

Report on VRA Plaintiffs' Remedial Map

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1 Background

I am a Professor of Mathematics and a Senior Fellow in the Jonathan M. Tisch College of Civic Life at Tufts University. I have previously filed reports in this case. I prepared the Congressional districting plan shown in Figure 1 and labeled as the **VRA Plaintiffs' Remedial Map**.

In addition to materials already used in earlier stages of litigation, I received two new files from counsel: the block assignment file for a Congressional districting plan prepared by Bill Cooper for the Caster plaintiffs ("Cooper Illustrative Plan 2"), and a geocoded voter registration file of recent vintage ("Voter Registration Snapshot from 07/18/2023").

2 VRA Plaintiffs' Remedial Map

In developing the VRA Plaintiffs' Remedial Map, I used Mr. Cooper's Illustrative Plan 2 as a starting point. I then made changes to conform the districts as much as possible to the districts from the 2021 enacted map, while prioritizing the traditional districting principles of compactness, contiguity, county integrity, and One Person, One Vote.

- The VRA Plaintiffs' Remedial Map has *de minimis* population deviation of one person top-to-bottom. It is contiguous and is reasonably compact by standard metrics of compactness.
- According to calculations based on the Decennial Census figures, 82.2% of Alabama residents are assigned to the same-numbered district in the VRA Plaintiffs' Remedial Map as they would have been in the state's 2021 Enacted Plan, showing that it successfully maintains district cores overall.
- I was able to keep all 18 core Black Belt counties unsplit, and I placed them into two districts, CD 2 and CD 7, which I will refer to as the "Black Belt districts."
- I followed the split of Mobile County from the State Board of Education map as closely as possible.
- I was able to keep all named Milligan plaintiffs—who I understand live in Dothan, Montgomery, and Mobile—in the Black Belt districts.
- I left the northern districts (CD 4 and CD 5) exactly as in the 2021 Enacted Plan (HB-1), and I hewed as closely as possible to the 2021 plan in drawing the boundaries of CD 3, CD 6, and CD 7. The only significant changes relative to the 2021 plan are to the southern districts, CD 1 and CD 2.
- The VRA Plaintiffs' Remedial Map splits seven counties, which was necessary in order to uphold the criteria listed above. I note that it is possible to achieve many (but not all) of the same goals with six or even five split counties, as seen in "Plan D" from my report of Dec 10, 2021.

