiscal year dates and when the states update their own source data. This becomes important when one uses a time series of estimates to project the data forward to something like Census Day (officially April 1). If a researcher uses a whole number of years to project the Census Bureau's estimate data forward to Census Day, then they will either fall nine months short or (as Dr. Poston does in his report and admitted at his deposition)¹¹ three months longer in time. In the event the estimate includes an extra three months of change, it will include extra births, deaths, and migrations,¹² and the resulting population numbers are likely to be higher than expected. The bottom line, however, is that Dr. Poston's data does not constitute a projection of the population on Census Day, the day relevant for congressional reapportionment.

I have also seen instances where different population time series will create different population projections. This is why EDS, Inc. has its time series calculate not only the individual year population changes, but also population changes for parts of a decade (for example, for 2011 through 2019, and then from 2012 through 2019, followed by 2013 through 2019, etc.). We've particularly seen different population projections being created in the first half of the decade, as projections forward are much more susceptible to slight changes that get magnified at the end of the decade.

b. How well will the census be conducted this year? Will the Internet option for filling out the form work?

There has been a wide-ranging discussion over the past several years about whether enough funds will be, or have been, allocated to conduct this census. This was a problem initially raised in the first part of this decade, as planning and development of programs for the 2020 census were being formulated. Advocacy groups have expressed concerns that not enough funds were allocated to the Bureau early enough in the decade to conduct all the planning steps

¹¹ Sworn Declaration and Expert Report of Dudley L. Poston, Jr., Ph.D. (Jan. 23, 2020) ("Poston Report") at 14; Supplement to Sworn Declaration and Expert Report of Dudley L. Poston, Jr., Ph.D. ("Poston Supp. Report") at 3; February 27, 2020 Transcript of Deposition of Dudley L. Poston, Jr., Ph.D. ("Poston Dep.") 41:20-42:2, 43:1-6.

¹² See Methodology for the U.S. Population Estimates at 1.

necessary to ensure a good census. Instead of four testing sites, for example, the Census Bureau had to cut back to only one location in order to test out some of their processes.¹³ Moreover, if different hard to count groups are not properly enumerated, then population counts could suffer, including final state resident population data for states with larger hard-to-count populations.¹⁴

There have also been concerns surfacing over the past several weeks on whether the Internet option for filling out the census form will work properly. This is the first time the Census Bureau will implement a primarily online census.¹⁵ The sudden decision to change from the vendor-provided solution to one developed in-house has surfaced immense concerns.¹⁶ While the Census Bureau has touted the Internet option as a new improvement to the whole census experience in this new decade, it remains to be seen if all groups will accept and make use of this process.

These are just a few examples of where things might go wrong as the census is conducted over the next several months. Any or all these problems have a potential of impacting the census and are likely to result in different population counts being generated. As a result, state reapportionment calculations would be impacted and change the likely outcome.

c. Will people respond to the census? Will the citizenship question debate over the past year cause some people not to respond?

There is also the issue of whether people will respond to the census, and the impact of the citizenship question debate on response rates. While this issue could apply to several individuals or groups over the next several months, this is of great concern in the Hispanic community because of last year's attempt by the Trump Administration to add a citizenship question to the 2020 census questionnaire. Although the decision was enjoined by the courts, there is still concern that discussion of the larger citizenship issue will cause large numbers of this group to not answer the census.

d. How will the addition of overseas military populations impact apportionment? What impact will the change in method of counting overseas military impact the additional numbers?

Since at least the 1990 census, the Census Bureau has created the total state population numbers that are used for apportionment by adding each state's overseas population (which primarily includes military personnel, but also includes other civilian employees of the U.S. government and their dependents) to their respective resident population. For 2020, however, and as noted elsewhere in this report, the Census Bureau and the Department of Defense have modified the way the military overseas population will be counted. The new residency rules

¹³ Michelle Wines, *Census Officials Say Rhode Island Rehearsal is Going Well. Not Everyone Agrees*, N.Y. Times (Apr. 28, 2018), <https://www.nytimes.com/2018/04/28/us/2020-census-test-rhode-island.html>.

¹⁴ Hard-to-count groups are groups that the Census Bureau identifies as difficult to fully enumerate, including children and certain racial and ethnic minorities.

¹⁵ Nick Brown, *Census Says Switching Software for U.S. Population Count*, Reuters.com (Feb. 13, 2020), <https://www.reuters.com/article/us-usa-census-technology/census-says-switching-software-for-u-s-population-count-idUSKBN2072SN>.

¹⁶ *Id.*

released by the Trump Administration in the last several years will take short-term “deployed” military personnel and count them back at the states of their usual residence in the United States. They will be counted as part of their respective states’ resident population for both apportionment and redistricting purposes. This means that they will no longer constitute part of the overseas population.

In contrast, in 2010 deployed military personnel were counted at their “home state of record,” the address they provided when they entered military service. They were counted only as part a state’s overseas population, but not the state’s resident population, and were counted only for apportionment purposes. Department of Defense documents seem to indicate the new rules regarding deployed personnel will reduce the military overseas population by about 15% because deployed personnel will instead be counted as part of the resident population of the states of their usual residence in the United States.¹⁷

The addition of the military overseas population has affected the reapportionment process twice since 1990. In 2000, had the overseas populations not been included in the apportionment calculation, North Carolina’s surprise gain of a seat would have instead gone to the state of Utah.¹⁸ Utah would have gained the 435th and final seat, with just 691 persons to spare, while North Carolina would have missed the seat by 2,493 people.¹⁹ North Carolina’s gain was directly attributable to the way the overseas population was counted. That decade, individuals were allocated to states using the “home of record” in their personnel files, or the state from which Americans overseas entered government service. Although several military bases are in the state of Utah, the number of North Carolina residents living overseas was almost six times the number of Utah residents overseas.

The inclusion of overseas personnel for congressional apportionment had a similar impact following the 1990 census. In 1990, the state of Washington gained a seat at Massachusetts’ expense after the overseas population was included in the apportionment calculations.²⁰

e. What will be the impact of the current COVID-19 crisis?

With three weeks to go before Census Day, the rapidly changing coronavirus crisis is bound to impact how the Census is taken and could impact the apportionment results. The fact that many college campuses are closing, and students sent home, raises the question of where they will be counted.²¹ For students that go to school out of state, will they still have an

¹⁷ Hansi Lo Wang, *Restrictions On Deployed U.S. Troop Data Could Put 2020 Census ‘At Risk’*, NPR (Feb. 25, 2019), <https://www.npr.org/2019/02/25/697315761/restrictions-on-deployed-u-s-troop-data-could-put-2020-census-at-risk>.

¹⁸ Election Data Services, *2000 Census Counts Produce Surprises in Congressional Delegations 2* (Dec. 28, 2000), https://www.electiondataservices.com/wp-content/uploads/2014/12/reap2000_nr.pdf

¹⁹ *Id.*

²⁰ Margo Anderson and Stephen E. Fienberg, *A Short Story About the Reapportionment of Congress and the 1990 Census*, UWMilwake (accessed Mar.13, 2020), <https://sites.uwm.edu/margo/history-myth-making-and-statistics/>.

²¹ Lily Jackson, *Universities Across the State End Lectures, Go Online*, AL.com (Mar. 13, 20220), <https://www.al.com/coronavirus/2020/03/auburn-and-samford-end-lectures-universities-cancel-travel-as-alabama-prepares-for-coronavirus.html>.

attachment to the college campus when the census form arrives in the mail, or will they fill it out based on their parents' address? This could have a significant impact on states with large college populations, like Alabama. More than 100,000 undergraduate students attend public four-year colleges in Alabama.²² Where will the over 100,000 students be counted, particularly if they are sent home during the census?

VI. ISSUES WITH DR. POSTON'S REPORTS

I reviewed Dr. Poston's initial report and supplemental report. Methodologically, there are a number of issues with Dr. Poston's projections in both reports, which I have outlined below. These issues render Dr. Poston's projections unreliable. Even if Dr. Poston had conducted sound projections, however, because of the closeness of Alabama to the magic 435 cut-off mark, it is impossible to say with any level of certainty that not excluding undocumented immigrants will cause Alabama to lose its seventh congressional seat. Given the unreliability in Dr. Poston's projections and the fact that so many issues are still in flux on the eve of the 2020 census, it is my opinion that Dr. Poston cannot reliably predict that Alabama will lose its seventh congressional district following the 2020 census. In addition, it is my opinion that Dr. Poston cannot reliably predict that Alabama would keep its seventh congressional district following the 2020 census as a result of excluding undocumented immigrants from the apportionment population counts.

A. Projection of the 2020 Resident Population

There are several problems in the method Dr. Poston's uses to project his population numbers forward to correspond to 2020. Dr. Poston uses a long-term trend line to project the 2020 resident population of each state, notwithstanding the fact that such a projection incorporates population changes early in the decade that resulted from factors that do not reflect more recent conditions. More importantly, Dr. Poston's projections are not a projection of the resident population of each state on April 1, 2020, the count of the population necessary for congressional apportionment, but instead it appears Dr. Poston's numbers are a projection of the resident population of each state on July 1, 2020, three months after Census Day.

i. Trend Line Used by Dr. Poston

Dr. Poston has adopted a "long-term" model where he looks at the trend in the overall decade (2010 through 2018, or 2010 to 2019 in his supplemental report) to project his data forward.²³ He attempted to create "annualized" change estimates (average change of the whole decade, reflected as an annual number) that he then added to the 2018 and 2019 Census Bureau estimates.²⁴

By taking all ten years into account Dr. Poston is giving too much weight to demographic and population changes that occurred at the beginning of the decade that no longer have an

²²*Public Four-Year FTE, Fall 2019*, Alabama Commission on Higher Education, available at https://ache.edu/ACHE_Reports/Reports/SDB_Reports/FTE/FTE-4YR-Fall-2019.pdf.

²³ Poston Report at 14; Poston Supp. Report at 3.

²⁴ *Id.*

impact, such as the 2008 recession. Because of the immediacy of Census Day, a short-term trend projection that focuses on more recent population changes is a better projection of what will happen on April 1, 2020.

ii. Incorrect Starting Point for Projections

The Census Bureau's population estimates series is built around the prospect that the numbers are an estimate of the resident population as of July 1 of each year. As a result, the Census Bureau publishes "adjusted 2010 Census numbers" to correspond to the different July 1 timetable, as opposed to the official 2010 census count numbers from April 1.²⁵ In addition, the Census Bureau updates the population estimates base to reflect changes brought about by their Count Question Resolution program.²⁶ This program allows jurisdictions to challenge their population counts, and successful challenge results are incorporated into the estimate program.²⁷

I follow the Census Bureau's practice and always use the "adjusted 2010 Census numbers" as the starting point in the EDS, Inc. projection models.²⁸ Dr. Poston's calculations, however, are anchored to the April 1, 2010 census counts, not the July 1, 2010 starting point for the Census Bureau estimates series.²⁹ This is problematic not only because it ignores adjustments to the 2010 census count numbers that better reflect the population, but also because Dr. Poston subtracted April 1, 2010 census counts from the July 1, 2018 (or 2019) Census Bureau estimates, and divided this number by nine instead of nine and one third. In other words, Dr. Poston did not correctly annualize the differences that he then added to the 2018 (or 2019) Census Bureau estimates.

iii. Incorrect Ending Point for Projections

Dr. Poston also does not have a correct ending point for his projections. Dr. Poston used a whole number of years to project the Census Bureau estimates forward to 2020.³⁰ Because Dr. Poston used a whole number of years to project the Census Bureau's July 1 population estimate data, his projections fall three months over in time from Census Day.³¹ This means that Dr. Poston's resident population projections include births, deaths, and migrations for a three-month period beyond Census Day. Put another way, Dr. Poston's population projections are not estimates of the apportionment resident population on Census Day, the population needed for congressional reapportionment, but for July 1, 2020, a date that has no significance to congressional reapportionment.

B. Projection of overseas populations and impact of changes to residency rules

Dr. Poston attempted to project the 2020 overseas population for the states by calculating the proportion of each state's 2010 resident population to the 2010 overseas population and

²⁵ *Methodology for the U.S. Population Estimates* at 1.

²⁶ *Id.* at 2-3.

²⁷ *Id.*

²⁸ *See id.* at 1.

²⁹ Poston Report at 14; Poston Supp. Report at 3; Poston Dep. at 97:4-98:14.

³⁰ Poston Report at 14; Poston Supp. Report at 3; Poston Dep. at 41:20-42:2, 43:1-6, 97:4-98:14.

³¹ Poston Report at 14; Poston Supp. Report at 3; Poston Dep. at 41:20-42:2, 43:1-6.

applying those proportions to his 2020 resident population projections.³² Those resulting numbers were then added to his 2020 resident population estimates to create his 2020 apportionment counts.³³

Dr. Poston's overseas population estimates are highly problematic because there is no indication that each state's proportion of the overseas population in 2010 will be the same proportion in 2020. We know the proportions are very likely to be different because of changes, discussed above, to the residency rule dealing with how the overseas population will be counted in 2020. Despite the fact that this information was cited in the 2019 EDS, Inc. Report, Dr. Poston was apparently not aware of these changes when he decided to apply the 2010 proportion of each state's overseas population to his 2020 projections, nor was he aware of the way in which the overseas population was counted in 2010.³⁴ Changes in foreign policy will also likely impact the overseas population counts for 2020, and no good data is available to determine how much of an impact this will have.

A look at past overseas population state proportions further highlight Dr. Poston's flawed assumption. For the past three censuses the numbers of the overseas population have significantly changed with each decennial census, in both raw numbers and the percentages they represent of the total apportionment count. In 1990, the Census Bureau reported 919,810 individuals living overseas, but in 2000 it dropped to only 574,330. This ballooned to 1,039,648 in 2010. While these represented low percentages of the total apportionment population count (0.37% in 1990, 0.20% in 2000, and 0.34% in 2010), there is a great deal of variation in the individual states' percentages. Further, within states the overseas population numbers see changes in the thousands from decade to decade. For example, in 1990, California's overseas population was 88,033 and constituted 0.24% of its total apportionment population. In 2000, California's overseas population fell to 59,150 and constituted 0.17% of its total apportionment population. Finally, in 2010, California's overseas population jumped back up to 79,229 and constituted 0.27% of California's total apportionment population. Tables for each decade's overseas numbers are attached as **Exhibit D**.

At best, Dr. Poston's projections of the 2020 overseas population are a guessing game, based on an assumption that is not supported by any facts, and should be disregarded.

C. Undocumented Immigrant Population

The central claim in Dr. Poston's report is that it is substantially likely that the continued inclusion of undocumented immigrants in the 2020 census apportionment population will cause the State of Alabama to lose a congressional seat in 2020. In addition, he claims it is likely that the exclusion of undocumented immigrants from the apportionment population will allow Alabama to keep a seventh congressional seat.³⁵ Because there are no Census Bureau state-by-state estimates of undocumented immigrants, Dr. Poston uses four-year old estimates from the Pew Research Center to generate undocumented immigrant counts that he then removes from his

³² Poston Report at 14; Poston Supp. Report at 3.

³³ *Id.*

³⁴ Poston Dep. at 105:10-23.

³⁵ Poston Report at 2, 3.

