

IN THE SUPREME COURT OF OHIO

**LEAGUE OF WOMEN VOTERS OF
OHIO, *et al.***

Petitioners,

v.

**OHIO REDISTRICTING COMMISSION,
*et al.***

Respondents.

Case No. 2021-1193

**Original Action Filed Pursuant to Ohio
Const., Art. XI and S. Ct. Prac. R. 14.03**

AFFIDAVIT OF WILLIAM S. COOPER



Cooper Affidavit.pdf

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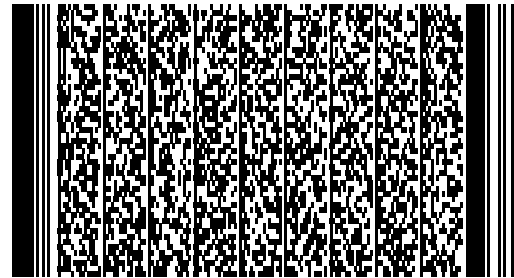
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E-Signature Summary

E-Signature 1: William S. Cooper (WC)
January 25, 2022 14:49:04 -8:00 [E3D21EB1D5A9] [76.77.164.153]
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E-Signature Notary: Theresa M Sabo (TMS)
January 25, 2022 14:49:04 -8:00 [71B2CBE6FE39] [96.27.183.41]
tess.sabo@gmail.com
I, Theresa M Sabo, did witness the participants named above electronically sign this document.



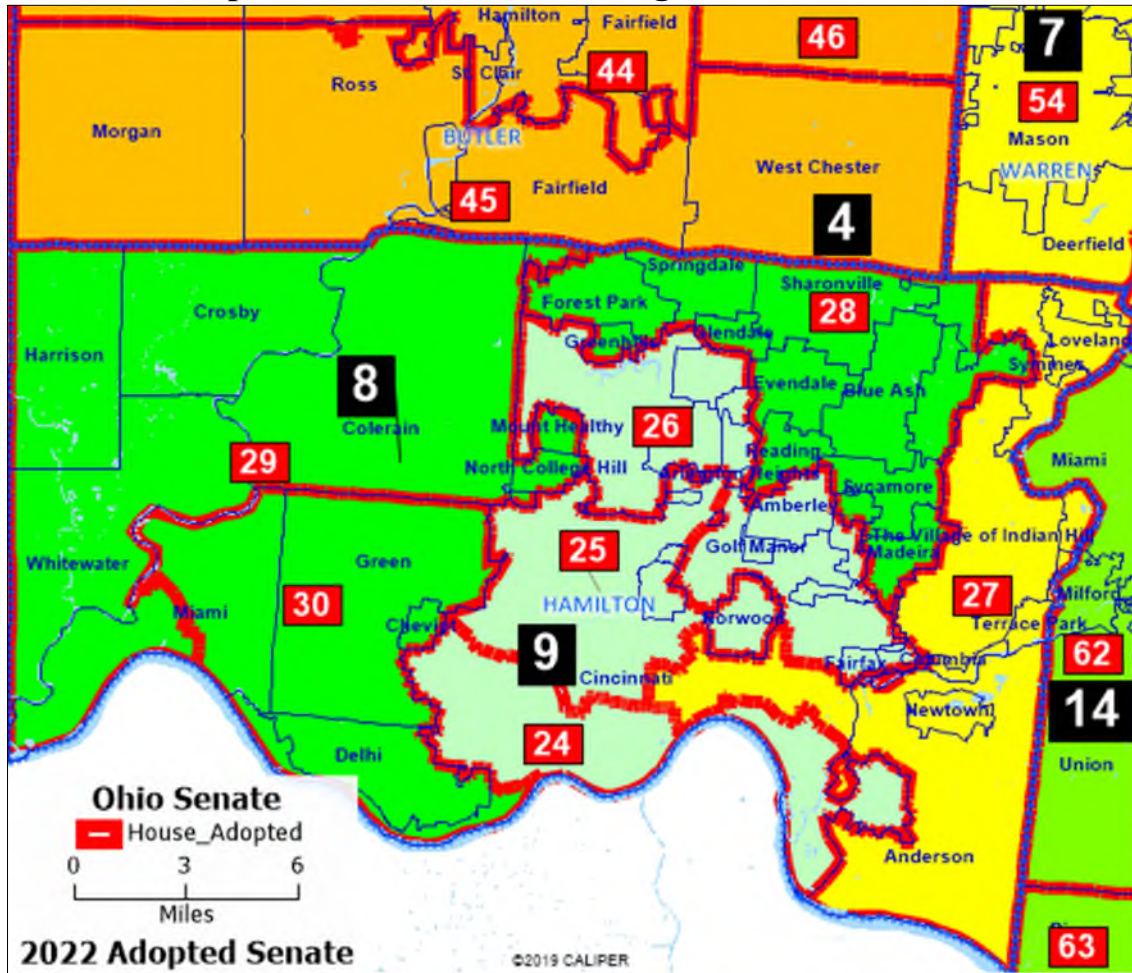
4. I file this affidavit to demonstrate that the partisan balance in the 2022 Adopted Senate Plan (“Adopted Senate”) can be improved by changing the Senate nesting assignments of two House districts in Hamilton County (HD 30 and HD 26), thereby creating an additional Democratic-leaning Senate district (Modified SD 8). Under the Adopted Senate Plan, Democratic voters are packed into SD 9 (72.6% Democratic vote share), leaving SD 8 with a Republican vote share of 59.55%.¹