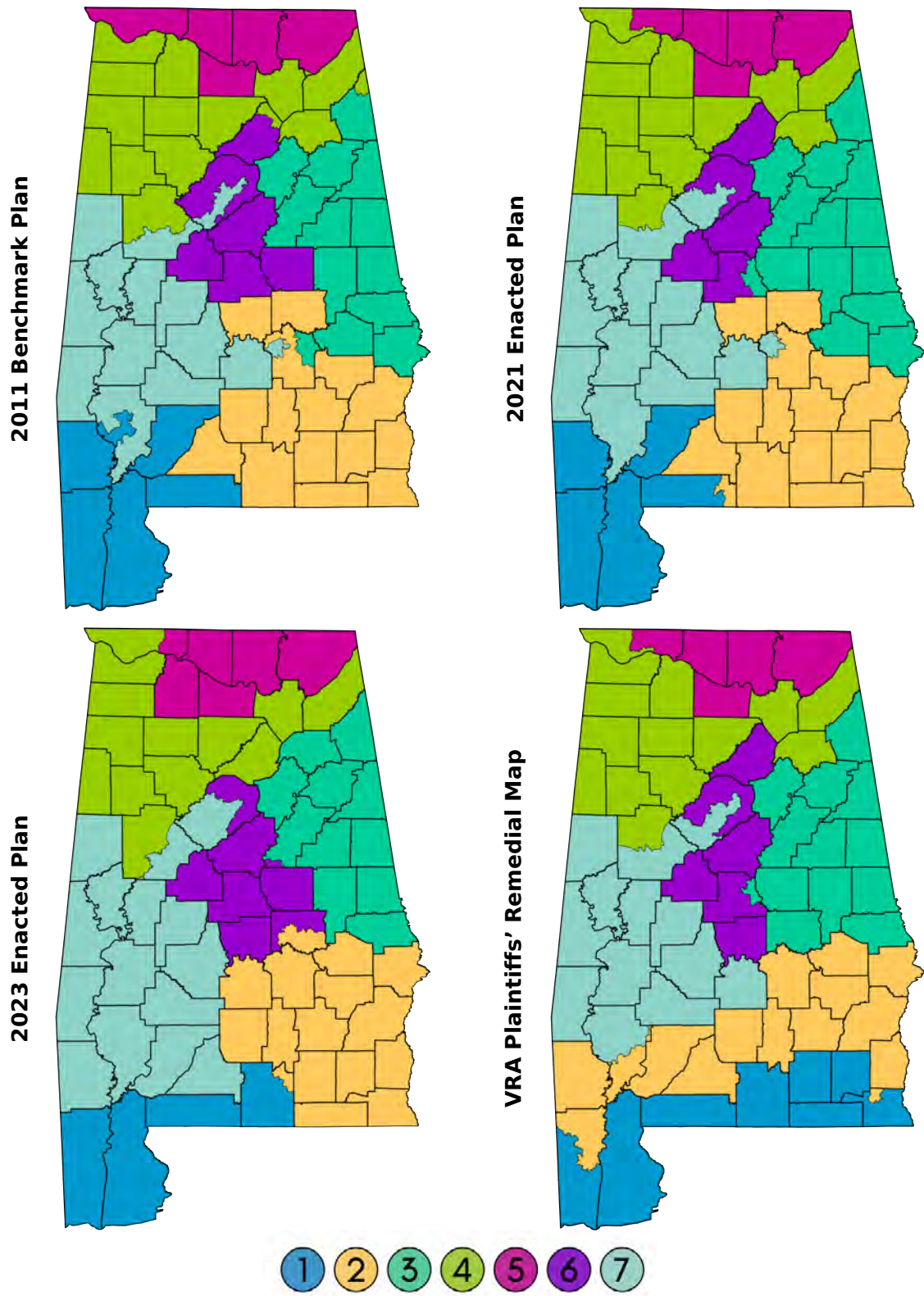


Figure 1: Comparison of Congressional plans.

3 Selected statistics

While minimizing change from the previously enacted map and scoring strongly on traditional districting principles, the VRA Plaintiffs' Remedial Map creates a new Congressional District 2 that is majority-Black by voting age population (VAP), by citizen voting age population (CVAP), and by active registered voters (ARPOP). To ascertain this, I used the same definition of Black VAP and CVAP from my initial reports in this case, and I used self-identification by Black registered voters in the voter file provided to me by counsel. An image showing the Black and White registered voters in this file is found in Figure 2 all demographic figures are found in Table 1

The 2023 Enacted Plan not only falls short of being majority-Black by any of the three measures, but in fact maintains a majority-White (not just plurality-White) character in all three. Self-identified White voters clear 55% of active registered voters in the new CD 2 from the state's enacted 2023 Plan.

BVAP	2021 Plan	2023 Plan	VRA Plan	WVAP	2021 Plan	2023 Plan	VRA Plan
1	25.61%	24.63%	14.92%	1	66.00%	67.08%	75.87%
2	30.12%	39.93%	50.08%	2	62.03%	52.50%	43.23%
3	24.99%	20.70%	21.56%	3	67.74%	71.76%	71.14%
4	7.70%	7.22%	7.70%	4	82.41%	82.83%	82.41%
5	18.06%	18.33%	18.06%	5	70.89%	70.27%	70.89%
6	18.93%	19.26%	14.13%	6	71.16%	71.65%	76.15%
7	55.26%	50.65%	54.50%	7	38.60%	42.70%	38.89%

BCVAP	2021 Plan	2023 Plan	VRA Plan	WCVAP	2021 Plan	2023 Plan	VRA Plan
1	25.77%	24.77%	14.96%	1	65.17%	66.25%	74.84%
2	30.49%	40.48%	50.76%	2	61.43%	51.78%	42.70%
3	25.21%	20.86%	21.75%	3	67.49%	71.65%	70.95%
4	7.70%	7.25%	7.70%	4	82.50%	82.63%	82.50%
5	18.23%	18.53%	18.23%	5	70.42%	69.78%	70.42%
6	19.33%	19.62%	14.36%	6	71.23%	71.88%	76.30%
7	56.34%	51.58%	55.60%	7	38.02%	42.31%	38.31%

BARPOP	2021 Plan	2023 Plan	VRA Plan	WARPOP	2021 Plan	2023 Plan	VRA Plan
1	25.30%	24.28%	14.39%	1	71.25%	72.33%	81.69%
2	30.11%	41.10%	52.18%	2	66.41%	55.34%	44.81%
3	23.83%	19.77%	20.28%	3	73.31%	77.45%	76.98%
4	7.36%	6.74%	7.36%	4	89.53%	90.06%	89.53%
5	16.97%	17.24%	16.97%	5	77.87%	77.55%	77.87%
6	18.79%	18.54%	13.28%	6	76.96%	77.65%	82.61%
7	60.11%	54.26%	59.31%	7	37.46%	42.87%	37.99%

Table 1: For Black and White residents of Alabama, these tables present voting age population (BVAP/WVAP), citizen voting age population (BCVAP/WCVAP), and active registered voters (BARPOP/WARPOP) as of July 18, 2023, as a share of the whole.

