EXHIBIT B

Preliminary Report on the Newly Enacted Georgia State House and Senate Plans

Dr. Lisa Handley

I. Introduction

Summary Conclusion Voting in the six areas of Georgia that I studied for this project is racially polarized. This polarization impedes the ability of Black voters to elect candidates of their choice unless districts are drawn that provide Black voters with an opportunity to elect their preferred candidates to the state legislature. As demonstrated by illustrative state house and state senate plans, the newly enacted state legislative plans (Enacted State House Plan and Enacted State Senate Plan) fail to offer Black voters an opportunity to elect their preferred candidates in areas of the state where voting is racially polarized and where majority Black opportunity districts could have been created. The failure of the Enacted Plans to provide more Black opportunity districts dilutes the opportunity of Black voters to participate in the electoral process and to elect candidates of their choice to the Georgia state legislature.

Scope of Project I was retained by plaintiffs in this case as an expert to conduct an analysis of voting patterns by race in several areas in the State of Georgia to determine whether voting in these areas is racially polarized. In addition, I was asked to assess the ability of Black voters to elect their candidates of choice in these areas of the Enacted Plans compared to the illustrative plans (Illustrative State House and Illustrative State Senate Plan) drawn by plaintiffs' expert demographer, Bill Cooper, in this litigation.[1]

II. Professional Background and Experience

I have over thirty-five years of experience as a voting rights and redistricting expert. I have advised scores of jurisdictions and other clients on minority voting rights and redistricting-related issues. I have served as an expert in dozens of voting rights cases. My clients have included state and local jurisdictions, independent redistricting commissions (Arizona, Colorado, Michigan), the U.S. Department of Justice, national civil rights organizations, and such international organizations as the United Nations.

I have been actively involved in researching, writing, and teaching on subjects relating to voting rights, including minority representation, electoral system design, and redistricting. I co-

[1] I am being compensated at a rate of $300 an hour for work on this project.

authored a book, *Minority Representation and the Quest for Voting Equality* (Cambridge University Press, 1992), and co-edited a volume, *Redistricting in Comparative Perspective* (Oxford University Press, 2008), on these subjects. In addition, my research on these topics has appeared in peer-reviewed journals such as *Journal of Politics*, *Legislative Studies Quarterly*, *American Politics Quarterly*, *Journal of Law and Politics*, and *Law and Policy*, as well as law reviews (e.g., *North Carolina Law Review*) and a number of edited books. I hold a Ph.D. in political science from The George Washington University.

I have been a principal of Frontier International Electoral Consulting since co-founding the company in 1998. Frontier IEC specializes in providing electoral assistance in transitional democracies and post-conflict countries. In addition, I am a Visiting Research Academic at Oxford Brookes University in Oxford, United Kingdom. Attached to the end of this report as *Appendix D* is a copy of my curriculum vitae.

III. Analysis of Voting Patterns by Race

An analysis of voting patterns by race serves as the foundation of two of the three elements of the "results test" as outlined in *Thornburg v. Gingles*: a racial bloc voting analysis is needed to determine whether the minority group is politically cohesive; and the analysis is required to determine if whites are voting sufficiently as a bloc to usually defeat the candidates preferred by minority voters. The voting patterns of white and minority voters must be estimated using statistical techniques because direct information about the race of the voters is not, of course, available on the ballots cast.

To carry out an analysis of voting patterns by race, an aggregate level database must be constructed, usually employing election precincts as the units of observation. Information relating to the demographic composition and election results in these precincts is collected, combined, and statistically analyzed to determine if there is a relationship between the racial composition of the precincts and support for specific candidates across the precincts.

Standard Statistical Techniques Three standard statistical techniques have been developed over time to estimate vote choices by race: homogeneous precinct analysis, ecological

regression, and ecological inference.[2] Two of these analytic procedures – homogeneous precinct analysis and ecological regression – were employed by the plaintiffs' expert in *Thornburg v. Gingles*, have the benefit of the Supreme Court's approval in that case, and have been used in most subsequent voting rights cases. The third technique, ecological inference, was developed after the *Gingles* decision and was designed, in part, to address some of the disadvantages associated with ecological regression analysis. Ecological inference analysis has been introduced and accepted in numerous district court proceedings.

Homogeneous precinct (HP) analysis is the simplest technique. It involves comparing the percentage of votes received by each of the candidates in precincts that are racially or ethnically homogeneous. The general practice is to label a precinct as homogeneous if at least 90 percent of the voters or voting age population is composed of a single race. In fact, the homogeneous results reported are not estimates – they are the actual precinct results. However, most voters in Georgia do not reside in homogeneous precincts and voters who reside in homogeneous precincts may not be representative of voters who live in more racially diverse precincts. For this reason, I refer to these percentages as estimates.

The second statistical technique employed, *ecological regression* (ER), uses information from all precincts, not simply the homogeneous ones, to derive estimates of the voting behavior of minorities and whites. If there is a strong linear relationship across precincts between the percentage of minorities and the percentage of votes cast for a given candidate, this relationship can be used to estimate the percentage of minority voters supporting the candidate.

The third technique, *ecological inference* (EI), was developed by Professor Gary King. This approach also uses information from all precincts but, unlike ecological regression, it does not rely on an assumption of linearity. Instead, it incorporates maximum likelihood statistics to produce estimates of voting patterns by race. In addition, it utilizes the method of bounds, which uses more of the available information from the precinct returns as well as providing more

[2] For a detailed explanation of homogeneous precinct analysis and ecological regression see Bernard Grofman, Lisa Handley and Richard Niemi, *Minority Representation and the Quest for Voting Equality* (Cambridge University Press, 1992). See Gary King, *A Solution to the Ecological Inference Problem* (Princeton University Press, 1997) for a more detailed explanation of ecological inference.

information about the voting behavior being estimated.[3] Unlike ecological regression, which can produce percentage estimates of less than 0 or more than 100 percent, ecological inference was designed to produce only estimates that fall within the possible limits. However, EI does not guarantee that the estimates for all of the candidates add to 100 percent for each of the racial groups examined.

Database To analyze voting patterns by race using aggregate level information, a database that combines election results with demographic information is required. This database is almost always constructed using election precincts as the unit of analysis. The demographic composition of the precincts is based on voter registration or turnout by race if this information is available; if it is not, then voting age population or citizen voting age population is used. Georgia collects voter registration data by race, and the 2016, 2018, and 2020 reports of turnout counts by race and ethnicity were obtained from the Georgia Secretary of State's office for inclusion in the database.

To build the Georgia dataset used for this racial bloc voting analysis, 2016, 2018, and 2020 precinct-level shapefiles were acquired from the Voting and Election Science Team. These shapefiles were joined to precinct-level election returns from the Georgia Secretary of State's office, which were processed and cleaned by OpenElections. The 2020 Census Block shapefiles, and total and voting age populations by race and ethnicity, were obtained from the Census FTP portal.

The election returns for the 2016, 2018, and 2020 election cycles were disaggregated down to the level of the 2020 Census block. This block-level dataset was then reaggregated up to the level of the 2020 voting districting, taking into account splits of the voting districts by the implemented and proposed plans.

Plan comparisons were made using the Georgia newly enacted state senate and house plans, which were acquired as census block equivalency files. The Illustrative state house and senate files were obtained from plaintiffs' expert demographer, Bill Cooper, also as census block equivalency files.

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[3] The following is an example of how the method of bounds works: if a given precinct has 100 voters, of whom 75 are Black and 25 are white, and the Black candidate received 80 votes, then at least 55 of the Black voters voted for the Black candidate and at most all 75 did. (The method of bounds is less useful for calculating estimates for white voters, as anywhere between none of the whites and all of the whites could have voted for the candidate.)

Statewide elections analyzed All recent statewide election contests that included Black candidates were analyzed.[4] The general elections included the 2021 Special U.S. Senate runoff, the 2020 U.S. Senate Special general election, and the 2018 general election contests for Governor, Commissioner of Insurance, and School Superintendent. I also analyzed recent statewide Democratic primaries that included Black candidates, including the 2018 Democratic primaries for Governor, Lieutenant Governor, Commissioner of Insurance, School Superintendent, and Commissioner of Labor. Republican primaries were not examined because the overwhelming majority of Black voters who participate in primaries cast their ballots in Democratic rather than Republican primaries. As a consequence, Democratic primaries are far more probative than Republican primaries in ascertaining the candidates preferred by Black voters.[5]

Geographic areas analyzed I examined voting patterns in six areas of Georgia where the Illustrative Plans offer districts with majority Black voting age populations (BVAP),[6] that the Enacted Plans fail to provide. Although the Illustrative Plans offers more majority Black state senate and state house districts than the seven found in the six regions discussed below,[7] my analysis focuses on these six areas because the majority Black districts in these areas are readily identifiable as "additional" when portions of the Enacted and Illustrative districts are compared. The six areas of interest, the set of Illustrative and Enacted districts being compared in each of

[4] In addition to the five recent general election contests that included Black candidates, I analyzed the two contests in which Jon Ossoff ran – the 2021 runoff for U.S. Senate and the November 2020 general election for U.S. Senate.

[5] In addition, producing reliable estimates for Black voters in Republican primaries would not have been possible.

[6] Black voting age population has been calculated by counting all persons who are 18 or older who checked "Black or African American" on their census form. This includes persons who are single-race Black or any part Black (i.e., persons of two or more races who indicate "Black" as one of the races), including Hispanic Black.

[7] The Enacted Plans create 14 majority Black VAP state senate districts and 49 majority Black VAP state house districts. The Illustrative Plans create 19 majority Black VAP state senate districts and 54 majority Black VAP state house districts.

these areas, and the counties encompassed by these areas,[8] are listed in Table 1. The additional majority Black districts offered in each area by the Illustrative Plans are bolded.

Table 1: Georgia Areas of Interest Analyzed

Area of Interest	Illustrative Districts	Enacted Districts	Counties
State Senate Districts			
Eastern Atlanta Metro Region (Map 1)	10 **17** 43	10 17 43	Dekalb, Henry, Morgan, Newton, Rockdale, Walton
Southern Atlanta Metro Region (Map 2)	16 **28** 34 44	16 28 34 44	Clayton, Coweta, Douglas, Fayette, Heard, Henry, Lamar, Meriwether, Pike, Spalding, Upson
East Central Georgia with Augusta (Map 3)	22 **23** 25 26	22 23 25 26	Baldwin, Bibb, Burke, Butts, Columbia, Emanuel, Glascock, Hancock, Henry, Houston, Jasper, Jefferson, Jenkins, Johnson, Jones, McDuffie, Macon, Morgan, Peach, Putnam, Richmond, Screven, Taliaferro, Twiggs, Walton, Warren, Washington, Wilkinson
State House Districts			
Southeastern Atlanta Metro Region (Map 4)	**73** 75 78 109 **110** 111 129 131	74 75 78 115 116 117 118 134	Butts, Clayton, Fayette, Henry, Jasper, Lamar, Monroe, Newton, Putnam, Spalding

[8] All counties that overlapped any of the Illustrative or Enacted districts in the area were included in the analysis unless the county is very large (population over 500,000) and less than 10% of the county's population is encompassed by an Illustrative or Enacted district in the area.

Central Georgia (Map 5)	120 128 **144** 145	124 128 133 155	Baldwin, Burke, Clarke, Glascock, Greene, Hancock, Jefferson, Johnson, Jones, Laurens, McDuffie, Morgan, Oglethorpe, Putnam, Taliaferro, Walton, Warren, Washington, Wilkes, Wilkinson
Southwest Georgia (Map 6)	151 **153** 171 173	151 152 153 171	Brooks, Chattahoochee, Decatur, Dougherty, Grady, Lee, Lowndes, Marion, Mitchell, Schley, Seminole, Stewart, Sumter, Terrell, Thomas, Webster, Worth

IV. Findings

Voting is racially polarized in the six areas of Georgia I examined Voting is racially polarized in the six areas of Georgia that I examined. In all seven recent general elections I analyzed, Black voters were cohesive in supporting their preferred candidates and the white voters' bloc voted against these candidates. The average percentage of the white vote for Black-preferred Black candidates is no higher than 13.8% in these six areas (13.8% is the average white vote for Raphael Warnock in 2021 across the six areas).