2020 apportionment population projections.³⁶ He specifically says that his “assumption is that the proportions of undocumented immigrants in the states in 2016 will be the same proportions in 2020.”³⁷

As with his projections of the 2020 resident and overseas populations, Dr. Poston’s projections of the 2020 undocumented population are highly problematic. As an initial matter, there are no official estimates of the undocumented population, and the available estimates of the undocumented population vary widely. For example, a study by professors at the Yale School of Management estimates that in 2016 there were 16.7 million undocumented immigrants in the country,³⁸ while Pew estimates that in 2016 there were 10.7 undocumented immigrants in the country.³⁹ Because apportionment calculations are very susceptible to even small population changes, the choice of one estimate over another can have a large impact on the final apportionment results.

Despite the fact that there is variability in the available undocumented population estimates, Dr. Poston decided to use the 2016 Pew estimates⁴⁰ and did not look into whether other estimates were more accurate or reliable.⁴¹ Dr. Poston used the Census Bureau’s 2016 population estimates for the resident population totals of each state.⁴² There is no indication, however, that the Pew estimates are tied to any particular date in 2016, much less that they are tied to July 1, 2016. Are the Pew estimates for the beginning of the calendar year? The end? How does this correspond to the April 1 Census Day or the July 1 Census estimate date? Dr. Poston does not appear to have grappled with these questions.

Even assuming that the 2016 Pew estimates were reliable, however, there is no indication that each state’s proportion of the undocumented population in 2016 will be the same proportion in 2020. Pew’s own estimates show that between 2010 and 2016, the undocumented population decreased from 11.4 million to 10.7 million, with varying changes state by state.⁴³ While total population estimates from different sources vary, other estimates also show that the undocumented population has been decreasing over time. For example, the Center for Migration Studies reports that the undocumented population decreased from 11.7 million in 2010 to 10.7 million in 2017.⁴⁴

Further, data released over the past several years indicates that the number of undocumented immigrants has continued to decrease since 2016 as a result of the Trump Administration’s efforts to lower the flow of immigrants into the country. News agencies have

³⁶ *Id.* at 15-16.

³⁷ Poston Supp. Report at 5.

³⁸ Mohammad M. Fazel Zarandi, Jonathan S. Feinstein, and Edward H. Kaplan, *The Number of Undocumented Immigrants in the United States: Estimates Based on Demographic Modeling with Data from 1990 to 2016*, PLOS ONE (Sept. 21, 2018), <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0201193>.

³⁹ Jeffrey S. Passel and D’Vera Cohn, *U.S. Unauthorized Immigrant Total Dips to Lowest Level in a Decade 5*, Pew Research Center (Nov. 27, 2018) (hereinafter “2016 Pew Estimates”).

⁴⁰ Poston Report at 15-16; Poston Supp. Report at 4-5.

⁴¹ Poston Dep. at 146:23-147:5.

⁴² *Id.*

⁴³ 2016 Pew Estimates at 5, 14.

⁴⁴ State-Level Unauthorized Population and Eligible-to-Naturalize Estimates, Center for Migration Studies, <http://data.cmsny.org/>.

recently reported that the “Illegal immigrant population shrinks as Mexicans head back home”⁴⁵ and “A Mexican Exodus is Helping Shrink the Undocumented Population.”⁴⁶ If the Trump Administration’s policies have been even moderately successful, then it is likely that Dr. Poston’s proportional methodology will overestimate the undocumented population.

D. Dr. Poston’s District Size Argument

Dr. Poston argues that it is important that all states have the same average congressional district population size, seeming to argue that this is closer to the one-person, one-vote requirement from the courts and that this is better achieved by excluding undocumented immigrants.⁴⁷ This is a specious argument because Dr. Poston fails to take into account the first step of the apportionment process: that every state is guaranteed at least one congressional district, no matter their total population.

Article 1, section 2 of the Constitution specifically states that: “The Number of Representatives shall not exceed one for every thirty thousand, *but each State shall have at least one Representative.*” (emphasis added). One can see the results of this tenet in any of the apportionment tables attached to any EDS, Inc. apportionment study, where we calculate the ideal district size (labeled “average size”) for each state.⁴⁸ The 2019 EDS, Inc. Report shows this column as the second column from the right.⁴⁹ At the bottom of each of our tables we report not only the median average district size for the country, but also the minimum and maximum district population for the 50 states. For example, the 2019 EDS, Inc. Report apportionment calculations based on EDS, Inc.’s 2020 resident population projections shows that Rhode Island’s single seat is projected to have a population of 1,060,167.⁵⁰ This is nearly double the size of a congressional district in the state of Montana (537,455), which would go back to two seats in the 2019 EDS, Inc. Report.⁵¹ The seven “at-large” states that have only a single congressional district demonstrate the largest and smallest extremes of the district population size issue.⁵² **Exhibit E** sorts the states by their average district size to further show this dichotomy.

Dr. Poston attempts to obscure these basic facts of apportionment by bringing in a standard deviation calculation, but this is irrelevant to the basic premise of reapportionment when every state gets at least one seat. Whether the ideal district size includes or excludes undocumented immigrants has little bearing on the issue of whether there is disparity in district population sizes when every state gets at least one district, no matter its total population.

⁴⁵ Stephen Dinan, *Illegal Immigrant Population Shrinks as Mexicans Go Home*, Wash. Times (Feb. 27, 2020), <https://www.washingtontimes.com/news/2020/feb/26/illegal-immigrant-population-shrinks-mexicans-go-h/>.

⁴⁶ Miriam Jordan, *A Mexican Exodus Is Helping Shrink the Undocumented Population*, N.Y. Times (Feb. 26, 2020), <https://www.nytimes.com/2020/02/26/us/undocumented-population-study-mexicans.html>.

⁴⁷ Poston Report at 17-19.

⁴⁸ *E.g.*, Exhibit B at Appendix Main.

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.*

E. Dr. Poston's Reference to the 2019 EDS, Inc. Report

Dr. Poston compares his apportionment results in his first report to the 2019 EDS, Inc. Report results, presumably in support of his conclusions. But this comparison is not appropriate because the calculations are based on different inputs. Thus, any consistency between the two reports is as much the result of happenstance as anything else.

The 2019 EDS, Inc. Report is based on the Census Bureau's 2019 population estimates and uses only the 2020 resident population projections for the apportionment calculations. That is, the apportionment population does not include a projection of the overseas population. Further, the 2019 EDS, Inc. Report uses a short-term trend line and projects the estimates to April 1, 2020, or Census Day. Importantly, Election Data Services recognizes the report's limitations as a projection of the actual 2020 congressional reapportionment because there is no reliable overseas population projection to use in the calculations.

Dr. Poston's analysis in his main report, on the other hand, relies on the Census Bureau's 2018 population estimates. Dr. Poston conducted the reapportionment calculation using apportionment population counts that include his projected 2020 resident population counts *plus* his projected 2020 overseas population counts. Further, Dr. Poston uses a long-term trend line and projects the estimates to July 1, 2020. His introduction of unreliable projections renders his calculations a wholly different animal than the 2019 EDS, Inc.'s Report's calculations. Importantly, because Dr. Poston used different inputs for his calculations, the different inputs for the 50 states will have an effect on the gain or loss population margins and on the seat positions.

VII. Conclusion

Dr. Poston compounds mistake upon mistake in reaching his conclusions, and does not show with any level of certainty that Alabama will lose its seventh congressional seat following the 2020 census if undocumented immigrants are not excluded from the apportionment count. Neither does he show with any level of certainty that Alabama will retain a seventh congressional seat following the 2020 Census as a result of excluding undocumented immigrants from the apportionment count.



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EXHIBIT A

VITA

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Redistricting Consulting

Activities include software development; construction of geographic, demographic, or election databases; development and analysis of alternative redistricting plans; general consulting, and onsite technical assistance with redistricting operations.

Congressional and Legislative Redistricting

Arizona Independent Redistricting Commission: Election database, 2001

Arizona Legislature, Legislative Council: Election database, 2001

Colorado General Assembly, Legislative Council: Geographic, demographic, and election databases, 1990–91

Connecticut General Assembly

- Joint Committee on Legislative Management: Election database, 2001; and software, databases, general consulting, and onsite technical assistance, 1990–91
- Senate and House Democratic Caucuses: Demographic database and consulting, 2001

Florida Legislature, House of Rep.: Geographic, demographic, and election databases, 1989–92

Illinois General Assembly

- Speaker of House and Senate Minority Leader: Software, databases, general consulting, and onsite technical assistance, 2000–02,
- Speaker of House and President of Senate: Software, databases, general consulting, and onsite technical assistance, 2018-current, 2009-2012, 1990–92, and 1981-82

Iowa General Assembly, Legislative Service Bureau and Legislative Council: Software, databases, general consulting, and onsite technical assistance, 2000–01 and 1990–91

Kansas Legislature: Databases and plan development (state senate and house districts), 1989

Massachusetts General Court

- Senate Democratic caucus: Election database and general consulting, 2001–02

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- Joint Reapportionment Committees: Databases and plan development (cong., state senate, and state house districts), 1991–93, 2010-2012(Redistricting Consulting, cont.)

Michigan Legislature: Geographic, demographic, and election databases, 1990–92; databases and plan development (cong., state senate, and state house districts), 1981-82

Missouri Redistricting Commission: General consulting, 1991–92

Commonwealth of Pennsylvania: General consulting, 1992

Rhode Island General Assembly and Reapportionment Commissions

- Software, databases, plan development, and onsite assistance (cong., state senate, and state house districts), 2016- current, 2010-2012, 2001–02 and 1991–92
- Databases and plan development (state senate districts), 1982-83

State of South Carolina: Plan development and analysis (senate), U.S. Dept. of Justice, 1983–84

Local Government Redistricting

Orange County, Calif.: Plan development (county board), 1991–92

City of Bridgeport, Conn.: Databases and plan development (city council), 2011-2012 and 2002–03

Cook County, Ill.: Software, databases, and general consulting (county board), 2010-2012, 2001–02, 1992–1993, and 1989

Lake County, Ill.: Databases and plan development (county board), 2011 and 1981

City of Chicago, Ill.: Software, databases, general consulting, and onsite technical assistance (city wards), 2010-2012, 2001–02 and 1991–92

City of North Chicago, Ill.: Databases and plan development (city council), 1991 and 1983

City of Annapolis, Md.: Databases and plan development (city council), 1984

City of Boston, Mass.: Databases and plan development (city council), 2011-2012, 2001-2002, and 1993

City of New Rochelle, N.Y.: Databases and plan development (city council), 1991–92

City of New York, N.Y.: Databases and plan development (city council), 1990–91

Cities of Pawtucket, Providence, East Providence, and Warwick, and town of North Providence, R.I.: Databases and plan development (city wards and voting districts), 2011-2012, 2002

City of Woonsocket and towns of Charlestown, Johnston, Lincoln, Scituate and Westerly, R.I.: Databases and plan development (voting districts), 2011-2012, 2002; also Westerly 1993

City of Houston, Tex.: Databases and plan development (city council), 1979 — recommended by U.S. Department of Justice

City of Norfolk, Va.: Databases and plan development (city council), 1983–84 — for Lawyers' Committee for Civil Rights

Virginia Beach, Va.: Databases and plan development (city council), 2011-2012, 2001–02, 1995, and 1993

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Other Activities

International Foundation for Electoral Systems (IFES) and U.S. Department of State: redistricting seminar, Almaty, Kazakhstan, 1995

Library of Congress, Congressional Research Service: Consulting on reapportionment, redistricting, voting behavior and election administration

National Conference of State Legislatures (NCSL): Numerous presentations on variety of redistricting and election administration topics, 1980 - current

Election Administration Consulting

Activities include seminars on election administration topics and studies on voting behavior, voting equipment, and voter registration systems.

Prince William County, VA:

2013 – Appointed by Board of County Supervisors to 15 member Task Force on Long Lines following 2012 election. Asked and appointed by County's Electoral Board to be Acting General Registrar for 5-month period between full-time Registrars.

2008 - current – poll worker and now chief judge for various precincts in county

U.S. Election Assistance Commission (EAC): Served as subcontractor to prime contractors who compiled survey results from 2008 and 2010 Election Administration and Voting Survey.

U.S. Election Assistance Commission (EAC): Compile, analyze, and report the results of a survey distributed to state election directors during FY–2007. Survey results were presented in the following reports of the EAC: *The Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office, 2005–2006, A Report to the 110th Congress*, June 30, 2007; *Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA), Survey Report Findings*, September, 2007; and *The 2006 Election Administration and Voting Survey, A Summary of Key Findings*, December, 2007.

U.S. Election Assistance Commission (EAC): Compile, analyze, and report the results of three surveys distributed to state election directors during FY–2005: Election Day, Military and Overseas Absentee Ballot (UOCAVA), and Voter Registration (NVRA) Surveys. Survey results were presented in the following reports: *Final Report of the 2004 Election Day Survey*, by Kimball W. Brace and Dr. Michael P. McDonald, September 27, 2005; and *Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office, 2003–2004, A Report to the 109th Congress*, June 30, 2005.

Rhode Island Secretary of State: Verification of precinct and district assignment codes in municipal registered voter files and production of street files for a statewide voter registration database, on-going maintenance of street file, 2004–2006, 2008–2014, 2016–2017.

Rhode Island Secretary of State, State Board of Elections & all cities & towns: production of precinct maps statewide, 2012, 2002, 1992

District of Columbia, Board of Elections and Ethics (DCBOEE): Verification of election ward, Advisory Neighborhood Commission (ANC), and Single-Member District (SMD) boundaries and production of a new street locator, 2003. Similar project, 1993.

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Harris County, Tex.: Analysis of census demographics to identify precincts with language minority populations requiring bilingual assistance, 2002–03

(Election Administration Consulting, cont.)

Cook County, Ill., Election Department and Chicago Board of Election Commissioners:

- Analysis of census demographics to identify precincts with language minority populations requiring bilingual assistance, 2019, 2010–2013, 2002–03
- Study on voting equipment usage and evaluation of punch card voting system, 1997

Chicago Board of Election Commissioners: Worked with Executive Director & staff in Mapping Dept. to redraw citywide precincts, eliminate over 600 to save costs, 2011–12

Library of Congress, Congressional Research Service: Nationwide, biannual studies on voter registration and turnout rates, 1978–2002

U.S. General Accounting Office (GAO), U.S. Dept. of Justice, and numerous voting equipment vendors and media: Data on voting equipment usage throughout the United States, 1980–present

Needs assessments and systems requirement analyses for the development of statewide voter registration systems:

- Illinois State Board of Elections: 1997
- North Carolina State Board of Elections, 1995
- Secretary of Commonwealth of Pennsylvania, 1996

Federal Election Commission, Office of Election Administration:

- Study on integrating local voter registration databases into statewide systems, 1995
- Nationwide workshops on election administration topics, 1979–80
- Study on use of statistics by local election offices, 1978–79

Cuyahoga County, Ohio, Board of Elections: Feasibility study on voting equipment, 1979

Winograd Commission, Democratic National Committee: Analysis of voting patterns, voter registration and turnout rates, and campaign expenditures from 1976 primary elections

Mapping and GIS

Activities include mapping and GIS software development (geographic information systems) for election administration and updating TIGER/Line files for the decennial census.

