

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

MARCUS CASTER, LAKEISHA
CHESTNUT, BOBBY LEE DUBOSE,
BENJAMIN JONES, RODNEY ALLEN
LOVE, MANASSEH POWELL,
RONALD SMITH, and WENDELL
THOMAS,

Plaintiffs,

v.

JOHN H. MERRILL, in his official
capacity as Alabama Secretary of State,

Defendant.

Case No. 2:21-CV-1536-AMM

DECLARATION OF WILLIAM S. COOPER

WILLIAM S. COOPER, acting in accordance with 28 U.S.C. § 1746,
Federal Rule of Civil Procedure 26(a)(2)(B), and Federal Rules of Evidence 702
and 703, does hereby declare and say:

I. INTRODUCTION

1. My name is William S. Cooper. I have a B.A. in Economics from
Davidson College. As a private consultant, I currently serve as a demographic and
redistricting expert for the Plaintiffs. I am compensated at a rate of \$150 per hour.

(a) Redistricting Experience

2. I have been qualified in federal courts at trial as an expert witness on
redistricting and demographics in about 45 voting rights cases in 19 states. My

testimony in these lawsuits almost always included a review of demographics and socioeconomic characteristics for the jurisdictions at issue. Five of these lawsuits resulted in changes to statewide legislative boundaries: *Rural West Tennessee African-American Affairs v. McWherter*, *Old Person v. Cooney*, *Bone Shirt v. Hazeltine*, *Alabama Legislative Black Caucus v Alabama*, and *Thomas v. Reeves*. Approximately 25 of the cases led to changes in local election district plans.¹

3. In November 2019, I testified in the Northern District of Alabama at trial on behalf of plaintiffs challenging Alabama's 2011 Congressional Plan under Section 2 of the Voting Rights Act – *Chestnut v. Merrill*, Case No. 2:18-cv-00907.

4. In 2019, I prepared a consent decree election plan for the Jefferson County, Alabama Board of Education (*James v. Jefferson County Board of Education*). I served as a redistricting consultant to the City of Decatur, Alabama (*Voketz v. City of Decatur*) between 2015 and 2020. I also served as a redistricting consultant to the plaintiffs in *Alabama State NAACP v. City of Pleasant Grove* in 2018 and 2019. In 2018, I testified on behalf of the plaintiffs in a Section 2 case captioned *Alabama State Conference of the NAACP v. Alabama* involving at-large judicial elections.

¹ I have served as an expert witness on demographics in non-voting trials. For example, in an April 2017 opinion in *Stout v. Jefferson County Board of Education* (Case No.2:65-cv-00396-MHH), a school desegregation case involving the City of Gardendale, Alabama, the court made extensive reference to my testimony.

5. I currently serve as a redistricting consultant to the San Juan County, Utah Commission, with responsibility for developing election plans for the 3-district county commission and the 5-district school board. In October 2021, I briefly served as a consultant to the city council in Wenatchee, Washington and determined that the 2018 redistricting plan I drew is not malapportioned under the 2020 Census.

6. For additional historical information on my testimony as an expert witness and experience preparing and assessing proposed redistricting maps for Section 2 litigation, see a summary of my redistricting work attached as **Exhibit A**.

(b) Purpose of Report

7. The attorneys for the Plaintiffs in this case asked me to determine whether the African American population in Alabama is “sufficiently large and geographically compact”² to allow for the creation of two U.S. House majority-Black districts – one more than under the enacted plan (the “2021 Plan”).

8. In addition, the attorneys asked me to review historical and current demographics reported in the decennial Census, as well as socioeconomic characteristics reported in the 1-year 2019 American Community Survey (“ACS”) for African Americans and non-Hispanic Whites.³

² *Thornburg v. Gingles*, 478 U.S. 30, 50 (1986).

³ In this report, “Black” and “African American” are synonymous, as are “Latino” and “Hispanic.” Unless otherwise noted, “Black” refers to persons of all ages who are any part Black (“AP Black”), *i.e.*, single-race Black or more than one race and some part Black. “White” or “NH White” means non-Hispanic White. The AP Black classification includes all persons who

9. **Exhibit B** describes the sources and methodology I have employed in the preparation of this report. I also reviewed the “Reapportionment Committee Guidelines for Redistricting,” which addresses Alabama’s 2021 legislative and congressional redistricting.⁴

(c) Expert Summary Conclusions

10. Based on the 2020 Census, African Americans in Alabama are sufficiently numerous and geographically compact to allow for two majority-Black U.S. House districts in a seven-district plan.

11. As reported in the 1-Year *2019 American Community Survey*, non-Hispanic Whites significantly outpace African Americans across most key indicators of socio-economic well-being. These disparities are found statewide, as well as at the regional level in central and south Alabama.

(d) Organization of Declaration

12. The remainder of this declaration is organized as follows: **Section II** reviews state and regional demographics; **Section III** compares the benchmark 2011 U.S. Congressional Plan and the enacted 2021 U.S. Congressional Plan;

self-identified in the 2020 Census as single-race Black or some part Black, including Hispanic Black. It is my understanding that following the U.S. Supreme Court decision in *Georgia v. Ashcroft*, 539 U.S. 461 (2003), the “Any Part” definition is the appropriate Census classification to use in most Section 2 cases.

⁴ Source:

<http://www.legislature.state.al.us/aliswww/reapportionment/Reapportionment%20Guidelines%20for%20Redistricting.pdf>.

Section IV presents six illustrative plans that feature a second majority-Black congressional district in central and south Alabama; **Section V** reviews socioeconomic disparities by race –statewide and by congressional district – with corresponding charts.

II. DEMOGRAPHIC PROFILE OF ALABAMA

(a) 2010 to 2020 – Population by Race and Ethnicity

13. As shown in **Figure 1**, according to the 2020 Census, Alabama has a total population of 5,024,279. Single-race non-Hispanic Whites (“NH Whites”) are a majority of the population (63.12%). Any Part Black Alabamians (“AP Black”) comprise 27.16% of the population and are the largest minority population, followed by Latinos (5.26%), who may be of any race.

Figure 1**Alabama – 2010 Census to 2020 Census****Population by Race and Ethnicity⁵**

	2010 Number	Percent	2020 Number	Percent	Change 2010 to 2020	% Change 2010-2020
Total Population	4,779,736	100.00%	5,024,279	100.00%	244,543	5.12%
NH White	3,204,402	67.04%	3,171,351	63.12%	-33,051	-1.03%
Total Minority Pop.	1,575,334	32.96%	1,852,928	36.88%	277,594	17.62%
Latino (all races)	185,602	3.88%	264,047	5.26%	78,445	42.27%
NH SR Black	1,244,437	26.04%	1,288,159	25.64%	43,722	3.51%
NH SR Asian	25,907	0.54%	75,918	1.51%	50,011	193.04%
NH SR Hawaiian and Pacific	52,937	1.11%	23,119	0.05%	-29,818	-56.33%
NH SR American Indian and Alaska Native	1,976	0.04%	2,612	0.46%	636	32.19%
NH SR Other	4,030	0.08%	14,455	0.29%	10,425	258.68%
Single-race Black (including Black Hispanics)	1,251,311	26.18%	1,296,162	25.80%	44,851	3.58%
Any Part Black (including Black Hispanics)	1,281,118	26.80%	1,364,736	27.16%	83,618	6.53%

14. The population in Alabama grew by 5.12% between 2010 and 2020, from about 4.78 million to 5.02 million. In 2010, minorities represented about one third (32.96%) of the population. By 2020, that figure grew to 36.88% of the statewide population. In fact, all of Alabama's population growth between 2010 and 2020 (244,543) can be attributed to an increase in the minority population (277,594), offsetting a population loss of 33,051 NH White persons.

15. The Any Part Black population grew by 6.53% between 2010 and 2020, from 1.28 million to 1.36 million. African Americans represent 34% of the

⁵ **PL94-171 Redistricting File** (Census 2010 and Census 2020)

population increase between 2010 and 2020 in Alabama (83,618 of 244,543 persons).

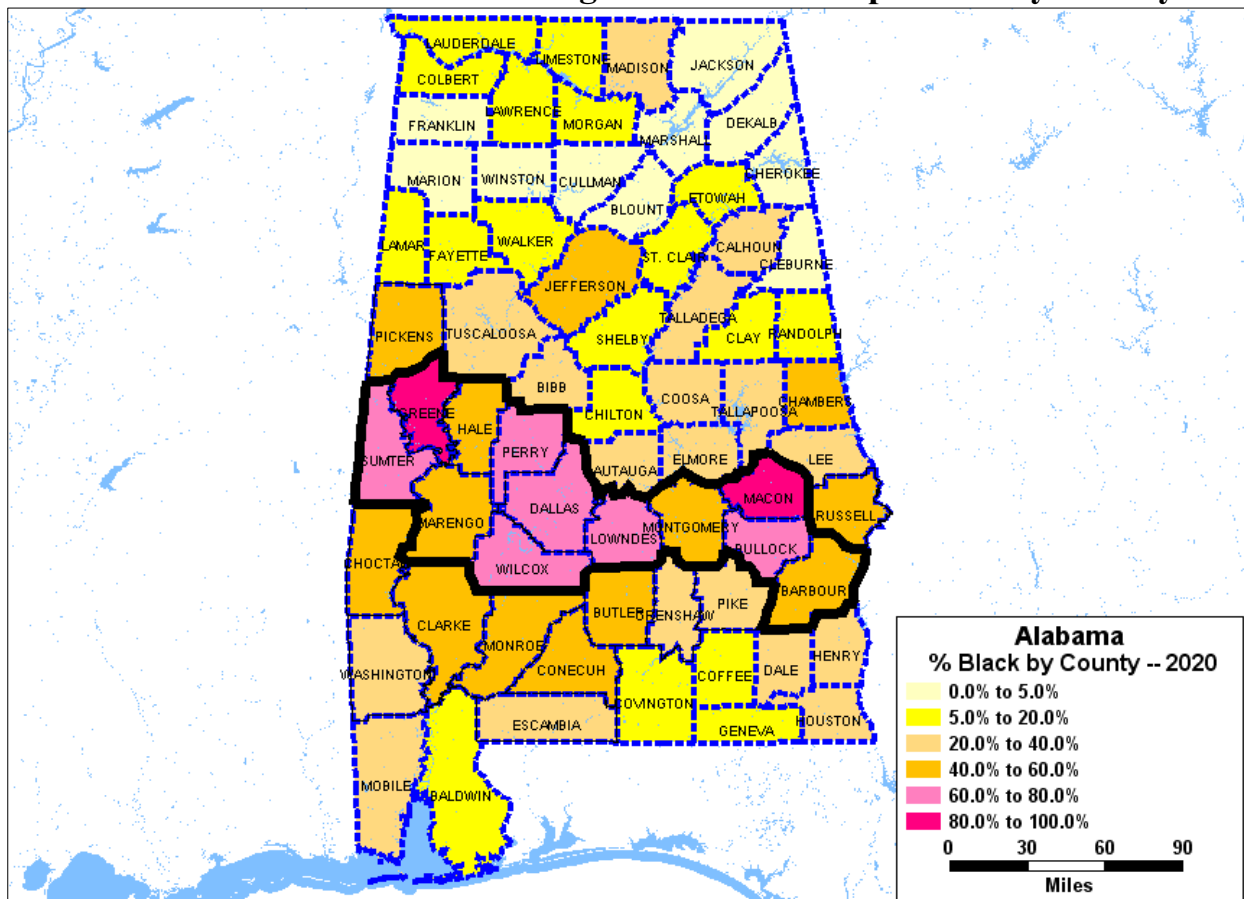
(b) 2020 Census – Spatial Distribution of the Black Population

16. According to the 2020 Census, about half of Alabama’s Black population (49.53%) is concentrated in the urban counties of Jefferson (Black pop. 289,515), Mobile (Black pop. 152,471), Montgomery (Black pop. 134,029), and Madison (Black pop. 99,875). The rural Black Belt counties (excluding urban Black Belt Montgomery) account for 8.68% of the statewide Black population.⁶ The Counties of Lee and Tuscaloosa – home to the two largest state universities in Alabama – contain 8.34% of the statewide Black population. Taken together, the urban counties, rural Black Belt counties, and university counties encompass two-thirds (66.54%) of the statewide Black population.

17. The map in **Figure 2** displays the state’s Black population by county under the 2020 Census, with bold lines demarcating the Black Belt region. The table in **Exhibit C** reports 2020 population by county by race and ethnicity.

⁶ In this declaration, the term “Black Belt” refers to the following counties: Barbour, Bullock, Dallas, Greene, Hale, Lowndes, Macon, Marengo, Montgomery, Perry, Sumter, and Wilcox. This is consistent with my testimony in *Alabama Legislative Black Caucus v Alabama* and *Alabama State Conference of the NAACP v. Alabama*.

For an overview of Alabama’s Black Belt, including a listing of Black Belt counties under various definitions, see the article “Black Belt Region in Alabama” by Terance L. Winemiller, Auburn University at Montgomery, in the Encyclopedia of Alabama.
<http://www.encyclopediaofalabama.org/article/h-2458>

Figure 2**2020 Census – Black Belt Region and Black Population by County****(c) Voting Age and Citizen Voting Age**

18. As shown in **Figure 3**, African Americans in Alabama constitute a slightly smaller percentage of the voting age population (VAP) than the total population. According to the 2020 Census, Alabama has a total VAP of 3,917,166 – of whom 1,014,372 (25.90%) are AP Black. The NH White VAP is 2,564,544 (65.47%).

Figure 3

**Alabama – 2020 Voting Age Population &
2019 Estimated Citizen Voting Age Population
By Race and Ethnicity⁷**

	2020 VAP	2020 VAP Percent	2019 CVAP Percent
Total	3,917,166	100.00%	100.00%
NH White 18+	2,564,544	65.47%	68.5 %
Total Minority 18+	1,352,622	34.53%	31.5%
Latino 18+	166,856	4.26%	2.2%
Single-race Black (Including Black Hispanics) 18+	981,723	25.06%	26.7%
Any Part Black (Including Black Hispanics) 18+	1,014,372	25.90%	27.3%

19. The rightmost column in **Figure 3** reveals that both the Black and NH White population comprise a higher percentage of the citizen voting age population (“CVAP”) than the corresponding voting age population, owing to higher non-citizenship rates among other minority populations.

20. According to estimates from the 1-year 2019 *American Community Survey* (“ACS”), African Americans represent 27.3% of the statewide CVAP – more than a percentage point higher than the 2020 AP Black VAP. The NH White

⁷ Sources:

PL94-171 Redistricting File (Census 2020);

Table S2901 -- CITIZEN, VOTING-AGE POPULATION BY SELECTED CHARACTERISTICS (1-year 2019 ACS)

<https://data.census.gov/cedsci/table?q=S2901&g=0400000US01&tid=ACSST1Y2019.S2901&hidePreview=true>.