Recent Democratic primaries that included Black candidates were also consistently racially polarized in all six areas. The only regular exceptions to this were the two recent Democratic primaries in which Black voters supported white candidates (Jon Ossoff in the 2020 primary for U.S. Senate and Jim Barksdale in his bid for the Democratic nomination for U.S. Senate in 2016). The estimates of Black and white voting patterns for these statewide general and Democratic primaries can be found in *Appendix A.*

My examination of voting patterns in these areas also included state legislative elections. A state legislative contest was analyzed if the previously existing state house or state senate district was wholly contained within one of the areas or overlapped with the additional majority Black Illustrative district(s) in an area. In addition, I looked only at biracial contests (that is, contests that included both Black and white candidates). There were eight recent state senate contests and 16 state house contests that met these criteria. All 24 of these state legislative elections were racially polarized. None of the Black candidates competing in the state senate contest analyzed garnered as much as 8% of the white vote – the average over the eight contests was only 4.6%. Black candidates fared slightly better in the state house contests, averaging 9.4% of the white vote. The

only Black candidates to win were the candidates who ran in majority Black state legislative districts.

The estimates of Black and white voting patterns for the state legislative election contests analyzed can be found in *Appendix B.*

The Previous Plans failed to provide Black voters with opportunities to elect their preferred candidates that the Illustrative Plans would provide Legislative districts in the previous plans located in the same areas as the additional Illustrative majority Black districts failed to provide Black voters with an opportunity to elect their candidates of choice in past state legislative elections. Table 2 lists the previous state senate and house districts that overlap with the additional majority Black districts offered by the Illustrative Plans. A previous district must incorporate at least 5% of the Illustrative district to be included in the table, and the percentage of the Illustrative district included is specified. The shaded districts are the previous districts I have used as comparison districts – they are almost always the previous districts with the largest overlap with the additional majority Black Illustrative districts.

Table 2: Overlap of Additional Illustrative State Legislative Districts with Previous State Legislative Districts

Illustrative State Senate Plan	Previous State Senate Plan	% of Illustrative District in Previous District	BVAP %		Illustrative State House Plan	Previous State House Plan	% of Illustrative District in Previous District	BVAP %
017	010	17.6%	74.98%		073	063	13.6%	71.31%
017	017	53.7%	41.72%		073	073	38.0%	35.12%
017	043	28.5%	68.74%		073	075	6.4%	74.27%
					073	078	41.8%	68.59%
023	022	13.4%	58.76%					
023	023	30.3%	35.62%		110	073	19.4%	35.12%
023	025	22.7%	28.50%		110	111	23.1%	51.56%
023	026	29.5%	60.14%		110	130	57.5%	36.30%
028	016	40.7%	22.00%		144	120	12.6%	26.62%
028	034	27.7%	68.34%		144	128	23.6%	54.62%
028	044	31.6%	72.43%		144	144	15.0%	27.24%
					144	145	48.8%	38.94%
					153	153	33.4%	65.15%
					153	171	36.1%	38.61%
					153	172	8.1%	27.69%
					153	173	21.4%	35.38%

According to Table 2, Illustrative senate district 17 overlaps the most with Previous state senate district 17. Previous state senate district 17, with a BVAP of 41.72%, did not elect state senators that were the candidates of choice of Black voters. In 2016, Richard Jeffares won the seat with overwhelming support from white voters and virtually no support from Black voters. Brian Strickland's election in 2018 followed the same pattern: nearly all of the white voters cast their vote for him and virtually none of the Black voters did so. The estimates for these two contests can be found in Appendix B.[9]

[9] The 2020 election is not included in Appendix B because only white candidates competed. However, my analysis of the election indicates that white voters again provided overwhelming support to Strickland, while Black voters overwhelmingly supported his opponent, who was defeated.

Previous state senate district 23, with the highest overlap percentage with Illustrative state senate district 23, has had only one recent contested election. The estimates for this election can be found in Appendix B. Over 90% of white voters supported the White candidate, Max Burns, while Black voters overwhelmingly supported his Black opponent, Ceretta Smith, who lost the contest.

Illustrative state senate district 28 overlaps the most with Previous state senate district 16, which had a 22.0% BVAP. The 2020 election contest for this seat was racially polarized, with over 90% of white voters supporting the winning white candidate and well over 90% of the Black voters supporting his Black opponent. (See Appendix B.) Only white candidates competed for the seat in 2018; [10] there was no contested election in this district in 2016.

Although Table 2 indicates that Illustrative state house district 73 overlaps the most with Previous state house district 78, which did provide Black voters with an opportunity to elect their candidates of choice, Illustrative District 73 is an additional majority Black district because Previous state house district 73 was not an effective Black district. Previous state house district 73, with a 35.12% BVAP, had one recent election that included a Black candidate. In this 2016 election, the Black candidate garnered nearly all of the Black vote but none of the white vote and lost to the candidate supported by white voters.[11] (See Appendix B.)

Illustrative house district 110 overlaps the most with Previous district 130, which had a BVAP of 36.30%. The only recent contested election for this seat was in 2020. White voters overwhelmingly supported the winner, while Black voters overwhelmingly supported his Black opponent. (See Appendix B.)

Recent elections in Previous state house district 145, which has the highest overlap with Illustrative state house district 144, also failed to provide Black voters with an opportunity to elect their candidates of choice. The district elections in 2016 and 2020 (there was no contested

[10] Because the 2018 election for this district included only white candidates, it is not included in Appendix B. However, my analysis of this election contest indicates that it was also starkly polarized and the candidate supported by Black voters lost to the candidate supported by white voters.

[11] The 2020 election included only white candidates and therefore is not in Appendix B. However, my analysis of the election contest indicates that it was racially polarized and the candidate overwhelmingly preferred by Black voters was defeated by the candidate of choice of white voters. There was no contested election in 2018.

election in 2018) were starkly polarized and the Black candidate, despite overwhelming support from Black voters, lost to the white voters' candidate of choice. (See Appendix B.)

There have been no recent contested elections in Previous state house district 171 – the district that Illustrative state house district 153 overlaps with the most. The district had a BVAP of 36.1% and consistently elected a white Republican to the Georgia state house.

The Enacted Plans continue to fail to provide Black voters with opportunities to elect their preferred candidates that the Illustrative Plans would provide In order to determine if a proposed district is likely to provide minority voters with an opportunity to elect their candidates of choice, a district-specific, functional analysis is necessary. This assessment depends not only upon the demographic composition of the district but the voting patterns in that district and whether the candidates preferred by minority voters can actually win in the district – this is what is meant by "functional." In the case of the Enacted and Illustrative districts, election results recompiled to conform to the boundaries of the newly enacted and illustrative districts must be used to make this determination.

The best election contests to use for a functional analysis are recent elections that included a viable major party minority candidate supported by minority voters but not by white voters. Five recent statewide general election contests in Georgia satisfy these conditions: the 2021 and 2020 special general and special runoff elections for U.S. Senate, with Raphael Warnock; the 2018 race for Governor, in which Stacey Abrams ran; and the 2018 contests for Commissioner of Insurance and School Superintendent, in which Black candidates Janice Laws and Otha Thornton competed, respectively. After recompiling the election results for these five contests to conform to the boundaries of the districts, an average of the five vote proportions for the Black-preferred candidates was calculated. I refer to this average as the general election effectiveness score (GE score).

To provide an indication of how Black-preferred candidates would fare in Democratic primaries (Black voters are far more likely to choose to vote in Democratic primaries than Republican primaries in Georgia), six recent statewide Democratic primaries were used to construct a Democratic primary "effectiveness" score (DPr score). The primaries chosen, and the name of the Black candidate supported by Black voters in each of these primary contests, are as follows:

- 2018 Governor with Stacey Abrams

- 2018 Lieutenant Governor with Tirana Arnold James
- 2018 Commissioner of Insurance with Janice Laws
- 2018 School Superintendent with Otha Thornton
- 2018 Commissioner of Labor with Fred Quinn
- 2018 Secretary of State with Dee Dawkins-Haigler

If a district is majority BVAP or has a significant BVAP and recompiled election results for that district produced a score of at least 0.5 on both the GE and the DPr indices, I deemed the district likely to provide Black voters with an opportunity to elect their candidates of choice. If not, I deemed the district not likely to provide Black voters with an opportunity to elect their candidates of choice (i.e., the candidates preferred by Black voters would typically lose to candidates preferred by white voters). As the plan comparison tables (Plan Comparison Tables 1-6), below, will show, Black voters would have a greater opportunity to elect their candidates of choice in the Illustrative legislative districts highlighted than in the Enacted districts in the same area.

In all six areas of Georgia that I examined, voting is racially polarized, and the Enacted Plans fail to provide seven majority Black districts that would provide Black voters with the opportunity to elect their candidates of choice that the Illustrative Plans demonstrate can be drawn. The following provides a brief description of the six areas, along with maps and district comparison tables.

Eastern Atlanta Metro Region Voting is racially polarized in this area – in all seven of the general elections and in five of the eight Democratic primaries, Black and white voters supported different candidates. The Enacted Senate Plan fails to provide a majority Black opportunity district that the Illustrative Plan offers in this area (labeled District 17), as shown in Map and Comparison Table 1.

Southern Atlanta Metro Region Voting in the seven general elections and six of the eight Democratic primaries analyzed was racially polarized. The Enacted Senate Plan fails to provide a majority Black opportunity district that the Illustrative Plan offers in this area (District 28), as shown in Map and Comparison Table 2.

East Central Georgia Voting in the seven general elections and six of the eight Democratic primaries was racially polarized in this area of the State. The Enacted Senate Plan fails to provide a

majority Black opportunity district that the Illustrative Plan offers in this area (District 23), as shown in Map and Comparison Table 3.

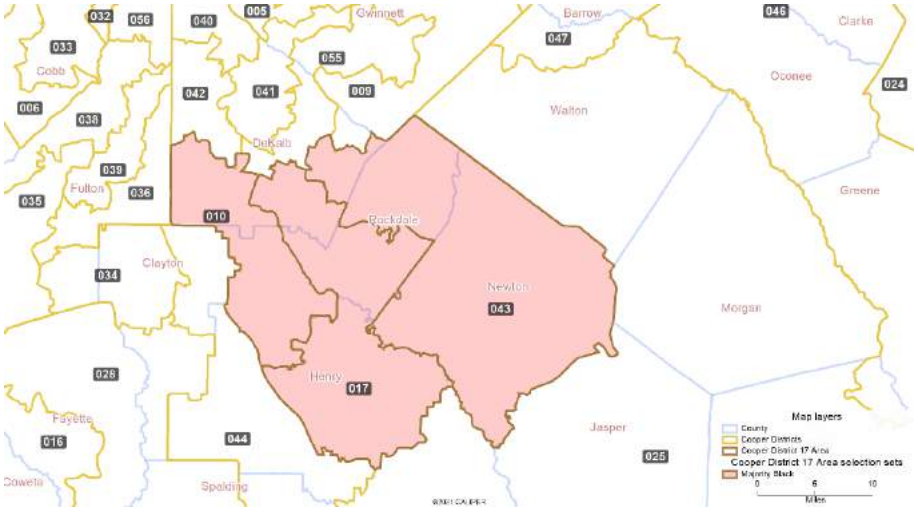
Southeastern Atlanta Metro Region Voting is racially polarized in this area – in all seven of the general elections and six of the eight Democratic primaries, Black and white voters supported different candidates. The Enacted House Plan fails to draw two Black majority opportunity districts that the Illustrative Plan offers in this area (Districts 73 and 110), as shown in Map and Comparison Table 4.

Central Georgia Voting in the seven of the general elections analyzed and in at least four of the eight Democratic primaries was racially polarized in this area of the State. The Enacted House Plan fails to provide a majority Black opportunity district that the Illustrative Plan offers in this area (District 144), as shown in Map and Comparison Table 5.

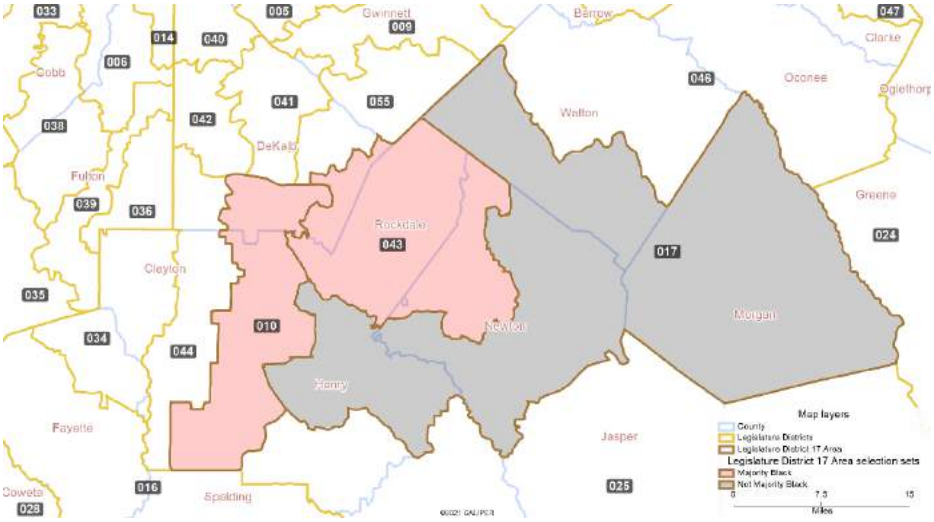
Southwest Georgia Voting is racially polarized in this area of the State. In all seven of the general elections and at least four of the eight Democratic primaries, Black and white voters supported different candidates. The Enacted State House Plan fails to provide a majority Black opportunity district that the Illustrative plan offers in this area (District 153), as shown in Map and Comparison Table 6.