2000 Census Transportation Planning Package (CTPP), 1998–99: GIS software for the U.S. Department of Transportation to distribute to 400 metropolitan planning organizations (MPOs) and state transportation departments for mapping traffic analysis zones (TAZs) for the 2000 census; provided technical software support to MPOs

Census 2000, 2010 and 2020 Redistricting Data Program, Block Boundary Suggestion Project (Phase 1) and Voting District Project (Phase 2), 1995–99: GIS software and provided software, databases, and technical software support to the following program participants:

- Alaska Department of Labor
- Connecticut Joint Committee on Legislative Management

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- Illinois State Board of Elections
- Indiana Legislative Services Agency
- Iowa Legislative Service Bureau

(Mapping & GIS Support, cont.)

- New Mexico Legislative Council Service
- Rhode Island General Assembly
- Virginia Division of Legislative Services

Developed PRECIS® Precinct Information System—GIS software to delineate voting precinct boundaries—and delivered software, databases, and technical software support to the following state and local election organizations (with date of installation):

- Cook County, Ill., Department of Elections (1993)
- Marion County, Fla., Supervisor of Elections (1995)
- Berks County Clerk, Penn. (1995)
- Hamilton County, Ohio, Board of Elections (1997)
- Brevard County, Fla., Supervisor of Elections (1999)
- Osceola County, Fla., Supervisor of Elections (1999)
- Multnomah County, Ore, Elections Division (1999)
- Chatham County, Ga., Board of Elections (2000)
- City of Chicago, Ill., Board of Election Commissioners (2000)
- Mahoning County, Ohio, Board of Elections (2000)
- Iowa Secretary of State, Election and Voter Registrations Divisions (2001)
- Woodbury County, Iowa, Elections Department (2001)
- Franklin County, Ohio, Board of Elections (2001)
- Cobb County, Ga., Board of Elections and Voter Registration (2002)

Illinois State Board of Elections, Chicago Board of Election Commissioners, and Cook County Election Department: Detailed maps of congressional, legislative, judicial districts, 1992

Associated Press: Development of election night mapping system, 1994

Litigation Support

Activities include data analysis, preparation of court documents and expert witness testimony. Areas of expertise include the census, demographic databases, district compactness and contiguity, racial bloc voting, communities of interest, and voting systems. Redistricting litigation activities also include database construction and the preparation of substitute plans.

State of Alabama vs. US Department of Commerce, et al (2019-2020) apportionment & citizenship data

NAACP vs. Denise Merrill, CT Secretary of State, et al (2019-2020) state legislative redistricting and prisoner populations

Latasha Holloway, et al. v. City of Virginia Beach, VA (2019) city council redistricting

Joseph V. Aguirre vs. City of Placentia, CA (2018-2019), city council redistricting

Davidson, et al & ACLU of Rhode Island vs. City of Cranston, RI (2014-16), city council & school committee redistricting with prisoner populations.

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Navaho Nation v. San Juan County, UT (2014-17) county commissioner & school board districts.

Michael Puyana vs. State of Rhode Island (2012) state legislature redistricting

(Litigation Support, cont.)

United States of America v. Osceola County, Florida, (2006), county commissioner districts.

Deeds vs McDonnell (2005), Va. Attorney General Recount

Indiana Democratic Party, et al., v. Todd Rokita, et al. (2005), voter identification.

Linda Shade v. Maryland State Board of Elections (2004), electronic voting systems

Gongaley v. City of Aurora, Ill. (2003), city council districts

State of Indiana v. Sadler (2003), ballot design (city of Indianapolis-Marion County, Ind.)

Peterson v. Borst (2002–03), city-council districts (city of Indianapolis-Marion County, Ind.)

New Rochelle Voter Defense Fund v. City of New Rochelle, City Council of New Rochelle, and Westchester County Board Of Elections (2003), city council districts (New York)

Charles Daniels and Eric Torres v. City of Milwaukee Common Council (2003), council districts (Wisconsin)

The Louisiana House of Representatives v. Ashcroft (2002–03), state house districts

Camacho v. Galvin and Black Political Caucus v. Galvin (2002–03), state house districts (Massachusetts)

Latino Voting Rights Committee of Rhode Island, et al., v. Edward S. Inman, III, et al. (2002–03), state senate districts

Metts, v. Harmon, Almond, and Harwood, et al. (2002–03), state senate districts (Rhode Island)

Joseph F. Parella, et al. v. William Irons, et al. (2002–03), state senate districts (Rhode Island)

Jackson v. County of Kankakee (2001–02), county commissioner districts (Illinois)

Corbett, et al., v. Sullivan, et al. (2002), commissioner districts (St Louis County, Missouri)

Harold Frank, et al., v. Forest County, et al. (2001–02), county commissioner districts (Wisc.)

Albert Gore, Jr., et al., v. Katherine Harris as Secretary of State, State of Florida, et al., and The Miami Dade County Canvassing Board, et al., and The Nassau County Canvassing Board, et al., and The Palm Beach County Canvassing Board, et al., and George W. Bush, et al (2000), voting equipment design — Leon County, Fla., Circuit Court hearing, December 2, 2000, on disputed ballots in Broward, Volusia, Miami-Dade, and Palm Beach counties from the November 7, 2000, presidential election.

Barnett v. Daley/PACI v. Daley/Bonilla v. Chicago City Council (1992–98), city wards

Donald Moon, et al. v. M. Bruce Meadows, etc and Curtis W. Harris, et al. (1996–98), congressional districts (Virginia)

Melvin R. Simpson, et al. v. City of Hampton, et al. (1996–97), city council districts (Va.)

Vera vs. Bush (1996), Texas redistricting

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In the Matter of the Redistricting of Shawnee County Kansas and Kingman, et al. v. Board of County Commissioners of Shawnee County, Kansas (1996), commissioner districts

Vecinos de Barrio Uno v. City of Holyoke (1992–96), city council districts (Massachusetts)

(Litigation Support, cont.)

Torres v. Cuomo (1992–95), congressional districts (New York)

DeGrandy v. Wetherell (1992–94), congressional, senate, and house districts (Florida)

Johnson v. Miller (1994), congressional districts (Georgia)

Jackson, et al v Nassau County Board of Supervisors (1993), form of government (N.Y.)

Gonzalez v. Monterey County, California (1992), county board districts

LaPaille v. Illinois Legislative Redistricting Commission (1992), senate and house districts

Black Political Task Force v. Connolly (1992), senate and house districts (Massachusetts)

Nash v. Blunt (1992), house districts (Missouri)

Fund for Accurate and Informed Representation v. Weprin (1992), assembly districts (N.Y.)

Mellow v. Mitchell (1992), congressional districts (Pennsylvania)

Phillip Langsdon v. Milsaps (1992), house districts (Tennessee)

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Buckanaga v. Sisseton School District (1987–88), school board districts (South Dakota)

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Ketchum v. Byrne (1982–85), city council districts (Chicago, Ill.)

(Litigation Support, cont.)

State of South Carolina v. United States (1983–84), senate districts — U.S. Dept. of Justice

Collins v. City of Norfolk (1983–84), city council districts (Virginia) — for Lawyers' Committee for Civil Rights

Rybicki v. State Board of Elections (1981–83), senate and house districts (Illinois)

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The Election Data Book: A Statistical Portrait of Voting in America, 1992, Kimball W. Brace, ed., (Bernan Press, 1993)

"Geographic Compactness and Redistricting: Have We Gone Too Far?", presented to Midwestern Political Science Association, April 1993 (with D. Chapin and R. Niemi)

"Whose Data is it Anyway: Conflicts between Freedom of Information and Trade Secret Protection in Redistricting", *Stetson University Law Review*, Spring 1992 (with D. Chapin and W. Arden)

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"Redistricting Roulette," *Campaigns and Elections*, March 1991 (with D. Chapin)

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Kimball W. Brace, Vita, page 9

"New Census Tools," *American Demographics*, July/August 1980

Professional Activities

Member, Task Force on Long Lines in 2012 Election, Prince William County, VA

Member, 2010 Census Advisory Committee, a 20-member panel advising the Director of the Census on the planning and administration of the 2010 census.

Delegate, Second Trilateral Conference on Electoral Systems (Canada, Mexico, and United States), Ontario, Canada, 1995; and Third Trilateral Conference on Electoral Systems, Washington, D.C., 1996

Member, American Association of Political Consultants

Member, American Association for Public Opinion Research

Member, American Political Science Association

Member, Association of American Geographers, Census Advisory Committee

Member Board of Directors, Association of Public Data Users

Member, National Center for Policy Alternatives, Voter Participation Advisory Committee

Member, Urban and Regional Information Systems Association

Historical Activities

Member, Manassas Battlefield Trust Board Member, 2018 -- current

Member, Historical Commission, Prince William County, VA., 2015 – current. Elected Chairman in 2017, re-elected 2018

Member of Executive Committee & head of GIS Committee, Bull Run Civil War Round Table, Centerville, VA. 2015 – current

Member, Washington Capitals Fan Club, Executive Board 2017 -- current

February, 2020

EXHIBIT B



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Montana Gains California's Seat With New 2019 Census Estimates; But Alabama & Ohio to also lose by 2020

New Census Bureau population estimates for 2019 released today shows a change of one more seat between two states from last year's study generated by Election Data Services, Inc. on which states would gain or lose congressional seats if the current estimate numbers were used for apportionment in 2019. But projecting these numbers to 2020, using several different methods, leads to more states being impacted by the decennial census scheduled to take place in just four months. These numbers could also be majorly impacted by how well the Commerce Department and Census Bureau conducts the census, how well the American public responds to this decennial exercise, the first where major components will be conducted via the internet, and whether the discussion on citizenship over the past year will cause some groups to avoid participating. A changed practice on how to count the military overseas could also change the final apportionment when it is announced December 31, 2020.

The Bureau's 2019 total population estimates show that now 15 states will be impacted by changes in their congressional delegation if these new numbers were used for apportionment today. The state of **Montana** joins the previously indicated states of **Arizona, Colorado, Florida, North Carolina, and Oregon** to each gain a single seat while the state of **Texas** is now shown to gain a second seat with the new data. The state of **California** joins the states of **Illinois, Michigan, Minnesota, New York, Pennsylvania, Rhode Island, and West Virginia** to lose a seat in Congress using the new data. A map of the 2019 numbers is attached.

The new numbers, however, reflect subtle changes taking place across the nation in birth and death rates and resulting total population numbers that become magnified when the information is projected forward to coincide with the taking of the Census on April 1, 2020. Election Data Services created a variety of different methodologies to project the 2019 data forward nine months (from the July 1, 2019 date of the Census estimates) to April 1, 2020 (several short-term projection methods for the trend occurring in 2018-2019, and 2017-2019, a middle term

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methodology using the 2015-2019 trend, and a long-term projection for 2011-2019). The different methodologies benefit some states and disadvantage others in the "musical-chairs" effort of allocating 435 seats to the 50 states. All the methods would add a second seat for **Florida** and a third seat for **Texas**, to the list of states noted above that will gain one or more seats by 2020. The list of losing states will expand to also include **Alabama** and **Ohio**, by the time the Census is taken in 2020. A map showing the 2020 projected apportionment using the 2018-2019 trend is attached. Because all the projection models produce the same state overall results in seats as the 2018-2019 trend map, only the tables of the calculations for the different projection models are attached so that how close states are to changes can be observed.

The new 2019 data and all projections forward to 2020 now confirms that **California** will lose a congressional district in 2020. Our 2018 study first picked up the possibility that **California** could lose a congressional district for the first time in their nearly 160-year history. The new 2019 numbers from the Bureau indicate the state would lose that seat by 98,709 people but projecting the data forward to 2020 shows the state further away from potentially keeping that seat, losing it by over 300,000 people in 2020.

While the 2019 Census estimate numbers show **Alabama** keeping their seventh seat by a slim margin of just 18,516 people, projecting the data forward to 2020 would find the state losing the seventh seat by only 10,072 to 19,074 people, depending on the projection model utilized. All of the projection models find **Alabama** just missing the last seat to be apportioned, coming in at seat #436 when there are only 435 seats to hand out (a cut-off mark established in 1910).

The state of **Montana** is just barely able to reverse previous decades of population shifts when it went from two seats down to one in 1990. For 2020 the state is projected to go back to having two seats, but that gain of a second seat is because the state occupies the dubious distinction of obtaining seat #435, the last one to be apportioned. Election Data Services calculations show **Montana** getting that additional seat by only between 2,402 and 4,163 people to spare; a very close margin.

Rhode Island is also a state with an extremely close margin. For most of the decade our studies have projected that **Rhode Island** would lose their second seat by the end of the decade and the new numbers confirm that projection. But their margin has gotten tighter with the new data. For the past several years we saw that **Rhode Island** would lose that second seat by more than 25,000 people. But this new data shows the state missing the seat by only 14,539 residents.

Previous Election Data Services studies have hinted that the states of **Illinois** and **New York** might be in a position to each lose a second seat by 2020. However, these new Census numbers seem to indicate this will not be the case, with both states just losing a single seat each.

The state of **Minnesota** is also close to the margin of likely losing a seat in Congress. All of the projections place the state at position #437, having lost their last seat (their 8th) by between 6,740 people (the 2019 estimate) to around 21,000 people. **Minnesota's** state demographer has indicated that recent influx of people to the state has boosted their numbers and it is likely to have had an impact on reapportionment.

Using any methodology, the population projections points toward a ten (10) seat change over 17 states across the nation by year 2020. States that will gain single seats include **Arizona, Colorado, Montana, North Carolina, and Oregon**, while **Florida** is set to gain two congressional districts and **Texas** would gain three seats. Single seat losses will again occur in the Midwest and Northeast sections of the nation, where **Alabama, California, Illinois, Michigan, Minnesota, New York, Ohio, Pennsylvania, Rhode Island** and **West Virginia** would each lose a seat. All other states would keep the same number of representatives they were awarded in December 2010 when the official 2010 Census numbers were released.

In table form, the gainers and losers are:

States Gaining Districts (7)

Arizona +1 (from 9 to 10)
Colorado +1 (from 7 to 8)
Florida +2 (from 27 to 29)
Montana +1 (from At-large to 2)
North Carolina +1 (from 13 to 14)
Oregon +1 (from 5 to 6)
Texas +3 (from 36 to 39)

States Losing Districts (10)

Alabama -1 (from 7 to 6)
California -1 (from 53 to 52)
Illinois -1 (from 18 to 17)
Michigan -1 (from 14 to 13)
Minnesota -1 (from 8 to 7)
New York -1 (from 27 to 26)
Ohio -1 (from 16 to 15)
Pennsylvania -1 (from 18 to 17)
Rhode Island -1 (from 2 to 1)
West Virginia -1 (from 3 to 2)

With only four months until Census Day, many states have appropriated funds to help send a message to their constituents about the importance of participating in the Censusⁱ. Many of these states are on the edge of gaining or losing a seat in the apportionment process, but there are some notable exceptions. For example, Texas has not appropriated any funds for Complete Count efforts, and yet whether they stand to gain only two or maybe three additional seats may depend on how good the counting is conducted in the state. This could also be impacted by the reaction to the citizenship issue that has become more of a focus in the past year. Florida has also failed to appropriate any funds for Complete Count efforts in 2020, but they are more firm in the projection of receiving two additional seats in 2020. Thus, the two largest gaining states in number of seats are those that didn't spend their own money to help the counting process.