5. **Figure 1** (Adopted Senate) and **Figure 2** (Modified Senate) illustrate the nesting changes to SD 8 and SD 9 (House districts -- red labels, red lines) in Hamilton County.

¹ These mean average figures are calculated from two-party head-to-head contests in the nine statewide elections held between 2016 and 2020.



Figure 1
Adopted Senate – Before Changes to SD 8 and SD 9

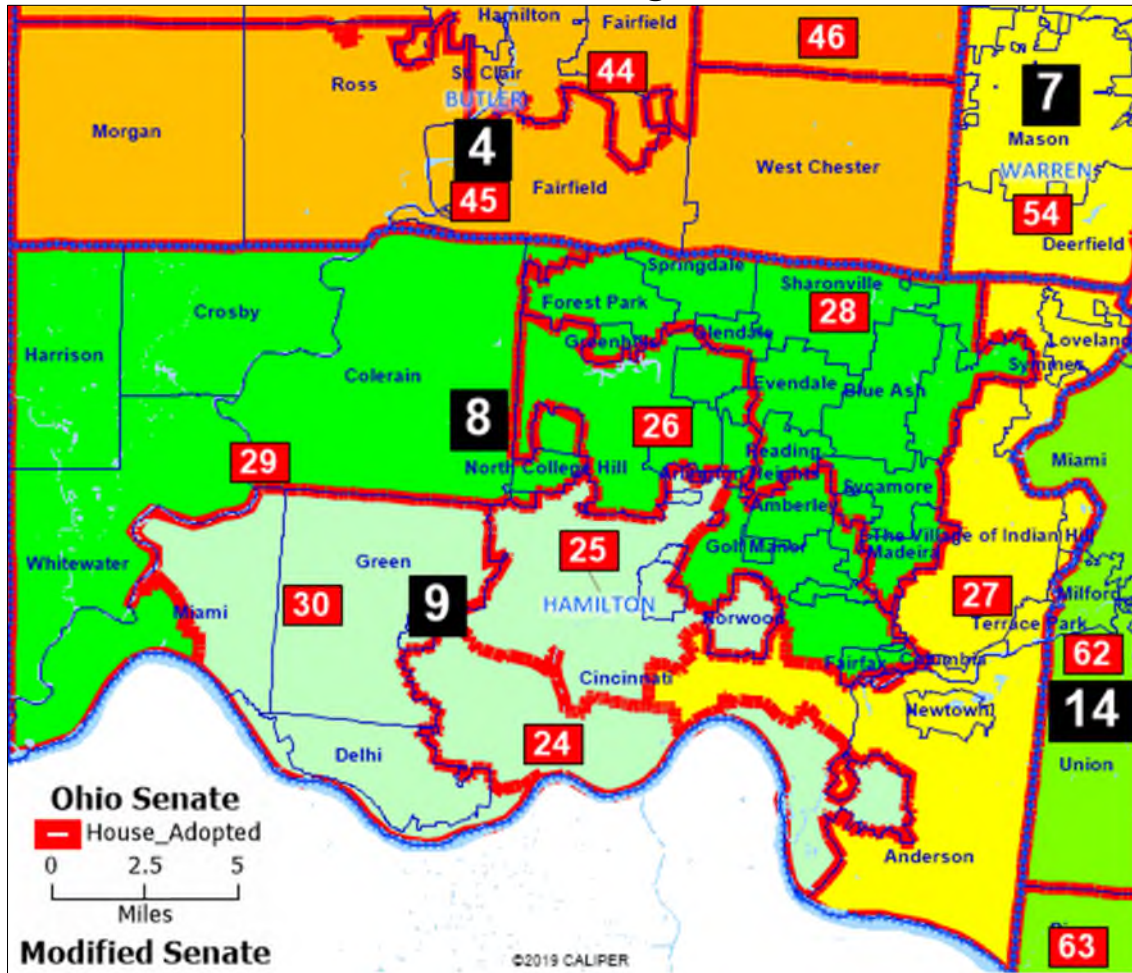


6. The modification to improve partisan balance is simple: Adopted HD 30 (with a 28.9% Democratic vote share) would shift into SD 9 from SD 8. HD 26 (with a 71.61% Democratic vote share) would shift into SD 8 from SD 9.
7. Following the revisions shown in **Figure 2**, SD 8 would have a 55.31% Democratic vote share and SD 9 would have a 55.35% Democratic vote share.