Map 1: Eastern Atlanta Metro Region

Map 1a: Illustrative State Senate Districts 10, 17 and 43



Map 1b: Enacted State Senate Districts 10, 17, and 43

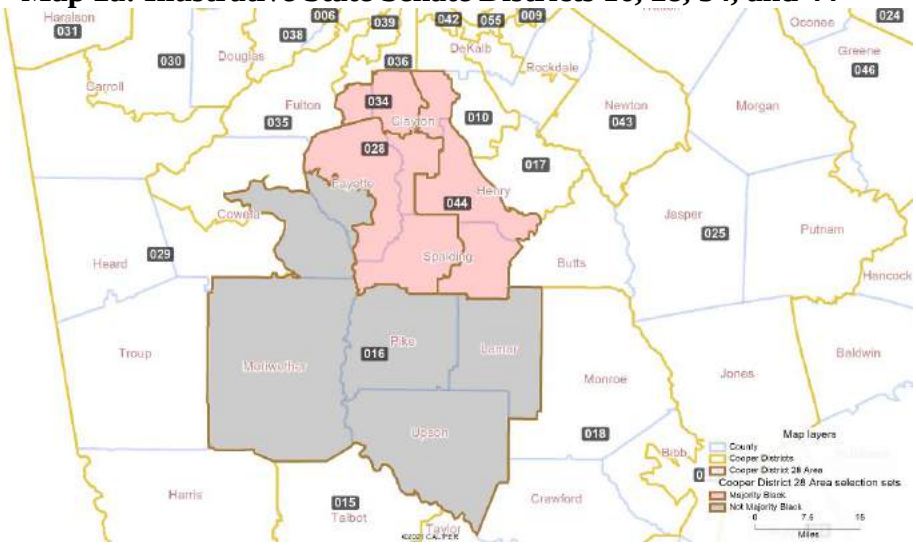


Comparison Table 1

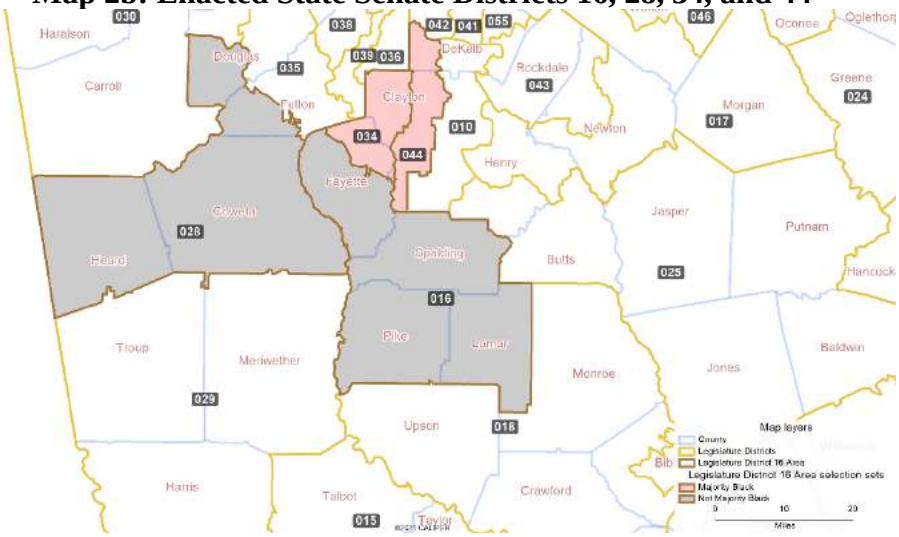
Illustrative District	BVAP %	GE score	DPr score		Enacted District	BVAP %	GE score	DPr score
10	69.8%	0.809	0.599		10	71.5%	0.758	0.638
17	62.5%	0.635	0.631		17	32.0%	0.352	0.575
43	58.1%	0.614	0.613		43	64.3%	0.686	0.623

Map 2: Southern Atlanta Metro Region

Map 2a: Illustrative State Senate Districts 16, 28, 34, and 44



Map 2b: Enacted State Senate Districts 16, 28, 34, and 44

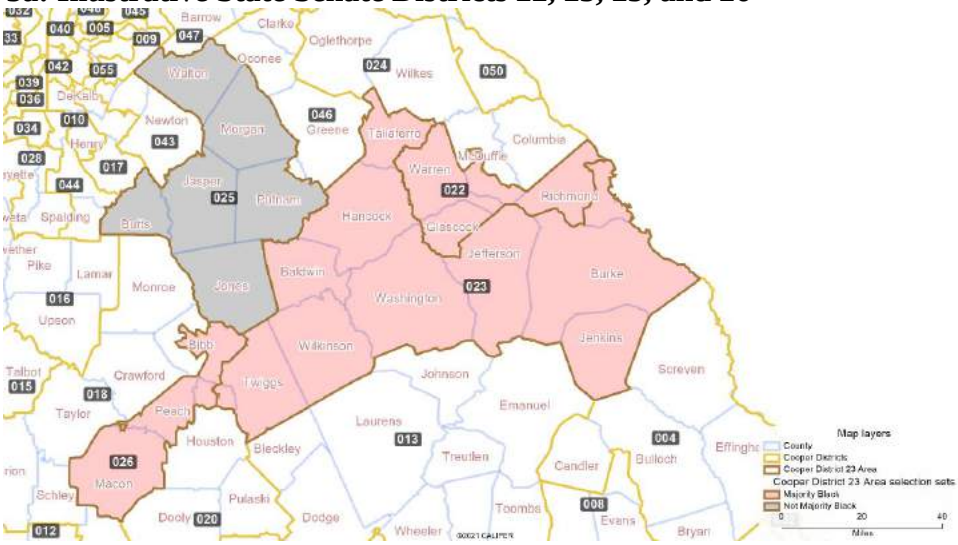


Comparison Table 2

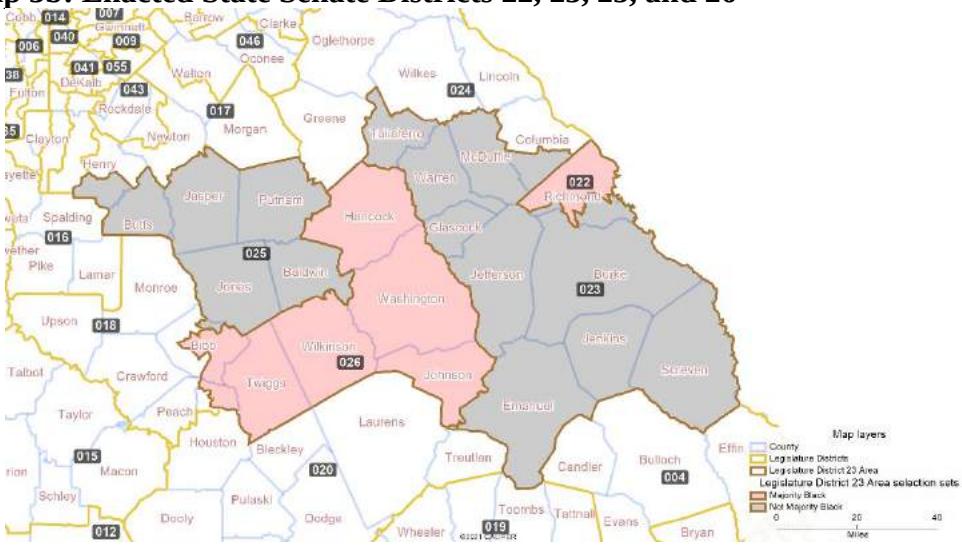
Illustrative District	BVAP %	GE score	DPr score		Enacted District	BVAP %	GE score	DPr score
16	19.0%	0.283	0.517		16	22.7%	0.317	0.528
28	52.7%	0.592	0.606		28	19.5%	0.287	0.527
34	77.8%	0.863	0.623		34	69.5%	0.791	0.618
44	55.1%	0.623	0.612		44	71.3%	0.834	0.600

Map 3: East Central Georgia

Map 3a: Illustrative State Senate Districts 22, 23, 25, and 26



Map 3b: Enacted State Senate Districts 22, 23, 25, and 26

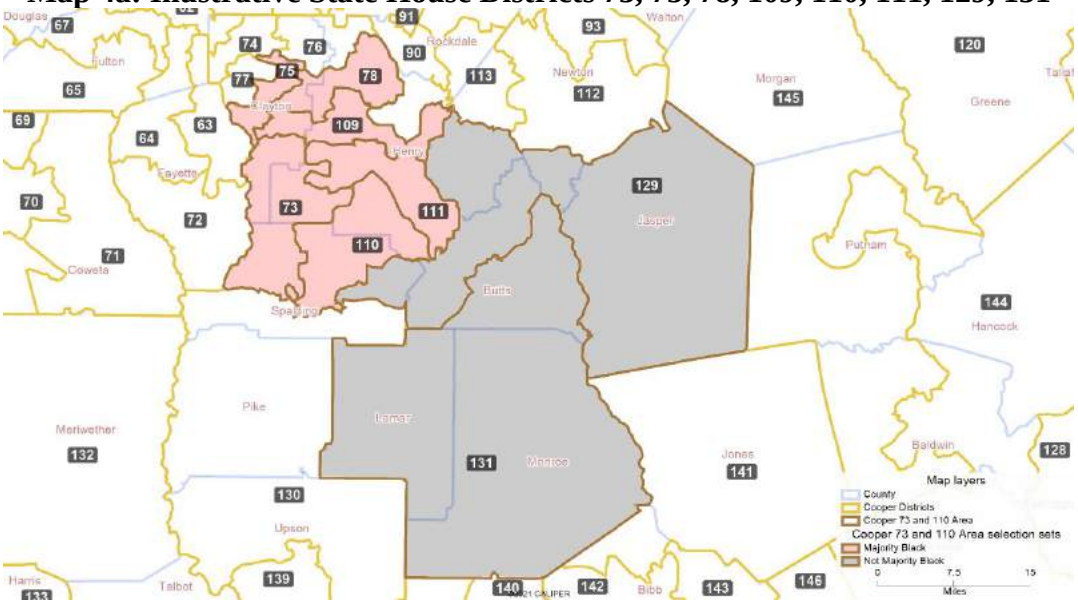


Comparison Table 3

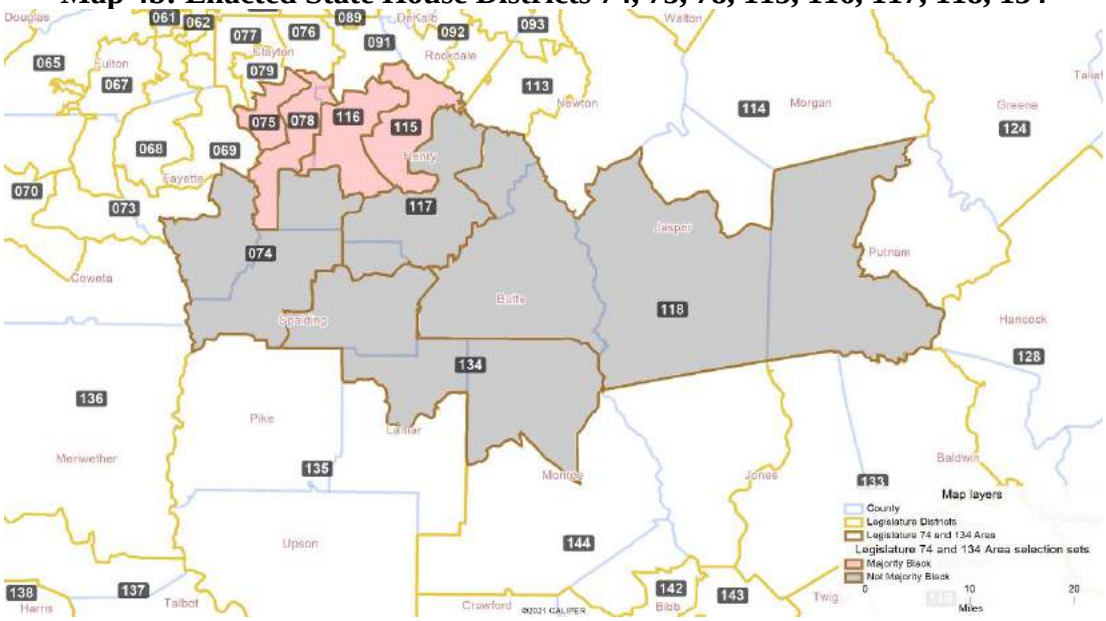
Illustrative District	BVAP %	GE score	DPr score		Enacted District	BVAP %	GE score	DPr score
22	52.2%	0.593	0.599		22	56.5%	0.647	0.603
23	50.5%	0.519	0.588		23	35.5%	0.378	0.585
25	22.0%	0.254	0.539		25	33.5%	0.374	0.572
26	54.0%	0.600	0.611		26	57.0%	0.608	0.585