Since 1941, by law the number of seats in the U.S. House of Representatives has been capped at 435. As a result, there has always been interest in finding which states are close to that magic bubble, either just gaining their last seat, or just missing their next seat. The following table shows the results of the 2019 population estimates, as well as one of the short-term trend methodology calculations (2018-2019) for the seats within five positions of the 435 cut off.

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2019 Reapportionment Analysis			
2019 Population Estimates		2020 Projections (using 2018-2019 short-term trend)	
Last Five Seats	Margin of Gain	Last Five Seats	Margin of Gain
431 Arizona (10th)	128,294	431 Illinois (17 th)	126,052
432 New York (26th)	237,376	432 New York (26 th)	61,279
433 Alabama(7th)	18,516	433 Texas (39 th)	79,742
434 Montana (2 nd)	2,856	434 Montana (2 nd)	2,402
435 Ohio (16 th)	12,508	435 Florida (29th)	44,285

2019 Reapportionment Analysis			
2019 Population Estimates		2020 Projections (using 2018-2019 short-term trend)	
Next Seats	Margin of Loss	Next Seats	Margin of Loss
436 Florida (29 th)	23,006	436 Alabama (7th)	10,072
437 Minnesota (8th)	6,740	437 Minnesota (8th))	21,992
438 Texas (39th)	51,004	438 Ohio (16th)	74,135
439 California (53 rd)	98,709	439 California (53rd)	344,367
440 Rhode Island (2 nd)	7,703	440 Rhode Island (2 nd)	14,539

The Census Bureau's yearly release of population estimates also results in a revision of previous year estimates. While Election Data Services has traditionally reflected those revisions in our projection methodology, we have created a new apportionment table that shows the apportionment results for each year in the decade based upon those revised numbers. The table, entitled "2020 Apportionment Calculations based on different trend lines coming from the 2019 Census Bureau Estimates" is attached to this press release. The table shows consistent gains and losses of seats over the entire decade with the new data. The table also includes a chart of where seats # 430 through # 440 would be assigned to states in each projection.

Kimball Brace, President of Election Data Services, Inc. cautioned users that even though there is a very short time before the Census, the population projections are still subject to change. "We are now at a place where the rubber meets the road. How well does the Census Bureau and the Trump administration put on the greatest mobilization of government resources outside of war time? How well will the public respond and answer the Census, given the competing focuses of everyday life and the need to utilize the internet? Will the fear of foreign intervention also impact the census?" Brace noted. "Having worked with Census data and estimates since the 1970s, it is important to remember that major events like Katrina and the 2008 recession each changed population growth patterns and that impacted and changed the next apportionment," he said.

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Brace also noted that major changes in the counting process are in the works for 2020 and that reduced budget funding could impact those plans. "History can also be a guide, recalling that the 1920 apportionment was cancelled because the numbers showed for the first time that more people resided in urban areas than rural areas" said Brace. "I have had my share of nightmares that a failed Census process could lead to unreliable numbers and a repeat of 1920."

Because congressional apportionment also impacts the Electoral College and the vote for President, Election Data Services took the 2020 projections for each state and applied the Presidential election results from the past five Presidential contests to determine the Electoral College outcomes in the past 16 years. The study shows that none of the presidential contests would have elected a different presidential candidate using the new apportionment counts but they would have been more Republican in nature. For example, in 2016 President Trump would have gained two additional electoral college votes under the new apportionment projections. In 2012 President Obama would still have won the Electoral College, but with four less votes (328 vs 332) than he won at the time of the voting. The biggest change would have occurred in the 2000 presidential election where George Bush would have gained an additional 20 electoral votes had the new 2020 apportionment projections determined the number of congressional seats in each state.

The 2016 Electoral College was muddled because 7 electors voted for a different candidate than what they had pledged based on the vote totals. As a result, the overall change in candidate votes based on the new apportionment numbers shows just two vote difference in the bottom line results. President elect Trump's ability to carry states that will be losing congressional seats in 2020 also contributed to a reversal of the pattern depicted in previous elections.

It should be noted that the 2020 Presidential election and resulting Electoral College will occur before the results of the 2020 Census are released by December 31, 2020. Therefore, the Electoral College results in 2020 will be governed by the state's apportionment allocation as they exist today, having been first determined in 2011. The first time the new 2020 apportionment results will be utilized will be the 2024 Presidential election. Election Data Services, Inc. has also worked with the website [270ToWin](#), who has built an interactive map of the these new apportionment results where users can adjust state outcomes to discover Electoral College outcomes for the presidential elections back to 2000.

Major weather events have also affected apportionment. The Census Bureau's estimated populations released for 2005 showed **Louisiana** would keep all their congressional districts that decade. Even the Bureau's own projections for 2010 released that same year showed **Louisiana** staying the same. Then hurricane Katrina hit **Louisiana** at the end of August 2005 (after the date of the population estimates). Devastation and population loss impacted New Orleans in a major way, and when the Bureau's 2006 population estimates were released **Louisiana** was looking at losing a congressional seat. That was ultimately confirmed when the 2010 Census was taken, and state data was released at the end of that year.

As Election Data Services, Inc. noted last year in the 2017 study, the year of 2017 saw 18 hurricanes and tropical storms, three of which had a potential of impact on population movements in the United States. Two of these storms: Irma (impacting Miami and the Florida Gulf Coast), and Maria (which devastated Puerto Rico)) affected **Florida** and the new population estimates reflect that fact. Last years study showed **Florida** was 366,735 people away from gaining a third seat.

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The 2019 data shows the state is only 172,169 people away from a third additional seat, an improvement of nearly 200,000 people.

The 2019 population estimates have not been statistically adjusted for any known undercount that may take place when the Census is conducted. In addition, no estimates were provided for U.S. military personnel overseas. This component has in the past been counted by the Census Bureau and allocated to the states based on administrative records retained by the military. Overseas military personnel have been a factor in the apportionment formula for the past several decades, including the switching of the final district in 2000 that went from **Utah** to **North Carolina**.

For 2020 the Census Bureau has changed the “residency rules” for counting the military by creating a distinction between personnel who are *deployed* overseas (usually for short periods of time) compared to those who are *stationed* or *assigned* overseas (frequently for longer periods of time). The Bureau will use DOD’s administrative records to count *deployed* personnel at their usual residence in the US for both apportionment and redistricting purposes (they will be embedded within the state’s resident population counts). On the other hand, personnel who are *stationed* or *assigned* overseas will be counted to their “home state of record” for apportionment purposes only and will show up as part of a state’s total “overseas count” when the Bureau releases the final and official apportionment data by December, 31, 2020. Military sources have told the Census Bureau that of all overseas military, approximately 15% are *deployed* personnel and 85% are *stationed* or *assigned* overseas.

Past apportionment studies by Election Data Services, Inc. can be found at <https://www.electiondataservices.com/reapportionment-studies/>. A historical chart on the number of districts each state received each decade from 1789 to current is also available at this web address and linkable at <https://www.electiondataservices.com/wp-content/uploads/2014/10/CD-apportionment-1789-2010.pdf>.

Election Data Services Inc. is a political consulting firm that specializes in redistricting, election administration, and the analysis of census and political data. Election Data Services, Inc. conducts the congressional apportionment analyses with each annual release of the census population estimates. For more information about the reapportionment analysis, contact Kimball Brace (703-580-7267 or 202-789-2004 or kbrace@electiondataservices.com).

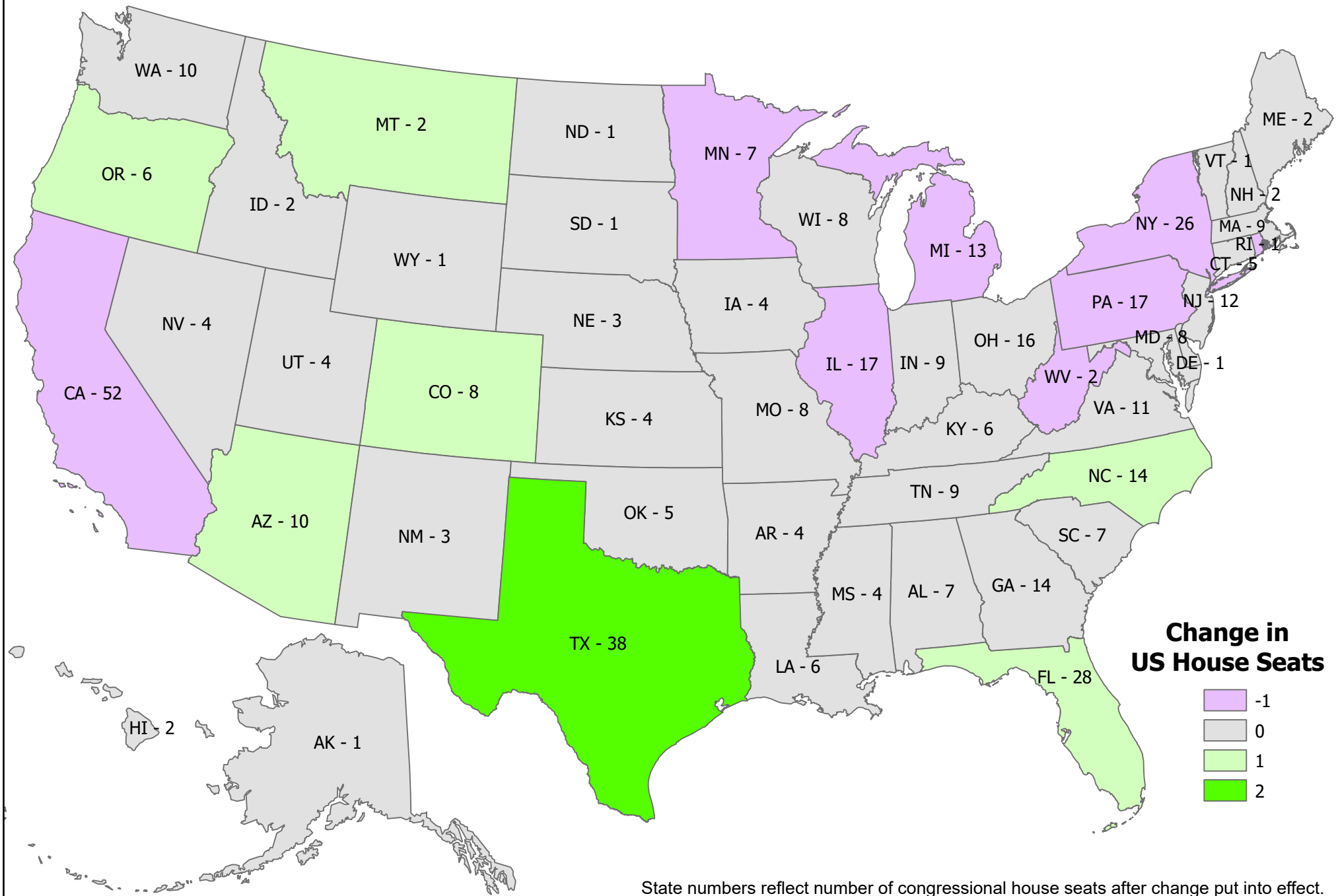
ⁱ National Conference of State Legislatures reports 26 states have appropriated funds for Census counting. <http://www.ncsl.org/research/redistricting/2020-census-resources-and-legislation.aspx>

2019 Population Estimates 2019 Apportionment

2019 Population Estimates, Generated by Census Bureau 12/30/2019										
State	Population	Compare To	Seats	Change	Gain a Seat	Lose a Seat	Last Seat Given	Next Seat At	Average Size	Size Rank
Alabama	4,903,185	7	7	0	743,187	18,516	433	502	700,455	43
Alaska	731,545	1	1	0			at large	637	731,545	34
Arizona	7,278,717	9	10	1	634,842	128,294	431	472	727,872	37
Arkansas	3,017,804	4	4	0	356,549	406,839	378	490	754,451	24
California	39,512,223	53	52	-1	98,709	697,431	430	439	759,850	20
Colorado	5,758,736	7	8	1	643,648	118,406	428	487	719,842	39
Connecticut	3,565,287	5	5	0	567,434	194,546	413	507	713,057	40
Delaware	973,764	1	1	0			at large	477	973,764	2
Florida	21,477,737	27	28	1	23,006	753,842	421	436	767,062	15
Georgia	10,617,423	14	14	0	316,729	449,174	419	446	758,387	22
Hawaii	1,415,872	2	2	0	432,337	349,950	330	565	707,936	41
Idaho	1,787,065	2	2	0	61,144	721,143	262	449	893,533	4
Illinois	12,671,821	18	17	-1	527,032	241,139	429	454	745,401	29
Indiana	6,732,219	9	9	0	425,864	336,686	417	465	748,024	28
Iowa	3,155,070	4	4	0	219,283	544,105	362	468	788,768	9
Kansas	2,913,314	4	4	0	461,039	302,349	393	505	728,329	36
Kentucky	4,467,673	6	6	0	422,229	339,375	402	474	744,612	30
Louisiana	4,648,794	6	6	0	241,108	520,496	390	459	774,799	11
Maine	1,344,212	2	2	0	503,997	278,290	344	597	672,106	46
Maryland	6,045,680	8	8	0	356,704	405,350	407	462	755,710	23
Massachusetts	6,892,503	9	9	0	265,580	496,970	405	451	765,834	16
Michigan	9,986,857	14	13	-1	192,285	572,888	411	442	768,220	13
Minnesota	5,639,632	8	7	-1	6,740	754,963	379	437	805,662	6
Mississippi	2,976,149	4	4	0	398,204	365,184	385	493	744,037	31
Missouri	6,137,428	8	8	0	264,956	497,098	399	456	767,179	14
Montana	1,068,778	1	2	1	779,431	2,856	434	734	534,389	50
Nebraska	1,934,408	3	3	0	679,355	88,177	418	586	644,803	47
Nevada	3,080,156	4	4	0	294,197	469,191	371	476	770,039	12
New Hampshire	1,359,711	2	2	0	488,498	293,789	339	589	679,856	45
New Jersey	8,882,190	12	12	0	541,864	222,598	426	464	740,183	32
New Mexico	2,096,829	3	3	0	516,934	250,598	387	542	698,943	44
New York	19,453,561	27	26	-1	537,876	237,376	432	444	748,214	27
North Carolina	10,488,084	13	14	1	446,068	319,835	423	455	749,149	26
North Dakota	762,062	1	1	0			at large	613	762,062	18
Ohio	11,689,100	16	16	0	754,898	12,508	435	466	730,569	35
Oklahoma	3,956,971	5	5	0	175,750	586,230	374	457	791,394	8
Oregon	4,217,737	5	6	1	672,165	89,439	427	508	702,956	42
Pennsylvania	12,801,989	18	17	-1	396,864	371,307	424	447	753,058	25
Rhode Island	1,059,361	2	1	-1			at large	440	1,059,361	1
South Carolina	5,148,714	7	7	0	497,658	264,045	415	478	735,531	33
South Dakota	884,659	1	1	0			at large	524	884,659	5
Tennessee	6,829,174	9	9	0	328,909	433,641	409	458	758,797	21
Texas	28,995,881	36	38	2	51,004	733,864	425	438	763,050	17
Utah	3,205,958	4	4	0	168,395	594,993	355	460	801,490	7
Vermont	623,989	1	1	0			at large	729	623,989	48
Virginia	8,535,519	11	11	0	133,350	630,429	404	441	775,956	10
Washington	7,614,893	10	10	0	298,666	464,470	410	452	761,489	19
West Virginia	1,792,147	3	2	-1	56,062	726,225	261	448	896,074	3
Wisconsin	5,822,434	8	8	0	579,950	182,104	422	480	727,804	38
Wyoming	578,759	1	1	0			at large	781	578,759	49
Washington DC	705,749	0								
	328,239,523		435					Median =	751,104	
Other Inputs:	Seats to Apportion							Min =	534,389	
	435 Max Seats to Calculate							Max =	1,059,361	
	75 States									
	50									
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Anticipated Gains/Losses in Reapportionment