2019 ACS 1-Year Estimates 1-Year Estimates-Public Use Microdata Sample

[https://data.census.gov/mdat/#/search?ds=ACSPUMS1Y2019&vv=AGEP\(18:99\)&cv=RACBLK\(1\)&rv=ucgid,CIT\(1,2,3,4\)&wt=PWGTP&g=0400000US01](https://data.census.gov/mdat/#/search?ds=ACSPUMS1Y2019&vv=AGEP(18:99)&cv=RACBLK(1)&rv=ucgid,CIT(1,2,3,4)&wt=PWGTP&g=0400000US01)

CVAP is 68.5% – 3 percentage points higher than NH White VAP in the 2020 Census.⁸

III. ALABAMA CONGRESSIONAL PLANS – 2021 and 2011

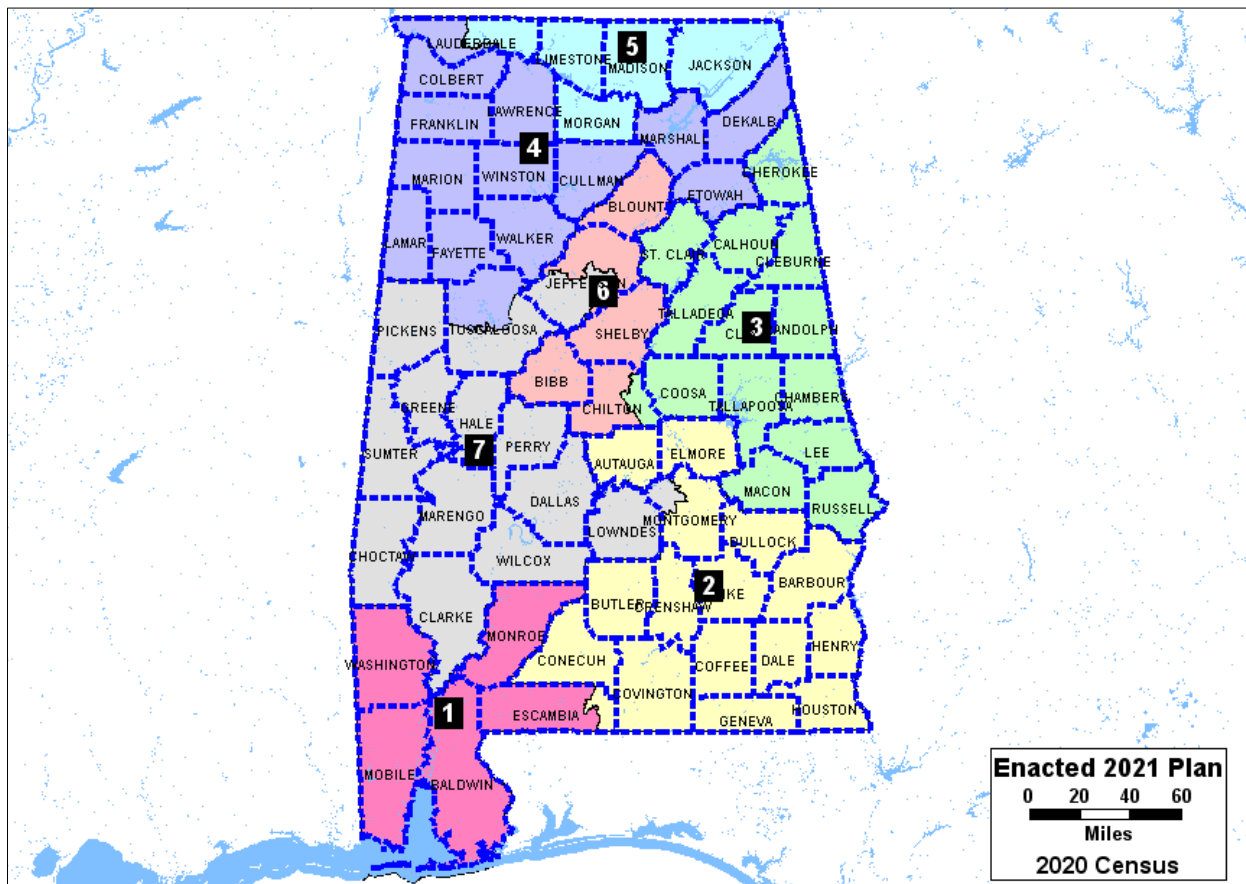
(a) 2021 Enacted Congressional Plan

21. On November 4, 2021, Governor Ivey signed into law a new congressional plan (the “2021 Plan”) with CD 7 as the only majority-Black district and six county splits.⁹ The map in **Figure 4** depicts the 2021 Plan.

⁸ Due to the COVID-19 pandemic, the 1-year 2020 ACS results will not be published. Source:

<https://www.census.gov/newsroom/press-releases/2021/changes-2020-ac-s-1-year.html>

⁹ Source for GIS shapefile: <https://redistrictingdatahub.org/state/alabama/>

Figure 4**Alabama – Enacted 2021 U.S. House Plan**

22. Majority-Black CD 7 encompasses part of Jefferson County and extends southwest to include the southern half of Tuscaloosa County and rural Black Belt counties along the Mississippi border, then east through part of the Back Belt to northwest Montgomery County.

23. The table in **Figure 5** shows 2020 summary population statistics for the 2021 Plan. **Exhibit D-1** contains more detailed 2020 population statistics.

Figure 5**2021 U.S. House Plan – 2020 Census**

District	Population	18+ Pop	% 18+ AP Black	% 18+ NH White
1	717754	557535	25.61%	66.00%
2	717755	557677	30.12%	62.03%
3	717754	564281	24.99%	67.74%
4	717754	556133	7.70%	82.41%
5	717754	561187	18.06%	70.89%
6	717754	552286	18.93%	71.16%
7	717754	568067	55.26%	38.60%

24. The map in **Exhibit D-2** is a higher resolution version of the **Figure 4** map. **Exhibit D-3** contains maps that focus on CDs 1, 2, and 7 – the general area where a second majority-Black district can be drawn. **Exhibit D-4** identifies county and VTD¹⁰ splits in the 2021 Plan. The 2021 Plan splits six counties and seven populated VTDs.

25. As shown in **Figure 5**, CD 7 in the 2021 Plan is 55.26% BVAP, and the remaining six districts are all 30% BVAP or lower, consistent with the “cracking”¹¹ that was also evident in the 2011 Plan (discussed further below).

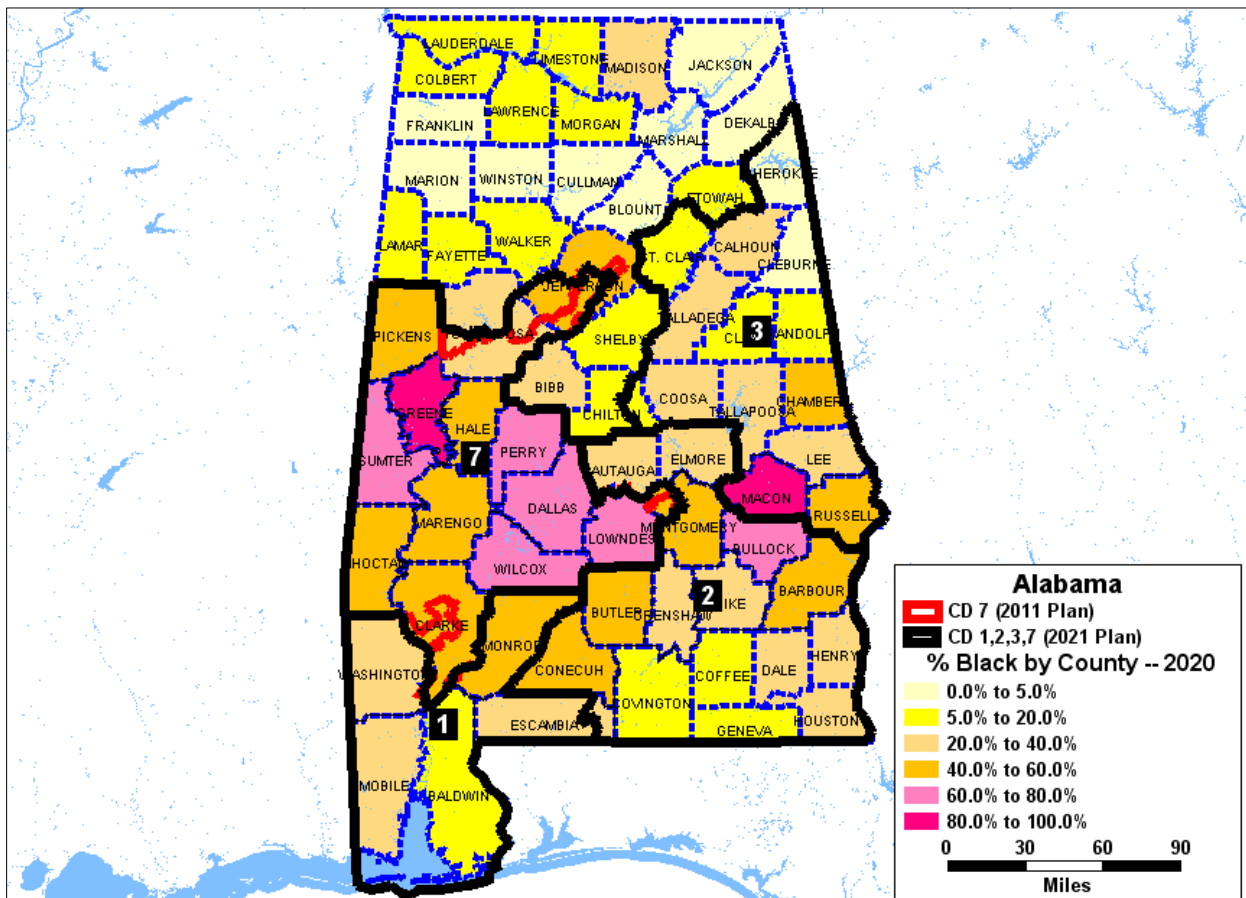
26. The map in **Figure 6** illustrates cracking in the 2011 and 2021 congressional plans. The **Figure 6** map overlays the four 2021 Plan congressional districts in central and south Alabama – CDs 1, 2, 3, and 7 (demarcated by bold

¹⁰ “VTD” is a Census Bureau term meaning “voting tabulation district.” VTDs generally correspond to precincts as they existed at the time of the 2020 Census.

¹¹ “Cracking” is a term which describes redistricting plans characterized with one or more districts that fragment or divide the minority population, resulting in an overall dilution of minority voting strength in the voting plan.

lines) onto a map displaying 2020 Black population by county. Red lines show areas where CD 7 was different under the 2011 Plan. Under both the 2011 and 2021 plans, Black voters who do not live in CD 7 are divided or cracked into neighboring districts, rather than joined into a second majority-Black opportunity district.

Figure 6
Central and South Alabama Under the 2021 Plan and 2011 Plans



27. Under both the 2011 Plan and the 2021 Plan, majority-Black Macon County is in majority-White CD 3, which extends north to encompass Cherokee County in Appalachian Alabama. Majority-Black Bullock County and plurality-

Black Barbour County are joined with southeast Alabama counties in majority-White CD 2. The majority-Black City of Mobile (Black pop. 100,265) is in majority-White CD 1. Most of majority-Black Montgomery County is in majority-White CD 2.

28. According to the 2020 Census, less than one-third (30.02%) of Alabama's Black population lives within majority-Black 2021 CD 7. By contrast, 91.8% of the 2020 NH White population lives in one of the six majority-White districts.

29. As shown in **Figure 5** *supra*, most of the remainder of the Black population outside of CD 7 is distributed relatively evenly into CD 1 (25.61% BVAP), CD 2 (30.12% BVAP), and CD 3 (24.99% BVAP). Taken together, these three districts have a total 2020 Black population of 612,759 (and a BVAP of 451,759), which is nearly enough population to comprise an entire congressional district (85.4% of a full congressional district).

30. For reference, **Exhibit E-1** contains detailed 2020 population statistics by district for the 2011 Plan, which are summarized below in **Figure 7**.

Figure 7**2011 U.S. House Plan – 2020 Census**

District	Population	Deviation	% Dev.	18+ Pop	% 18+ AP Black	% 18+ NH White
1	726276	8522	1.19%	564302	25.67%	66.00%
2	693466	-24288	-3.38%	539812	30.60%	61.87%
3	735132	17378	2.42%	576455	25.83%	66.45%
4	702982	-14772	-2.06%	543423	7.18%	82.84%
5	761102	43348	6.04%	595873	17.97%	71.19%
6	740710	22956	3.20%	572838	16.37%	73.88%
7	664611	-53143	-7.40%	524463	60.16%	33.84%

31. **Exhibit E-2** is a state-produced map of the 2011 Plan¹² and **Exhibit E-3** is a state-produced map of the 2021 Plan.¹³ As shown in **Exhibit E-4**, there are seven county splits in the 2011 Plan. Under the 2020 Census geography, the 2011 Plan splits populated areas in 47 VTDs.

IV. ILLUSTRATIVE PLANS

A. GEOGRAPHICAL AREA

(a) The Board of Education Plan –1996-2021

32. The area covered by the two majority-Black districts in Alabama’s 2021 Board of Education Plan (“BOE Plan”) is strikingly similar to the coverage area for the two majority-Black districts in the Plaintiffs’ illustrative congressional plans presented in **Section B**.