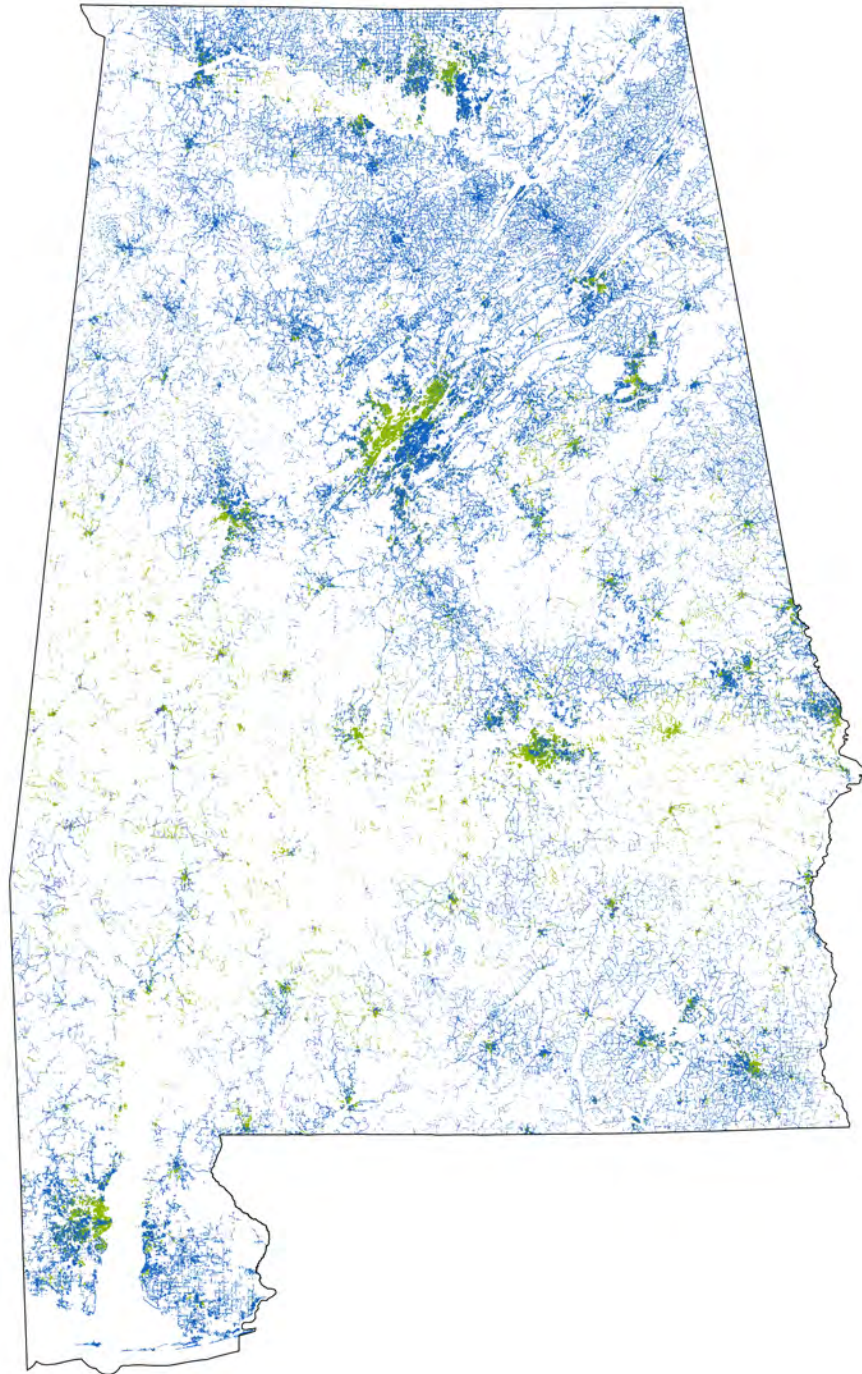


Figure 2: Address locations of registered voters from the July 18, 2023 voter file, with those self-identified as Black and those self-identified as White shown in green and blue, respectively.

