SUPREME COURT OF NORTH CAROLINA
****

REBECCA HARPER; et. al.,

                Plaintiffs,

vs.

REPRESENTATIVE DESTIN HALL,
in his official capacity as Chair of the
House Standing Committee on
Redistricting; *et al.*,

                Defendants,

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, INC.; *et al.*,

                Plaintiffs,

vs.

REPRESENTATIVE DESTIN HALL,
in his official capacity as Chair of the
House Standing Committee on
Redistricting; *et al.*,

                Defendants.

From Wake County

****
MOTION FOR TEMPORARY STAY AND PETITION FOR WRIT OF SUPERSEDEAS PENDING APPEAL
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Pursuant to Rules 8, 23, and 37 of our Appellate Rules, Representative Destin

Hall, in his official capacity as Chairman of the House Standing Committee on

Redistricting; Senators Ralph E. Hise, Jr., Warren Daniel, Paul Newton, in their

official capacities as Co-Chairmen of the Senate Committee on Redistricting and Elections; Philip E. Berger, in his official capacity as President Pro Tempore of the North Carolina Senate; Timothy K. Moore, in his official capacity as Speaker of the North Carolina House of Representatives (collectively, "Legislative Defendants"), request that this Court recognize the automatic appellate stay of enforcement associated with the appeal from that portion of trial court's final 23 February 2022 Order that rejected the General Assembly's Remedial Congressional Plan as enacted on 17 February 2022, and instead adopted a plan proposed by the Special Masters. Alternatively, Legislative Defendants request that this Court enter a temporary stay and writ of supersedeas regarding that portion of the trial court's 23 February 2022 Order rejecting the General Assembly's Remedial Congressional Plan as enacted on 17 February 2002, and instead adopting a plan proposed by the Special Masters on which to conduct the 2022 North Carolina congressional elections. Under N.C. Sess. Law 2022-3, the effect of this action would be to immediately restore the congressional plan enacted as a remedial plan in N.C. Sess. Law 2022-3. In support of this Motion, Legislative Defendants show the following:

Following this Court's order on 4 February 2022, the General Assembly set out to draw new congressional, state senate, and state house district maps to comply with it. The Court, in its Order highlighted "multiple reliable ways" of gauging partisanship, including "mean-median difference analysis, efficiency gap analysis, close-votes, close seats analysis, and partisan symmetry analysis. This Court noted that "[i]f *some* combination of these metrics demonstrates there is a significant

likelihood that the districting plan will give the voters of all political parties substantially equal opportunity to translate votes into seats across the plan, then the plan is presumptively constitutional." (4 February Order, ¶ 6.) The 2022 enacted plans—N.C. Sess. Law 2022-4 for the state House; N.C. Sess. Law 2022-2 for the state Senate; and N.C. Sess. Law 2022-3 for the Congressional map—fall well within a combination of metrics that this Court said were presumed to be constitutional; meaning that it created "partisan fairness instead of partisan advantage." *Harper v. Hall,* 2022 NCSC-17, ¶164.

Because the legislatively enacted maps should have been presumed constitutional, the trial court was not free simply to substitute its judgment for that of the Legislature. The trial court was not tasked to use retired judges and mathematicians to create the most fair map in all the land; rather, the trial court was tasked by this Court to adopt or approve a constitutionally compliant maps. Thus, the trial court went far beyond its charge in rejecting the Legislature's Remedial Constitutional map—the only map meeting Article I, Section 2 of our federal constitution—with the presumption of constitutionality and adopting a map of its own making. Accordingly, this Court should stay any implementation of the congressional map chosen by the trial court until this Court can review the decision of the trial court.

In its 4 February Order, this Court noted that any "emergency application for a stay pending appeal must be filed no later than 23 February 2022 at 5:00 p.m." Given that this Court's mandate from its Order and 14 February 2022 Opinion have

a mandate of 24 February 2022, this Court still maintains appellate jurisdiction rather than that of the Court of Appeals. Further, given that absent a stay, this Court has determined that the State Board of Elections should "anticipate that new districting plans . . . will be available by 23 February 2022 and are directed to take all necessary measures to ensure that the 17 May 2022 primary election and all subsequent elections occur as scheduled," there are "extraordinary circumstances [that] make it impracticable to obtain a stay by deposit of security or by application to the trial court for a stay order." *See* N.C. App. R. 8(a). Indeed, the State Board of Elections has already announced that candidate filing will open at 8:00 a.m. on 24 February 2022—on congressional district maps that neither the candidates nor voters even knew about twenty-four hours earlier.

