

**IN THE UNITED STATES DISTRICT COURT  
FOR THE MIDDLE DISTRICT OF LOUISIANA**

DR. DOROTHY NAIRNE, JARRETT  
LOFTON, REV. CLEE EARNEST LOWE,  
DR. ALICE WASHINGTON, STEVEN  
HARRIS, ALEXIS CALHOUN, BLACK  
VOTERS MATTER CAPACITY BUILDING  
INSTITUTE, and THE LOUISIANA STATE  
CONFERENCE OF THE NAACP,

*Plaintiffs,*

v.

R. KYLE ARDOIN, in his official capacity as  
Secretary of State of Louisiana,

*Defendant.*

CIVIL NO. 3:22-cv-00178

**REPLY DECLARATION OF WILLIAM S. COOPER**

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

## I. INTRODUCTION

1. My name is William S. Cooper. I serve as a demographic and redistricting expert for the Plaintiffs in the above-captioned case. I testified at trial in Baton Rouge on November 27, 2023 and November 28, 2023.

2. I submitted an affirmative declaration in this case on May 23, 2025, as well as a corrected version of that affirmative declaration (fixing a few minor errors) on May 30, 2025. When I refer to my “May 2025” declaration, I am referring to the corrected version. I submit this reply declaration in response to the June 13, 2025 rebuttal report filed by Dr. Michael Barber, an expert for the Defendants in this lawsuit.

3. The Remedial Plans adhere to traditional redistricting principles. The items below describe traditional redistricting principles that I considered as I drew the remedial plans. Redistricting plans should:

- Meet one person, one vote requirements: Election plans should stay within a +5% to -5% deviation range of the ideal district size.
- Maintain reasonably shaped districts that are contiguous and compact. There are various methods to quantitatively measure compactness. I have relied on two of the numerous methods that have been accepted by courts: Reock and Polsby Popper.
- Follow political subdivision boundaries where practicable, i.e. avoid splitting parishes and municipalities (sometimes subsumed under “communities of interest”).
- Preserve communities of interest. Communities of interest are groups of individuals who have similar legislative concerns.
- Avoid dilution of minority voting strength.

4. My commentary in **Section II** focuses on Dr. Barber’s misguided understanding of proportionality and regions, within the context of Louisiana’s population and geography. I also address Dr. Barber’s complete misrepresentation of the technique I use to draw a voting plan.

Lastly, I note that district boundaries for the proposed Remedial Plans are not cast in stone and can be readily modified on my end.

## II. ANALYSIS

### A. Proportionality

5. Dr. Barber and I have a different understanding of “proportionality.” With respect to electoral proportionality and demographics in Louisiana, Dr. Barber only considers one side of the equation – Black proportionality. Such a one-sided analysis is flawed.

6. In order to examine electoral proportionality in Louisiana, White proportionality must also be taken into account. According to the 2020 census, Black persons of voting age represent 31.25% of the overall voting age population, as compared to 58.31% of their White counterparts.

7. As revealed in **Figure 1**, with 14 majority-Black Senate districts and 25 majority-White Senate districts, the 4.65% proportionality advantage (or “surplus”) that Black voters have is exceeded by the 5.79% surplus for White voters. The bottom line result is a net deficit of minus 1.15% for Black voters vis-à-vis White voters.

8. With just 13 majority-Black Senate districts, Black voters would still record a 2.08% surplus, while White voters, holding 26 majority-White Senate districts, would see their surplus jump to 8.36%, yielding a net deficit of minus 6.27% for Black voters vis-à-vis White voters.

**Figure 1: State Senate: Voting Age Proportionality – Black vs. White**

**Black VAP=31.25% and NH White VAP=58.31%**

<b>Black Representation</b>	<b>Black VAP Surplus</b>	<b>Net Black Deficit vis-à- vis White</b>	<b>NH White Representation</b>	<b>White VAP Surplus</b>
---------------------------------	----------------------------------	---	------------------------------------	----------------------------------

14 of 39	35.90%	4.65%	-1.15%	25 of 39	64.10%	5.79%
13 of 39	33.33%	2.08%	-6.27%	26 of 39	66.67%	8.36%

9. As shown in **Figure 2**, the unequal proportionality pattern remains the same for the House. With 35 majority-Black House districts and 70 majority-White House districts, the 2.08% proportionality advantage (or “surplus”) that Black voters have is exceeded by the 8.36% surplus for White voters. The bottom line result is a net deficit of minus 6.27% for Black voters vis-à-vis White voters.