4 Alabama's new guidelines

In the recent bill SB-5, Alabama lawmakers have asserted new redistricting guidelines which are significantly different from the previous guidelines that they replace. In §1(3)A-F, a list of criteria is presented as "traditional districting principles," subsequently described in the new bill as "non-negotiable for the Legislature" in creation of districting plans. These are as follows, paraphrased here for succinctness.

- A: Population balance.
- B: Contiguity.
- C: Reasonable compactness.
- D: Mathematically minimum number of county pieces.
- E: Keeping together three specific communities of interest. (See Figure 3)
- F: Zero incumbent pairings.

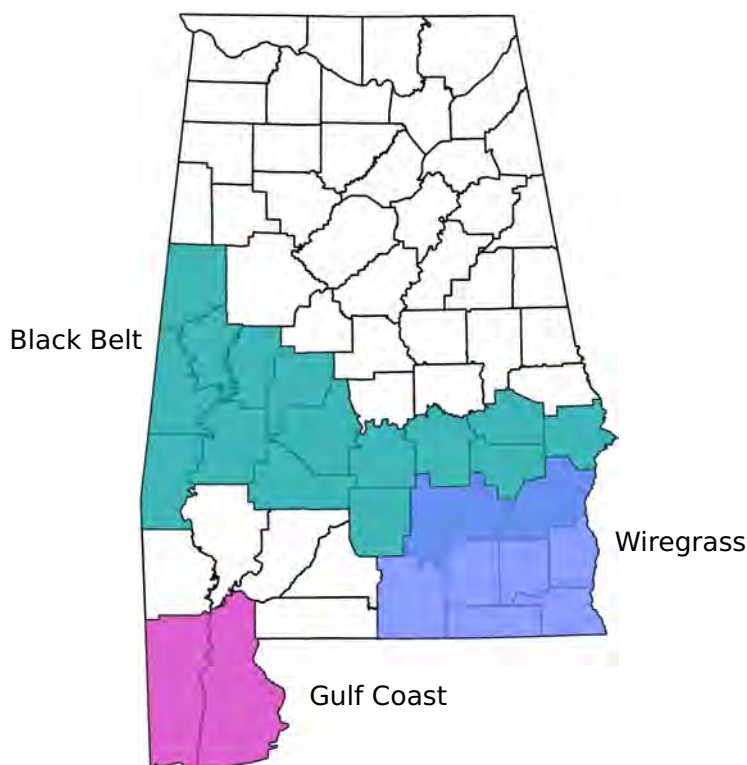


Figure 3: The three official COIs designated in SB-5. The "Black Belt" and "Wiregrass" county clusters overlap in three counties: Barbour, Pike, and Crenshaw.

Next, §1(3)G lists three lower-priority principles which are to be observed if consistent with A-F. These are:

- Core preservation.
- Minimize number of counties in each district.
- Minimize splits of "neighborhoods and other political subdivisions."

State-designated communities of interest

The new guidelines indicate that the three regions shown in Figure 3 should be held whole if possible, and if not, then "division into two districts is preferable to division into three or more districts" for each region. The VRA Plaintiffs' Remedial Map keeps the number of districts touching any designated region to a maximum of two.

Districts Touching State-Designated COIs

State COI	2021 Plan	2023 Plan	VRA Plan
Black Belt	2, 3, 7	2, 7	2, 7
Wiregrass	2	1, 2	1, 2
Gulf Coast	1	1	1, 2

When it comes to any notion of community or region that might be given in public testimony, the guidelines mention "neighborhoods and other political subdivisions" but do not provide a process for identifying them.

I will conclude with two observations about the state's new communities of interest guidelines.

1. The Gulf Coast county cluster has population 646,576, which is over 90% of the ideal Congressional district size of 717,754. That means that requiring these counties be kept together amounts to nearly prescribing a Congressional district in law. Insisting on keeping this area together is not reasonably described as traditional, as this area was split in Congressional plans before 1970 and in the 2021 State Board of Education plan.
2. The Black Belt COI has population 562,358, the Wiregrass has population 362,794, and they overlap. Together, their population is 853,726, greater than a Congressional district. This means that far from being traditional, it is in fact *mathematically impossible* to keep them both unsplit in a districting plan.

I reserve the right to continue to supplement my report in light of additional facts, testimony and/or materials that may come to light. Pursuant to 28 U.S.C. 1746, I declare under penalty of perjury of the laws of the United States that the foregoing is true and correct according to the best of my knowledge, information, and belief.

Executed this 11th day of September, 2023.

A handwritten signature in black ink, appearing to read 'Moon Duchin', is written above a horizontal line.

Moon Duchin