¹² Source:

http://www.legislature.state.al.us/aliswww/Legislature/2011_Congressional_Districts.pdf

¹³ Source:

<https://www.sos.alabama.gov/alabama-votes/state-district-maps>

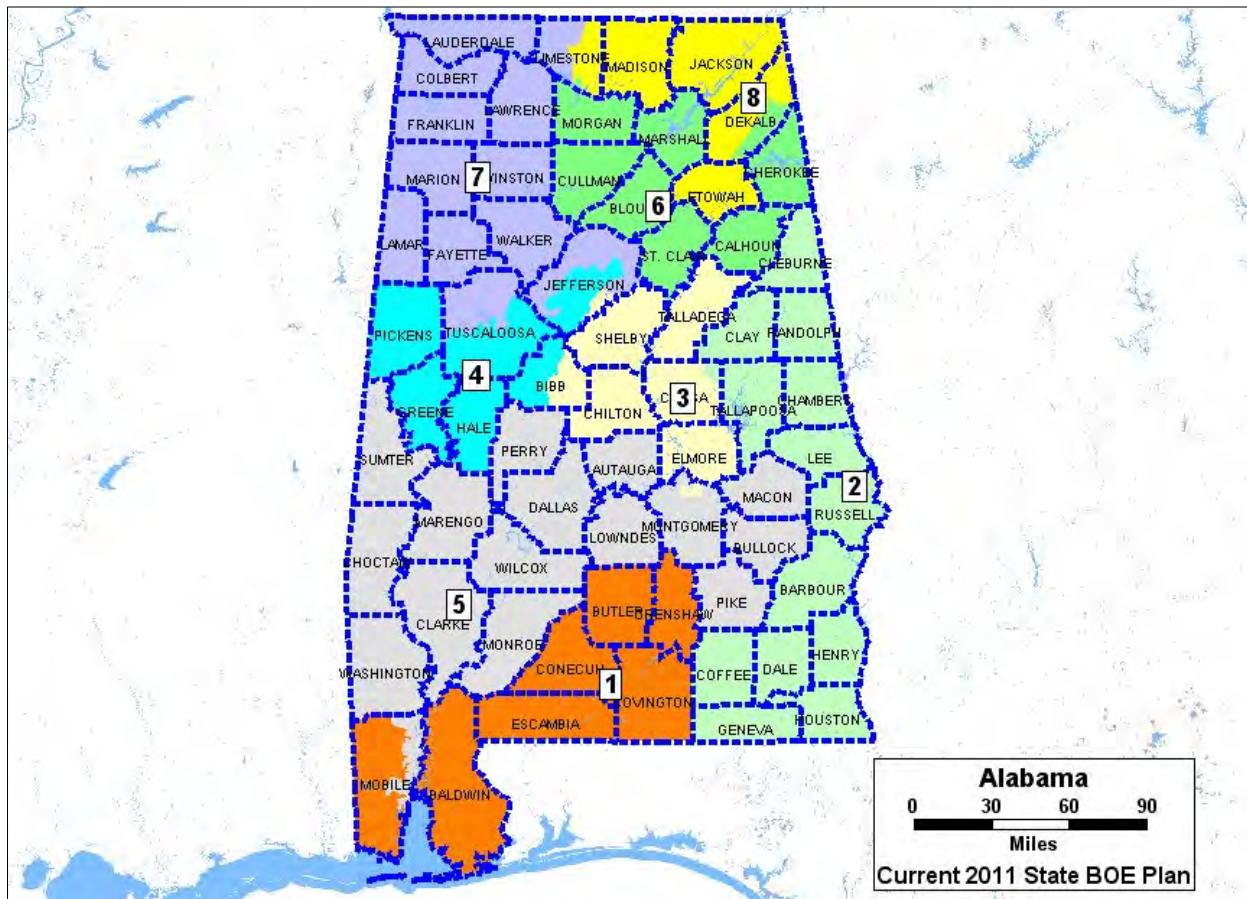
33. For the past quarter century, more than half of the African Americans in Alabama have lived in one of the two state Board of Education (“BOE”) minority opportunity districts in 8-district plans.

34. According to the 2000 Census, under the court-ordered 1996 BOE Plan BOE District 4 was 46.63% SR BVAP and BOE District 5 was 51.75% SR BVAP. Under the 2001 BOE Plan, BOE District 4 was 47.61% SR BVAP and BOE District 5 was 51.97% SR BVAP.¹⁴

35. According to the 2010 Census, under the 2011 BOE Plan, District 4 and District 5 were both majority-BVAP. BOE District 4 was 51.43% BVAP and BOE District 5 was 57.5% BVAP. According to the 2010 Census, the combined Black population in these two districts was 683,923, which represented more than half (53.38%) of the statewide Black population. **Figure 8** shows the 2011 BOE Plan.

¹⁴ Source: February 2, 2002 Section 5 letter from the Alabama Attorney General to the U.S. Department of Justice, available at the Web Archive link below:
<https://web.archive.org/web/20141018111338/http://www.legislature.state.al.us/reapportionment/boe/boe.html>

The Any Part Black population count was not reported in the Census 2000 PL94-171 file and therefore could not be included here.

Figure 8**Alabama – 2011 Board of Education Plan**

36. According to the 2020 Census, under the 2011 BOE Plan, District 4 and District 5 remain majority-BVAP. 2011 BOE District 4 is 51.51% BVAP and 2011 BOE District 5 is 57.72% BVAP.

37. In 2021, the Legislature once again created two majority-Black BOE districts in central and south Alabama. The 2021 BOE Plan was signed into law by Governor Ivey on the same day as the 2021 U.S. House Plan. According to the 2020 Census, the combined SR Black population in 2021 BOE District 4 and BOE

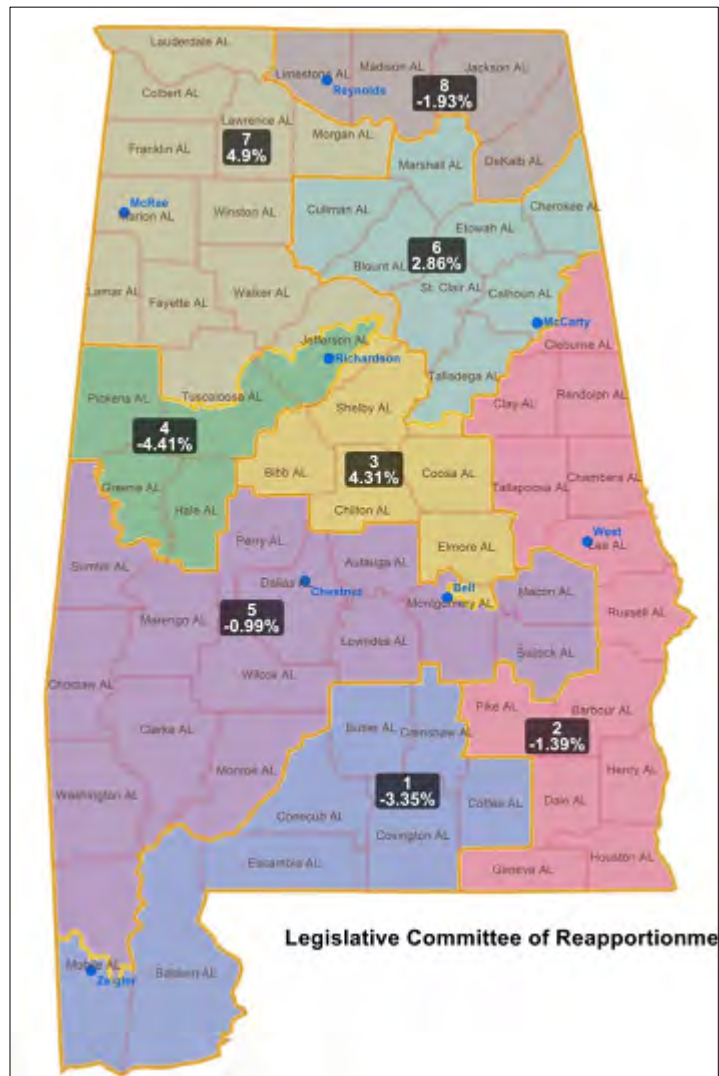
District 5 was 646,759, which represents more than half (51.69%) of the statewide Black population.

38. The 2021 BOE Plan is depicted in **Figure 9**.¹⁵

Figure 9

Alabama – 2021 Board of Education Plan

¹⁵ Source for 2021 BOE Map in **Figure 9** is an October 25, 2021 tweet from Alabama Rep. Chris England via: <https://twitter.com/RepEngland70/status/1452674057640550407>.



39. **Exhibit F-1** is a state-produced map of the 2021 BOE Plan.¹⁶

40. **Exhibit F-2** contains 2020 population statistics by district. District 4 is 51.21% SR BVAP. District 5 is 51.27% SR BVAP.¹⁷

¹⁶ Source for PDF map of 2021 BOE Plan via
<https://www.sos.alabama.gov/alabama-votes/state-district-maps>
https://www.sos.alabama.gov/sites/default/files/State%20Districts/McClendon%20SBOE%20Plan%201_Letter%20size%20map.pdf

41. Similar to the 2021 BOE Plan, the six illustrative plans described below create a second majority-BVAP congressional district in central and south Alabama.

B. ILLUSTRATIVE PLAN FEATURES

(a) Area Encompassed by the Illustrative Majority-Black Districts

42. There are a variety of ways to draw two majority-Black congressional districts in Alabama that adhere to traditional redistricting principles and Alabama's redistricting guidelines, and this has been true since at least the 2010 Census. At the November 2019 *Chestnut v. Merrill* trial and by way of expert reports, I presented four illustrative plans, based on the 2010 Census, all of which contained two majority-Black districts out of seven.

43. Based on the 2020 Census, it is still possible to draw two majority-Black congressional districts, while adhering to traditional redistricting principles.

44. The six illustrative plans described below demonstrate that there are viable remedies in this Section 2 lawsuit. Alternative configurations besides these six illustrative plans featuring two majority-Black congressional districts are

¹⁷ Source for 2021 BOE Plan population statistics – an October 25, 2021 tweet from Alabama Rep. Chris England via:

<https://twitter.com/RepEngland70/status/1452674057640550407>

I do not have access to a GIS shapefile of the 2021 BOE Plan, so I am unable to produce detailed statistics that would include Any Part Black VAP percentages.

possible.

(b) Traditional Redistricting Principles

45. The illustrative plans demonstrate that the Black population is sufficiently numerous and geographically compact to allow for the creation of an additional majority-Black district.

46. All six illustrative plans comply with traditional redistricting principles, including population equality, compactness, contiguity, respect for communities of interest, and the non-dilution of minority voting strength.

47. The illustrative plans are drawn to follow, to the extent possible, county boundaries. Where counties are split to comply with one-person one-vote requirements, I have generally used whole 2020 Census VTDs as sub-county components. Where VTDs are split, I have followed census block boundaries that are aligned with roads, natural features, or municipal boundaries.

(c) Common Characteristics of the Illustrative Plans

48. The six illustrative plans share the following features:

- The 2020 Black VAP in the illustrative majority-Black districts is above 50% in all six plans.

- Based on the most current citizenship data available (from the 5-year 2015-2019 ACS Special Tabulation), NH single-race Black CVAP in the illustrative majority-Black districts is above 50% in all six plans.¹⁸
- The Black VAP to NH White VAP percentage point margins in the illustrative majority-Black districts range from 6.12 percentage points (CD 2, Illustrative 1) to 14.73 percentage points (CD 7, Illustrative 2).
- Four of the six illustrative plans split six counties – the same number of split counties as the 2021 Plan. Illustrative Plan 2 and Illustrative Plan 6 split seven counties – the same number as the 2011 Plan.
- The illustrative plans create a new majority-Black District 2 that includes African American communities in Mobile County, Montgomery County and the central and eastern rural Black Belt counties.
- New majority-Black District 2 under the illustrative plans has a configuration that is similar to District 5 in the 2021 BOE Plan and the 2011 BOE Plan.
- Under the illustrative plans, District 7 includes African American communities in Jefferson County, Tuscaloosa County, and the western rural Black Belt counties, as District 7 does in the 2021 Plan.
- Mobile County is split between majority-White District 1 and majority-Black District 2 in all of the illustrative plans, as it is in the 2021 BOE plan.
- Baldwin County is entirely in District 1 under all of the illustrative plans.
- Under all six of the illustrative plans, one can travel from District 1 in Mobile County to District 1 in Baldwin County without leaving District 1.
- Five of the illustrative plans join the District 1 part of Mobile County to Baldwin County following I-10 and U.S. 98 across Mobile Bay. Under Illustrative Plan 6 (placing all of the City of Mobile into District 1), secondary roads directly connect the District 1 part of Mobile County to District 1 in Baldwin County.
- All Plaintiffs reside in majority-minority districts under the illustrative plans.

¹⁸ <https://www.census.gov/programs-surveys/decennial-census/about/voting-rights/cvap.html>

eastern boundary. The northeast part of Montgomery County is merged into District 3.

51. Majority-Black District 7 encompasses part of Jefferson and Tuscaloosa Counties as well as Sumter County on the Mississippi state line. Dallas and Wilcox Counties form the eastern border of District 7.

52. The table in **Figure 11** shows 2020 summary population statistics for Illustrative Plan 1. **Exhibit G-1** contains detailed 2020 population statistics by district.

Figure 11

Illustrative Plan 1 – 2020 Census

District	Population	18+ Pop	% 18+ AP Black	% 18+ NH White
1	717755	557084	16.03%	74.88%
2	717754	559442	50.09%	43.97%
3	717753	563119	22.53%	68.99%
4	717753	555541	6.31%	83.20%
5	717755	561688	18.66%	70.63%
6	717754	556122	13.95%	77.62%
7	717755	564170	53.28%	39.41%

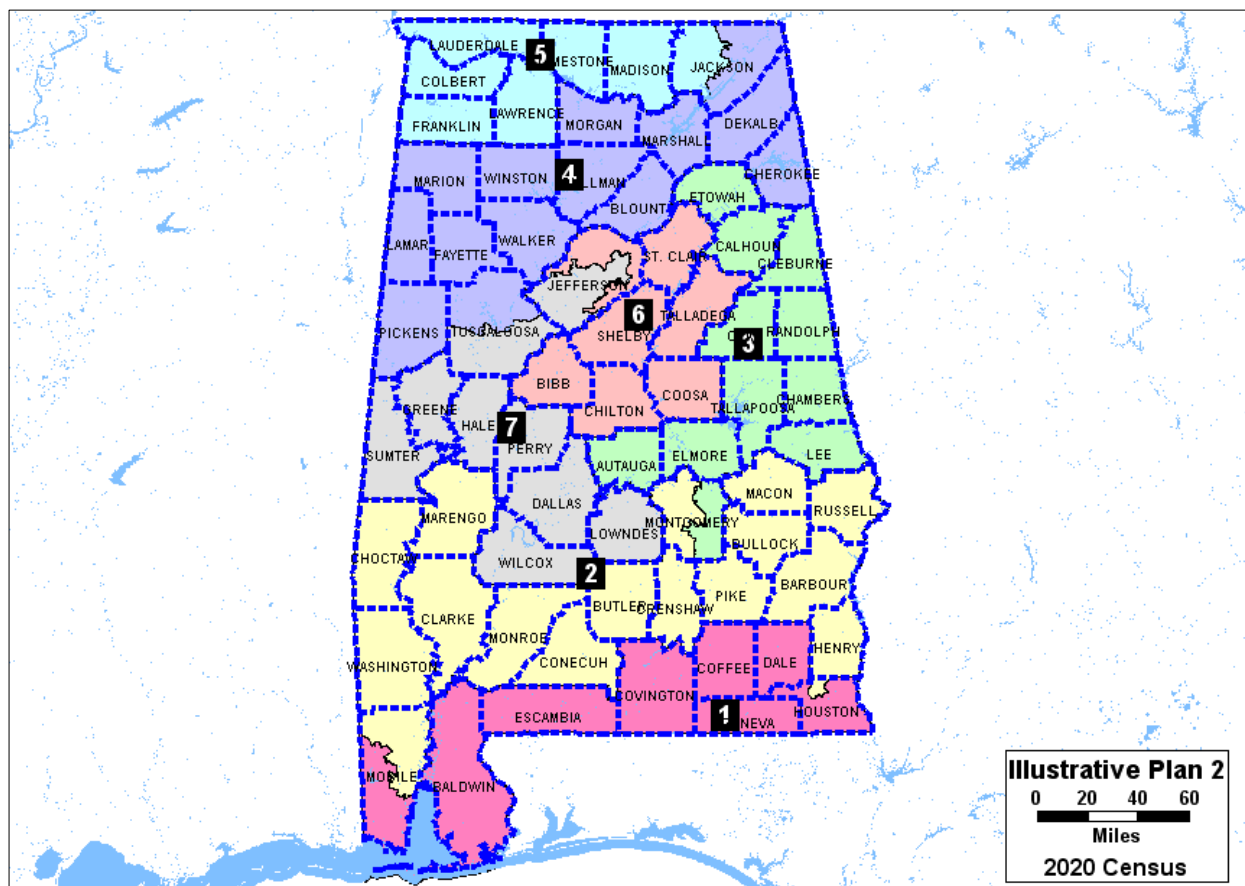
53. The map in **Exhibit G-2** is a higher resolution version of the **Figure 10** map. **Exhibit G-3** contains maps focusing on District 2 and District 7 and adjacent areas. As shown in **Exhibit G-4**, Illustrative Plan 1 splits six counties and populated areas in 16 VTDs.