Map 4: Southeastern Atlanta Metro Area

Map 4a: Illustrative State House Districts 73, 75, 78, 109, 110, 111, 129, 131



Map 4b: Enacted State House Districts 74, 75, 78, 115, 116, 117, 118, 134

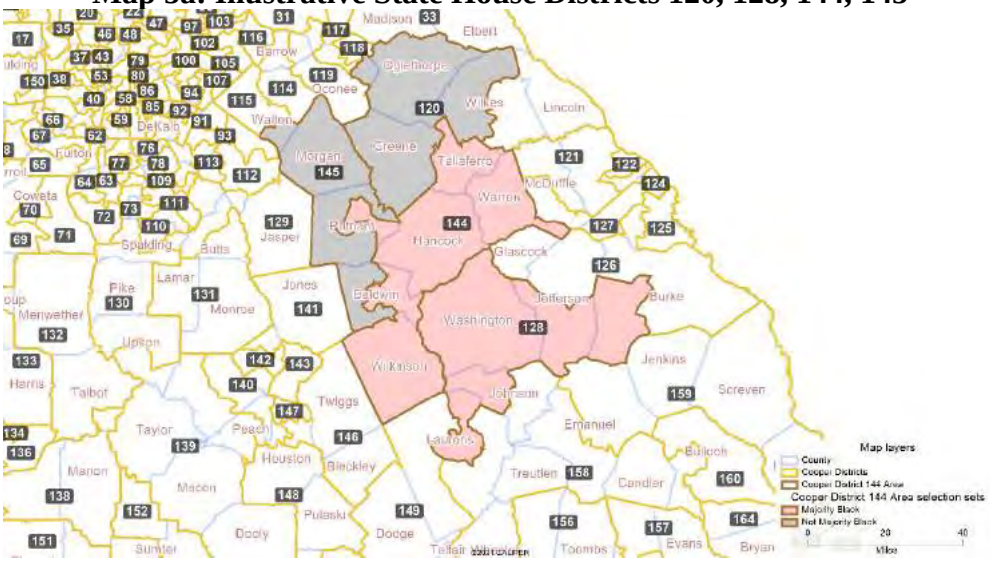


Comparison Table 4

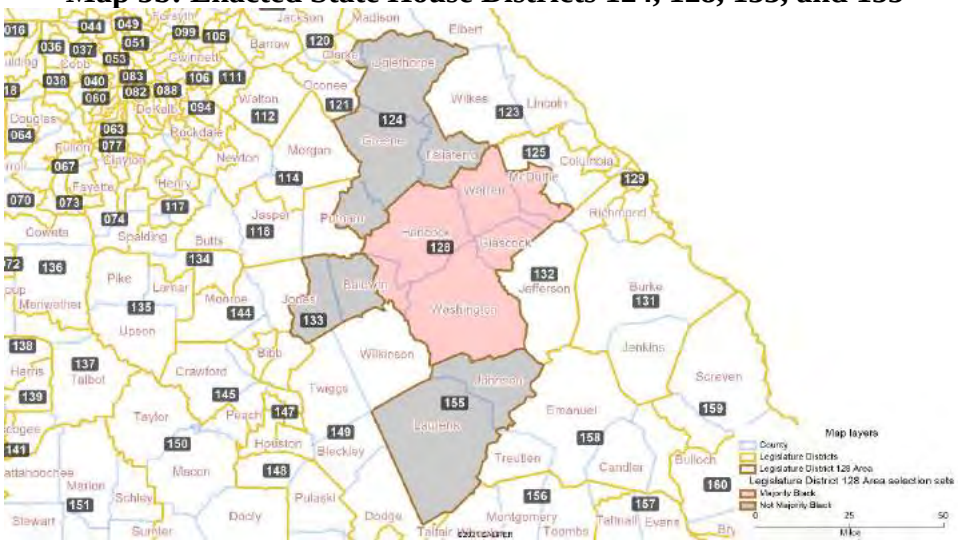
Illustrative District	BVAP %	GE score	DPr Score		Enacted District	BVAP %	GE score	DPr Score
73	60.6%	0.661	0.630		74	25.5%	0.341	0.577
75	68.0%	0.805	0.616		75	74.4%	0.831	0.621
78	55.1%	0.648	0.611		78	71.6%	0.773	0.613
109	55.9%	0.610	0.617		115	52.3%	0.546	0.623
110	52.4%	0.561	0.588		116	58.1%	0.651	0.630
111	55.8%	0.582	0.622		117	36.6%	0.414	0.591
129	21.1%	0.246	0.540		118	23.6%	0.253	0.551
131	25.1%	0.268	0.531		134	33.6%	0.342	0.540

Map 5: Central Georgia

Map 5a: Illustrative State House Districts 120, 128, 144, 145



Map 5b: Enacted State House Districts 124, 128, 133, and 155

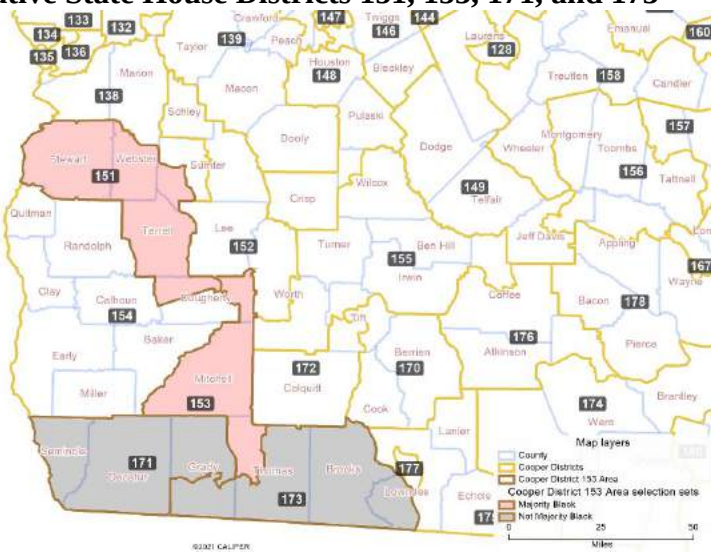


Comparison Table 5

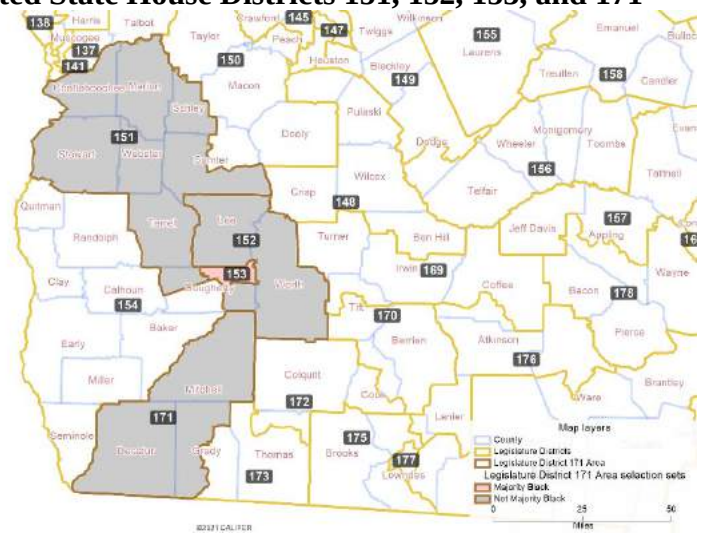
Illustrative District	BVAP %	GE Score	DPr Score		Enacted District	BVAP %	GE Score	DPr Score
120	26.2%	0.437	0.519		124	25.6%	0.366	0.534
128	56.1%	0.486	0.566		128	50.4%	0.463	0.566
144	50.5%	0.535	0.585		133	36.5%	0.422	0.582
145	21.1%	0.273	0.529		155	35.9%	0.313	0.569

Map 6: Southwest Georgia

Map 6a: Illustrative State House Districts 151, 153, 171, and 173



Map 6b: Enacted State House Districts 151, 152, 153, and 171



Comparison Table 6

Illustrative District	BVAP %	GE Score	DPr Score		Proposed District	BVAP %	GE Score	DPr Score
151	56.6%	0.528	0.633		151	42.4%	0.443	0.603
153	58.0%	0.538	0.638		152	26.1%	0.273	0.615
171	35.6%	0.322	0.590		153	67.9%	0.636	0.651
173	27.6%	0.288	0.582		171	39.6%	0.352	0.588

Additional majority BVAP districts in the Illustrative Plans draw population from Enacted districts that would fail to provide an opportunity to elect As the previous discussion demonstrates, the Enacted State Senate and House Plans fail to provide Black voters with an opportunity to elect their candidates of choice in areas of the State where voting is racially polarized and where the Illustrative Plans show majority BVAP districts can be drawn. The seven additional majority Black Illustrative districts I focus on in this report were all drawn by pulling in population from at least one district in an Enacted Plan that fails to provide Black voters with an opportunity to elect their preferred candidates. The two tables below, Table 3 and Table 4, identify the Enacted districts that overlap with each Illustrative district analyzed by at least 5%, the percent of the Enacted district that overlaps with the Illustrative district, and indicate which of the Enacted districts are Black opportunity districts and which are not by reporting the percentage BVAP, and the GE and DPr scores. (*Appendix C* contains the same comparative information for the Illustrative and Previous State House and State Senate Plans.)

Table 3: Illustrative and Enacted State Senate District Overlaps

New Illustrative State Senate District	Overlaps with Enacted State Senate Districts	% Illustrative District in Enacted District	Effectiveness of Enacted Districts		
			BVAP %	GE score	DPr score
17	10	20.2%	71.5	0.758	0.638
	17	37.9%	32.0	0.352	0.575
	43	30.4%	64.3	0.686	0.623
	25	6.1%	33.5	0.374	0.572
23	22	13.4%	56.5	0.647	0.603
	23	31.1%	35.5	0.378	0.585
	25	22.7%	33.5	0.374	0.572
	26	32.9%	57.0	0.608	0.585
28	16	44.3%	22.7	0.317	0.528
	34	26.1%	69.5	0.791	0.618
	44	29.7%	71.3	0.834	0.600

Table 4: Illustrative and Enacted State House District Overlaps

New Illustrative State House District	Overlaps with Enacted State House Districts	% Illustrative District in Enacted District	Effectiveness of Enacted Districts		
			BVAP %	GE score	DPr score
73	74	38.2%	25.5	0.341	0.577
	75	8.8%	74.4	0.831	0.621
	78	46.2%	71.6	0.773	0.613
	116	6.9%	58.1	0.651	0.630
110	74	9.9%	25.5	0.341	0.577
	116	8.7%	58.1	0.651	0.630
	117	39.6%	36.6	0.414	0.591
	134	41.8%	33.6	0.342	0.540
144	124	12.5%	25.6	0.366	0.534
	128	32.4%	50.4	0.463	0.566
	133	36.7%	36.5	0.422	0.582
	149	15.0%	29.4	0.312	0.556
153	153	31.0%	68.0	0.636	0.651
	171	36.1%	39.6	0.352	0.588
	173	27.1%	36.3	0.357	0.618

VII. Conclusion

My analysis of voting patterns by race found that the Black community in the six areas of Georgia that I examined is cohesive in supporting their preferred candidates and that white voters consistently bloc vote to defeat these candidates in areas where Black majority opportunity districts could have been created but were not. Racially polarized voting substantially impedes the ability of Black voters to elect candidates of their choice to the Georgia state legislature in these areas unless districts are drawn to provide Black voters with this opportunity. The Enacted State Senate and House Plans dilute the voting strength of Black voters in Georgia by failing to create additional districts in these areas that offer Black voters an opportunity to elect their candidates of choice to the state legislature.