Legislative Defendants' move this Court for temporary stay and petition this Court for a writ of supersedeas, pursuant to N.C. Appellate Rule 23(a), 23(e), and 37(a) to prohibit any implementation of the order of the trial court regarding the congressional map. *See* N.C. App. R. 23, 37. A petitioner may apply to the appellate courts for a writ of supersedeas in the first instance "if extraordinary circumstances make it impracticable to obtain a stay . . . by application to the trial tribunal for a stay order." N.C. R. App. P. 23(a); *see also* N.C. R. App. P. 8(a).

This Court has held that "[t]he writ of supersedeas may issue in the exercise of, and as ancillary to, the revising power of an appellate court," and the writ's purpose "is to preserve the status quo pending the exercise of appellate jurisdiction." *Craver v. Craver*, 298 N.C. 231, 237-38, 258 S.E.2d 357, 362 (1979); *see also City of*

New Bern v. Walker, 255 N.C. 355, 121 S.E.2d 544, 545-46 (1961). Here, the status quo to be preserved is the status quo in effect immediately prior to entry of the trial court's judgment and order. That status was that no election would proceed without a legislatively enacted, constitutional plan, and did not include an election cycle picking up and carrying forward on a plan chosen by the trial court in an unprecedented review of first-ever announced criteria. Based on the gravity of the decision to impose congressional districts drawn by unelected individuals and out-of-state political scientists on the 7.2 million plus voters of North Carolina, this Court should enter a temporary stay and writ of supersedeas so that this state's highest court can review these maps.

I. THE TRIAL COURT ERRED BY FAILING TO GIVE THE LEGISLATIVELY ENACTED MAPS THE DEFERENCE AFFORDED UNDER THE CONSTITUTION.

The trial court had before it three acts of the General Assembly. Like the trial court, this Court must presume them to be constitutional. *Wayne Cnty. Citizens Ass'n for Better Tax Control v. Wayne Cnty. Bd. of Comm'rs*, 328 N.C. 24, 399 S.E.2d 311, 315 (1991). *See also* Trial Court Order 11 January 2022, COL ¶21[1] ("The Constitution is a restriction of powers and those powers not surrendered are reserved to the people to be exercised through their representatives in the General Assembly; therefore so long as an act is not forbidden, the wisdom and expediency of the enactment is a

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[1] Throughout this Memorandum, Legislative Defendants' will cite to specific Conclusions of Law (COL) or Findings of Fact (FOF) from the Trial Court's 11 January 2022 Order. The North Carolina Supreme Court held that the trial court's findings were not clearly erroneous and adopted them in full. *Harper v. Hall*, 2022-NCSC-17, ¶2 (Feb. 4, 2022).

legislative, not a judicial decision"); COL ¶23 ("Declaring as unconstitutional, an act of the branch of government that represents the people is a task that is not taken lightly. There is a strong presumption that enactments of the General Assembly are constitutional."). That presumption applies in full force, even though the acts were enacted to remedy prior redistricting acts the Court invalidated. *See Abbott v. Perez*, 138 S. Ct. 2305, 2324–25 (2018).

The trial court's role, and this Court's review, is limited to assessing the acts' compliance with legal standards and efficacy in remedying the supposed legal violations. *See Stephenson v. Bartlett*, 357 N.C. 301, 314, 582 S.E.2d 247, 254 (2003). Courts are bound to "follow the policies and preferences" of the General Assembly, without clear proof of a legal violation. *White v. Weiser*, 412 U.S. 783, 795 (1973). Courts are not to engage in policy-making by comparing the enacted maps with others that Plaintiffs opine might be "more fair" or "optimized" in some manner. "[S]o long as an act is not forbidden, the wisdom and expediency of the enactment [even as compared to other possible outcomes] is a legislative, not a judicial, decision." *Wayne County*, 328 N.C. at 29, 399 S.E.2d at 315. The trial court lost sight of this manifestation of the separation of powers concerning judicial review; its role was not to substitute its view of the best way to redistrict or the best map, but to ensure compliance with legal principles. As explained below, the legality of the proposed Remedial Congressional plan should have been upheld.

A. *The Remedial Process*

Consistent with the General Assembly's broad discretionary powers to create legislative districts, the General Assembly altered the base maps to comply with this Court's Order to make the remedial plans perform well on the metrics endorsed by the North Carolina Supreme Court. Other changes were made to preserve communities of interest or incumbency and to maintain respect for neutral criteria, such as reducing split VTDs.

First, to minimize objections of using a new compass on a bad map, the Senate Redistricting Committee, which first drafted the ultimately passed Congressional plan, started with a blank slate. Second, each chamber proceeded to draw new districts and make adjustments tailored to legitimate criteria and with the goal of creating districts throughout the state to comply with this Court's order of 4 February 2022 at Paragraphs 4-6 and the Opinion of 14 February 2022. (*See* 23 February Order, ¶ 13.) As understood by the General Assembly, this required the use of partisan election data. To achieve this task, the General Assembly loaded partisan election data into Maptitude to view the projected effect on partisanship that resulted from changes to district lines. An explanation of how this done was submitted to the trial court in an Affidavit from Central Staff Member, Raleigh Myers. The General Assembly chose to rely on Plaintiffs' expert Dr. Mattingly and chose the set of 12 elections Dr. Mattingly used to analyze the previously Enacted Plans' county groups,

which were also approved by this Court.[2] The trial court specifically found that these elections were appropriately used in the partisan calculations. (23 February Order, ¶ 14-15.)