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Figure 2
Modified Senate– After Changes to SD 8 and SD 9



8. Modified SD 8 would have a deviation of -2.26% from the ideal district size of 357,559 persons. Modified SD 9 would have a deviation of -0.09%.

9. Modified Senate SD 8 and Modified SD 9 are compact and reasonably shaped. Both modified Senate districts are within the normal range of compactness as measured by the area-based Reock score², the perimeter-based Polsby- Popper

² “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



score³ , and the area-based Convex Hull score⁴ – three of the most widely-referenced measures of compactness. Higher scores indicate higher compactness.

10. Compactness metrics for the Modified Senate Plan are as follows :

Modified SD 8 (.32 Reock; .20 Polsby-Popper; and .66 Convex Hull)

Modified SD 9 (.30 Reock; .14 Polsby-Popper; and .67 Convex Hull)

11. By comparison, across the entire Adopted Senate plan, the minimum Reock score is .27, the minimum Polsby Popper score is .09, and the minimum Convex Hull score is .56. Adopted SD 9 has the lowest Polsby-Popper score (.09) of all 33 Senate districts.

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).

³ The Polsby-Popper test computes the ratio of the district area to the area of a circle with the same perimeter: $4pArea / (Perimeter^2)$. 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)

⁴ The Area/Convex Hull test computes the ratio the district area to the area of the convex hull of the district (minimum convex polygon which completely contains the district). The measure is always between 0 and 1, with 1 being the most compact. The Minimum Convex Polygon 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)



12. Compactness metrics for the Adopted Senate are as follows:

Adopted SD 8 (.34 Reock; .15 Polsby-Popper; and .66 Convex Hull)

Adopted SD 9 (.42 Reock; .09 Polsby-Popper; and .65 Convex Hull)

13. In my opinion, the modifications to SD 8 and SD 9 adhere to traditional redistricting principals, including one-person one-vote, contiguity, and compactness.

###

FURTHER AFFIANT SAYETH NAUGHT.

Executed on January 25, 2022

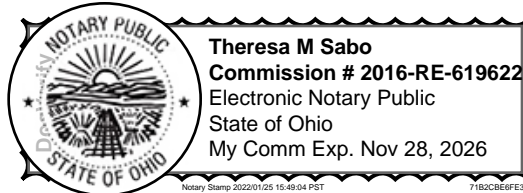
William S. Cooper
Signed on 2022/01/25 14:49:04 -8:00

William S. Cooper

Sworn to and subscribed before me this 25th day of January, 2022

Theresa M Sabo
Signed on 2022/01/25 14:49:04 -8:00

Notary Public



My commission expires

November 28, 2026

Notarial act performed by audio-visual communication

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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 2021, 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-2020 Redistricting Experience

Since the release of the 2020 Census in August 2021, I have served as a redistricting/re-precincting consultant to the San Juan County, Utah Commission. On December 21, 2021, the San Juan County Commission adopted a three-district commission plan that I developed. On January 4, 2022, the Commission adopted a five-district school board plan that I developed.

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.

On January 5, 2022, I testified at trial in the Northern District of Alabama in *Caster v. Merrill*, No. 21-cv-1536 (N.D. Ala.), on behalf of plaintiffs challenging Alabama's 2021 congressional plan under Section 2 of the Voting Rights Act. On January 24, 2022 a 3-judge panel ruled in favor of the plaintiffs.

2010s Redistricting Experience

I 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).

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*).

In 2016, two federal courts granted summary judgment to the plaintiffs based in part on my *Gingles I* 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.

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, 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 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

Caster v. Merrill (2022)
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)

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)

Texas

Jayla Allen v. Waller County, Texas

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. Mehfoud (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

Alpha Phi Alpha Fraternity et al. v Raffensberger (2022)
Pendergrass v. Raffensberger (2022)
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)
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

Baltimore County NAACP v. Baltimore County (2022)
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)

Virginia

Moon v. Beyer (1990)

Washington

Glatt v. City of Pasco (2016)
Montes v. City of Yakima (2014)

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CERTIFICATE OF SERVICE

I, Freda J. Levenson, hereby certify that on this 25th day of January, 2022, I caused a true and correct copy of the foregoing document to be served by email upon the counsel listed below:

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/s/ Freda J. Levenson
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