(b) Illustrative Plan 2

54. The map in **Figure 12** depicts Illustrative Plan 2. District 2 is 50.88% BVAP and District 7 is 53.79% BVAP.

Figure 12

Alabama U.S. House – Illustrative Plan 2



55. Under Illustrative Plan 2, District 2 is similar in geographic extent to Illustrative Plan 1. Additional areas of Montgomery County are merged into District 3, allowing parts of Dothan to be joined with District 2.

56. District 7 is geographically similar to District 7 under the 2021 enacted Plan. The eastern border of District 7 is Lowndes County, whereas District 7 in

the 2021 Plan crosses into Montgomery County to pick up some neighborhoods in the City of Montgomery.

57. The table in **Figure 13** shows 2020 summary population statistics for Illustrative Plan 2. **Exhibit H-1** contains detailed 2020 population statistics by district.

Figure 13

Illustrative Plan 2 – 2020 Census				
District	Population	18+ Pop	% 18+ AP Black	% 18+ NH White
1	717754	558142	14.92%	75.87%
2	717754	558446	50.88%	43.29%
3	717755	562845	21.97%	69.52%
4	717753	555526	6.31%	83.20%
5	717755	561688	18.66%	70.63%
6	717754	555856	14.34%	77.09%
7	717754	564663	53.79%	39.06%

58. The Illustrative Plan 2 maps in the **Exhibit H** series are identical in format to the maps in the Exhibit G series (Illustrative Plan 1). As shown in **Exhibit H-4** Illustrative Plan 2 splits seven counties – the same number as the 2011 Plan and one more than the 2021 Plan. Populated areas in 13 VTDs are split.

59. To reach zero deviation, 15 persons in Calhoun County are assigned to District 6, with the remainder in District 3. Arguably, this 15-person de minimis

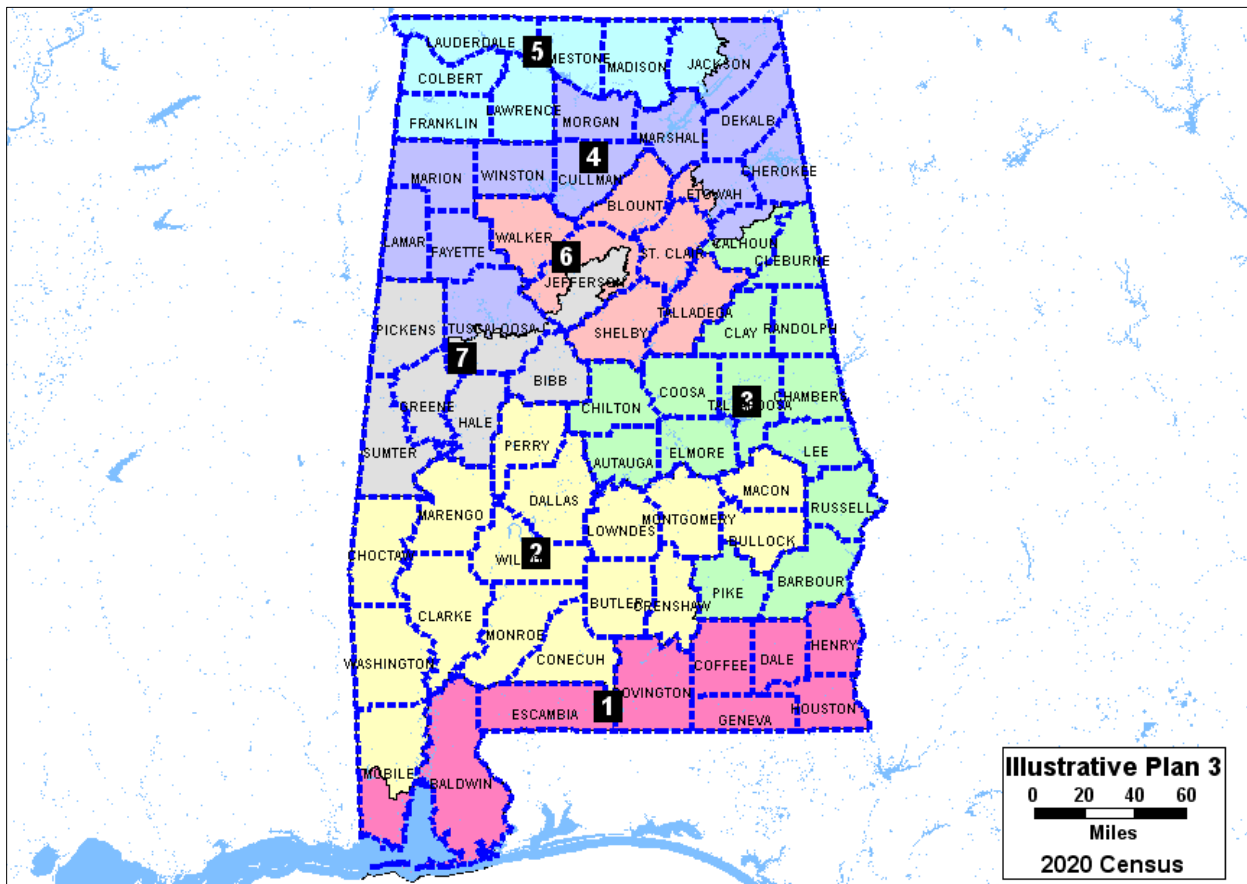
split in Calhoun County could be eliminated by assigning all of Calhoun County to District 3, resulting in just six county splits.¹⁹

(c) Illustrative Plan 3

60. The map in **Figure 12** depicts Illustrative Plan 3. District 2 is 50.27% BVAP and District 7 is 50.09% BVAP.

Figure 14

Alabama U.S. House – Illustrative Plan 3



61. Majority-Black District 2 encompasses part of Mobile County and extends east to encompass Macon and Bullock Counties.

¹⁹ *Tennant v. Jefferson Cnty. Comm'n*, 567 U.S. 758 (2012).

62. Majority-Black District 7 encompasses part of Jefferson County and extends south to Tuscaloosa County and west to Sumter and Pickens Counties.

63. The table in **Figure 15** shows 2020 summary population statistics for Illustrative Plan 3. **Exhibit I-1** contains detailed 2020 population statistics by district.

Figure 15

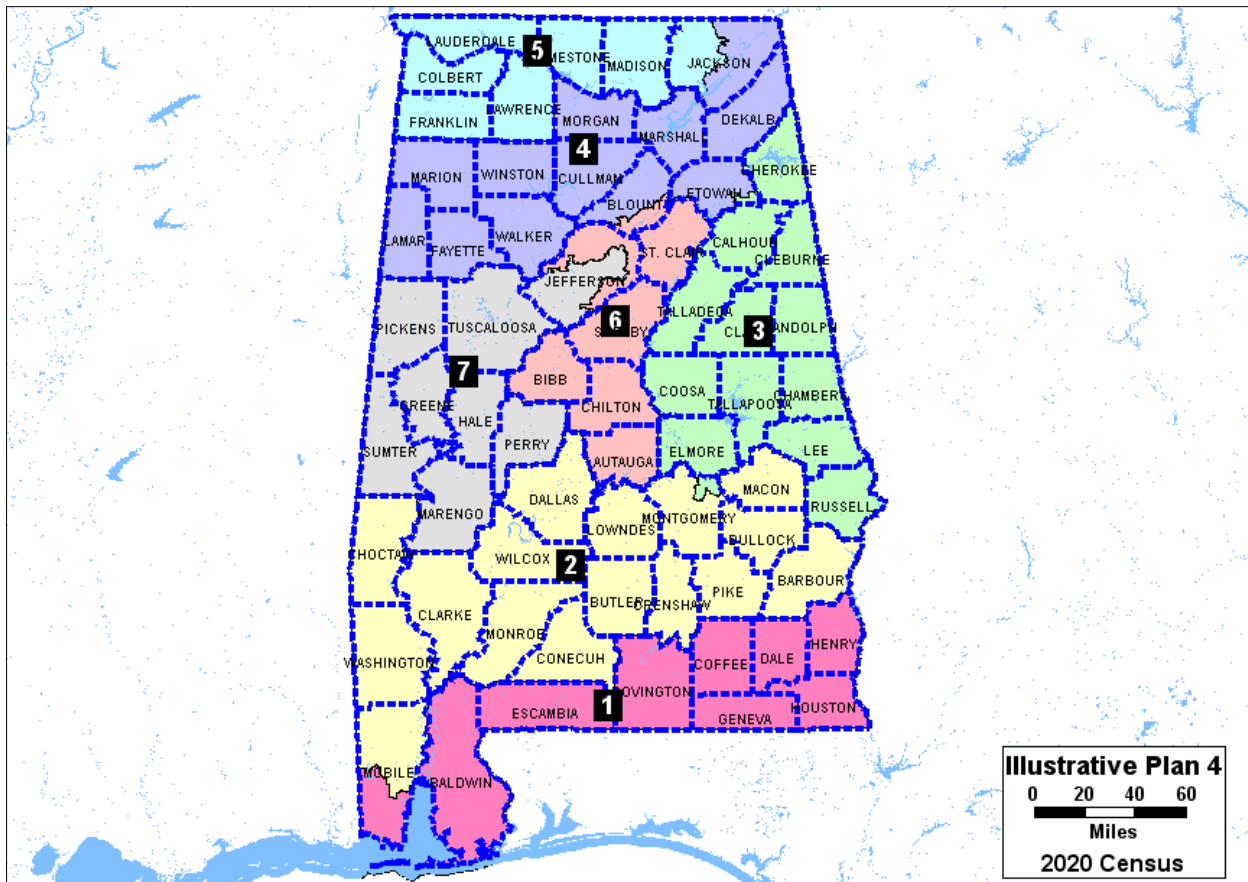
Illustrative Plan 3– 2020 Census

District	Population	18+ Pop	% 18+ AP Black	% 18+ NH White
1	717753	557048	17.23%	73.86%
2	717752	559299	50.27%	43.53%
3	717755	562300	25.49%	66.43%
4	717755	559374	7.30%	82.21%
5	717755	561688	18.66%	70.63%
6	717755	554093	11.93%	79.81%
7	717754	563364	50.09%	42.12%

64. The Illustrative Plan 3 maps in the **Exhibit I** series are identical in format to the Exhibit G and H series. As shown in **Exhibit I-4**, Illustrative Plan 3 splits six counties and populated areas in 10 VTDs.

(d) Illustrative Plan 4

65. The map in **Figure 16** depicts Illustrative Plan 4. District 2 is 50.07% BVAP and District 7 is 50.09% BVAP.

Figure 16**Alabama U.S. House – Illustrative Plan 4**

66. Majority-Black District 2 encompasses part of Mobile County, extends north to include all of Choctaw County, then east to the Georgia state line to include all of Barbour County – part of the historical Black Belt.

67. Majority-Black District 7 encompasses part of Jefferson County and all of Tuscaloosa County and stretches west to the Mississippi state line, with Perry and Marengo Counties forming the eastern border.

68. The table in **Figure 17** shows 2020 summary population statistics for Illustrative Plan 4. **Exhibit J-1** contains detailed 2020 population statistics by district.

Figure 17

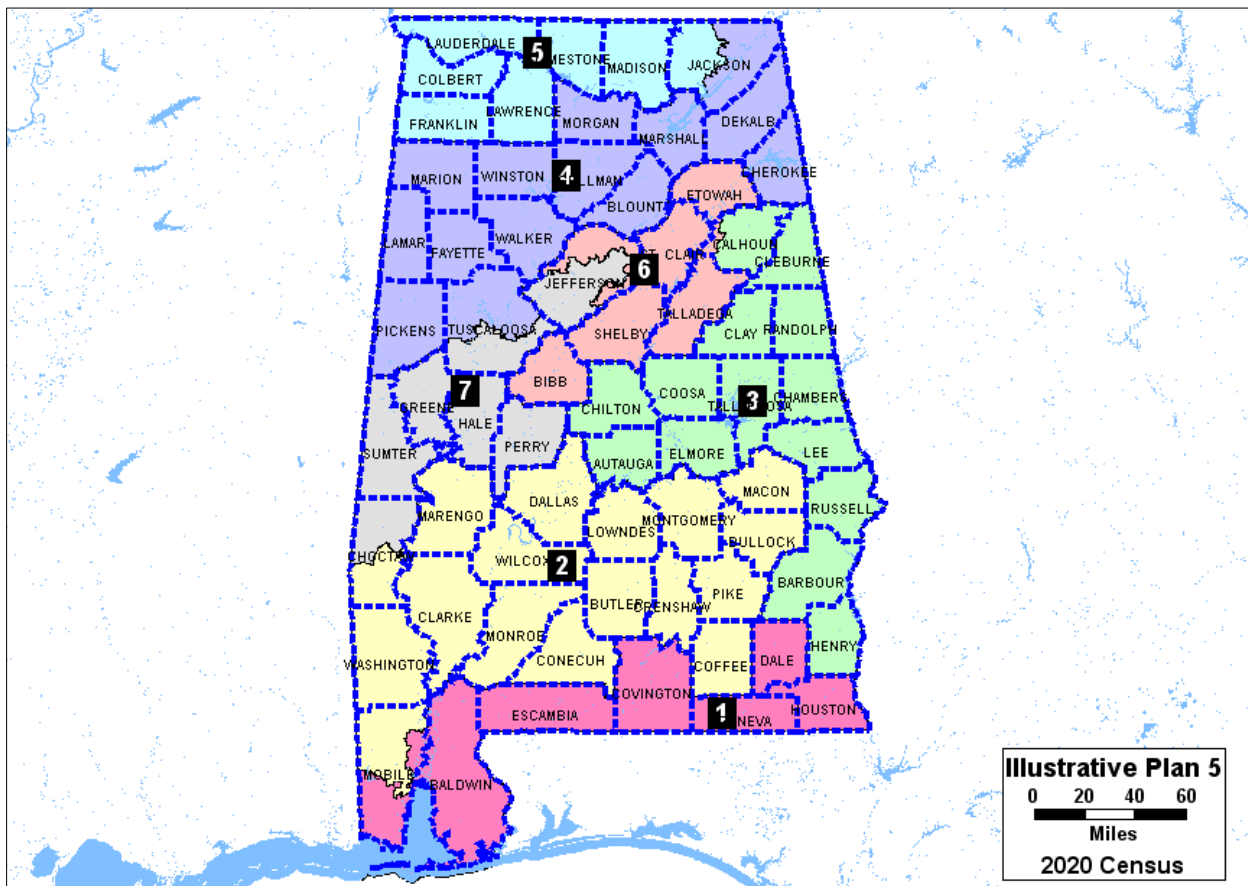
Illustrative Plan 4 – 2020 Census

District	Population	18+ Pop	% 18+ AP Black	% 18+ NH White
1	717753	557046	17.23%	73.87%
2	717752	561374	50.07%	43.92%
3	717755	564004	25.10%	67.19%
4	717755	556215	6.73%	82.75%
5	717755	561685	18.66%	70.63%
6	717755	554035	12.93%	77.83%
7	717754	562807	50.09%	42.53%

69. The Illustrative Plan 4 maps in the **Exhibit J** series are identical in format to the maps in the Exhibit G, H, and I series. As shown in **Exhibit J-4** Illustrative Plan 4 splits six counties and populated areas in 12 VTDs.