2019 Population Estimates



APPENDIX Main

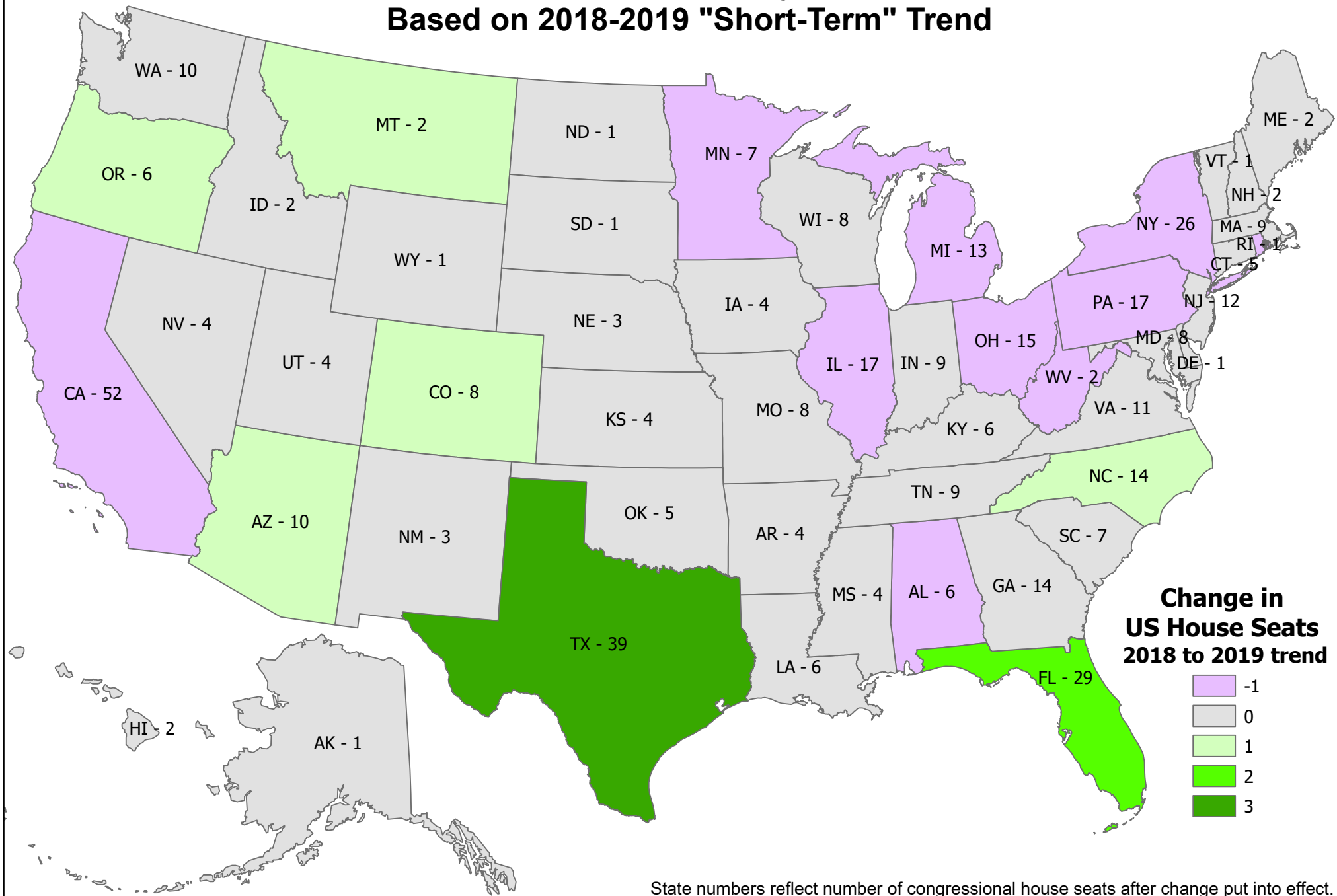
2020 Population Projections and Apportionment

2020 Projections (short term 2018-2019 change) based on 2019 Population Estimates, Generated by Census Bureau 12/30/2019										
State	Population	Compare To	Seats	Change	Gain a Seat	Lose a Seat	Last Seat Given	Next Seat At	Average Size	Size Rank
Alabama	4,914,850	7	6	-1	10,072	761,044	371	436	819,142	6
Alaska	728,863	1	1	0			at large	640	728,863	38
Arizona	7,370,763	9	10	1	599,470	176,160	425	471	737,076	36
Arkansas	3,023,873	4	4	0	374,646	396,776	379	489	755,968	24
California	39,550,248	53	52	-1	344,367	495,632	430	439	760,582	22
Colorado	5,809,922	7	8	1	638,314	134,743	426	485	726,240	40
Connecticut	3,560,620	5	5	0	601,698	169,052	416	508	712,124	41
Delaware	980,031	1	1	0			at large	475	980,031	2
Florida	21,654,726	27	29	2	760,045	44,285	435	447	746,715	29
Georgia	10,697,948	14	14	0	314,512	466,873	417	446	764,139	20
Hawaii	1,412,343	2	2	0	449,103	339,835	334	572	706,172	43
Idaho	1,815,033	2	2	0	46,412	742,526	261	443	907,517	3
Illinois	12,633,538	18	17	-1	659,841	126,052	431	460	743,149	32
Indiana	6,759,912	9	9	0	449,436	324,863	415	464	751,101	27
Iowa	3,159,919	4	4	0	238,600	532,822	362	468	789,980	10
Kansas	2,914,781	4	4	0	483,738	287,684	395	507	728,695	39
Kentucky	4,472,570	6	6	0	452,352	318,764	402	478	745,428	31
Louisiana	4,640,641	6	6	0	284,281	486,835	392	461	773,440	14
Maine	1,348,093	2	2	0	513,353	275,585	342	596	674,047	46
Maryland	6,053,101	8	8	0	395,136	377,921	409	462	756,638	23
Massachusetts	6,899,915	9	9	0	309,433	464,866	406	453	766,657	18
Michigan	9,988,946	14	13	-1	263,096	516,811	413	444	768,380	17
Minnesota	5,664,818	8	7	-1	21,992	749,969	377	437	809,260	8
Mississippi	2,972,502	4	4	0	426,017	345,404	386	497	743,125	33
Missouri	6,149,312	8	8	0	298,924	474,133	400	457	768,664	15
Montana	1,074,909	1	2	1	786,537	2,402	434	735	537,455	50
Nebraska	1,941,034	3	3	0	691,448	83,395	418	587	647,011	47
Nevada	3,120,458	4	4	0	278,061	493,361	369	473	780,115	11
New Hampshire	1,364,417	2	2	0	497,029	291,909	339	589	682,209	45
New Jersey	8,879,315	12	12	0	612,232	166,218	429	465	739,943	35
New Mexico	2,099,901	3	3	0	532,581	242,263	387	542	699,967	44
New York	19,396,195	27	26	-1	738,416	61,279	432	449	746,007	30
North Carolina	10,568,755	13	14	1	443,705	337,679	421	451	754,911	25
North Dakota	765,064	1	1	0			at large	612	765,064	19
Ohio	11,698,680	16	15	-1	74,135	708,742	410	438	779,912	12
Oklahoma	3,969,576	5	5	0	192,743	578,008	374	456	793,915	9
Oregon	4,244,856	5	6	1	680,066	91,050	428	505	707,476	42
Pennsylvania	12,802,789	18	17	-1	490,590	295,303	427	450	753,105	26
Rhode Island	1,060,167	2	1	-1			at large	440	1,060,167	1
South Carolina	5,197,747	7	7	0	489,063	282,898	412	474	742,535	34
South Dakota	889,160	1	1	0			at large	525	889,160	5
Tennessee	6,872,698	9	9	0	336,649	437,649	408	458	763,633	21
Texas	29,274,825	36	39	3	740,080	79,742	433	442	750,637	28
Utah	3,245,917	4	4	0	152,602	618,820	350	454	811,479	7
Vermont	623,712	1	1	0			at large	731	623,712	48
Virginia	8,561,297	11	11	0	169,656	607,364	403	441	778,300	13
Washington	7,683,987	10	10	0	286,246	489,384	407	448	768,399	16
West Virginia	1,783,100	3	2	-1	78,346	710,593	264	452	891,550	4
Wisconsin	5,833,734	8	8	0	614,502	158,555	424	483	729,217	37
Wyoming	579,629	1	1	0			at large	782	579,629	49
Washington DC	708,919	0								
	329,418,113		435					Median =	754,008	
Other Inputs:	Seats to Apportion							Min =	537,455	
	435 Max Seats to Calculate							Max =	1,060,167	
	75 States									
	50									
<input type="checkbox"/> Include										

Anticipated Gains/Losses in Reapportionment

2020 Population Projections

Based on 2018-2019 "Short-Term" Trend



State numbers reflect number of congressional house seats after change put into effect.

APPENDIX Main

2020 Population Projections and Apportionment

2020 Projections (short term 2017-2019 change) based on 2019 Population Estimates, Generated by Census Bureau 12/30/2019										
State	Population	Compare To	Seats	Change	Gain a Seat	Lose a Seat	Last Seat Given	Next Seat At	Average Size	Size Rank
Alabama	4,914,010	7	6	-1	12,184	760,914	372	436	819,002	6
Alaska	728,521	1	1	0			at large	640	728,521	39
Arizona	7,369,666	9	10	1	602,627	176,291	426	471	736,967	36
Arkansas	3,024,010	4	4	0	375,387	397,361	379	490	756,002	24
California	39,570,095	53	52	-1	334,826	522,150	430	439	760,963	22
Colorado	5,815,246	7	8	1	634,656	141,036	425	485	726,906	40
Connecticut	3,562,290	5	5	0	601,104	171,301	416	508	712,458	41
Delaware	980,229	1	1	0			at large	475	980,229	2
Florida	21,675,262	27	29	2	745,300	68,512	433	447	747,423	29
Georgia	10,696,628	14	14	0	318,677	467,300	417	446	764,045	20
Hawaii	1,412,696	2	2	0	449,231	340,371	334	572	706,348	43
Idaho	1,814,121	2	2	0	47,806	741,797	261	444	907,061	3
Illinois	12,632,029	18	17	-1	664,784	126,679	431	460	743,061	32
Indiana	6,760,331	9	9	0	450,878	326,382	415	464	751,148	27
Iowa	3,160,162	4	4	0	239,235	533,513	362	468	790,040	10
Kansas	2,915,040	4	4	0	484,357	288,392	395	507	728,760	38
Kentucky	4,473,470	6	6	0	452,724	320,373	402	478	745,578	31
Louisiana	4,640,670	6	6	0	285,525	487,573	392	461	773,445	14
Maine	1,347,838	2	2	0	514,089	275,513	343	597	673,919	46
Maryland	6,053,889	8	8	0	396,013	379,679	409	462	756,736	23
Massachusetts	6,904,829	9	9	0	306,381	470,880	406	453	767,203	18
Michigan	9,992,018	14	13	-1	262,673	521,500	413	443	768,617	17
Minnesota	5,667,521	8	7	-1	20,758	753,511	377	437	809,646	8
Mississippi	2,971,533	4	4	0	427,864	344,884	386	497	742,883	33
Missouri	6,149,020	8	8	0	300,882	474,810	400	457	768,628	16
Montana	1,074,984	1	2	1	786,943	2,659	435	735	537,492	50
Nebraska	1,941,398	3	3	0	691,764	84,077	418	587	647,133	47
Nevada	3,123,035	4	4	0	276,362	496,386	368	473	780,759	11
New Hampshire	1,363,841	2	2	0	498,086	291,516	339	589	681,920	45
New Jersey	8,880,940	12	12	0	613,059	169,331	429	465	740,078	35
New Mexico	2,098,725	3	3	0	534,436	241,405	387	543	699,575	44
New York	19,402,911	27	26	-1	736,901	71,298	432	449	746,266	30
North Carolina	10,572,293	13	14	1	443,011	342,965	421	451	755,164	25
North Dakota	764,757	1	1	0			at large	612	764,757	19
Ohio	11,700,172	16	15	-1	75,684	712,111	410	438	780,011	12
Oklahoma	3,966,654	5	5	0	196,740	575,666	374	458	793,331	9
Oregon	4,246,026	5	6	1	680,168	92,930	428	505	707,671	42
Pennsylvania	12,807,376	18	17	-1	489,438	302,025	427	450	753,375	26
Rhode Island	1,060,749	2	1	-1			at large	440	1,060,749	1
South Carolina	5,197,719	7	7	0	490,560	283,709	411	474	742,531	34
South Dakota	889,140	1	1	0			at large	525	889,140	5
Tennessee	6,875,125	9	9	0	336,085	441,175	408	456	763,903	21
Texas	29,265,114	36	39	3	757,545	75,018	434	442	750,388	28
Utah	3,246,633	4	4	0	152,765	619,984	350	455	811,658	7
Vermont	623,856	1	1	0			at large	731	623,856	48
Virginia	8,562,723	11	11	0	170,486	610,148	403	441	778,429	13
Washington	7,688,570	10	10	0	283,722	495,196	407	448	768,857	15
West Virginia	1,782,953	3	2	-1	78,974	710,629	264	452	891,477	4
Wisconsin	5,834,594	8	8	0	615,308	160,384	424	483	729,324	37
Wyoming	578,695	1	1	0			at large	783	578,695	49
Washington DC	709,879	0								
	329,489,985		435					Median =	754,269	
Other Inputs:	Seats to Apportion							Min =	537,492	
	435 Max Seats to Calculate							Max =	1,060,749	
	75 States									
	50									
<input type="checkbox"/> Include										