The General Assembly primarily relied upon the Mean-Median and the Efficiency Gap tests. These mathematical tests were chosen because they have been peer-reviewed in numerous articles by numerous scholars, and because there is some (but not uniform) agreement among scholars regarding thresholds for measuring partisanship.[3] For example it is widely considered by academics that a mean- median as close to zero as possible, but under .01/-.01 is "presumptively constitutional." *See Harper v. Hall,* 2022 NCSC-17 ¶166. On the efficiency gap, scholars including NCLCV's Dr. Duchin have opined that anything below a -.08 is presumptively legal[4]

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[2] See FOF ¶¶ 2, 39 for discussion of these elections and methodology. The elections used by Dr. Mattingly were Lt. Gov 2016, President 2016, Commissioner of Agriculture 2020, Treasurer 2020, Lt. Gov. 2020, US Senate 2020, Commissioner of Labor 2020, President 2020, Attorney General 2020, Auditor 2020, Secretary of State 2020, Governor 2020.

[3] This Court also referenced a "close-votes, close-seats" analysis in its Opinion, allegedly performed by Dr. Duchin in this case. This methodology appears to be something performed only by Dr. Duchin and has not been subjected to the type of repetitive peer review as the other methodologies. In fact, a search of Westlaw reveals only this Court's opinion referencing this test, a Google search reveals no scholarly articles, nor does a search of HeinOnline, reveal any scholarly literature. In contrast, a search for "efficiency gap" produces 439 hits on HeinOnline. The same search produces 22 case citations in Westlaw and 268 hits for Secondary Sources, as well as numerous hits and scholarly work on Google. Despite this lack of peer review, Dr. Barber, has attempted to recreate Dr. Duchin's methodology in his new report on the Remedial plans. As the Court can see, the remedial plans are comply under this metric as well. (App. 33-36, 43-56)

[4] *See* DeFord and Duchin, *Redistricting Reform in Virginia: Districting Criteria in Context,* Virginia Policy Review, Volume XII, Issue II, Spring 2019,

while Dr. Jackman, used as an expert in *Gill v. Whitford*, and *Common Cause v. Rucho*, opined that anything below -.07 was constitutional. This Court adopted Dr. Jackman's threshold. *Id.* at ¶167.

Despite using Maptitude to assist the General Assembly in drawing the congressional plans with the same elections and partisan data approved by the trial court, the trial court held "that the Remedial Congressional Plan is not satisfactorily within the statistical ranges set forth in the Supreme Court's full opinion. *See Harper v. Hal*l, 2022-NCSC-17, ¶ 166 (mean-median difference of 1% or less) and ¶ 167 (efficiency gap of less than 7%)." (23 February Order, ¶ 34.) However, according to the reports prepared for the General Assembly, the Remedial Congressional plan scored well-within the Court's guidance presumptively constitutional districts, with an efficiency gap score of -5.29% and a mean-median Score of -.61%.

B. *The Congressional Remedial Plan*

In order to comply with the North Carolina Supreme Court's Order, the Senate chose to abandon the previously enacted plan given the findings that there were statewide issues with the previously enacted Congressional plan. Like the legislative maps, the Remedial Congressional plan, SB 745, began from a blank slate. The Senate Committee complied with the August 12th Joint Adopted Criteria, unless those criteria conflicted with the Orders in this case. Importantly, the Senate strove to achieve efficiency gap and mean-median scores within the range suggested by the

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https://mggg.org/VA-criteria.pdf p. 14 ("the authors present *EG=0* as ideal, while proposing a magnitude of over .08 as part of a legal test for detecting gerrymanders.").

North Carolina Supreme Court. Incumbency was considered, and no incumbents were double bunked, but not at the expense of drawing compact and compliant districts.

On the morning of February 17, 2022, the Senate Committee on Redistricting and Elections convened to discuss a proposed Congressional plan. Senator Daniel introduced the proposed plan, and confirmed it was drawn to comply with the North Carolina Supreme Court's order. Senator Daniel testified that the map contains 4 districts that he believed would be some of the most highly competitive in the country. In support of this assertion Senator Daniel pointed out that redistricting expert Dave Wasserman reported that only 19 congressional districts have been drawn in the country with a 2020 presidential election difference of less than 5%. Senator Daniel also stated that the proposed Congressional plan complied with the North Carolina Supreme Court's guidance on the efficiency gap and the mean-median tests.