**Figure 2: State House: Voting Age Proportionality – Black vs. White**

**Black VAP=31.25% and NH White VAP=58.31%**

Black Representation		Black VAP Surplus	Net Black Deficit vis-à-vis White	NH White Representation		White VAP Surplus
35 of 105	33.33%	2.08%	-6.27%	70 of 105	66.67%	8.36%
34 of 105	32.38%	1.13%	-8.18%	71 of 105	67.62%	9.31%

10. With just 34 majority-Black House districts, Black voters would see their surplus shrink to 1.13%. White voters, holding 71 majority-White House districts, would see their surplus expand to 9.31%, yielding a net deficit of minus 8.1% for Black voters vis-à-vis White voters.

11. Of course, missing from the proportionality calculations in Figures 1 and 2, are voting age persons who have not self-identified as White or Black. Assuming that these voters could vote with Black voters (somewhere between a floor of 31.26% and a ceiling of 41.69%), such an alignment would net out with even greater non-White deficits vis-à-vis White voters than the deficits experienced by Black voters as a single category.

12. Nonetheless, should the Court disagree with my assessment of proportionality in Louisiana’s legislative plans, I have attached in the **Appendix** maps and metrics for an Alternative Senate Plan (13 majority-Black districts) and an Alternative House Plan (34 majority-Black House

districts). To facilitate direct comparisons with the Remedial Plans and Enacted Plans, I have adopted the same numbering scheme for the Alternative legislative plan exhibits after affixing an “AX” prefix.

**i. Alternative Senate**

**13.** The Alternative Senate Plan eliminates majority-Black SD 38 in Caddo Parish. Alternative majority-Black SD 38 in Caddo Parish is redrawn to follow the boundaries in Enacted SD 38.

**14.** There are no changes to the other majority-Black districts as drawn in the Remedial Senate. Changes to the majority-White Alternative Senate districts reflect ripple effects to meet one-person one-vote requirements and to avoid pairing incumbents.

**15.** On balance, there are no significant changes in compactness and political subdivision splits in the Alternative Senate as compared to the Remedial Senate.

**16.** **Exhibit AX-J-1** contains detailed 2020 population statistics by district for the Alternative Senate. The map in **Exhibit AX-J-2** is a statewide map of the Alternative Senate (best viewed or printed at 200%). **Exhibit AX-J-3** identifies parish-level population by district. **Exhibit AX-J-4a** identifies district splits by parish and **Exhibit AX-J-4b** identifies 2025 precinct splits. **Exhibit AX-J-5** identifies municipal splits by district.

**17.** Regional maps depicting the Alternative Senate (**Exhibit AX-J-6**) are organized by planning district (from PD-1 to PD-8). **Exhibit AX-J-7** contains maps in sequential order that zoom in on each of the 13 majority-Black Senate districts. MSAs are identified in all of the **Exhibit AX-J** series maps with bold black lines. Parish lines are shown with dotted grey lines. Red labels identify majority-Black districts.

18. District-by-district compactness scores generated by Maptitude for the Alternative Senate are in **Exhibit AX-K-2**.

19. To view all municipalities assigned by district in the Alternative Senate refer to **Exhibit AX-L-1**. To view the Alternative Senate district core components built from districts in the 2022 Senate refer to **Exhibit AX-L-2** – “Core Constituencies”.