APPENDIX Main

2020 Population Projections and Apportionment

2020 Projections (mid- term 2015-2019 change) based on 2019 Population Estimates, Generated by Census Bureau 12/30/2019										
State	Population	Compare To	Seats	Change	Gain a Seat	Lose a Seat	Last Seat Given	Next Seat At	Average Size	Size Rank
Alabama	4,912,817	7	6	-1	19,074	760,729	372	436	818,803	6
Alaska	730,438	1	1	0			at large	638	730,438	37
Arizona	7,368,448	9	10	1	613,064	176,821	427	471	736,845	36
Arkansas	3,025,358	4	4	0	377,971	399,347	379	490	756,339	24
California	39,625,332	53	52	-1	325,736	586,871	430	439	762,026	22
Colorado	5,819,773	7	8	1	637,588	146,941	425	485	727,472	40
Connecticut	3,561,218	5	5	0	606,991	171,053	415	508	712,244	41
Delaware	980,071	1	1	0			at large	475	980,071	2
Florida	21,730,551	27	29	2	715,938	129,049	432	447	749,329	29
Georgia	10,703,281	14	14	0	324,762	476,437	417	446	764,520	19
Hawaii	1,414,718	2	2	0	449,362	342,654	334	570	707,359	43
Idaho	1,814,667	2	2	0	49,413	742,603	261	444	907,333	3
Illinois	12,637,252	18	17	-1	674,939	134,938	431	460	743,368	33
Indiana	6,755,866	9	9	0	463,683	323,479	416	465	750,652	28
Iowa	3,161,536	4	4	0	241,793	535,525	362	468	790,384	10
Kansas	2,914,122	4	4	0	489,206	288,111	395	507	728,531	39
Kentucky	4,475,565	6	6	0	456,326	323,477	402	478	745,927	31
Louisiana	4,645,835	6	6	0	286,056	493,748	392	461	774,306	14
Maine	1,347,239	2	2	0	516,841	275,174	344	598	673,619	46
Maryland	6,057,065	8	8	0	400,296	384,233	409	463	757,133	23
Massachusetts	6,911,196	9	9	0	308,353	478,809	406	452	767,911	18
Michigan	9,997,254	14	13	-1	269,296	529,036	414	443	769,020	16
Minnesota	5,670,032	8	7	-1	24,826	757,215	377	437	810,005	8
Mississippi	2,973,848	4	4	0	429,480	347,838	386	497	743,462	32
Missouri	6,149,879	8	8	0	307,482	477,047	400	456	768,735	17
Montana	1,076,227	1	2	1	787,853	4,163	435	735	538,113	50
Nebraska	1,942,679	3	3	0	693,527	85,810	418	587	647,560	47
Nevada	3,123,107	4	4	0	280,221	497,097	369	473	780,777	11
New Hampshire	1,364,168	2	2	0	499,912	292,104	340	589	682,084	45
New Jersey	8,884,864	12	12	0	620,113	175,371	429	466	740,405	35
New Mexico	2,098,247	3	3	0	537,959	241,378	388	543	699,416	44
New York	19,416,240	27	26	-1	746,863	89,321	433	449	746,778	30
North Carolina	10,577,560	13	14	1	450,483	350,716	422	451	755,540	25
North Dakota	763,577	1	1	0			at large	614	763,577	21
Ohio	11,702,603	16	15	-1	86,871	717,210	410	438	780,174	12
Oklahoma	3,965,980	5	5	0	202,229	575,815	375	458	793,196	9
Oregon	4,257,506	5	6	1	674,385	105,418	426	502	709,584	42
Pennsylvania	12,805,211	18	17	-1	506,979	302,898	428	450	753,248	26
Rhode Island	1,059,981	2	1	-1			at large	440	1,059,981	1
South Carolina	5,199,387	7	7	0	495,471	286,570	412	474	742,770	34
South Dakota	890,616	1	1	0			at large	526	890,616	5
Tennessee	6,875,411	9	9	0	344,138	443,024	408	457	763,935	20
Texas	29,297,864	36	39	3	759,514	114,857	434	442	751,227	27
Utah	3,251,140	4	4	0	152,189	625,129	350	455	812,785	7
Vermont	623,759	1	1	0			at large	731	623,759	48
Virginia	8,568,766	11	11	0	174,542	618,123	404	441	778,979	13
Washington	7,704,829	10	10	0	276,683	513,202	407	448	770,483	15
West Virginia	1,783,044	3	2	-1	81,036	710,980	266	453	891,522	4
Wisconsin	5,834,087	8	8	0	623,274	161,255	424	483	729,261	38
Wyoming	577,489	1	1	0			at large	785	577,489	49
Washington DC	711,695	0								
	329,739,397		435					Median =	754,394	
Other Inputs:	Seats to Apportion							Min =	538,113	
	435 Max Seats to Calculate							Max =	1,059,981	
	75 States									
	50									
<input type="checkbox"/> Include										

APPENDIX Main

2020 Population Projections and Apportionment

2020 Projections (long- term 2011-2019 change) based on 2019 Population Estimates, Generated by Census Bureau 12/30/2019										
State	Population	Compare To	Seats	Change	Gain a Seat	Lose a Seat	Last Seat Given	Next Seat At	Average Size	Size Rank
Alabama	4,913,158	7	6	-1	17,500	760,782	372	436	818,860	6
Alaska	732,439	1	1	0			at large	637	732,439	37
Arizona	7,363,698	9	10	1	615,818	171,572	428	472	736,370	36
Arkansas	3,025,225	4	4	0	377,252	399,033	379	490	756,306	24
California	39,696,643	53	52	-1	244,435	655,474	430	438	763,397	22
Colorado	5,825,957	7	8	1	629,790	152,731	425	485	728,245	40
Connecticut	3,563,145	5	5	0	604,021	172,745	415	508	712,629	41
Delaware	980,443	1	1	0			at large	475	980,443	2
Florida	21,733,957	27	29	2	706,919	130,957	433	447	749,447	29
Georgia	10,700,181	14	14	0	325,104	472,628	419	445	764,299	20
Hawaii	1,419,389	2	2	0	444,225	347,250	333	568	709,694	42
Idaho	1,808,554	2	2	0	55,060	736,415	261	446	904,277	3
Illinois	12,653,759	18	17	-1	655,102	150,579	431	460	744,339	32
Indiana	6,753,109	9	9	0	464,634	320,276	416	465	750,345	28
Iowa	3,163,630	4	4	0	238,848	537,437	362	468	790,907	10
Kansas	2,917,511	4	4	0	484,966	291,318	395	507	729,378	38
Kentucky	4,477,052	6	6	0	453,606	324,676	404	477	746,175	31
Louisiana	4,655,763	6	6	0	274,894	503,388	392	461	775,961	14
Maine	1,345,723	2	2	0	517,891	273,585	344	599	672,862	46
Maryland	6,065,700	8	8	0	390,046	392,475	408	463	758,212	23
Massachusetts	6,919,755	9	9	0	297,989	486,922	406	452	768,862	18
Michigan	9,996,752	14	13	-1	267,230	527,878	414	444	768,981	17
Minnesota	5,668,657	8	7	-1	24,776	755,500	378	437	809,808	8
Mississippi	2,975,907	4	4	0	426,570	349,714	386	497	743,977	33
Missouri	6,149,601	8	8	0	306,145	476,376	400	458	768,700	19
Montana	1,075,958	1	2	1	787,656	3,819	435	735	537,979	50
Nebraska	1,943,643	3	3	0	691,904	86,645	418	587	647,881	47
Nevada	3,119,268	4	4	0	283,209	493,075	369	473	779,817	13
New Hampshire	1,363,526	2	2	0	500,088	291,387	340	589	681,763	45
New Jersey	8,887,290	12	12	0	615,310	177,193	429	466	740,608	35
New Mexico	2,098,377	3	3	0	537,171	241,378	388	544	699,459	44
New York	19,449,289	27	26	-1	708,771	121,030	432	448	748,050	30
North Carolina	10,572,638	13	14	1	452,647	345,085	422	451	755,188	25
North Dakota	770,073	1	1	0			at large	608	770,073	15
Ohio	11,702,810	16	15	-1	83,715	716,656	410	439	780,187	11
Oklahoma	3,973,480	5	5	0	193,687	583,080	374	456	794,696	9
Oregon	4,253,040	5	6	1	677,618	100,664	427	504	708,840	43
Pennsylvania	12,807,279	18	17	-1	501,583	304,098	426	450	753,369	26
Rhode Island	1,059,899	2	1	-1			at large	440	1,059,899	1
South Carolina	5,197,967	7	7	0	495,466	284,810	412	474	742,567	34
South Dakota	890,810	1	1	0			at large	526	890,810	5
Tennessee	6,872,183	9	9	0	345,561	439,350	409	459	763,576	21
Texas	29,350,998	36	39	3	698,863	165,968	434	442	752,590	27
Utah	3,247,776	4	4	0	154,702	621,583	351	455	811,944	7
Vermont	623,704	1	1	0			at large	732	623,704	48
Virginia	8,578,424	11	11	0	162,697	627,230	403	441	779,857	12
Washington	7,697,326	10	10	0	282,190	505,200	407	449	769,733	16
West Virginia	1,786,340	3	2	-1	77,273	714,202	265	453	893,170	4
Wisconsin	5,833,642	8	8	0	622,104	160,417	424	483	729,205	39
Wyoming	579,855	1	1	0			at large	782	579,855	49
Washington DC	714,924	0								
	329,956,225		435					Median =	754,279	
Other Inputs:	Seats to Apportion							Min =	537,979	
	435 Max Seats to Calculate							Max =	1,059,899	
	75 States									
	50									
<input type="checkbox"/> Include										

Apportionment2020_CensusPopEstimates_Ryan.xls

		2020 Apportionment Calculations based on different trend lines coming from the 2019 Census Bureau Estimates																	
		2010-2019 Trend		2011-2019 Trend		2012-2019 Trend		2013-2019 Trend		2014-2019 Trend		2015-2019 Trend		2016-2019 Trend		2017-2019 Trend		2018-2019 Trend	
State	Compare To	Seats	Change	Seats	Change	Seats	Change	Seats	Change	Seats	Change	Seats	Change	Seats	Change	Seats	Change	Seats	Change
Alabama	7	6	-1	6	-1	6	-1	6	-1	6	-1	6	-1	6	-1	6	-1	6	-1
Alaska	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
Arizona	9	10	1	10	1	10	1	10	1	10	1	10	1	10	1	10	1	10	1
Arkansas	4	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0
California	53	52	-1	52	-1	52	-1	52	-1	52	-1	52	-1	52	-1	52	-1	52	-1
Colorado	7	8	1	8	1	8	1	8	1	8	1	8	1	8	1	8	1	8	1
Connecticut	5	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0
Delaware	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
Florida	27	29	2	29	2	29	2	29	2	29	2	29	2	29	2	29	2	29	2
Georgia	14	14	0	14	0	14	0	14	0	14	0	14	0	14	0	14	0	14	0
Hawaii	2	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0
Idaho	2	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0
Illinois	18	17	-1	17	-1	17	-1	17	-1	17	-1	17	-1	17	-1	17	-1	17	-1
Indiana	9	9	0	9	0	9	0	9	0	9	0	9	0	9	0	9	0	9	0
Iowa	4	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0
Kansas	4	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0
Kentucky	6	6	0	6	0	6	0	6	0	6	0	6	0	6	0	6	0	6	0
Louisiana	6	6	0	6	0	6	0	6	0	6	0	6	0	6	0	6	0	6	0
Maine	2	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0
Maryland	8	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0
Massachusetts	9	9	0	9	0	9	0	9	0	9	0	9	0	9	0	9	0	9	0
Michigan	14	13	-1	13	-1	13	-1	13	-1	13	-1	13	-1	13	-1	13	-1	13	-1
Minnesota	8	7	-1	7	-1	7	-1	7	-1	7	-1	7	-1	7	-1	7	-1	7	-1
Mississippi	4	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0
Missouri	8	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0
Montana	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1
Nebraska	3	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0
Nevada	4	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0
New Hampshire	2	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0
New Jersey	12	12	0	12	0	12	0	12	0	12	0	12	0	12	0	12	0	12	0
New Mexico	3	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0
New York	27	26	-1	26	-1	26	-1	26	-1	26	-1	26	-1	26	-1	26	-1	26	-1
North Carolina	13	14	1	14	1	14	1	14	1	14	1	14	1	14	1	14	1	14	1
North Dakota	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
Ohio	16	15	-1	15	-1	15	-1	15	-1	15	-1	15	-1	15	-1	15	-1	15	-1
Oklahoma	5	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0
Oregon	5	6	1	6	1	6	1	6	1	6	1	6	1	6	1	6	1	6	1
Pennsylvania	18	17	-1	17	-1	17	-1	17	-1	17	-1	17	-1	17	-1	17	-1	17	-1
Rhode Island	2	1	-1	1	-1	1	-1	1	-1	1	-1	1	-1	1	-1	1	-1	1	-1
South Carolina	7	7	0	7	0	7	0	7	0	7	0	7	0	7	0	7	0	7	0
South Dakota	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
Tennessee	9	9	0	9	0	9	0	9	0	9	0	9	0	9	0	9	0	9	0
Texas	36	39	3	39	3	39	3	39	3	39	3	39	3	39	3	39	3	39	3
Utah	4	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0
Vermont	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
Virginia	11	11	0	11	0	11	0	11	0	11	0	11	0	11	0	11	0	11	0
Washington	10	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0
West Virginia	3	2	-1	2	-1	2	-1	2	-1	2	-1	2	-1	2	-1	2	-1	2	-1
Wisconsin	8	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0
Wyoming	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
Washington DC	0																		
		435		435		435		435		435		435		435		435		435	
		State	Seat	State	Seat	State	Seat	State	Seat	State	Seat	State	Seat	State	Seat	State	Seat	State	Seat
	430	California	52	California	52	California	52	California	52	California	52	California	52	California	52	California	52	California	52
	431	Illinois	17	Illinois	17	Illinois	17	Illinois	17	Illinois	17	Illinois	17	Illinois	17	Illinois	17	Illinois	17
	432	New York	26	New York	26	Florida	29	Florida	29	Florida	29	Florida	29	Florida	29	New York	26	New York	26
	433	Texas	39	Florida	29	New York	26	New York	26	New York	26	New York	26	New York	26	Florida	29	Texas	39
	434	Florida	29	Texas	39	Texas	39	Texas	39	Texas	39	Texas	39	Montana	2	Texas	39	Montana	2
	435	Montana	2	Montana	2	Montana	2	Montana	2	Montana	2	Montana	2	Texas	39	Montana	2	Florida	29
	436	Alabama	7	Alabama	7	Alabama	7	Alabama	7	Alabama	7	Alabama	7	Alabama	7	Alabama	7	Alabama	7
	437	Minnesota	8	Minnesota	8	Minnesota	8	Minnesota	8	Minnesota	8	Minnesota	8	Minnesota	8	Minnesota	8	Minnesota	8
	438	California	53	California	53	California	53	California	53	Ohio	16	Ohio	16	Ohio	16	Ohio	16	Ohio	16
	439	Ohio	16	Ohio	16	Ohio	16	Ohio	16	California	53	California	53	California	53	California	53	California	53
	440	Rhode Island	2	Rhode Island	2	Rhode Island	2	Rhode Island	2	Rhode Island	2	Rhode Island	2	Rhode Island	2	Rhode Island	2	Rhode Island	2