(e) Illustrative Plan 5

70. The map in **Figure 18** depicts Illustrative Plan 5. District 2 is 50.24% BVAP and District 7 is 50.09% BVAP.

Figure 18**Alabama U.S. House – Illustrative Plan 5**

71. Majority-Black District 2 encompasses part of Mobile County, extends north to include all of Washington County and part of Choctaw County, then east through the Black Belt counties. Macon, Bullock, and Pike Counties form the eastern boundary, along with Coffee County, where the current District 2 incumbent resides.

72. Majority-Black District 7 encompasses part of the Counties of Jefferson and Tuscaloosa, extends west to the Mississippi state line, then south to share Choctaw County with District 2 and east to Perry County.

73. The table in **Figure 19** shows 2020 summary population statistics for Illustrative Plan 5. **Exhibit K-1** contains detailed 2020 population statistics by district.

Figure 19

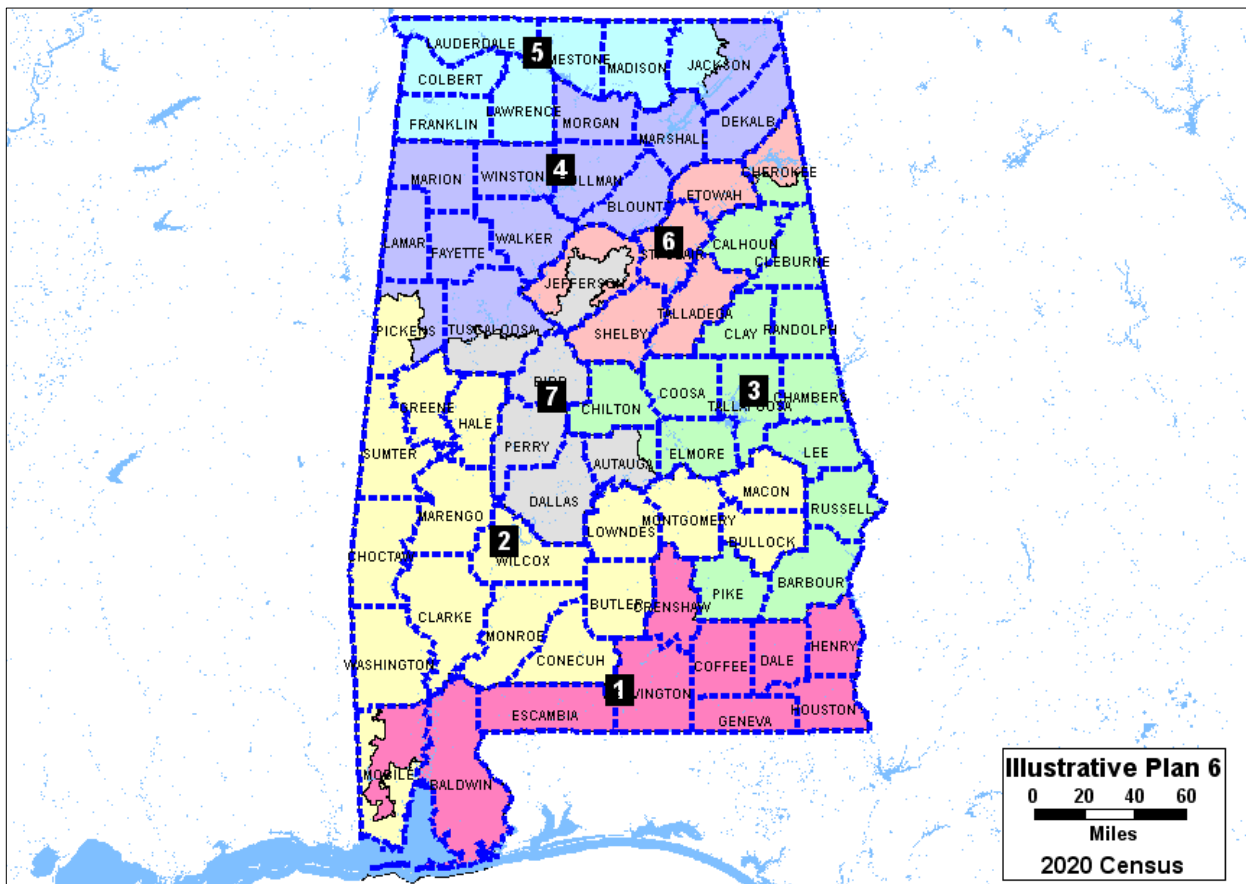
Illustrative Plan 5 – 2020 Census

District	Population	18+ Pop	% 18+ AP Black	% 18+ NH White
1	717754	557535	17.12%	74.18%
2	717755	557677	50.24%	43.20%
3	717754	564281	24.52%	67.49%
4	717754	556133	6.10%	83.50%
5	717754	561187	18.66%	70.63%
6	717754	552286	14.16%	77.64%
7	717754	568067	50.09%	42.02%

74. The Illustrative Plan 5 maps in the **Exhibit K** series are identical in format to the maps in the Exhibit G, H, I, and J series. As shown in **Exhibit K-4**, Illustrative Plan 5 splits six counties and populated areas in 20 VTDs.

(f) Illustrative Plan 6

75. The map in **Figure 20** depicts Illustrative Plan 6. District 2 is 51.28% BVAP and District 7 is 51.09% BVAP.

Figure 20**Alabama U.S. House – Illustrative Plan 6**

76. Illustrative Plan 6 demonstrates that it is possible to create a second-majority-Black district while keeping all of the population in the Cities of Mobile and Montgomery, as well as Montgomery County, whole in the new district. The enacted 2011 Plan and the enacted 2021 Plan split the City of Montgomery.

77. Majority-Black District 2 encompasses part of Mobile County, including all of the City of Mobile, before extending north to include the Black Belt counties on the Mississippi state line. Part of Pickens County is shared with District 4.

78. At the Washington County line, District 2 extends as far east as Macon and Bullock Counties, including all of Montgomery County.

79. Majority-Black District 7 encompasses part of the Counties of Jefferson and Tuscaloosa, extending south to Dallas County. To the east District 7 shares Autauga County with District 3.

80. The table in **Figure 21** shows 2020 summary population statistics for Illustrative Plan 6. **Exhibit L-1** contains detailed 2020 population statistics by district.

Figure 21

Illustrative Plan 6 – 2020 Census

District	Population	18+ Pop	% 18+ AP Black	% 18+ NH White
1	717753	557535	15.83%	75.27%
2	717755	557677	51.28%	42.36%
3	717753	564281	24.77%	67.22%
4	717754	556133	5.63%	83.83%
5	717755	561187	18.66%	70.63%
6	717755	552286	13.58%	78.31%
7	717754	568067	51.09%	41.08%

81. The Illustrative Plan 6 maps in the **Exhibit L** series are identical in format to the maps in the Exhibit G, H, I, J, and K series. As shown in **Exhibit L-4**, Illustrative Plan 6 splits seven counties and populated areas in 27 VTDs. However, fifteen of the 27 VTD splits are created because the plan generally follows the city limits of the City of Mobile (rather than VTDs) to define the

boundary between District 1 and District 2.

(g) Compactness Measures

82. The districts in the illustrative plans are reasonably shaped and compact – and clearly within the normal range for compactness as compared to congressional plans nationwide.²⁰

83. **Figure 22** reports compactness scores generated by Maptitude for the 2011 U.S. Congressional Plan, the 2011 BOE Plan, the 2021 U.S. Congressional Plan, and the Illustrative Plans. The table summarizes the Reock²¹ and Polsby-Popper²² scores – the two most widely-referenced measures of compactness. Higher scores indicate higher compactness.

²⁰ See, for example, *Redrawing the Map 2012 Addendum* by geospatial firm Azavea – examining the compactness scores for post-2010 congressional plans in all states: https://2rct3i2488gxf9jvb1lqhek9-wpengine.netdna-ssl.com/wp-content/uploads/2019/08/Azavea_Redistricting-White-Paper-Addendum-2012_sm.pdf

²¹ “The Reock test is an area-based measure that compares each district to a circle, which is considered to be the most compact shape possible. For each district, the Reock test computes the ratio of the area of the district to the area of the minimum enclosing circle for the district. The measure is always between 0 and 1, with 1 being the most compact. The Reock test computes one number for each district and the minimum, maximum, mean and standard deviation for the plan.” *Maptitude For Redistricting* software documentation (authored by the Caliper Corporation).

²² The Polsby-Popper test computes the ratio of the district area to the area of a circle with the same perimeter: $4\pi \text{Area} / (\text{Perimeter}^2)$. The measure is always between 0 and 1, with 1 being the most compact. The Polsby-Popper test computes one number for each district and the minimum, maximum, mean and standard deviation for the plan. *Maptitude For Redistricting* software documentation (authored by the Caliper Corporation).

Figure 22**Compactness Scores – Illustrative Plans vs 2011 Plans and 2021 Plan**

	Reock				Polsby-Popper		
		Low	High			Low	High
2011 U.S. Congressional Plan							
All Districts (mean avg.)	.38	.22	.49		.19	.13	.29
CD 2	.49				.22		
CD 7	.38				.13		
2011 BOE Plan							
All Districts (mean avg.)	.40	.24	.52		.19	.15	.22
BOE District 4	.40				.15		
BOE District 5	.37				.15		
2021 U.S. Congressional Plan							
All Districts (mean avg.)	.38	.30	.50		.22	.15	.32
CD 2	.50				.26		
CD 7	.43				.19		
Illustrative Plan 1							
All Districts (mean avg.)	.34	.21	.47		.18	.13	.33
District 2	.36				.18		
District 7	.37				.13		
Illustrative Plan 2							
All Districts (mean avg.)	.34	.21	.52		.18	.12	.33
District 2	.31				.12		
District 7	.40				.13		
Illustrative Plan 3							
All Districts (mean avg.)	.34	.20	.47		.18	.12	.33
District 2	.33				.14		
District 7	.37				.13		
Illustrative Plan 4							
All Districts (mean avg.)	.33	.20	.41		.22	.13	.34
District 2	.33				.24		
District 7	.41				.24		
Illustrative Plan 5							
All Districts (mean avg.)	.29	.19	.39		.18	.11	.33
District 2	.39				.19		
District 7	.23				.11		
Illustrative Plan 6							
All Districts (mean avg.)	.31	.24	.35		.16	.10	.34
District 2	.29				.11		
District 7	.34				.11		

84. Compared to the 2021 Plan, the Illustrative Plans are generally in the same range of compactness.²³

V. SOCIOECONOMIC PROFILE OF ALABAMA

85. Non-Hispanic Whites in Alabama significantly outpace African Americans across a broad range of socioeconomic measures, as reported in the 1-year 2019 ACS.²⁴ This disparity is summarized below and depicted with further detail in charts found in **Exhibit M-1** and the table in **Exhibit M-2**.

86. For additional socioeconomic data by congressional district in the general region where the illustrative plans create two majority-Black districts, see **Exhibits N** (CD 1), **Exhibits O** (CD 2), **Exhibits P** (CD 3), **Exhibits Q** (CD 6), and **Exhibits R** (CD 7).²⁵

(a) Income

- African Americans in Alabama experience a poverty rate (23.4%) that is more than twice that of Whites (11.5%). (**Exhibit M-1 at p. 22 and Exhibit M-2 at p. 8**)

²³ As noted in footnote 13 (*supra*), I do not have a GIS shapefile for the 2021 BOE Plan, so I am unable to run compactness scores on that plan.

²⁴ In this section, as elsewhere in this report, “White” refers to NH White. Black or African American refers to Any Part Black.

²⁵ Source: <https://data.census.gov/cedsci/table?text=s0201&t=-0A%20-%20All%20available%20non-Hispanic%20Origin%3A005%20-%20Black%20or%20African%20American%20alone%20or%20in%20combination%20with%20one%20or%20more%20other%20races&g=0400000US01,01%245000000&y=2019&tid=ACSSPP1Y2019.S0201&hidePreview=true>

- The child poverty rate for African Americans is 34.1%, compared to 13.2% of White children. (**Exhibit M-1 at p. 22 and Exhibit M-2 at p. 8**)
- Black median household income is \$35,900, which is just 59.9% of White median household income is \$59,966. (**Exhibit M-1 at p. 14 and Exhibit M-2 at p.7**)
- Per capita income disparities in Alabama track the disparities seen in median household income. Black per capita income is \$20,402, compared to White per capita income of \$32,939. (**Exhibit M-1 at p. 17 and Exhibit M-2 at p. 8**)
- Over a quarter (25.4%) of Black households rely on food stamps, compared to 8.2% of White households. (**Exhibit M-1 at p. 15 and Exhibit M-2 at p. 7**)

(b) Education

- Of persons 25 years of age and over, 14.9% of African Americans have not finished high school, compared to 10.9% of their White counterparts. (**Exhibit M-1 at p. 5 and Exhibit M-2 at p. 3**)
- At the other end of the educational scale, for ages 25 and over, 19.4% of African Americans have a bachelor's degree or higher, compared to 28.8% of Whites. (**Exhibit M-1 at p. 5 and Exhibit M-2 at p. 3**)

(c) Employment

- The Black unemployment rate (for the population over 16, expressed as a percent of the civilian labor force) is 7.7%, compared to a 3.8% White unemployment rate. (**Exhibit M-1 at p. 11 and Exhibit M-2 at p. 5**)
- Of employed African Americans, 25.8% are in management or professional occupations, compared to 40.3% of Whites. (**Exhibit M-1 at p. 13 and Exhibit M-2 at p. 6**)

(d) Housing

- In Alabama, about half of Black householders (50.5%) are homeowners, while over three-quarters of White households (77.1%) are

owner-occupied. (**Exhibit M-1 at p. 21 and Exhibit M-2 at p. 9**)

- About one in eight of Black households (11.7%) lack access to a vehicle, while just 3.8% of White households are without a vehicle. (**Exhibit M-1 at p. 23 and Exhibit M-2 at p. 9**)

- Median home value for Black homeowners is \$101,800, which is just 61.4% of the median home value for Whites (\$165,800). (**Exhibit M-1 at p. 25 and Exhibit M-2 at p.10**)

87. For comparison, I have prepared similar charts depicting socioeconomic characteristics for the state, all Alabama counties, and places with significant Black population according to the 5-year 2015-2019 ACS.²⁶ These charts are available for download at: http://www.fairdata2000.com/ACS_2015_19/Alabama/

###

I reserve the right to continue to supplement my reports in light of additional facts, testimony and/or materials that may come to light.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: December 10, 2021



WILLIAM S. COOPER

²⁶ The 2019 1-year ACS is not available for counties and places with populations under 20,000. The 5-year 2015-2019 ACS reports SR Black socioeconomic estimates only. AP Black estimates are not published in the 5-year ACS.