20. The link below is a statewide interactive map depicting the Remedial Senate. The map is address-searchable. A red line overlay of the Alternative Senate can be clicked on and off via the legend in the top left corner of the map. A purple-line overlay depicting the 2022 Senate boundaries can also be clicked on and off.<sup>1</sup>

<https://online.caliper.com/mas-874-drp-290-ujr/maps/mc51a3m700ti3n3kkgnc>

## ii. Alternative House

21. The Alternative House Plan eliminates majority-Black Remedial HD 34 in Calcasieu Parish. Boundaries for Alternative majority-Black HD 38 in Calcasieu Parish must therefore change so that Calcasieu Parish is comprised of five whole districts (as in the Remedial House) rather than encompassing four split districts and three whole districts as drawn under the Enacted House.

22. There are no changes to the other majority-Black districts as drawn in the Remedial House. There are no changes to the majority-White Remedial House districts beyond those that are wholly contained in Calcasieu Parish.

23. On balance, there are no significant changes in compactness and political subdivision splits in the Alternative House as compared to the Remedial House.

---

<sup>1</sup> For additional population stats (parish and place), click anywhere on the map. Click on the column headings in the sidebar legend to view available population data at the clicked point. Satellite imagery can also be clicked on and off to the right above the map.

24. **Exhibit AX-N-1** contains detailed 2020 population statistics by district for the Alternative House. The map in **Exhibit AX-N-2** is a statewide map of the Illustrative House (best viewed or printed at 200%). **Exhibit AX-N-3** identifies parish-level population by district. **Exhibit AX-N-4a** identifies district splits by parish<sup>2</sup> and **Exhibit AX-N-4b** and by 2025 precinct.<sup>3</sup> **Exhibit AX-N-5** identifies municipal splits by district.<sup>4</sup>

25. Regional maps depicting the Alternative House Plan (**Exhibit AX-N-6**) are organized by planning district (from PD-1 to PD-8). **Exhibit AX-N-7** contains maps in sequential order that zoom in on each of the 34 majority-Black House districts. MSAs are identified in all of the **Exhibit AX-N** series maps with bold black lines. Parish lines are shown with dotted grey lines. Red labels identify majority-Black districts.

26. District-by-district compactness scores generated by Maptitude for the Alternative House are in **Exhibit AX-O-2**

27. To view all municipalities assigned by district in the Alternative House refer to **Exhibit AX-P-1**. To view the Alternative House district core components built from districts in the 2022 Senate refer to **Exhibit AX-P-2** – “Core Constituencies.”

28. The link below is a statewide interactive map depicting the Remedial House. The map is address-searchable. A red line overlay of the Alternative House can be clicked on and off

---

<sup>2</sup> Note that the parish split counts in the automated Maptitude reports can be misleading. For example, in both the Remedial House and Alternative House, as noted *infra*, Calcasieu Parish is comprised of five whole districts with zero splits. The Maptitude report assigns five splits to Calcasieu Parish to both plans when in fact there are no district splits. By contrast, in the Enacted House, Calcasieu Parish encompasses parts of four districts in addition to three whole districts.

<sup>3</sup> 2025 precinct splits are overstated because in some spots the 2025 precincts no longer follow 2020 Census geography, resulting in splits with zero population and 100% population.

<sup>4</sup> Note that the municipal split counts in the automated Maptitude reports can also be misleading. For example, the automated Maptitude report counts a municipality with a 0% split and a 100% split as two splits, when in fact, no population is involved and arguably there is no split – not two. For example, as shown in **Exhibit AX-N-4b**, there are 195 splits in the Alternative House but 16 involve no population and ten involve 100% of the population in the municipality.

via the legend in the top left corner of the map. A purple-line overlay depicting the 2022 House boundaries can also be clicked on and off.<sup>5</sup>

<https://online.caliper.com/mas-874-drp-290-ujr/maps/mc56dag800r15y5leois>

## **B. Regions**

29. Dr. Barber and I also have a different understanding on what constitutes a “region.” Dr. Barber’s regions are not how I define a region for my *Gingles I* analysis.

30. As detailed in my initial declaration presented at the November 2023 trial, for a regional perspective I relied on: (1) the Census Bureau’s MSA boundaries, (2) regional planning district boundaries established by the State legislature in 1956, and (3) more subjectively defined cultural regions, which include state-defined boundaries for Cajun Louisiana. In my May 2025 declaration, I also address the Remedial Plans’ adherence to the communities of interests outlined by Dr. Craig E. Colten in his expert reports prepared for this lawsuit.