ElectoralCollege

State	2016 Presidential Election								
	New Apportionment Count (2018-2019 Trend)	New Electoral College Count	2010s Electoral College Count	2000s Electoral College Count	2016 Presidentia I Victor	Electoral Votes For Clinton (D)	Electoral Votes For Trump (Rep)	Revised Electoral Votes For Clinton (D)	Revised Electoral Votes For Trump (Rep)
Alabama	6	8	9	9	Trump	0	9	0	8
Alaska	1	3	3	3	Trump	0	3	0	3
Arizona	10	12	11	10	Trump	0	11	0	12
Arkansas	4	6	6	6	Trump	0	6	0	6
California	52	54	55	55	Clinton	55	0	54	0
Colorado	8	10	9	9	Clinton	9	0	10	0
Connecticut	5	7	7	7	Clinton	7	0	7	0
Delaware	1	3	3	3	Clinton	3	0	3	0
Florida	29	31	29	27	Trump	0	29	0	31
Georgia	14	16	16	15	Trump	0	16	0	16
Hawaii	2	4	4	4	Clinton*	3	0	3	0
Idaho	2	4	4	4	Trump	0	4	0	4
Illinois	17	19	20	21	Clinton	20	0	19	0
Indiana	9	11	11	11	Trump	0	11	0	11
Iowa	4	6	6	7	Trump	0	6	0	6
Kansas	4	6	6	6	Trump	0	6	0	6
Kentucky	6	8	8	8	Trump	0	8	0	8
Louisiana	6	8	8	9	Trump	0	8	0	8
Maine	2	4	4	4	Clinton	3	1	4	0
Maryland	8	10	10	10	Clinton	10	0	10	0
Massachusetts	9	11	11	12	Clinton	11	0	11	0
Michigan	13	15	16	17	Trump	0	16	0	15
Minnesota	7	9	10	10	Clinton	10	0	9	0
Mississippi	4	6	6	6	Trump	0	6	0	6
Missouri	8	10	10	11	Trump	0	10	0	10
Montana	2	4	3	3	Trump	0	3	0	4
Nebraska	3	5	5	5	Trump	0	5	0	5
Nevada	4	6	6	5	Clinton	6	0	6	0
New Hampshire	2	4	4	4	Clinton	4	0	4	0
New Jersey	12	14	14	15	Clinton	14	0	14	0
New Mexico	3	5	5	5	Clinton	5	0	5	0
New York	26	28	29	31	Clinton	29	0	28	0
North Carolina	14	16	15	15	Trump	0	15	0	16
North Dakota	1	3	3	3	Trump	0	3	0	3
Ohio	15	17	18	20	Trump	0	18	0	17
Oklahoma	5	7	7	7	Trump	0	7	0	7
Oregon	6	8	7	7	Clinton	7	0	8	0
Pennsylvania	17	19	20	21	Trump	0	20	0	19
Rhode Island	1	3	4	4	Clinton	4	0	3	0
South Carolina	7	9	9	8	Trump	0	9	0	9
South Dakota	1	3	3	3	Trump	0	3	0	3
Tennessee	9	11	11	11	Trump	0	11	0	11
Texas	39	41	38	34	Trump#	0	36	0	39
Utah	4	6	6	5	Trump	0	6	0	6
Vermont	1	3	3	3	Clinton	3	0	3	0
Virginia	11	13	13	13	Clinton	13	0	13	0
Washington	10	12	12	11	Clinton&	8	0	8	0
West Virginia	2	4	5	5	Trump	0	5	0	4
Wisconsin	8	10	10	10	Trump	0	10	0	10
Wyoming	1	3	3	3	Trump	0	3	0	3
Washington DC	1	3	3	3	Clinton	3	0	3	0
						227	304	225	306
								-2	2
					#One elector voted for John Kasich for President				
					#One elector voted for Ron Paul for President				
					&Three electors voted for Colin Powell for President				
					&One elector voted for Faith Spotted Eagle				
					*One elector voted for Bernie Sanders				

Electoral College

2012 Presidential Election					2008 Presidential Election				
2012 Presidential Victor	Electoral Votes For Obama (D)	Electoral Votes For Romney (Rep)	Revised Electoral Votes For Obama (D)	Revised Electoral Votes For Romney (Rep)	2008 Presidential Victor	Electoral Votes For Obama (D)	Electoral Votes For McCain (Rep)	Revised Electoral Votes For Obama (D)	Revised Electoral Votes For McCain (Rep)
Romney	0	9	0	8	McCain	0	9	0	8
Romney	0	3	0	3	McCain	0	3	0	3
Romney	0	11	0	12	McCain	0	10	0	12
Romney	0	6	0	6	McCain	0	6	0	6
Obama	55	0	54	0	Obama	55	0	54	0
Obama	9	0	10	0	Obama	9	0	10	0
Obama	7	0	7	0	Obama	7	0	7	0
Obama	3	0	3	0	Obama	3	0	3	0
Obama	29	0	31	0	Obama	27	0	31	0
Romney	0	16	0	16	McCain	0	15	0	16
Obama	4	0	4	0	Obama	4	0	4	0
Romney	0	4	0	4	McCain	0	4	0	4
Obama	20	0	19	0	Obama	21	0	19	0
Romney	0	11	0	11	Obama	11	0	11	0
Obama	6	0	6	0	Obama	7	0	6	0
Romney	0	6	0	6	McCain	0	6	0	6
Romney	0	8	0	8	McCain	0	8	0	8
Romney	0	8	0	8	McCain	0	9	0	8
Obama	4	0	4	0	Obama	4	0	4	0
Obama	10	0	10	0	Obama	10	0	10	0
Obama	11	0	11	0	Obama	12	0	11	0
Obama	16	0	15	0	Obama	17	0	15	0
Obama	10	0	9	0	Obama	10	0	9	0
Romney	0	6	0	6	McCain	0	6	0	6
Romney	0	10	0	10	McCain	0	11	0	10
Romney	0	3	0	4	McCain	0	3	0	4
Romney	0	5	0	5	McCain	1	4	1	4
Obama	6	0	6	0	Obama	5	0	6	0
Obama	4	0	4	0	Obama	4	0	4	0
Obama	14	0	14	0	Obama	15	0	14	0
Obama	5	0	5	0	Obama	5	0	5	0
Obama	29	0	28	0	Obama	31	0	28	0
Romney	0	15	0	16	Obama	15	0	16	0
Romney	0	3	0	3	McCain	0	3	0	3
Obama	18	0	17	0	Obama	20	0	17	0
Romney	0	7	0	7	McCain	0	7	0	7
Obama	7	0	8	0	Obama	7	0	8	0
Obama	20	0	19	0	Obama	21	0	19	0
Obama	4	0	3	0	Obama	4	0	3	0
Romney	0	9	0	9	McCain	0	8	0	9
Romney	0	3	0	3	McCain	0	3	0	3
Romney	0	11	0	11	McCain	0	11	0	11
Romney	0	38	0	41	McCain	0	34	0	41
Romney	0	6	0	6	McCain	0	5	0	6
Obama	3	0	3	0	Obama	3	0	3	0
Obama	13	0	13	0	Obama	13	0	13	0
Obama	12	0	12	0	Obama	11	0	12	0
Romney	0	5	0	4	McCain	0	5	0	4
Obama	10	0	10	0	Obama	10	0	10	0
Romney	0	3	0	3	McCain	0	3	0	3
Obama	3	0	3	0	Obama	3	0	3	0
	332	206	328	210		365	173	356	182
			-4	4				-9	9

ElectoralCollege

2004 Presidential Election					2000 Presidential Election				
2004 Presidential Victor	Electoral Votes For Kerry (D)	Electoral Votes For Bush (Rep)	Revised Electoral Votes For Kerry (D)	Revised Electoral Votes For Bush (Rep)	2000 Presidential Victor	Electoral Votes For Gore (D)	Electoral Votes For Bush (Rep)	Revised Electoral Votes For Gore (D)	Revised Electoral Votes For Bush (Rep)
Bush	0	9	0	8	Bush	0	9	0	8
Bush	0	3	0	3	Bush	0	3	0	3
Bush	0	10	0	12	Bush	0	8	0	12
Bush	0	6	0	6	Bush	0	6	0	6
Kerry	55	0	54	0	Gore	54	0	54	0
Bush	0	9	0	10	Bush	0	8	0	10
Kerry	7	0	7	0	Gore	8	0	7	0
Kerry	3	0	3	0	Gore	3	0	3	0
Bush	0	27	0	31	Bush	0	25	0	31
Bush	0	15	0	16	Bush	0	13	0	16
Kerry	4	0	4	0	Gore	4	0	4	0
Bush	0	4	0	4	Bush	0	4	0	4
Kerry	21	0	19	0	Gore	22	0	19	0
Bush	0	11	0	11	Bush	0	12	0	11
Bush	0	7	0	6	Gore	7	0	6	0
Bush	0	6	0	6	Bush	0	6	0	6
Bush	0	8	0	8	Bush	0	8	0	8
Bush	0	9	0	8	Bush	0	9	0	8
Kerry	4	0	4	0	Gore	4	0	4	0
Kerry	10	0	10	0	Gore	10	0	10	0
Kerry	12	0	11	0	Gore	12	0	11	0
Kerry	17	0	15	0	Gore	18	0	15	0
Kerry	9	0	8	0	Gore	10	0	9	0
Bush	0	6	0	6	Bush	0	7	0	6
Bush	0	11	0	10	Bush	0	11	0	10
Bush	0	3	0	4	Bush	0	3	0	4
Bush	0	5	0	5	Bush	0	5	0	5
Bush	0	5	0	6	Bush	0	4	0	6
Kerry	4	0	4	0	Bush	0	4	0	4
Kerry	15	0	14	0	Gore	15	0	14	0
Bush	0	5	0	5	Gore	5	0	5	0
Kerry	31	0	28	0	Gore	33	0	28	0
Bush	0	15	0	16	Bush	0	14	0	16
Bush	0	3	0	3	Bush	0	3	0	3
Bush	0	20	0	17	Bush	0	21	0	17
Bush	0	7	0	7	Bush	0	8	0	7
Kerry	7	0	8	0	Gore	7	0	8	0
Kerry	21	0	19	0	Gore	23	0	19	0
Kerry	4	0	3	0	Gore	4	0	3	0
Bush	0	8	0	9	Bush	0	8	0	9
Bush	0	3	0	3	Bush	0	3	0	3
Bush	0	11	0	11	Bush	0	11	0	11
Bush	0	34	0	41	Bush	0	32	0	41
Bush	0	5	0	6	Bush	0	5	0	6
Kerry	3	0	3	0	Gore	3	0	3	0
Bush	0	13	0	13	Bush	0	13	0	13
Kerry	11	0	12	0	Gore	11	0	12	0
Bush	0	5	0	4	Bush	0	5	0	4
Kerry	10	0	10	0	Gore	11	0	10	0
Bush	0	3	0	3	Bush	0	3	0	3
Kerry	3	0	3	0	Gore	2	0	2	0
	251	286	239	298		266	271	246	291
			-12	12				-20	20

EXHIBIT C

Main

2020 Population Projections and Apportionment

2020 Projections wMTchange (short term 2018-2019 change) based on 2019 Population Estimates, Generated by Census Bureau 12/30/2019										
State	Population	Compare To	Seats	Change	Gain a Seat	Lose a Seat	Last Seat Given	Next Seat At	Average Size	Size Rank
Alabama	4,914,850	7	7	0	760,330	9	435	502	702,121	44
Alaska	728,863	1	1	0			at large	640	728,863	38
Arizona	7,370,763	9	10	1	583,171	176,173	425	471	737,076	36
Arkansas	3,023,873	4	4	0	367,696	396,781	379	489	755,968	24
California	39,550,248	53	52	-1	262,781	495,701	430	439	760,582	22
Colorado	5,809,922	7	8	1	625,127	134,753	426	485	726,240	40
Connecticut	3,560,620	5	5	0	593,186	169,058	416	508	712,124	41
Delaware	980,031	1	1	0			at large	475	980,031	3
Florida	21,654,726	27	29	2	714,206	44,323	434	447	746,715	29
Georgia	10,697,948	14	14	0	291,991	466,891	417	446	764,139	20
Hawaii	1,412,343	2	2	0	445,296	339,837	334	572	706,172	43
Idaho	1,815,033	2	2	0	42,606	742,528	261	443	907,517	4
Illinois	12,633,538	18	17	-1	632,656	126,074	431	460	743,149	32
Indiana	6,759,912	9	9	0	434,692	324,874	415	464	751,101	27
Iowa	3,159,919	4	4	0	231,650	532,826	362	468	789,980	10
Kansas	2,914,781	4	4	0	476,788	287,689	395	507	728,695	39
Kentucky	4,472,570	6	6	0	442,280	318,772	402	478	745,428	31
Louisiana	4,640,641	6	6	0	274,209	486,843	392	461	773,440	14
Maine	1,348,093	2	2	0	509,546	275,587	342	596	674,047	47
Maryland	6,053,101	8	8	0	381,949	377,931	409	462	756,638	23
Massachusetts	6,899,915	9	9	0	294,689	464,877	406	453	766,657	18
Michigan	9,988,946	14	13	-1	242,130	516,828	413	444	768,380	17
Minnesota	5,664,818	8	7	-1	10,362	749,978	377	437	809,260	8
Mississippi	2,972,502	4	4	0	419,067	345,409	386	497	743,125	33
Missouri	6,149,312	8	8	0	285,737	474,143	400	457	768,664	15
Montana	1,072,506	1	1	0			at large	436	1,072,506	1
Nebraska	1,941,034	3	3	0	686,065	83,399	418	587	647,011	48
Nevada	3,120,458	4	4	0	271,111	493,366	369	473	780,115	11
New Hampshire	1,364,417	2	2	0	493,222	291,911	339	589	682,209	46
New Jersey	8,879,315	12	12	0	592,821	166,233	429	465	739,943	35
New Mexico	2,099,901	3	3	0	527,197	242,266	387	542	699,967	45
New York	19,396,195	27	26	-1	697,240	61,313	432	449	746,007	30
North Carolina	10,568,755	13	14	1	421,184	337,697	421	451	754,911	25
North Dakota	765,064	1	1	0			at large	612	765,064	19
Ohio	11,698,680	16	15	-1	50,059	708,761	410	438	779,912	12
Oklahoma	3,969,576	5	5	0	184,230	578,014	374	456	793,915	9
Oregon	4,244,856	5	6	1	669,995	91,057	428	505	707,476	42
Pennsylvania	12,802,789	18	17	-1	463,405	295,325	427	450	753,105	26
Rhode Island	1,060,167	2	1	-1			at large	440	1,060,167	2
South Carolina	5,197,747	7	7	0	477,433	282,907	412	474	742,535	34
South Dakota	889,160	1	1	0			at large	525	889,160	6
Tennessee	6,872,698	9	9	0	321,906	437,661	408	458	763,633	21
Texas	29,274,825	36	39	3	678,699	79,794	433	442	750,637	28
Utah	3,245,917	4	4	0	145,652	618,825	350	454	811,479	7
Vermont	623,712	1	1	0			at large	731	623,712	49
Virginia	8,561,297	11	11	0	151,801	607,378	403	441	778,300	13
Washington	7,683,987	10	10	0	269,947	489,396	407	448	768,399	16
West Virginia	1,783,100	3	2	-1	74,539	710,595	264	452	891,550	5
Wisconsin	5,833,734	8	8	0	601,315	158,565	424	483	729,217	37
Wyoming	579,629	1	1	0			at large	782	579,629	50
Washington DC	708,919	0								
	329,415,710		435					Median =	754,008	
Other Inputs:	Seats to Apportion							Min =	579,629	
435	Max Seats to Calculate							Max =	1,072,506	
75	States									
50										
<input type="checkbox"/>	Include									