***

I reserve the right to modify and/or supplement my opinions, as well as to offer new opinions.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

Respectfully submitted and executed on January 7, 2022.

Dr. Lisa Handley

Appendix A

Eastern Atlanta Metro Region (Area 1)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2021 Runoffs								
US Special Senate Runoff								
Raphael Warnock	B	D		103.6	99.6		37.5	33.8
Kelly Loeffler	W	R		-3.8	0.4		62.4	66.3
US Senate Runoff								
Jon Ossoff	W	D		103.6	99.4		36.6	32.7
David Perdue	W	R		-3.6	0.5		63.4	67.0
2020 General								
US Senate								
Jon Ossoff	W	D		100.6	99.4		35.0	31.7
Shane Hazel	W	L		2.0	2.0		2.1	2.1
David Perdue	W	R		-2.6	0.5		62.9	68.0
US Special Senate								
Raphael Warnock	B	D		71.3	75.2		30.3	27.2
Doug Colllins	W	R		-1.1	0.6		22.1	23.8
Kelly Loeffler	W	R		-2.5	0.7		37.3	40.0
Others				32.3	31.7		10.3	8.7
2018 General								
Governor								
Stacey Abrams	B	D	98.0	103.2	99.5		33.6	34.4
Ted Metz	W	L	0.2	0.1	0.2		1.5	1.3
Brian Kemp	W	R	1.8	-3.3	0.4		64.9	64.7
Commissioner of Insurance								
Janice Laws	B	D	96.2	101.5	99.5		30.6	31.2
Donnie Foster	W	L	1.5	1.6	1.4		3.8	3.9
Jim Beck	W	R	2.3	-3.0	0.5		65.6	66.7
School Superintendent								
Otha Thornton	B	D	96.9	102.8	99.4		29.1	30.4
Richard Woods	W	R	3.1	-2.8	0.5		70.8	69.6
2020 Democratic Primary								
US Senate								
James Knox	B	D	3.3	4.3	4.1		0.0	0.8
Jon Ossoff	W	D	62.5	60.6	60.7		53.9	53.4
Marckeith DeJesus	B	D	3.3	4.5	4.3		0.6	0.0
Maya Dillard Smith	B	D	8.5	10.8	10.9		1.3	1.3
Sarah Riggs Amico	W	D	11.4	13.0	12.6		5.8	6.1
Teresa Pike Tomlinson	W	D	8.4	3.5	5.9		38.1	37.0
Tricia Carpenter McCracken	W	D	2.6	3.2	3.2		0.2	0.5

Eastern Atlanta Metro Region (Area 1)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2018 Democratic Primary								
Governor								
Stacey Abrams	B	D	87.5	87.4	88.7		62.4	64.0
Stacey Evans	W	D	12.5	12.6	11.3		37.6	36.1
Lieutenant Governor								
Sarah Riggs Amico	W	D	43.0	38.8	38.8		93.9	94.0
Triana Arnold James	B	D	57.0	61.2	61.2		6.1	6.0
Commissioner of Insurance								
Cindy Zeldin	W	D	28.2	20.8	23.4		82.5	83.7
Janice Laws	B	D	71.8	79.2	76.6		17.6	16.2
Commissioner of Labor								
Fred Quinn	B	D	53.5	54.8	54.7		32.3	31.7
Richard Keatley	W	D	46.5	45.3	45.3		67.7	68.3
Secretary of State								
Dee Dawkins-Haigler	B	D	41.0	40.8	41.5		21.4	22.4
John Barrow	W	D	39.2	35.8	35.4		68.0	67.3
Rakeim Hadley	B	D	19.8	23.3	23.2		10.6	10.3
School Superintendent								
Otha Thornton	B	D	49.7	52.4	52.6		22.6	22.9
Sam Mosteller	B	D	17.7	17.9	17.3		23.0	22.3
Sid Chapman	W	D	32.6	29.6	30.2		54.4	54.8
2016 Democratic Primary								
US Senate								
Cheryl Copeland	B	D	45.1	47.7	47.0	22.9	24.9	24.7
Jim Barksdale	W	D	52.5	50.5	51.1	69.8	67.7	67.6
John Coyne	W	D	2.4	1.8	2.5	7.3	7.5	7.6

Southern Atlants Metro Region (Area 2)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2021 Runoffs								
US Special Senate Runoff								
Raphael Warnock	B	D		114.3	99.2		6.8	8.1
Kelly Loeffler	W	R		-14.2	0.8		93.2	82.0
US Senate Runoff								
Jon Ossoff	W	D		114.1	98.1		6.3	7.5
David Perdue	W	R		-14.1	0.7		93.7	92.7
2020 General								
US Senate								
Jon Ossoff	W	D		110.7	99.3	9.0	5.5	5.7
Shane Hazel	W	L		2.3	2.2	1.3	2.2	2.5
David Perdue	W	R		-12.9	0.7	89.7	92.4	91.9
US Special Senate								
Raphael Warnock	B	D		77.4	77.3	6.8	5.2	5.1
Doug Colllins	W	R		-5.6	0.7	34.1	35.4	34.5
Kelly Loeffler	W	R		-8.5	0.7	50.8	51.9	51.7
Others				36.6	37.2	8.3	7.5	7.4
2018 General								
Governor								
Stacey Abrams	B	D		112.3	99.2	10.2	4.0	5.3
Ted Metz	W	L		0.2	0.5	0.7	1.3	1.4
Brian Kemp	W	R		-12.5	0.7	89.1	94.7	93.4
Commissioner of Insurance								
Janice Laws	B	D		109.9	99.3	10.3	3.4	3.9
Donnie Foster	W	L		1.9	1.9	1.8	2.7	3.1
Jim Beck	W	R		-11.9	0.7	87.9	93.9	93.3
School Superintendent								
Otha Thornton	B	D		110.8	99.4	10.0	2.8	3.7
Richard Woods	W	R		-10.8	0.6	90.0	97.2	96.3
2020 Democratic Primary								
US Senate								
James Knox	B	D		4.4	4.0		2.9	3.9
Jon Ossoff	W	D		58.0	58.1		54.1	53.6
Marckeith DeJesus	B	D		4.5	4.8		1.3	1.6
Maya Dillard Smith	B	D		11.0	11.6		0.9	1.3
Sarah Riggs Amico	W	D		12.7	12.2		12.9	13.1
Teresa Pike Tomlinson	W	D		6.4	6.6		26.2	24.7
Tricia Carpenter McCracken	W	D		3.0	3.0		1.6	2.2

Southern Atlants Metro Region (Area 2)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2018 Democratic Primary								
Governor								
Stacey Abrams	B	D	84.7	89.3	88.7		46.0	47.6
Stacey Evans	W	D	15.3	10.7	11.2		54.0	52.4
Lieutenant Governor								
Sarah Riggs Amico	W	D	44.5	39.1	37.8		89.1	88.4
Triana Arnold James	B	D	55.5	60.9	62.2		10.8	11.8
Commissioner of Insurance								
Cindy Zeldin	W	D	27.0	23.8	23.4		57.1	58.6
Janice Laws	B	D	73.0	76.3	76.6		42.7	41.5
Commissioner of Labor								
Fred Quinn	B	D	49.9	50.3	51.1		46.3	44.0
Richard Keatley	W	D	50.1	49.8	48.8		53.8	55.7
Secretary of State								
Dee Dawkins-Haigler	B	D	30.9	33.2	24.3		24.6	25.7
John Barrow	W	D	44.5	40.7	39.0		65.9	65.1
Rakeim Hadley	B	D	24.6	26.0	27.2		9.3	8.2
School Superintendent								
Otha Thornton	B	D	47.2	52.0	52.4		20.3	24.5
Sam Mosteller	B	D	18.1	16.1	15.9		30.0	27.8
Sid Chapman	W	D	34.7	32.0	32.4		49.7	46.5
2016 Democratic Primary								
US Senate								
Cheryl Copeland	B	D	48.3	49.1	49.7		31.2	31.9
Jim Barksdale	W	D	49.5	49.5	48.1		62.9	64.6
John Coyne	W	D	2.2	1.4	1.0		5.9	6.7

East Central Georgia (Area 3)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2021 Runoffs								
US Special Senate Runoff								
Raphael Warnock	B	D		109.2	99.3	12.8	6.0	8.7
Kelly Loeffler	W	R		-9.2	0.7	87.2	94.0	91.8
US Senate Runoff								
Jon Ossoff	W	D		108.9	99.3	12.6	5.9	8.5
David Perdue	W	R		-8.9	0.7	87.4	94.1	91.5
2020 General								
US Senate								
Jon Ossoff	W	D		104.7	99.0	11.9	5.3	6.5
Shane Hazel	W	L		2.4	2.4	1.6	1.8	1.6
David Perdue	W	R		-7.1	0.8	86.5	92.9	91.8
US Special Senate								
Raphael Warnock	B	D		70.3	72.1	8.6	4.1	4.0
Doug Colllins	W	R		-3.1	0.0	35.4	35.6	32.5
Kelly Loeffler	W	R		-6.0	0.9	46.4	52.8	51.4
Others				38.7	39.7	9.4	7.5	7.1
2018 General								
Governor								
Stacey Abrams	B	D		107.5	99.3	10.6	3.6	7.0
Ted Metz	W	L		0.3	0.6	0.5	0.9	0.3
Brian Kemp	W	R		-8.9	0.6	88.8	95.5	92.2
Comissioner of Insurance								
Janice Laws	B	D		105.0	99.2	10.7	3.1	5.6
Donnie Foster	W	L		1.5	1.5	1.6	2.2	2.2
Jim Beck	W	R		-6.5	0.8	87.6	94.7	92.6
School Superintendent								
Otha Thornton	B	D		109.8	na	10.6	2.9	5.7
Richard Woods	W	R		-5.7	na	89.4	97.1	94.3
2020 Democratic Primary								
US Senate								
James Knox	B	D	7.8	7.1	6.6		12.3	10.6
Jon Ossoff	W	D	40.9	45.8	46.3		43.1	41.3
Marckeith DeJesus	B	D	5.1	5.4	4.6		3.4	3.0
Maya Dillard Smith	B	D	16.7	14.6	15.1		3.6	4.7
Sarah Riggs Amico	W	D	14.5	14.7	14.1		14.1	15.1
Teresa Pike Tomlinson	W	D	11.1	8.5	8.4		18.6	20.5
Tricia Carpenter McCracken	W	D	4.0	3.9	3.7		4.8	5.1

East Central Georgia (Area 3)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2018 Democratic Primary								
Governor								
Stacey Abrams	B	D	78.0	83.8	82.8	30.9	41.2	47.3
Stacey Evans	W	D	22.0	16.2	17.1	69.1	58.7	52.4
Lieutenant Governor								
Sarah Riggs Amico	W	D	47.4	43.8	52.6	67.7	78.5	82.7
Triana Arnold James	B	D	52.6	56.2	57.4	32.3	21.5	17.0
Commissioner of Insurance								
Cindy Zeldin	W	D	18.9	19.7	19.1	38.9	51.4	54.7
Janice Laws	B	D	81.1	80.3	80.9	61.1	48.6	45.4
Commissioner of Labor								
Fred Quinn	B	D	53.6	55.5	55.1	40.9	40.5	40.6
Richard Keatley	W	D	46.4	44.5	44.9	59.1	59.3	59.5
Secretary of State								
Dee Dawkins-Haigler	B	D	22.3	24.9	27.4	11.3	16.4	14.0
John Barrow	W	D	65.2	59.3	54.9	85.8	77.3	79.5
Rakeim Hadley	B	D	12.5	15.8	18.0	2.8	6.2	4.3
School Superintendant								
Otha Thornton	B	D	46.2	50.2	50.6	17.2	21.1	24.9
Sam Mosteller	B	D	19.2	18.1	17.8	31.2	29.8	29.9
Sid Chapman	W	D	34.5	31.8	31.9	51.6	49.1	45.4
2016 Democratic Primary								
US Senate								
Cheryl Copeland	B	D	48.1	49.7	50.2	22.4	24.3	24.2
Jim Barksdale	W	D	48.5	47.1	46.6	71.7	70.5	69.2
John Coyne	W	D	3.3	3.2	3.5	5.9	5.3	5.7