31. As shown in the **Exhibit A** series, the Remedial Senate Plan contains the same number of regional splits (MSAs and Planning Districts) as the Enacted Senate. Likewise, as shown in the **Exhibit B** series, the Remedial House Plan contains about the same number of MSA and Planning District splits as the Enacted House.

## **C. Plan Drawing Technique**

32. Unlike Dr. Barber, I do not employ racial shading when developing an election plan. The detailed district-by-district analysis that Dr. Barber conducts with color-coded maps that break out racial demographics in 10 percentage point ranges at the precinct level is not something I use when drafting a plan.

---

<sup>5</sup> For additional population stats (parish and place), click anywhere on the map. Click on the column headings in the sidebar legend to view available population data at the clicked point. Satellite imagery can also be clicked on and off to the right above the map.



33. When I develop a plan, I see a statewide map overlaid with boundaries for defined multi-parish regions, along with county and municipal boundaries. On a zoomed-in granular level, I am looking at a map that places green dots over 30%+ Black precincts, with regions, parishes, municipal lines, and current legislative boundaries still in focus. There is no color-coding except for the districts in the plan that I am developing.

34. In addition, and always in the background when I develop a plan, I must consider the residences of incumbents and the residences of the plaintiffs. Often, as in this matter, I do not have complete contemporary information about where incumbents live.

35. To be sure, within a *Gingles* 1 context, a map drawer must combine adjacent and contiguous areas into a district that meets the 50%+1 *Gingles* threshold, while adhering to traditional redistricting principles. An illustrative plan in any *Gingles* lawsuit must by definition join together majority-minority precincts and/or other levels of majority-minority census-based geography. Dr. Barber's analysis seems to ignore the reality that combining majority-minority census geography is *sine qua non* in a *Gingles* I lawsuit.

36. A cursory glance at Figure 2 (Senate) and Figure 7 (House) in Dr. Barber's report illustrates why many enacted district boundaries change in the Remedial Plans. Within the context of *Gingles* I, vote dilution is all over the map. Ripple effects are inevitable. There is a constant trade-off between following enacted boundaries and minimizing jurisdictional splits.

37. **Exhibit C-1** breaks out compactness scores for the three additional Remedial Senate districts and **Exhibit C-2** does the same for the six Remedial House districts. The mean scores are in the same range as the mean scores for districts in the Enacted Senate and Enacted House.

**D. Potential Modifications to the Proposed Remedial Plans**

**38.** As a summary conclusion, Dr. Barber notes that the Remedial Plans modify 35 of the 39 (89.74%) Enacted Senate districts and 61 of the 105 (58.1%) Enacted House districts. That count is correct but it greatly overstates the impact on voters.

**39.** The proper way to examine district changes in a plan is to produce a core retention analysis. I define “core retention” as the largest district-level subset of a population that is kept together in the shift from one plan to another (without taking into account changes in district numbers or changes in incumbent representation).

**40.** As I explained in my May 2025 declaration, the core retention rate for the Remedial Senate Plan is 75.09% and 79.24% for the Remedial House Plan. By comparison, 80.2% of the State’s population was kept together in the redraw from the Benchmark 2011 Senate Plan to the Enacted Senate Plan. And 83.2% of the State’s population was kept together in the redraw from the Benchmark 2011 House Plan to the Enacted House Plan.

**41.** I am confident that I could improve the core retention rates in revised remedial plans. For example, I could return two north Louisiana Senate districts (SD 33 and SD 34) to their configurations under the Enacted Senate. I could also redraw HD 30 in Beauregard and Vernon Parishes to match its boundaries under the Enacted House, as well as HD 17 and HD 19 in the northeast Delta part of the State. These relatively minor adjustments and perhaps others would require no more than a day to complete.

###

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

Executed on: June 20, 2025

WILLIAM S COOPER