October 31, 2021

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Summary of Redistricting Work

I have a B.A. in Economics from Davidson College in Davidson, North Carolina.

Since 1986, I have prepared proposed redistricting maps of approximately 750 jurisdictions for Section 2 litigation, Section 5 comment letters, and for use in other efforts to promote compliance with the Voting Rights Act of 1965. I have analyzed and prepared election plans in over 100 of these jurisdictions for two or more of the decennial censuses – either as part of concurrent legislative reapportionments or, retrospectively, in relation to litigation involving many of the cases listed below.

From 1986 to 2020, I have prepared election plans for Section 2 litigation in Alabama, Connecticut, Florida, Georgia, Louisiana, Maryland, Mississippi, Missouri, Montana, Nebraska, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, and Wyoming.

Post-2010 Redistricting Experience

Since the release of the 2010 Census in February 2011, I have developed statewide legislative plans on behalf of clients in nine states (Alabama, Connecticut, Florida, Georgia, Kentucky, Mississippi, South Carolina, Texas, and Virginia), as well as over 150 local redistricting plans in approximately 30 states – primarily for groups working to protect minority voting rights. In addition, I have prepared congressional plans for clients in eight states (Alabama, Florida, Georgia, Louisiana, Maryland, Ohio, Pennsylvania, South Carolina, and Virginia).

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In March 2011, I was retained by the Sussex County, Virginia Board of Supervisors and the Bolivar County, Mississippi Board of Supervisors to draft new district plans based on the 2010 Census. In the summer of 2011, both counties received Section 5 preclearance from the U.S. Department of Justice (DOJ).

Also in 2011, I was retained by way of a subcontract with Olmedillo X5 LLC to assist with redistricting for the Miami-Dade County, Florida Board of Commissioners and the Miami-Dade, Florida School Board. Final plans were adopted in late 2011 following public hearings.

In the fall of 2011, I was retained by the City of Grenada, Mississippi to provide redistricting services. The ward plan I developed received DOJ preclearance in March 2012.

In 2012 and 2013, I served as a redistricting consultant to the Tunica County, Mississippi Board of Supervisors and the Claiborne County, Mississippi Board of Supervisors.

In *Montes v. City of Yakima* (E.D. Wash. Feb. 17, 2015) the court adopted, as a remedy for the Voting Rights Act Section 2 violation, a seven single-member district plan that I developed for the Latino plaintiffs. I served as the expert for the Plaintiffs in the liability and remedy phases of the case.

In *Pope v. Albany County* (N.D.N.Y. Mar. 24, 2015), the court approved, as a remedy for a Section 2 violation, a plan drawn by the defendants, creating a new Black-majority district. I served as the expert for the Plaintiffs in the liability and remedy phases of the case.

In 2016, two redistricting plans that I developed on behalf of the plaintiffs for consent decrees in Section 2 lawsuits in Georgia were adopted (*NAACP v. Fayette County, Georgia* and *NAACP v. Emanuel County, Georgia*).

October 31, 2021

In 2016, two federal courts granted summary judgment to the plaintiffs based in part on my *Gingles 1* testimony: *Navajo Nation v. San Juan County, Utah* (C.D. Utah 2016) and *NAACP v. Ferguson-Florissant School District, Missouri* (E. D. Mo. August 22, 2016).

Also in 2016, based in part on my analysis, the City of Pasco, Washington admitted to a Section 2 violation. As a result, in *Glatt v. City of Pasco* (E.D. Wash. Jan. 27, 2017), the court ordered a plan that created three Latino majority single-member districts in a 6 district, 1 at-large plan.

In 2018, I served as the redistricting consultant to the Governor Wolf interveners at the remedial stage of *League of Women Voters, et al. v. Commonwealth of Pennsylvania*.

In August 2018, the Wenatchee City Council adopted a hybrid election plan that I developed – five single-member districts with two members at-large. The Wenatchee election plan is the first plan adopted under the Washington Voting Rights Acts of 2018.

In February 2019, a federal court ruled in favor of the plaintiffs in a Section 2 case regarding Senate District 22 in Mississippi, based in part on my *Gingles 1* testimony in *Thomas v. Bryant* (S.D. Ms. Feb 16, 2019).

In the summer of 2019, I developed redistricting plans for the Grand County (Utah) Change of Form of Government Study Committee.

In the fall of 2019, a redistricting plan I developed for a consent decree involving the Jefferson County, Alabama Board of Education was adopted *Traci Jones, et al. v. Jefferson County Board of Education, et al.*

In May 2020, a federal court ruled in favor of the plaintiffs in a Section 2 case in *NAACP et al. v. East Ramapo Central School District, NY*, based in part on my *Gingles 1* testimony. In October 2020, the federal court adopted a consent decree plan I developed for elections to be held in February 2021.

October 31, 2021

In May and June of 2020, I served as a consultant to the City of Quincy, Florida – the Defendant in a Section 2 lawsuit filed by two Anglo voters (*Baroody v. City of Quincy*). The federal court for the Northern District of Florida ruled in favor of the Defendants. The Plaintiffs voluntarily dismissed the case.

In the summer of 2020, I provided technical redistricting assistance to the City of Chestertown, Maryland.

I am currently a redistricting consultant and expert for the plaintiffs in *Jayla Allen v. Waller County, Texas*. I testified remotely at trial in October 2020.

Since 2011, I have served as a redistricting and demographic consultant to the Massachusetts-based Prison Policy Initiative for a nationwide project to end prison-based gerrymandering. I have analyzed proposed and adopted election plans in about 25 states as part of my work.

In 2018 (Utah) and again in 2020 (Arizona), I have provided technical assistance to the Rural Utah Project for voter registration efforts on the Navajo Nation Reservation.

Post-2010 Demographics Experience

My trial testimony in Section 2 lawsuits usually includes presentations of U.S. Census data with charts, tables, and/or maps to demonstrate socioeconomic disparities between non-Hispanic Whites and racial or ethnic minorities.

I served as a demographic expert for plaintiffs in four state-level voting cases related to the Covid-19 pandemic (South Carolina, Alabama, and Louisiana) and state court in North Carolina.

I have also served as an expert witness on demographics in non-voting trials. For example, in an April 2017 opinion in *Stout v. Jefferson County Board of Education* (Case No. 2:65-cv-00396-MHH), a school desegregation case involving the City of Gardendale,

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Ala., the court made extensive reference to my testimony.

I provide technical demographic and mapping assistance to the Food Research and Action Center (FRAC) in Washington D.C and their constituent organizations around the country. Most of my work with FRAC involves the Summer Food Program and Child and Adult Care Food Program. Both programs provide nutritional assistance to school-age children who are eligible for free and reduced price meals. As part of this project, I developed an online interactive map to determine site eligibility for the two programs that has been in continuous use by community organizations and school districts around the country since 2003. The map is updated annually with new data from a Special Tabulation of the American Community Survey prepared by the U.S. Census Bureau for the Food and Nutrition Service of the U.S. Department of Agriculture.

Historical Redistricting Experience

In the 1980s and 1990s, I developed voting plans in about 400 state and local jurisdictions – primarily in the South and Rocky Mountain West. During the 2000s and 2010s, I prepared draft election plans involving about 350 state and local jurisdictions in 25 states. Most of these plans were prepared at the request of local citizens' groups, national organizations such as the NAACP, tribal governments, and for Section 2 or Section 5 litigation.

Election plans I developed for governments in two counties – Sussex County, Virginia and Webster County, Mississippi – were adopted and precleared in 2002 by the U.S. Department of Justice. A ward plan I prepared for the City of Grenada, Mississippi was precleared in August 2005. A county supervisors' plan I produced for Bolivar County, Mississippi was precleared in January 2006.

In August 2005, a federal court ordered the State of South Dakota to remedy a

October 31, 2021

Section 2 voting rights violation and adopt a state legislative plan I developed (*Bone Shirt v. Hazeltine*).

A county council plan I developed for Native American plaintiffs in a Section 2 lawsuit (*Blackmoon v. Charles Mix County*) was adopted by Charles Mix County, South Dakota in November 2005. A plan I drafted for Latino plaintiffs in Bethlehem, Pennsylvania (*Pennsylvania Statewide Latino Coalition v. Bethlehem Area School District*) was adopted in March 2009. Plans I developed for minority plaintiffs in Columbus County, North Carolina and Montezuma- Cortez School District in Colorado were adopted in 2009.

Since 1986, I have testified at trial as an expert witness on redistricting and demographics in federal courts in the following voting rights cases (approximate most recent testimony dates are in parentheses). I also filed declarations and was deposed in most of these cases.

Alabama

Chestnut v. Merrill (2019)

Alabama State Conference of the NAACP v. Alabama (2018)

Alabama Legislative Black Caucus et al. v. Alabama et al. (2013)

Colorado

Cuthair v. Montezuma-Cortez School Board (1997)

Florida

Baroody v. City of Quincy (2020)

Georgia

Cofield v. City of LaGrange (1996)

Love v. Deal (1995)

Askew v. City of Rome (1995)

Woodard v. Lumber City (1989)

Louisiana

Terrebonne Parish NAACP v. Jindal, et al. (2017)

Wilson v. Town of St. Francisville (1996)

Reno v. Bossier Parish (1995)

Knight v. McKeithen (1994)

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Maryland

Cane v. Worcester County (1994)

Mississippi

Thomas v. Bryant (2019)

Fairley v. Hattiesburg (2014)

Boddie v. Cleveland School District (2010)

Fairley v. Hattiesburg (2008)

Boddie v. Cleveland (2003)

Jamison v. City of Tupelo (2006)

Smith v. Clark (2002)

NAACP v. Fordice (1999)

Addy v Newton County (1995)

Ewing v. Monroe County (1995)

Gunn v. Chickasaw County (1995)

Nichols v. Okolona (1995)

Montana

Old Person v. Brown (on remand) (2001)

Old Person v. Cooney (1998)

Missouri

Missouri NAACP v. Ferguson-Florissant School District (2016)

Nebraska

Stabler v. Thurston County (1995)

New York

NAACP v. East Ramapo Central School District (2020)

Pope v. County of Albany (2015)

Arbor Hills Concerned Citizens v. Albany County (2003)

Ohio

A. Philip Randolph Institute, et al. v. Ryan (2019)

South Carolina

Smith v. Beasley (1996)

South Dakota

Bone Shirt v. Hazeltine (2004)

Cottier v. City of Martin (2004)

Tennessee

Cousins v. McWherter (1994)

Rural West Tennessee African American Affairs Council v. McWherter (1993)

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Texas

Jayla Allen v. Waller County, Texas (2018)

Utah

Navajo Nation v. San Juan County (2017), brief testimony –11 declarations, 2 depositions

Virginia

Smith v. Brunswick County (1991)

Henderson v. Richmond County (1988)

McDaniel v. Mehfood (1988)

White v. Daniel (1989)

Wyoming

Large v. Fremont County (2007)

In addition, I have filed expert declarations or been deposed in the following cases that did not require trial testimony. The dates listed indicate the deposition date or date of last declaration or supplemental declaration:

Alabama

People First of Alabama v. Merrill (2020), Covid-19 demographics only

Alabama State NAACP v. City of Pleasant Grove (2019)

James v. Jefferson County Board of Education (2019)

Voketz v. City of Decatur (2018)

Arkansas

Mays v. Thurston (2020), Covid-19 demographics only

Connecticut

NAACP v. Merrill (2020)

Florida

Florida State Conference of the NAACP v. Lee, et al, (2021)

Calvin v. Jefferson County (2016)

Thompson v. Glades County (2001)

Johnson v. DeSoto County (1999)

Burton v. City of Belle Glade (1997)

Georgia

Dwight v. Kemp (2018)

Georgia NAACP et al. v. Gwinnett County, GA (2018)

Georgia State Conference NAACP et al v. Georgia (2018)

Georgia State Conference NAACP, et al. v. Fayette County (2015)

Knighton v. Dougherty County (2002)

Johnson v. Miller (1998)

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Jones v. Cook County (1993)

Kentucky

Herbert v. Kentucky State Board of Elections (2013)

Louisiana

Power Coalition for Equity and Justice v. Edwards (2020), Covid-19 demographics only

Johnson v. Ardoin (2019)

NAACP v. St. Landry Parish Council (2005)

Prejean v. Foster (1998)

Rodney v. McKeithen (1993)

Maryland

Benisek v. Lamone (2017)

Fletcher v. Lamone (2011)

Mississippi

Partee v. Coahoma County (2015)

Figgs v. Quitman County (2015)

West v. Natchez (2015)

Williams v. Bolivar County (2005)

Houston v. Lafayette County (2002)

Clark v. Calhoun County (on remand) (1993)

Teague v. Attala County (on remand) (1993)

Wilson v. Clarksdale (1992)

Stanfield v. Lee County (1991)

Montana

Alden v. Rosebud County (2000)

North Carolina

Lewis v. Alamance County (1991)

Gause v. Brunswick County (1992)

Webster v. Person County (1992)

Rhode Island

Davidson v. City of Cranston (2015)

South Carolina

Thomas v. Andino (2020), Covid-19 demographics only

Vander Linden v. Campbell (1996)

South Dakota

Kirkie v. Buffalo County (2004)

Emery v. Hunt (1999)

Tennessee

NAACP v. Frost, et al. (2003)

October 31, 2021

Virginia

Moon v. Beyer (1990)

Washington

Glatt v. City of Pasco (2016)

Montes v. City of Yakima (2014)

###

Exhibit B – Methodology and Sources

1. In the preparation of this report, I analyzed population and geographic data from the Decennial Census and the American Community Survey.

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

3. The geographic boundary files that I used with *Maptitude* are created from the U.S. Census 2010 TIGER and 2020 TIGER (Topologically Integrated Geographic Encoding and Referencing) files.

4. I used population data from the 2010 and 2020 PL 94-171 data files published by the U.S. Census Bureau. The PL 94-171 dataset is published in electronic format and is the complete count population file designed by the Census Bureau for use in legislative redistricting. The file contains basic race and ethnicity data on the total population and voting-age population found in units of Census geography such as states, counties, municipalities, townships, reservations, school districts, census tracts, census block groups, precincts (called voting districts or “VTDs” by the Census Bureau) and census blocks.