Southeastern Atlanta Metro Region (Area 4)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2021 Runoffs								
US Special Senate Runoff								
Raphael Warnock	B	D		113.1	99.3	14.6	7.9	7.7
Kelly Loeffler	W	R		-13.1	0.8	85.4	92.1	92.3
US Senate Runoff								
Jon Ossoff	W	D		113.0	99.3	14.2	7.5	7.2
David Perdue	W	R		-13.0	0.7	85.8	92.5	92.8
2020 General								
US Senate								
Jon Ossoff	W	D		109.3	na	13.4	6.8	6.9
Shane Hazel	W	L		2.3	na	1.8	2.1	2.3
David Perdue	W	R		-11.7	na	84.8	91.1	92.7
US Special Senate								
Raphael Warnock	B	D		76.3	76.3	10.2	6.3	6.0
Doug Colllins	W	R		-5.1	0.7	34.1	34.5	34.4
Kelly Loeffler	W	R		-8.0	0.6	46.7	51.9	51.9
Others				36.8	36.9	8.9	7.2	7.3
2018 General								
Governor								
Stacey Abrams	B	D		11.5	99.2	12.4	4.9	5.3
Ted Metz	W	L		0.2	0.5	0.7	12.5	1.3
Brian Kemp	W	R		-11.7	0.8	86.9	93.9	93.9
Commissioner of Insurance								
Janice Laws	B	D		109.1	99.3	12.2	4.2	4.1
Donnie Foster	W	L		1.9	1.8	2.0	2.6	2.9
Jim Beck	W	R		-10.9	0.7	85.8	93.1	93.8
School Superintendent								
Otha Thornton	B	D		110.2	99.3	12.0	3.6	4.0
Richard Woods	W	R		-10.2	0.7	88.0	96.4	96.0
2020 Democratic Primary								
US Senate								
James Knox	B	D		4.4	4.1		2.3	2.6
Jon Ossoff	W	D		57.3	57.9		57.3	57.9
Marckeith DeJesus	B	D		4.5	4.4		1.2	1.5
Maya Dillard Smith	B	D		11.3	11.5		2.2	2.3
Sarah Riggs Amico	W	D		12.8	12.4		13.1	13.0
Teresa Pike Tomlinson	W	D		6.6	6.7		22.9	23.0
Tricia Carpenter McCracken	W	D		3.2	3.2		1.1	1.7

Southeastern Atlanta Metro Region (Area 4)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2018 Democratic Primary								
Governor								
Stacey Abrams	B	D	84.5	88.4	88.6		45.2	44.9
Stacey Evans	W	D	15.5	11.6	11.4		54.7	54.7
Lieutenant Governor								
Sarah Riggs Amico	W	D	43.9	39.4	38.6		90.6	88.0
Triana Arnold James	B	D	56.1	60.6	61.3		9.7	12.1
Commissioner of Insurance								
Cindy Zeldin	W	D	26.7	23.7	23.7		55.0	56.2
Janice Laws	B	D	73.3	76.3	76.4		45.1	44.1
Commissioner of Labor								
Fred Quinn	B	D	50.3	51.4	51.6		44.7	44.9
Richard Keatley	W	D	49.7	48.6	48.4		55.4	55.5
Secretary of State								
Dee Dawkins-Haigler	B	D	31.7	33.7	35.0		24.6	25.7
John Barrow	W	D	43.8	40.2	38.7		70.2	68.3
Rakeim Hadley	B	D	34.4	26.0	26.0		5.3	6.2
School Superintendent								
Otha Thornton	B	D	47.3	50.8	51.4		21.5	24.8
Sam Mosteller	B	D	18.3	16.7	16.8		30.4	29.4
Sid Chapman	W	D	34.4	32.5	32.8		48.1	46.3
2016 Democratic Primary								
US Senate								
Cheryl Copeland	B	D	47.9	48.0	49.2		33.6	30.6
Jim Barksdale	W	D	49.5	50.0	48.7		61.8	65.6
John Coyne	W	D	2.6	2.0	1.3		4.6	5.9

Central Georgia (Area 5)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2021 Runoffs								
US Special Senate Runoff								
Raphael Warnock	B	D		100.1	99.0	13.5	10.9	17.0
Kelly Loeffler	W	R		-0.1	1.2	86.5	89.1	83.0
US Senate Runoff								
Jon Ossoff	W	D		99.9	98.9	13.3	10.6	16.7
David Perdue	W	R		0.0	1.1	86.7	89.2	83.3
2020 General								
US Senate								
Jon Ossoff	W	D		95.6	98.9	12.6	9.6	15.1
Shane Hazel	W	L		1.8	1.8	1.4	1.9	0.8
David Perdue	W	R		2.6	1.0	85.9	88.4	84.4
US Special Senate								
Raphael Warnock	B	D		64.8	65.4	9.1	7.8	10.2
Doug Colllins	W	R		2.2	1.2	36.1	34.7	33.3
Kelly Loeffler	W	R		-2.4	0.6	46.0	49.9	46.4
Others				35.2	36.5	8.7	7.7	8.1
2018 General								
Governor								
Stacey Abrams	B	D		99.1	na	10.7	7.4	16.3
Ted Metz	W	L		0.1	na	0.6	0.8	0.7
Brian Kemp	W	R		0.6	na	88.7	91.8	83.2
Commissioner of Insurance								
Janice Laws	B	D		96.4	98.6	10.9	7.4	15.1
Donnie Foster	W	L		1.3	1.2	1.5	2.0	2.3
Jim Beck	W	R		2.6	1.3	87.5	90.6	83.7
School Superintendent								
Otha Thornton	B	D		97.0	na	10.7	7.3	15.2
Richard Woods	W	R		2.7	na	89.3	92.7	84.8
2020 Democratic Primary								
US Senate								
James Knox	B	D	8.7	9.9	9.1		7.5	5.8
Jon Ossoff	W	D	40.3	45.4	44.8		44.7	45.2
Marckeith DeJesus	B	D	4.2	4.4	4.4		2.9	2.2
Maya Dillard Smith	B	D	12.9	12.4	12.5		4.5	3.9
Sarah Riggs Amico	W	D	16.4	16.0	16.7		15.3	14.9
Teresa Pike Tomlinson	W	D	14.0	7.9	9.0		21.7	26.4
Tricia Carpenter McCracken	W	D	3.5	4.0	3.6		3.3	2.4

Central Georgia (Area 5)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2018 Democratic Primary								
Governor								
Stacey Abrams	B	D	79.2	79.5	80.7		54.1	64.0
Stacey Evans	W	D	20.8	20.5	19.3		45.9	36.0
Lieutenant Governor								
Sarah Riggs Amico	W	D	45.7	46.0	45.2		77.4	75.9
Triana Arnold James	B	D	54.3	54.0	54.9		22.5	23.9
Commissioner of Insurance								
Cindy Zeldin	W	D	23.9	20.8	21.1		56.7	63.9
Janice Laws	B	D	76.1	79.3	78.8		43.3	35.9
Commissioner of Labor								
Fred Quinn	B	D	59.9	60.7	61.1		37.2	38.5
Richard Keatley	W	D	40.1	39.3	38.9		62.8	61.5
Secretary of State								
Dee Dawkins-Haigler	B	D	26.8	25.1	24.6		15.5	15.1
John Barrow	W	D	61.2	64.2	64.2		72.7	71.2
Rakeim Hadley	B	D	12.0	10.7	12.6		11.8	12.9
School Superintendent								
Otha Thornton	B	D	45.0	45.5	46.9		23.6	29.4
Sam Mosteller	B	D	19.7	20.3	19.1		23.3	18.0
Sid Chapman	W	D	35.3	34.2	33.5		53.2	50.3
2016 Democratic Primary								
US Senate								
Cheryl Copeland	B	D	48.1	48.6	49.4		23.1	18.6
Jim Barksdale	W	D	48.0	46.9	47.2		72.1	73.3
John Coyne	W	D	3.9	4.6	5.5		4.9	4.6

Southwest Georgia (Area 6)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2021 Runoffs								
US Special Senate Runoff								
Raphael Warnock	B	D	97.4	106.0	99.0	9.6	3.6	7.7
Kelly Loeffler	W	R	2.6	-6.0	1.0	90.4	96.4	92.4
US Senate Runoff								
Jon Ossoff	W	D	97.2	105.9	na	9.7	3.6	7.8
David Perdue	W	R	2.8	-5.9	na	90.3	96.4	92.2
2020 General								
US Senate								
Jon Ossoff	W	D	93.5	101.8	98.9	10.1	3.5	5.2
Shane Hazel	W	L	1.3	1.6	2.0	1.2	1.6	1.8
David Perdue	W	R	5.2	-3.4	0.7	88.7	94.9	92.6
US Special Senate								
Raphael Warnock	B	D	67.6	66.1	65.3	4.4	-0.8	0.2
Doug Colllins	W	R	1.3	-3.4	0.9	45.5	43.9	40.2
Kelly Loeffler	W	R	1.8	-1.7	1.0	37.3	44.5	44.8
Others			29.3	38.7	43.0	12.7	12.4	11.2
2018 General								
Governor								
Stacey Abrams	B	D	97.3	104.9	99.0	8.6	2.1	6.1
Ted Metz	W	L	0.2	0.3	0.5	0.6	0.5	0.5
Brian Kemp	W	R	2.5	-5.2	0.6	90.8	97.4	93.3
Commissioner of Insurance								
Janice Laws	B	D	95.5	102.5	99.0	9.3	2.3	5.1
Donnie Foster	W	L	1.4	1.6	2.0	1.4	1.3	1.4
Jim Beck	W	R	3.1	-4.1	0.8	89.4	96.4	93.1
School Superintendent								
Otha Thornton	B	D	95.8	102.7	99.1	8.9	1.8	4.5
Richard Woods	W	R	4.2	-2.7	0.8	91.1	98.2	95.6
2020 Democratic Primary								
US Senate								
James Knox	B	D	8.6	8.2	9.0		15.7	12.7
Jon Ossoff	W	D	50.9	44.9	44.5		10.7	12.5
Marckeith DeJesus	B	D	5.0	6.0	5.9		4.3	0.0
Maya Dillard Smith	B	D	11.8	13.5	14.5		6.6	5.7
Sarah Riggs Amico	W	D	11.3	12.9	12.1		18.4	19.8
Teresa Pike Tomlinson	W	D	8.7	11.0	10.8		36.6	40.0
Tricia Carpenter McCracken	W	D	3.8	3.3	3.4		7.5	6.6

Southwest Georgia (Area 6)	Race	Party	Estimates of Voting Patterns by Race in Recent Statewide Elections					
			Black Voters			White Voters		
			HP	ER	EI	HP	ER	EI
2018 Democratic Primary								
Governor								
Stacey Abrams	B	D	81.8	86.5	84.0		44.3	48.8
Stacey Evans	W	D	18.2	13.5	15.9		55.9	52.7
Lieutenant Governor								
Sarah Riggs Amico	W	D	39.2	39.2	38.9		74.6	70.1
Triana Arnold James	B	D	60.8	60.8	61.1		25.3	29.4
Commissioner of Insurance								
Cindy Zeldin	W	D	20.0	20.5	20.4		48.9	44.7
Janice Laws	B	D	80.0	79.6	79.6		51.2	54.3
Commissioner of Labor								
Fred Quinn	B	D	56.9	54.6	55.5		50.5	50.2
Richard Keatley	W	D	43.1	45.5	44.3		49.7	48.5
Secretary of State								
Dee Dawkins-Haigler	B	D	29.2	28.8	27.9		27.5	35.2
John Barrow	W	D	48.2	46.0	46.9		62.6	50.2
Rakeim Hadley	B	D	22.6	25.2	24.3		9.7	4.7
School Superintendent								
Otha Thornton	B	D	49.7	48.1	49.0		23.5	30.2
Sam Mosteller	B	D	17.8	19.8	16.2		24.3	33.2
Sid Chapman	W	D	32.5	32.0	31.7		52.1	45.2
2016 Democratic Primary								
US Senate								
Cheryl Copeland	B	D	48.3	52.0	49.3	42.7	45.9	46.9
Jim Barksdale	W	D	48.2	44.5	46.3	48.7	46.4	47.1
John Coyne	W	D	3.5	3.3	1.3	8.5	7.7	9.6