EXHIBIT D

Overseas_90_10.xls
2010

Table 1. Apportionment Population and Number of Representatives, by State: Census 2010						
State	Apportionment Population	Number of Apportioned Representatives Based on Census 2010		Change From 2000 Census Apportionment	Percent Overseas of Apportionment Population	
		Resident	Overseas			
Alabama	4,779,736	4,756,490	23,246	7	0	0.49%
Alaska	710,231	698,939	11,292	1	0	1.59%
Arizona	6,392,017	6,371,334	20,683	9	1	0.32%
Arkansas	2,915,918	2,905,607	10,311	4	0	0.35%
California	37,253,956	37,165,923	88,033	53	0	0.24%
Colorado	5,029,196	5,013,462	15,734	7	0	0.31%
Connecticut	3,574,097	3,566,566	7,531	5	0	0.21%
Delaware	897,934	894,991	2,943	1	0	0.33%
Florida	18,801,310	18,701,847	99,463	27	2	0.53%
Georgia	9,687,653	9,647,740	39,913	14	1	0.41%
Hawaii	1,360,301	1,353,740	6,561	2	0	0.48%
Idaho	1,567,582	1,561,665	5,917	2	0	0.38%
Illinois	12,830,632	12,796,884	33,748	18	-1	0.26%
Indiana	6,483,802	6,466,022	17,780	9	0	0.27%
Iowa	3,046,355	3,038,923	7,432	4	-1	0.24%
Kansas	2,853,118	2,842,423	10,695	4	0	0.37%
Kentucky	4,339,367	4,328,128	11,239	6	0	0.26%
Louisiana	4,533,372	4,512,782	20,590	6	-1	0.45%
Maine	1,328,361	1,323,648	4,713	2	0	0.35%
Maryland	5,773,552	5,757,175	16,377	8	0	0.28%
Massachusetts	6,547,629	6,535,614	12,015	9	-1	0.18%
Michigan	9,883,640	9,855,654	27,986	14	-1	0.28%
Minnesota	5,303,925	5,292,971	10,954	8	0	0.21%
Mississippi	2,967,297	2,956,354	10,943	4	0	0.37%
Missouri	5,988,927	5,966,376	22,551	8	-1	0.38%
Montana	989,415	984,414	5,001	1	0	0.51%
Nebraska	1,826,341	1,820,857	5,484	3	0	0.30%
Nevada	2,700,551	2,691,670	8,881	4	1	0.33%
New Hampshire	1,316,470	1,311,495	4,975	2	0	0.38%
New Jersey	8,791,894	8,776,287	15,607	12	-1	0.18%
New Mexico	2,059,179	2,051,085	8,094	3	0	0.39%
New York	19,378,102	19,335,149	42,953	27	-2	0.22%
North Carolina	9,535,483	9,505,185	30,298	13	0	0.32%
North Dakota	672,591	669,277	3,314	1	0	0.49%
Ohio	11,536,504	11,504,513	31,991	16	-2	0.28%
Oklahoma	3,751,351	3,737,820	13,531	5	0	0.36%
Oregon	3,831,074	3,813,542	17,532	5	0	0.46%
Pennsylvania	12,702,379	12,669,853	32,526	18	-1	0.26%
Rhode Island	1,052,567	1,049,887	2,680	2	0	0.25%
South Carolina	4,625,364	4,604,753	20,611	7	1	0.45%
South Dakota	814,180	808,599	5,581	1	0	0.69%
Tennessee	6,346,105	6,316,779	29,326	9	0	0.46%
Texas	25,145,561	25,022,704	122,857	36	4	0.49%
Utah	2,763,885	2,757,005	6,880	4	1	0.25%
Vermont	625,741	621,145	4,596	1	0	0.73%
Virginia	8,001,024	7,964,312	36,712	11	0	0.46%
Washington	6,724,540	6,695,711	28,829	10	1	0.43%
West Virginia	1,852,994	1,846,173	6,821	3	0	0.37%
Wisconsin	5,686,986	5,675,742	11,244	8	0	0.20%
Wyoming	563,626	558,952	4,674	1	0	0.83%
Total Apportionment Population	308,143,815	307,104,167	1,039,648	435		0.34%
					Min	0.18%
					Max	1.59%

Overseas_90_10.xls
2000

Table 1. Apportionment Population and Number of Representatives, by State: Census 2000						
State	Apportionment Population	Resident	Overseas	Number of Apportioned Representatives Based on Census 2000	Change From 1990 Census Apportionment	Percent Overseas of Apportionment Population
Alabama	4,461,130	4,447,100	14,030	7	0	0.31%
Alaska	628,933	626,932	2,001	1	0	0.32%
Arizona	5,140,683	5,130,632	10,051	8	2	0.20%
Arkansas	2,679,733	2,673,400	6,333	4	0	0.24%
California	33,930,798	33,871,648	59,150	53	1	0.17%
Colorado	4,311,882	4,301,261	10,621	7	1	0.25%
Connecticut	3,409,535	3,405,565	3,970	5	-1	0.12%
Delaware	785,068	783,600	1,468	1	0	0.19%
Florida	16,028,890	15,982,378	46,512	25	2	0.29%
Georgia	8,206,975	8,186,453	20,522	13	2	0.25%
Hawaii	1,216,642	1,211,537	5,105	2	0	0.42%
Idaho	1,297,274	1,293,953	3,321	2	0	0.26%
Illinois	12,439,042	12,419,293	19,749	19	-1	0.16%
Indiana	6,090,782	6,080,485	10,297	9	-1	0.17%
Iowa	2,931,923	2,926,324	5,599	5	0	0.19%
Kansas	2,693,824	2,688,418	5,406	4	0	0.20%
Kentucky	4,049,431	4,041,769	7,662	6	0	0.19%
Louisiana	4,480,271	4,468,976	11,295	7	0	0.25%
Maine	1,277,731	1,274,923	2,808	2	0	0.22%
Maryland	5,307,886	5,296,486	11,400	8	0	0.21%
Massachusetts	6,355,568	6,349,097	6,471	10	0	0.10%
Michigan	9,955,829	9,938,444	17,385	15	-1	0.17%
Minnesota	4,925,670	4,919,479	6,191	8	0	0.13%
Mississippi	2,852,927	2,844,658	8,269	4	-1	0.29%
Missouri	5,606,260	5,595,211	11,049	9	0	0.20%
Montana	905,316	902,195	3,121	1	0	0.34%
Nebraska	1,715,369	1,711,263	4,106	3	0	0.24%
Nevada	2,002,032	1,998,257	3,775	3	1	0.19%
New Hampshire	1,238,415	1,235,786	2,629	2	0	0.21%
New Jersey	8,424,354	8,414,350	10,004	13	0	0.12%
New Mexico	1,823,821	1,819,046	4,775	3	0	0.26%
New York	19,004,973	18,976,457	28,516	29	-2	0.15%
North Carolina	8,067,673	8,049,313	18,360	13	1	0.23%
North Dakota	643,756	642,200	1,556	1	0	0.24%
Ohio	11,374,540	11,353,140	21,400	18	-1	0.19%
Oklahoma	3,458,819	3,450,654	8,165	5	-1	0.24%
Oregon	3,428,543	3,421,399	7,144	5	0	0.21%
Pennsylvania	12,300,670	12,281,054	19,616	19	-2	0.16%
Rhode Island	1,049,662	1,048,319	1,343	2	0	0.13%
South Carolina	4,025,061	4,012,012	13,049	6	0	0.32%
South Dakota	756,874	754,844	2,030	1	0	0.27%
Tennessee	5,700,037	5,689,283	10,754	9	0	0.19%
Texas	20,903,994	20,851,820	52,174	32	2	0.25%
Utah	2,236,714	2,233,169	3,545	3	0	0.16%
Vermont	609,890	608,827	1,063	1	0	0.17%
Virginia	7,100,702	7,078,515	22,187	11	0	0.31%
Washington	5,908,684	5,894,121	14,563	9	0	0.25%
West Virginia	1,813,077	1,808,344	4,733	3	0	0.26%
Wisconsin	5,371,210	5,363,675	7,535	8	-1	0.14%
Wyoming	495,304	493,782	1,522	1	0	0.31%
Total Apportionment Population	281,424,177	280,849,847	574,330	435		0.20%
					Min	0.10%
					Max	0.42%

Overseas_90_10.xls

1990

Table 1. Apportionment Population and Number of Representatives, by State: Census 1990						
State	Apportionment Population	1990		Number of Apportioned Representatives Based on Census 1990	Change From 1980 Census Apportionment	Percent Overseas of Apportionment Population
		Resident	Overseas			
Alabama	4,062,608	4,040,587	22,021	7	0	0.54%
Alaska	551,947	550,043	1,904	1	0	0.34%
Arizona	3,677,985	3,665,228	12,757	6	1	0.35%
Arkansas	2,362,239	2,350,725	11,514	4	0	0.49%
California	29,839,250	29,760,021	79,229	52	7	0.27%
Colorado	3,307,912	3,294,394	13,518	6	0	0.41%
Connecticut	3,295,669	3,287,116	8,553	6	0	0.26%
Delaware	668,696	666,168	2,528	1	0	0.38%
Florida	13,003,362	12,937,926	65,436	23	4	0.50%
Georgia	6,508,419	6,478,216	30,203	11	1	0.46%
Hawaii	1,115,274	1,108,229	7,045	2	0	0.63%
Idaho	1,011,986	1,006,749	5,237	2	0	0.52%
Illinois	11,466,682	11,430,602	36,080	20	-2	0.31%
Indiana	5,564,228	5,544,159	20,069	10	0	0.36%
Iowa	2,787,424	2,776,755	10,669	5	-1	0.38%
Kansas	2,485,600	2,477,574	8,026	4	-1	0.32%
Kentucky	3,698,969	3,685,296	13,673	6	-1	0.37%
Louisiana	4,238,216	4,219,973	18,243	7	-1	0.43%
Maine	1,233,223	1,227,928	5,295	2	0	0.43%
Maryland	4,798,622	4,781,468	17,154	8	0	0.36%
Massachusetts	6,029,051	6,016,425	12,626	10	-1	0.21%
Michigan	9,328,784	9,295,297	33,487	16	-2	0.36%
Minnesota	4,387,029	4,375,099	11,930	8	0	0.27%
Mississippi	2,586,443	2,573,216	13,227	5	0	0.51%
Missouri	5,137,804	5,117,073	20,731	9	0	0.40%
Montana	803,655	799,065	4,590	1	-1	0.57%
Nebraska	1,584,617	1,578,385	6,232	3	0	0.39%
Nevada	1,206,152	1,201,833	4,319	2	0	0.36%
New Hampshire	1,113,915	1,109,252	4,663	2	0	0.42%
New Jersey	7,748,634	7,730,188	18,446	13	-1	0.24%
New Mexico	1,521,779	1,515,069	6,710	3	0	0.44%
New York	18,044,505	17,990,455	54,050	31	-3	0.30%
North Carolina	6,657,630	6,628,637	28,993	12	1	0.44%
North Dakota	641,364	638,800	2,564	1	0	0.40%
Ohio	10,887,325	10,847,115	40,210	19	-2	0.37%
Oklahoma	3,157,604	3,145,585	12,019	6	0	0.38%
Oregon	2,853,733	2,842,321	11,412	5	0	0.40%
Pennsylvania	11,924,710	11,881,643	43,067	21	-2	0.36%
Rhode Island	1,005,984	1,003,464	2,520	2	0	0.25%
South Carolina	3,505,707	3,486,703	19,004	6	0	0.54%
South Dakota	699,999	696,004	3,995	1	0	0.57%
Tennessee	4,896,641	4,877,185	19,456	9	0	0.40%
Texas	17,059,805	16,986,510	73,295	30	3	0.43%
Utah	1,727,784	1,722,850	4,934	3	0	0.29%
Vermont	564,964	562,758	2,206	1	0	0.39%
Virginia	6,216,568	6,187,358	29,210	11	1	0.47%
Washington	4,887,941	4,866,692	21,249	9	1	0.43%
West Virginia	1,801,625	1,793,477	8,148	3	-1	0.45%
Wisconsin	4,906,745	4,891,769	14,976	9	0	0.31%
Wyoming	455,975	453,588	2,387	1	0	0.52%
Total Apportionment Population	249,022,783	248,102,973	919,810	435		0.37%
					Min	0.21%
					Max	0.63%

EXHIBIT E

2020 Population Projections Sorts and Apportionment

State	Seats	Average Size	Size Rank
Rhode Island	1	1,060,167	1
Delaware	1	980,031	2
Idaho	2	907,517	3
West Virginia	8	891,550	4
South Dakota	1	889,160	5
Alabama	6	819,142	6
Utah	4	811,479	7
Minnesota	7	809,260	8
Oklahoma	5	793,915	9
Iowa	4	789,980	10
Nevada	4	780,115	11
Ohio	15	779,912	12
Virginia	11	778,300	13
Louisiana	6	773,440	14
Missouri	8	768,664	15
Washington	10	768,399	16
Michigan	13	768,380	17
Massachusetts	9	766,657	18
North Dakota	1	765,064	19
Georgia	14	764,139	20
Tennessee	9	763,633	21
California	52	760,582	22
Maryland	8	756,638	23
Arkansas	4	755,968	24
North Carolina	14	754,911	25
Pennsylvania	17	753,105	26
Indiana	9	751,101	27
Texas	39	750,637	28
Florida	29	746,715	29
New York	26	746,007	30
Kentucky	6	745,428	31
Illinois	17	743,149	32
Mississippi	4	743,125	33
South Carolina	7	742,535	34
New Jersey	12	739,943	35
Arizona	10	737,076	36
Wisconsin	1	729,217	37
Alaska	1	728,863	38
Kansas	4	728,695	39
Colorado	8	726,240	40
Connecticut	5	712,124	41
Oregon	6	707,476	42
Hawaii	2	706,172	43
New Mexico	3	699,967	44
New Hampshire	2	682,209	45
Maine	2	674,047	46
Nebraska	3	647,011	47
Vermont	1	623,712	48
Wyoming	1	579,629	49
Montana	2	537,455	50
Washington DC	2		
Median =		754,008	
Min =		537,455	
Max =		1,060,167	

**PROOF OF SERVICE
LOS ANGELES, CALIFORNIA**

I am employed in Los Angeles, California. I am over the age of 18 and am not a party to the within action; my business address is: 634 S. Spring St., Ste. 1100, Los Angeles, CA 90014.

On March 13, 2020, I served the following document(s) described as: **RULE 26(A)(2) EXPERT REPORT AND DECLARATION OF KIMBALL W. BRACE** on all interested parties in this action, by serving the following individuals:

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[X] (By Electronic Service): By transmitting by email to the above Parties at the above email addresses.

[X] (Federal): I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed on **March 13, 2020**, at Los Angeles, California.



Julia A. Gomez