5. I developed the illustrative plans presented in this report using *Maptitude for Redistricting*. The *Maptitude for Redistricting* software processes the

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

6. I also reviewed and used data from the American Community Survey (“ACS”) conducted by the Census Bureau – specifically, the 1-year 2019 ACS and the 5-year 2015-2019 ACS Special Tabulation of citizen population and voting age population by race and ethnicity (prepared by the Census Bureau for the U.S. Department of Justice) and available from the link below:

<https://www.census.gov/programs-surveys/decennial-census/about/voting-rights/cvap.html>

###

2020 Population by County

County	POP.	BLACK	AP BLACK	% AP BLACK	Latino	NH White	% NH White	18+ POP	18+ BLACK	18+ AP BLACK	%18+ AP BLACK	18+ Latino	NH18+ WHITE	%NH18+ WHITE
AUTAUGA	58805	11445	12266	20.86%	2117	41582	70.71%	44523	8363	8706	19.55%	1339	32408	72.79%
BALDWIN	231767	18217	20913	9.02%	12686	186495	80.47%	182471	13593	14664	8.04%	8197	150877	82.69%
BARBOUR	25223	11933	12261	48.61%	1510	11086	43.95%	20134	9278	9456	46.97%	934	9456	46.97%
BIBB	22293	4413	4643	20.83%	740	16442	73.75%	17533	3564	3669	20.93%	463	13055	74.46%
BLOUNT	59134	845	1250	2.11%	5771	49764	84.15%	45403	647	797	1.76%	3534	39278	86.51%
BULLOCK	10357	7396	7492	72.34%	503	2281	22.02%	8356	5892	5956	71.28%	273	2075	24.83%
BUTLER	19051	8430	8742	45.89%	260	9679	50.81%	14903	6326	6498	43.60%	178	7953	53.37%
CALHOUN	116441	25559	27445	23.57%	5010	79519	68.29%	92289	19865	20663	22.39%	3229	64795	70.21%
CHAMBERS	34772	13512	14009	40.29%	1237	18616	53.54%	27791	10540	10771	38.76%	823	15456	55.62%
CHEROKEE	24971	987	1219	4.88%	400	22563	90.36%	20169	825	912	4.52%	246	18400	91.23%
CHILTON	45014	4067	4537	10.08%	4418	34878	77.48%	34385	3069	3227	9.38%	2735	27517	80.03%
CHOCTAW	12665	5232	5358	42.31%	113	7039	55.58%	10168	4211	4286	42.15%	75	5690	55.96%
CLARKE	23087	10255	10514	45.54%	206	11970	51.85%	18249	7894	8024	43.97%	124	9799	53.70%
CLAY	14236	1963	2204	15.48%	449	11261	79.10%	11299	1530	1612	14.27%	287	9143	80.92%
CLEBURNE	15056	466	556	3.69%	284	13740	91.26%	11620	372	401	3.45%	187	10689	91.99%
COFFEE	53465	8760	9834	18.39%	4887	35759	66.88%	40774	6644	7118	17.46%	2996	28431	69.73%
COLBERT	57227	9286	10135	17.71%	1732	43241	75.56%	45078	7169	7481	16.60%	1061	34902	77.43%
CONECUH	11597	5104	5236	45.15%	256	5835	50.31%	9277	3961	4045	43.60%	155	4872	52.52%
COOSA	10387	3008	3168	30.50%	201	6807	65.53%	8603	2466	2559	29.75%	112	5753	66.87%
COVINGTON	37570	4607	5088	13.54%	654	30657	81.60%	29387	3482	3634	12.37%	414	24420	83.10%
CRENSHAW	13194	3103	3360	25.47%	187	9333	70.74%	10360	2401	2517	24.30%	119	7477	72.17%
CULLMAN	87866	937	1408	1.60%	4146	78298	89.11%	68240	727	890	1.30%	2533	61747	90.49%
DALE	49326	10241	11239	22.79%	3254	32602	66.09%	38048	7505	7924	20.83%	2101	26220	68.91%
DALLAS	38462	26899	27497	71.49%	296	10363	26.94%	29613	20104	20496	69.21%	217	8645	29.19%
DEKALB	71608	1046	1595	2.23%	11744	54529	76.15%	53920	831	1036	1.92%	6600	43414	80.52%
ELMORE	87977	18211	19305	21.94%	2793	62540	71.09%	69005	14031	14451	20.94%	1786	50273	72.85%
ESCAMBIA	36757	10991	11571	31.48%	751	22004	59.86%	28575	8495	8726	30.54%	444	17665	61.82%
ETOWAH	103436	15146	16762	16.21%	4895	77731	75.15%	81121	11488	12181	15.02%	2916	62803	77.42%
FAYETTE	16321	1736	1961	12.02%	396	13552	83.03%	12791	1336	1428	11.16%	245	10805	84.47%
FRANKLIN	32113	1166	1475	4.59%	6259	23581	73.43%	23931	911	1003	4.19%	3729	18607	77.75%
GENEVA	26659	2241	2727	10.23%	1296	21654	81.23%	20820	1775	1942	9.33%	793	17295	83.07%
GREENE	7730	6246	6354	82.20%	61	1285	16.62%	6070	4806	4886	80.49%	50	1099	18.11%
HALE	14785	8337	8533	57.71%	149	5972	40.39%	11483	6370	6494	56.55%	93	4793	41.74%
HENRY	17146	4248	4445	25.92%	334	11842	69.07%	13641	3429	3521	25.81%	215	9523	69.81%
HOUSTON	107202	28408	30210	28.18%	4481	68251	63.67%	82646	20476	21308	25.78%	2855	55285	66.89%

2020 Population by County

County	POP.	BLACK	AP BLACK	% AP BLACK	Latino	NH White	% NH White	18+ POP	18+ BLACK	18+ AP BLACK	%18+ AP BLACK	18+ Latino	NH18+ WHITE	%NH18+ WHITE
JACKSON	52579	1636	2181	4.15%	1681	45123	85.82%	41768	1309	1493	3.57%	1040	36475	87.33%
JEFFERSON	674721	281326	289515	42.91%	34856	324252	48.06%	527087	213751	218505	41.46%	22613	265750	50.42%
LAMAR	13972	1425	1623	11.62%	208	11924	85.34%	11019	1145	1222	11.09%	133	9509	86.30%
LAUDERDALE	93564	9243	10460	11.18%	3078	76491	81.75%	74908	7061	7586	10.13%	1990	62564	83.52%
LAWRENCE	33073	3304	3672	11.10%	895	24714	74.73%	25878	2726	2855	11.03%	580	19700	76.13%
LEE	174241	39570	42011	24.11%	9135	109795	63.01%	136444	30298	31477	23.07%	6130	88441	64.82%
LIMESTONE	103570	13307	14937	14.42%	7248	75692	73.08%	79718	10495	11145	13.98%	4294	60128	75.43%
LOWNDES	10311	7192	7336	71.15%	140	2807	27.22%	8283	5603	5724	69.11%	98	2426	29.29%
MACON	19532	15441	15792	80.85%	361	3187	16.32%	16226	12849	13096	80.71%	271	2699	16.63%
MADISON	388153	92066	99875	25.73%	24936	237497	61.19%	304143	70675	74617	24.53%	16137	193636	63.67%
MARENGO	19323	10188	10400	53.82%	368	8375	43.34%	15053	7735	7860	52.22%	262	6816	45.28%
MARION	29341	1106	1453	4.95%	863	26093	88.93%	23264	880	992	4.26%	519	21022	90.36%
MARSHALL	97612	2428	3286	3.37%	15658	74666	76.49%	73530	1725	2028	2.76%	8841	59519	80.95%
MOBILE	414809	146254	152471	36.76%	13425	226703	54.65%	319427	107190	110361	34.55%	9156	183208	57.36%
MONROE	19772	8299	8541	43.20%	207	10334	52.27%	15562	6341	6446	41.42%	128	8439	54.23%
MONTGOMER	228954	130467	134029	58.54%	10684	73354	32.04%	177427	97867	99936	56.33%	6663	62431	35.19%
MORGAN	123421	15453	17197	13.93%	12377	88238	71.49%	95485	11562	12209	12.79%	7447	71523	74.90%
PERRY	8511	5936	6050	71.08%	89	2345	27.55%	6740	4524	4592	68.13%	63	2051	30.43%
PICKENS	19123	7489	7718	40.36%	1053	10066	52.64%	15447	5820	5931	38.40%	911	8395	54.35%
PIKE	33009	12138	12707	38.50%	905	18036	54.64%	26809	9524	9830	36.67%	622	15241	56.85%
RANDOLPH	21967	3815	4118	18.75%	605	16629	75.70%	17264	2931	3030	17.55%	336	13420	77.73%
RUSSELL	59183	26243	27708	46.82%	3195	26679	45.08%	44681	19225	19859	44.45%	1945	21606	48.36%
ST. CLAIR	91103	8652	9604	10.54%	2575	74962	82.28%	70092	6631	7034	10.04%	1589	58554	83.54%
SHELBY	223024	28939	31472	14.11%	16460	162712	72.96%	170487	21411	22511	13.20%	10463	128516	75.38%
SUMTER	12345	8997	9117	73.85%	131	2937	23.79%	9914	7052	7144	72.06%	107	2530	25.52%
TALLADEGA	82149	26439	27581	33.57%	1779	50732	61.76%	65024	20345	20850	32.07%	1171	41371	63.62%
TALLAPOOSA	41311	10409	10860	26.29%	1144	28252	68.39%	33012	7841	8040	24.35%	707	23419	70.94%
TUSCALOOSA	227036	69088	71742	31.60%	12298	134880	59.41%	179024	51418	52893	29.55%	8589	111143	62.08%
WALKER	65342	3929	4603	7.04%	2152	56394	86.31%	51667	3026	3243	6.28%	1354	45315	87.71%
WASHINGTON	15388	3318	3502	22.76%	138	10267	66.72%	12081	2641	2720	22.51%	95	8180	67.71%
WILCOX	10600	7483	7598	71.68%	112	2866	27.04%	8260	5639	5713	69.16%	80	2445	29.60%
WINSTON	23540	141	265	1.13%	815	21598	91.75%	18766	107	148	0.79%	464	17452	93.00%

Population Summary Report

Alabama U.S. House -- 2020 Census -- Enacted 2021 Plan

District	Population	Deviation	% Deviation	AP Black	% AP Black	Latino	% Latino	NH White	% NH White
1	717754	0	0.00%	196827	27.42%	27196	3.79%	455278	63.43%
2	717755	1	0.00%	228648	31.86%	31708	4.42%	426142	59.37%
3	717754	0	0.00%	187284	26.09%	26849	3.74%	473307	65.94%
4	717754	0	0.00%	59655	8.31%	53874	7.51%	573666	79.93%
5	717754	0	0.00%	136782	19.06%	47307	6.59%	491054	68.42%
6	717754	0	0.00%	145897	20.33%	46872	6.53%	491446	68.47%
7	717754	0	0.00%	409643	57.07%	30241	4.21%	260458	36.29%
Total	5024279		0.00%	1364736	27.16%	264047	5.26%	3171351	63.12%

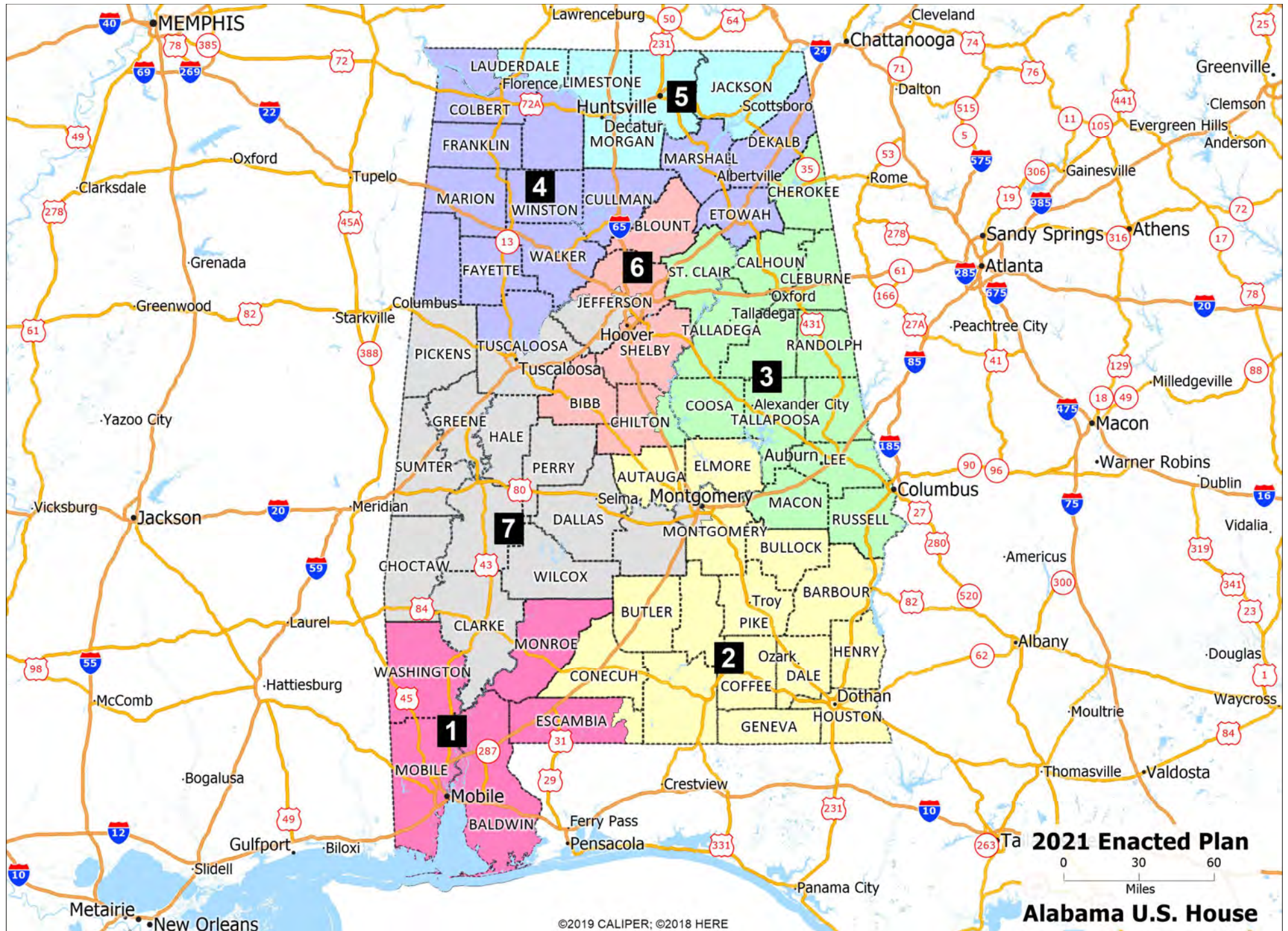
District	18+ Pop	18+ AP Black	% 18+ AP Black	18+ Latino	% 18+ Latino	18+ NH White	% 18+ NH White
1	557535	142777	25.61%	18014	3.23%	367960	66.00%
2	557677	167971	30.12%	19933	3.57%	345900	62.03%
3	564281	141011	24.99%	17334	3.07%	382226	67.74%
4	556133	42819	7.70%	31463	5.66%	458324	82.41%
5	561187	101339	18.06%	29646	5.28%	397809	70.89%
6	552286	104551	18.93%	29711	5.38%	393028	71.16%
7	568067	313904	55.26%	20755	3.65%	219297	38.60%
Total	3917166	1014372	25.90%	166856	4.26%	2564544	65.47%