Appendix B

Recent State Senate Contests	Race	Party	Vote	Estimates of Voting Patterns by Race in Recent State Legislative Elections					
				Black Voters			White Voters		
				HP	ER	EI	HP	ER	EI
General Elections 2020									
State Senate 16 2020									
Cinquez Jester	B	D	31.8		102.7	99.0		4.3	6.0
Marty Harbin	W	R	68.2		-3.0	1.1		95.7	94.0
Black turnout/VAP			*57.3*						
White turnout/VAP			*73.4*						
State Senate 20 2020									
Julius Johnson	B	D	35.0		107.0	98.7		1.4	2.6
Larry Walker	W	R	65.0		-7.1	1.1		98.6	97.7
Black turnout/VAP			*56.2*						
White turnout/VAP			*67.0*						
State Senate 23 2020									
Ceretta Smith	B	D	40.7		101.6	98.7	8.4	2.7	4.8
Max Burns	W	R	59.3		-1.5	1.7	91.6	97.3	95.0
Black turnout/VAP			*56.3*						
White turnout/VAP			*64.3*						
State Senate 25 2020									
Veronica Brinson	B	D	32.3		110.9	98.8	13.1	3.5	7.4
Burt Jones	W	R	67.7		-11.0	0.7	86.9	96.5	92.5
Black turnout/VAP			*51.7*						
White turnout/VAP			*69.9*						
General Elections 2018									
State Senate 17 2018									
Phyllis Hatcher	B	D	45.5		115.7	99.1		1.1	2.9
Brian Strickland	W	R	54.5		-15.6	1.0		98.9	97.1
Black turnout/VAP			*48.0*						
White turnout/VAP			*60.0*						
State Senate 34 2018									
Valencia Seay	B	D	82.9		107.5	99.5		7.2	6.6
Tommy Smith	W	R	17.1		-7.5	0.4		92.8	90.1
Black turnout/VAP			*45.5*						
White turnout/VAP			*51.3*						
General Elections 2016									
State Senate 17 2016									
Bill Blackmon	B	D	40.4		116.7	99.4		2.0	3.0
Rick Jeffares	W	R	59.6		-16.6	1.1		98.0	97.0
Black turnout/VAP			*42.7*						
White turnout/VAP			*67.0*						
State Senate 43 2016									
Tonya Anderson	B	D	70.4	96.0	104.8	99.3		2.4	3.3
Janice Van Ness	W	R	29.6	4.0	-4.8	0.8		97.6	96.6
Black turnout/VAP			*47.5*						
White turnout/VAP			*60.6*						

Recent State House Contests	Race	Party	Vote	Estimates of Voting Patterns by Race in Recent State Legislative Elections					
				Black Voters			White Voters		
				HP	ER	EI	HP	ER	EI
General Elections 2020									
State House 63 2020									
Debra Bazemore	B	D	78.8		101.0	99.4		17.4	16.9
David Callahan	W	R	21.2		-1.2	0.6		82.8	83.4
Black turnout/VAP			*61.6*						
White turnout/VAP			*73.4*						
State House 110 2020					116.8	95.6		-3.1	2.9
Ebony Carter	B	D	44.2		-17.0	4.4		103.0	97.0
Clint Crowe	W	R	55.8						
Black turnout/VAP			*61.7*						
White turnout/VAP			*63.0*						
State House 129 2020									
Sharonda Bell	B	D	26.3		93.2	98.2		1.3	4.1
Susan Holmes	W	R	69.6		9.4	13.7		94.0	92.6
Joe Reed	W	I	4.2		-3.2	11.2		4.6	2.4
Black turnout/VAP			*49.3*						
White turnout/VAP			*73.0*						
State House 130 2020									
Sheila Henley	B	D	41.6		106.5	99.2		3.3	5.6
David Knight	W	R	58.4		-6.5	0.6		96.7	94.5
Black turnout/VAP			*53.8*						
White turnout/VAP			*65.7*						
State House 138 2020									
Marc Arnett	B	D	46.2		106.5	98.5		3.3	8.3
Mike Cheokas	W	R	53.9		-6.4	1.1		96.7	92.1
Black turnout/VAP			*49.2*						
White turnout/VAP			*55.6*						
State House 145 2020									
Quentin Howell	B	D	43.8		109.9	97.5		8.8	9.7
Ricky Williams	W	R	56.2		-9.9	1.4		91.5	90.1
Black turnout/VAP			*47.1*						
White turnout/VAP			*59.2*						
State House 173 2020									
Booker Gainor	B	D	40.6		103.1	96.8		5.5	8.1
Darlene Taylor	W	R	59.4		-3.0	3.1		94.4	91.8
Black turnout/VAP			*51.7*						
White turnout/VAP			*63.9*						
General Elections 2018									
State House 111 2018									
El-Mahdi Holly	B	D	56.6		124.1	96.7		-7.7	6.7
Geoffrey Cauble	W	R	43.4		-23.9	3.2		107.5	93.3
Black turnout/VAP			*48.3*						
White turnout/VAP			*61.7*						

Recent State House Contests	Race	Party	Vote	Estimates of Voting Patterns by Race in Recent State Legislative Elections					
				Black Voters			White Voters		
				HP	ER	EI	HP	ER	EI
State House 128 2018									
Mack Jackson	B	D	57.0		101.0	98.6	8.8	9.6	15.0
Jackson Williams	W	R	43.0		-0.9	1.0	91.2	90.5	85.0
Black turnout/VAP			*47.4*						
White turnout/VAP			*58.3*						
State House 152 2018									
Marcus Batten	B	D	26.0		102.7	98.6	8.9	1.1	3.7
Ed Rynders	W	R	74.0		-2.6	0.8	91.1	98.9	96.3
Black turnout/VAP			*45.2*						
White turnout/VAP			*56.0*						
State House 175 2018									
Treva Gear	B	D	28.5		92.1	74.9		4.6	5.4
John LaHood	W	R	71.5		7.2	23.5		95.3	94.7
Black turnout/VAP			*46.4*						
White turnout/VAP			*47.2*						
General Elections 2016									
State House 73 2016									
Rahim Talley	B	D	35.5		105.4	98.2		1.5	2.2
Karen Mathiak	W	R	64.5		-5.2	1.7		98.5	97.7
Black turnout/VAP			*46.4*						
White turnout/VAP			*63.5*						
State House 111 2016									
Darryl Payton	B	D	48.3		120.9	99.2		-4.3	5.7
Brian Strickland	W	R	51.7		-20.8	0.8		104.3	94.8
Black turnout/VAP			*40.7*						
White turnout/VAP			*70.5*						
State House 145 2016									
Floyd Griffin	B	D	43.4		108.1	99.3	14.6	6.7	8.6
Ricky Williams	W	R	56.6		-8.0	0.9	85.4	93.4	91.3
Black turnout/VAP			*43.3*						
White turnout/VAP			*52.0*						
State House 173 2016									
Tommy Hill	B	D	38.9		99.7	97.0	13.3	5.6	6.7
Darlene Taylor	W	R	61.1		0.2	3.1	86.7	94.5	93.4
Black turnout/VAP			*46.8*						
White turnout/VAP			*56.2*						
State House 177 2016									
Dexter Sharper	B	D	64.4		93.3	95.2		36.1	40.4
Deidra White	W	R	35.6		6.2	4.9		64.5	59.6
Black turnout/VAP			*30.6*						
White turnout/VAP			*65.1*						

Recent State House Contests	Race	Party	Vote	Estimates of Voting Patterns by Race in Recent State Legislative Elections					
				Black Voters			White Voters		
				HP	ER	EI	HP	ER	EI
Democratic Primaries 2018									
State House 152 2018									
Marcus Batten	B	D	57.9		60.8	63.3		40.2	37.1
Mary Egler	W	D	42.1		39.3	36.7		59.7	62.9
Black turnout/VAP			*14.3*						
White turnout/VAP			*1.1*						
State House 153 2018									
CaMia Whitaker Hopson	B	D	51.3	43.0	42.4	43.7		96.0	92.3
Darrel Ealum	W	D	48.7	57.0	57.5	56.3		4.7	6.6
Black turnout/VAP			*13.9*						
White turnout/VAP			*4.6*						
Democratic Primaries 2016									
State House 153 2016									
Darrel Ealum	W	D	56.8	43.2	40.3	40.1		90.9	92.0
Muarlean Edwards	B	D	29.8	42.8	45.3	44.4		-0.1	0.1
Antonio Screen	B	D	13.4	14.0	14.2	17.4		14.2	9.2
Black turnout/VAP			*14.9*						
White turnout/VAP			*14.9*						

Appendix C

Appendix Table C1: Effectiveness of Previous State Senate Districts that Overlap Additional Illustrative State Senate Districts

Illustrative State Senate Plan	Previous State Senate Plan	% of Illustrative District in Previous District	BVAP %	GE Score	Pr Score
017	010	17.6%	74.98%	0.786	0.634
017	017	53.7%	41.72%	0.451	0.604
017	043	28.5%	68.74%	0.726	0.630
023	022	13.4%	58.76%	0.670	0.605
023	023	30.3%	35.62%	0.376	0.580
023	025	22.7%	28.50%	0.315	0.556
023	026	29.5%	60.14%	0.630	0.584
028	016	40.7%	22.00%	0.308	0.521
028	034	27.7%	68.34%	0.779	0.617
028	044	31.6%	72.43%	0.838	0.603

Appendix Table C2: Effectiveness of Previous State House Districts that Overlap Additional Illustrative State House Districts

Illustrative State House Plan	Previous State House Plan	% of Illustrative District in Prior District	BVAP %	GE Score	Pr Score
073	063	13.6%	71.31%	0.739	0.625
073	073	38.0%	35.12%	0.413	0.596
073	075	6.4%	74.27%	0.821	0.617
073	078	41.8%	68.59%	0.769	0.616
110	073	19.4%	35.12%	0.413	0.596
110	111	23.1%	51.56%	0.557	0.620
110	130	57.5%	36.30%	0.390	0.553
144	120	12.6%	26.62%	0.323	0.570
144	128	23.6%	54.62%	0.491	0.562
144	144	15.0%	27.24%	0.345	0.559
144	145	48.8%	38.94%	0.428	0.581
153	153	33.4%	65.15%	0.619	0.646
153	171	36.1%	38.61%	0.325	0.586
153	172	8.1%	27.69%	0.273	0.582
153	173	21.4%	35.38%	0.376	0.616

Appendix D

Lisa R. Handley

CURRICULUM VITAE

Professional Experience

Dr. Handley has over thirty years of experience in the areas of redistricting and voting rights, both as a practitioner and an academician, and is recognized nationally and internationally as an expert on these subjects. She has advised numerous clients on redistricting and has served as an expert in dozens of redistricting and voting rights court cases. Her clients have included the U.S. Department of Justice, civil rights organizations, independent redistricting commissions and scores of state and local jurisdictions. Internationally, Dr. Handley has provided electoral assistance in more than a dozen countries, serving as a consultant on electoral system design and redistricting for the United Nations, UNDP, IFES, and International IDEA. In addition, Dr. Handley served as Chairman of the Electoral Boundaries Commission in the Cayman Islands.

Dr. Handley has been actively involved in research, writing and teaching on the subjects of redistricting and voting rights. She has co-written a book, Minority Representation and the Quest for Voting Equality (Cambridge University Press, 1992) and co-edited a volume (Redistricting in Comparative Perspective, Oxford University Press, 2008) on these subjects. Her research has also appeared in peer-reviewed journals such as *Journal of Politics*, *Legislative Studies Quarterly*, *American Politics Quarterly*, *Journal of Law and Politics*, and *Law and Policy,* as well as law reviews and edited books. She has taught political science undergraduate and graduate courses related to these subjects at several universities including the University of Virginia and George Washington University. Dr. Handley is a Visiting Research Academic at Oxford Brookes University in the United Kingdom.

Dr. Handley is the President of Frontier International Consulting, a consulting firm that specializes in providing electoral assistance in transitional and post-conflict democracies. She also works as an independent election consultant both in the United States and internationally.

Education

Ph.D. The George Washington University, Political Science, 1991

Present Employment

President, Frontier International Electoral Consulting LLC (since co-founding company in 1998).