District	% NH Single-Race Black CVAP*	% Latino CVAP	% SR NH White CVAP
1	26.59%	2.06%	68.30%
2	30.54%	1.97%	65.37%
3	25.00%	1.79%	71.51%
4	7.73%	2.22%	87.83%
5	18.07%	2.48%	76.03%
6	18.99%	2.05%	76.97%
7	57.51%	1.14%	40.14%

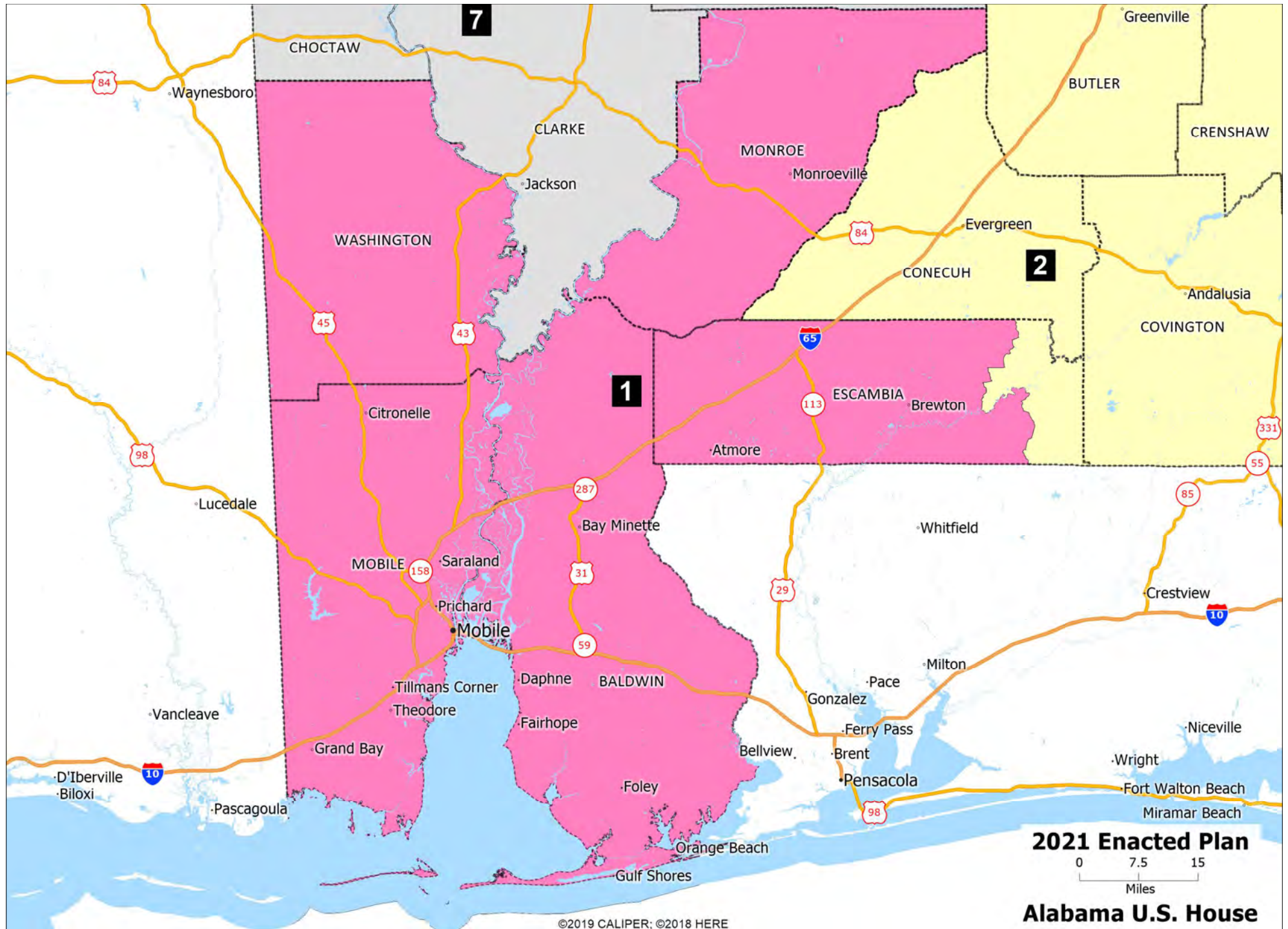
Note: Citizen Voting Age Population (CVAP) percentages are disaggregated from block-group level ACS estimates (with a survey midpoint of July 2017)

Source for CVAP disaggregation: Redistricting Data Hub

<https://redistrictingdatahub.org/dataset/alabama-cvap-data-disaggregated-to-the-block-level-2019/>



2021 Enacted Plan
Alabama U.S. House
 Caster Plaintiffs' Exhibit 6, Page 1

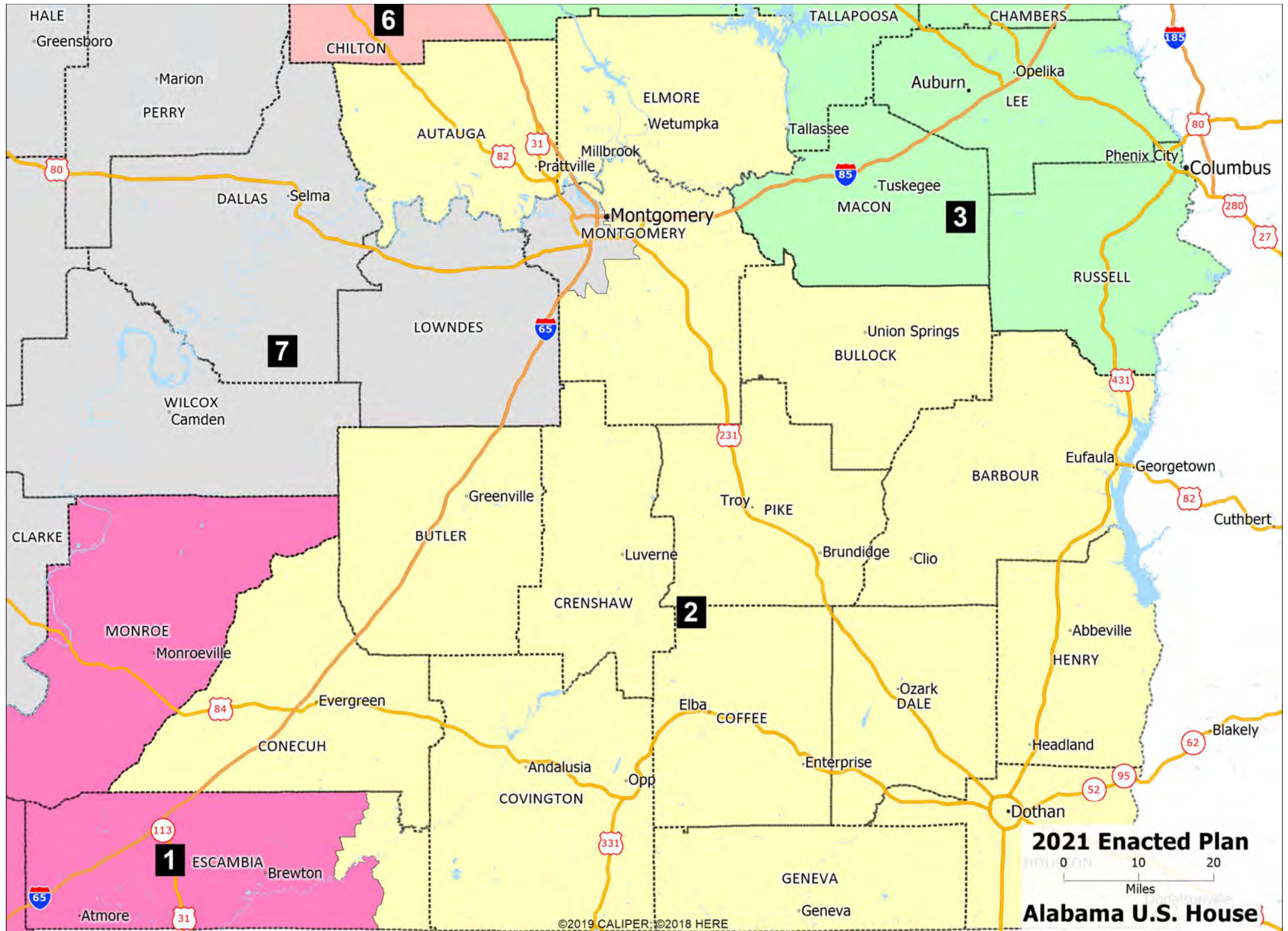


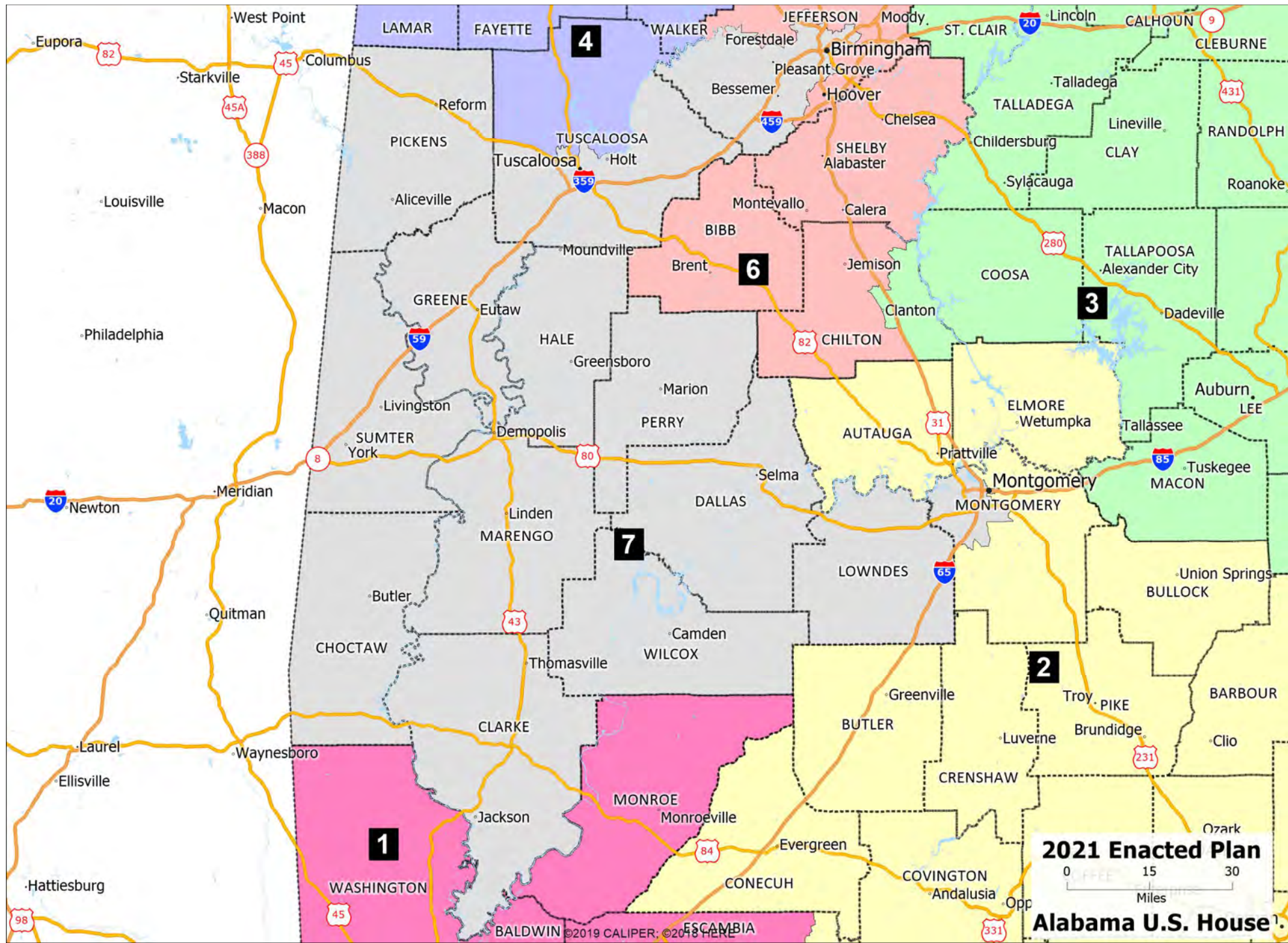
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2021 Enacted Plan

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Miles

Alabama U.S. House





User:

Plan Name: **AL_Enacted Congress 2021 Plan**Plan Type: **Congress****Political Subdivison Splits Between Districts**

Sunday, December 5, 2021

4:58 PM

Number of subdivisions not split:

County	61
Voting District	1,830

Number of subdivisions split into more than one district:

County	6
Voting District	7

Number of splits involving no population:

County	0
Voting District	0

Split Counts*County*

Cases where an area is split among 2 Districts: 6

Voting District

Cases where an area is split among 2 Districts: 7

County	Voting District	District	Population
<i>Split Counties:</i>			
Chilton AL		3	12,405
Chilton AL		6	32,609
Escambia AL		1	36,018
Escambia AL		2	739
Jefferson AL		6	380,694
Jefferson AL		7	294,027
Lauderdale AL		4	43,533
Lauderdale AL		5	50,031
Montgomery AL		2	166,435
Montgomery AL		7	62,519
Tuscaloosa AL		4	42,770
Tuscaloosa AL		7	184,266
<i>Split VTDs:</i>			
Chilton AL	Cane Creek Fire St	3	1,378
Chilton AL	Cane Creek Fire St	6	264
Escambia AL	Damascus-Boykin School	1	134
Escambia AL	Damascus-Boykin School	2	482
Jefferson AL	Avondale Public Library	6	3,007
Jefferson AL	Avondale Public Library	7	271
Jefferson AL	Minor FD	6	3,421
Jefferson AL	Minor FD	7	2,128
Lauderdale AL	Killen Ch Christ Annex	4	2,072
Lauderdale AL	Killen Ch Christ Annex	5	2,577
Montgomery AL	Whitfield UM Church	2	4,132

Political Subdivison Splits Between Districts

AL_adopted_2021_DRA_versi

County	Voting District	District	Population
Montgomery AL	Whitfield UM Church	7	816
Tuscaloosa AL	Flatwoods Church	4	3
Tuscaloosa AL	Flatwoods Church	7	5,681