Senior International Electoral Consultant Technical assistance for clients such as the UN, UNDP and IFES on electoral system design and boundary delimitation

Visiting Research Academic, Centre for Development and Emergency Practice (CENDEP), Oxford Brookes University

U.S. Clients since 2000

American Civil Liberties Union – redistricting consultant, expert testimony in Ohio partisan gerrymander challenge and challenge to Commerce Department inclusion of citizenship question on 2020 census form

Lawyers Committee for Civil Rights Under Law – expert testimony in challenges to statewide judicial elections in Texas and Alabama

US Department of Justice – expert witness testimony in several Section 2 and Section 5 cases)

Alaska: Redistricting Board (2000 and 2010) – redistricting consultation, expert witness testimony

Arizona: Independent Redistricting Board (2000 and 2010) – redistricting consultation

Colorado: Redistricting Commission (2020), Redistricting Board (2000 and 2010) – redistricting consultation

Connecticut: State Senate and State House of Representatives (2000 and 2010) – redistricting consultation

Florida: State Senate (2000) – redistricting consultation

Kansas: State Legislative Research Department (2000, 2010, 2020) – redistricting consultation

Louisiana: Louisiana Legislative Black Caucus (2000) – expert witness testimony

Massachusetts: State Senate (2000 and 2010) – redistricting consultation

Maryland: Attorney General (2000) – redistricting consultation

Michigan: Redistricting Commission (2020) – redistricting consultation

Miami-Dade County, Florida: County Attorney (2000 and 2010) – redistricting consultation

Nassau County, New York: Redistricting Commission (2000) – redistricting consultation

New Mexico: State House (2000) – redistricting consultation, expert witness testimony

New York: State Assembly (2000), State Senate (2020) – redistricting consultation

New York City: Redistricting Commission and Charter Commission (2001, 2011) – redistricting consultation and Section 5 submission assistance

New York State Court: Expert to the Special Master (drew congressional lines for state court)

Rhode Island: State Senate and State House (2000 and 2020) – redistricting consultation

Vermont: Secretary of State (2000) – redistricting consultation

International Clients since 2000

United Nations

- Afghanistan – electoral system design and district delimitation expert
- Bangladesh (UNDP) – redistricting expert
- Sierra Leone (UNDP) – redistricting expert
- Liberia (UNMIL, UN peacekeeping mission) – redistricting expert
- Democratic Republic of the Congo (MONUC, UN peacekeeping mission) – election feasibility mission, electoral system design and redistricting expert
- Kenya (UN) – electoral system design and redistricting expert
- Haiti (UN) – election feasibility mission, electoral system design and redistricting expert
- Zimbabwe (UNDP) – redistricting expert
- Lead Writer on the topic of boundary delimitation (redistricting) for ACE (Joint UN, IFES and IDEA project on the Administration and Cost of Elections Project)

International Foundation for Election Systems (IFES)

- Afghanistan – district delimitation expert
- Sudan – redistricting expert
- Kosovo – electoral system design and redistricting expert
- Nigeria – redistricting expert
- Nepal – redistricting expert
- Georgia – electoral system design and district delimitation expert
- Yemen – redistricting expert
- Lebanon – electoral system design and redistricting expert
- Malaysia – electoral system design and redistricting expert
- Myanmar – electoral system design and redistricting expert
- Ukraine – electoral system design and redistricting expert
- Pakistan – consultant for developing redistricting software
- Principal consultant for the Delimitation Equity Project – conducted research, wrote reference manual and developed training curriculum
- Writer on electoral boundary delimitation (redistricting), Elections Standards Project
- Training – developed training curriculum and conducted training workshops on electoral boundary delimitation (redistricting) in Azerbaijan and Jamaica

International Institute for Democracy and Electoral Assistance (International IDEA):

- Consultant on electoral dispute resolution systems
- Technology consultant on use of GIS for electoral district delimitation
- Training – developed training material and conducted training workshop on electoral boundary delimitation (redistricting) for African election officials (Mauritius)
- Curriculum development – boundary delimitation curriculum for the BRIDGE Project

Other international clients have included The Cayman Islands; the Australian Election Commission; the Boundary Commission of British Columbia, Canada; and the Global Justice Project for Iraq.

Publications

***Books**:*

Does Torture Prevention Work? Liverpool University Press, 2016 (served as editor and author, with Richard Carver)

Comparative Redistricting in Perspective, Oxford University Press, 2008 (first editor, with Bernard Grofman).

Delimitation Equity Project: Resource Guide, Center for Transitional and Post-Conflict Governance at IFES and USAID publication, 2006 (lead author).

Minority Representation and the Quest for Voting Equality, Cambridge University Press, 1992 (with Bernard Grofman and Richard Niemi).

***Academic Journal Articles**:*

"Drawing Electoral Districts to Promote Minority Representation" Representation, forthcoming, published online DOI:10.1080/00344893.2020.1815076.

"Evaluating national preventive mechanisms: a conceptual model," Journal of Human Rights Practice, Volume 12 (2), July 2020 (with Richard Carver).

"Minority Success in Non-Majority Minority Districts: Finding the 'Sweet Spot'," Journal of Race, Ethnicity and Politics, forthcoming (with David Lublin, Thomas Brunell and Bernard Grofman).

"Has the Voting Rights Act Outlived its Usefulness: In a Word, "No," Legislative Studies Quarterly, volume 34 (4), November 2009 (with David Lublin, Thomas Brunell and Bernard Grofman).

"Delimitation Consulting in the US and Elsewhere," Zeitschrift für Politikberatung, volume 1 (3/4), 2008 (with Peter Schrott).

"Drawing Effective Minority Districts: A Conceptual Framework and Some Empirical Evidence," North Carolina Law Review, volume 79 (5), June 2001 (with Bernard Grofman and David Lublin).

"A Guide to 2000 Redistricting Tools and Technology" in The Real Y2K Problem: Census 2000 Data and Redistricting Technology, edited by Nathaniel Persily, New York: Brennan Center, 2000.

"1990s Issues in Voting Rights," Mississippi Law Journal, 65 (2), Winter 1995 (with Bernard Grofman).

"Minority Turnout and the Creation of Majority-Minority Districts," American Politics Quarterly, 23 (2), April 1995 (with Kimball Brace, Richard Niemi and Harold Stanley).

"Identifying and Remedying Racial Gerrymandering," Journal of Law and Politics, 8 (2), Winter 1992 (with Bernard Grofman).

"The Impact of the Voting Rights Act on Minority Representation in Southern State Legislatures," Legislative Studies Quarterly, 16 (1), February 1991 (with Bernard Grofman).

"Minority Population Proportion and Black and Hispanic Congressional Success in the 1970s and 1980s," American Politics Quarterly, 17 (4), October 1989 (with Bernard Grofman).

"Black Representation: Making Sense of Electoral Geography at Different Levels of Government," Legislative Studies Quarterly, 14 (2), May 1989 (with Bernard Grofman).

"Minority Voting Equality: The 65 Percent Rule in Theory and Practice," Law and Policy, 10 (1), January 1988 (with Kimball Brace, Bernard Grofman and Richard Niemi).

"Does Redistricting Aimed to Help Blacks Necessarily Help Republicans?" Journal of Politics, 49 (1), February 1987 (with Kimball Brace and Bernard Grofman).

***Chapters in Edited Volumes**:*

"Effective torture prevention," Research Handbook on Torture, Sir Malcolm Evans and Jens Modvig (eds), Cheltenham: Edward Elgar, 2020 (with Richard Carver).

"Redistricting" in Oxford Handbook of Electoral Systems, Erik Herron Robert Pekkanen and Matthew Shugart (eds), Oxford: Oxford University Press, 2018.

"Role of the Courts in the Electoral Boundary Delimitation Process," in International Election Remedies, John Hardin Young (ed.), Chicago: American Bar Association Press, 2017.

"One Person, One Vote, Different Values: Comparing Delimitation Practices in India, Canada, the United Kingdom, and the United States," in Fixing Electoral Boundaries in India, edited by Mohd. Sanjeer Alam and K.C. Sivaramakrishman, New Delhi: Oxford University Press, 2015.

"Delimiting Electoral Boundaries in Post-Conflict Settings," in Comparative Redistricting in Perspective, edited by Lisa Handley and Bernard Grofman, Oxford: Oxford University Press, 2008.

"A Comparative Survey of Structures and Criteria for Boundary Delimitation," in Comparative Redistricting in Perspective, edited by Lisa Handley and Bernard Grofman, Oxford: Oxford University Press, 2008.

"Drawing Effective Minority Districts: A Conceptual Model," in Voting Rights and Minority Representation, edited by David Bositis, published by the Joint Center for Political and Economic Studies, Washington DC, and University Press of America, New York, 2006.

"Electing Minority-Preferred Candidates to Legislative Office: The Relationship Between Minority Percentages in Districts and the Election of Minority-Preferred Candidates," in Race and Redistricting in the 1990s, edited by Bernard Grofman; New York: Agathon Press, 1998 (with Bernard Grofman and Wayne Arden).

"Estimating the Impact of Voting-Rights-Related Districting on Democratic Strength in the U.S. House of Representatives," in Race and Redistricting in the 1990s, edited by Bernard Grofman; New York: Agathon Press, 1998 (with Bernard Grofman).

"Voting Rights in the 1990s: An Overview," in Race and Redistricting in the 1990s, edited by Bernard Grofman; New York: Agathon Press, 1998 (with Bernard Grofman and Wayne Arden).

"Racial Context, the 1968 Wallace Vote and Southern Presidential Dealignment: Evidence from North Carolina and Elsewhere," in Spatial and Contextual Models in Political Research, edited by Munroe Eagles; Taylor and Francis Publishing Co., 1995 (with Bernard Grofman).

"The Impact of the Voting Rights Act on Minority Representation: Black Officeholding in Southern State Legislatures and Congressional Delegations," in The Quiet Revolution: The Impact of the Voting Rights Act in the South, 1965-1990, eds. Chandler Davidson and Bernard Grofman, Princeton University Press, 1994 (with Bernard Grofman).

"Preconditions for Black and Hispanic Congressional Success," in United States Electoral Systems: Their Impact on Women and Minorities, eds. Wilma Rule and Joseph Zimmerman, Greenwood Press, 1992 (with Bernard Grofman).

***Electronic Publication**:*

"Boundary Delimitation" Topic Area for the Administration and Cost of Elections (ACE) Project, 1998. Published by the ACE Project on the ACE website (www.aceproject.org).

***Additional Writings of Note**:*

Amicus brief presented to the US Supreme Court in Gill v. Whitford, Brief of Political Science Professors as Amici Curiae, 2017 (one of many social scientists to sign brief)

Amicus brief presented to the US Supreme Court in Shelby County v. Holder, Brief of Historians and Social Scientists as Amici Curiae, 2013 (one of several dozen historians and social scientists to sign brief)

Amicus brief presented to the US Supreme Court in Bartlett v. Strickland, 2008 (with Nathaniel Persily, Bernard Grofman, Bruce Cain, and Theodore Arrington).

Recent Court Cases

Pending cases:

- Arkansas State Conference NAACP et al. v. Arkansas Board of Apportionment et al. (Case Number: 4:21-cv-01239-LPR) (Eastern District of Arkansas)
- League of Women Voters of Ohio et al. v. Ohio Redistricting Commission et al. (Case Number: 2021-1193) (Supreme Court of Ohio)
- League of Women Voters of Ohio et al. v. Governor DeWine (Case Number: 2021-1449) (Supreme Court of Ohio)

Ohio Philip Randolph Institute v. Larry Householder (2019) – partisan gerrymander challenge to Ohio congressional districts; testifying expert for ACLU on minority voting patterns

State of New York v. U.S. Department of Commerce/ New York Immigration Coalition v. U.S. Department of Commerce (2018-2019) – challenge to inclusion of citizenship question on 2020 census form; testifying expert on behalf of ACLU

U.S. v. City of Eastpointe (settled 2019) – minority vote dilution challenge to City of Eastpointe, Michigan, at-large city council election system; testifying expert on behalf of U.S. Department of Justice

Alabama NAACP v. State of Alabama (decided 2020) – minority vote dilution challenge to Alabama statewide judicial election system; testifying expert on behalf of Lawyers Committee for Civil Rights Under Law

Lopez v. Abbott (2017-2018) – minority vote dilution challenge to Texas statewide judicial election system; testifying expert on behalf of Lawyers Committee for Civil Rights Under Law

Personhuballuah v. Alcorn (2015-2017) – racial gerrymandering challenge to Virginia congressional districts; expert for the Attorney General and Governor of the State of Virginia

Perry v. Perez (2014) – Section 2 case challenging Texas congressional and state house districts; testifying expert for the U.S. Department of Justice

Jeffers v. Beebe (2012) – Arkansas state house districts; testifying expert for the Plaintiffs

State of Texas v. U.S. (2011-2012) – Section 5 case challenging Texas congressional and state house districts; testifying expert for the U.S. Department of Justice

In RE 2011 Redistricting Cases (2011-2012) – State legislative districts for State of Alaska; testifying expert for the Alaska Redistricting Board