Senator Daniel then explained the rational for drawing each Congressional district as follows:

- District 1. District 1 remained a district that is rooted in mostly rural counties in Northeastern North Carolina. Senator Daniel testified that the General Assembly had consistently been told during this process that it is important to keep the counties forming the belt along the northern border of the state together, and that District 1 adhered to that. There is no incumbent in this district as Representative Butterfield has announced his intention to retire.

- District 2. District 2 was drawn wholly within Wake County adhering to the original criteria. Unlike the previously enacted map, Senator Daniel pointed out that Wake County was split only once in the proposed map. Senator Daniel also testified that District 2 has a single incumbent in it and she has announced her intention to seek re-election this year.

- District 3. District 3 was drawn to take create a district with much of eastern North Carolina as possible, including the majority of the state's coastline and counties with close proximity to the coast. Senator Daniel testified that district 3 contains one incumbent.

- District 4. District 4 was drawn to contain all of Caswell, Durham, Orange and Person counties and most of Alamance County and Granville County. Senator Daniel testified that this district configuration formed a highly compact district in the northern central counties in the state.

- District 5. District 5 is based in the northwestern corner of North Carolina and is made up of six whole counties. Those counties are Alleghany, Ashe, Forsyth, Stokes, Surry, Watauga and Wilkes. Most of Rockingham County and a portion of Yadkin County make up the rest of the district. Senator Daniel testified that there is only one incumbent in the district.

- District 6. District 6 was drawn to contain all of Chatham, Harnett, Lee and Randolph counties. District 6 also contains most of Guilford County and parts of Alamance and Rockingham counties. Senator Daniel testified that this district contains one incumbent and will be one of the most politically competitive Congressional districts in the country.

- District 7. District 7 was drawn to be based in southeastern NC to contain the rural counties south of Harnett County and to join them to the remaining coastal counties. Proposed District 7 all of Bladen, Brunswick, Cumberland and New Hanover counties and a portion of Columbus County. Senator Daniel testified that this district contains one incumbent and will also be one of the most politically competitive Congressional districts in the country.

- District 8. District 8 was drawn to mostly contain the counties and cities located between the Triad and Charlotte. It contains all of Cabarrus County and portions of Davidson, Rowan and Guilford counties. Senator Daniel testified that this district is home to one incumbent.

- District 9. District 9 was drawn to contain 9 whole counties: Anson, Hoke, Montgomery, Moore, Richmond, Robeson, Scotland, Stanly and Union counties. District 9 also contains portions of Columbus and Davidson counties. Senator Daniel testified that there are no incumbents in this district.

- District 10. District 10 is district based in western North Carolina stretching from Forsyth County west into the mountains. It keeps 8 counties whole (Alexander, Avery, Burke, Caldwell, Catawba, Davie, Iredell and Lincoln). It also contains parts of McDowell, Rowan and Yadkin counties. Senator Daniel testified that there is one incumbent in the district.

- District 11. District 11 was drawn to be a district based on North Carolina mountains. It contains the whole of the 14 westernmost counties in NC. It also contains parts of McDowell and Rutherford counties. Senator Daniel testified that there is one incumbent currently living in the district.

- District 12. District 12 was drawn to contain the northeastern section of Mecklenburg County, including the majority of Charlotte. Senator Daniel testified that the areas in and around Charlotte are too large to be wholly contained in one Congressional district, and therefore had to be split. Unlike the previously enacted plan, Senator Daniel testified that Mecklenburg County is split only one way in this map. Senator Daniel also testified that there is currently one incumbent living in District 12.

- District 13. District 13 was drawn as the new, open seat created as a result of North Carolina receiving an additional seat in Congress as a result of the 2020 Census. This district contains all of Duplin, Johnston, and Sampson counties and parts of Wake and Wayne counties. Senator Daniel testified that he believed this will be one of the most highly competitive Congressional districts in the country.

- District 14. District 14 was drawn to contain the remainder of Mecklenburg County and stretch west across the southern edge of the state into Rutherford County taking in all of Cleveland and Gaston counties. It is a compact district with only one incumbent. Senator Daniel also expressed his opinion that District 14 would among the most politically competitive Congressional districts anywhere in the United States.

When asked about the 15 splits in the proposed Remedial Plan, Senator Daniel stated that the additional split was necessary to comply with the Court's order on partisanship metrics. The plan proposed by Senator Daniel passed the Senate Committee on Redistricting and Elections. Later on 17 February 2022, this plan was proposed to the full Senate. Ultimately, the Senate passed SB 745, and it was enacted after the House passed the Remedial Congressional plan later that day.

The Remedial Congressional plan scored well-within the Court's guidance presumptively constitutional districts, with an efficiency gap score of -5.29% and a

mean-median Score of -.61%. In addition, there is perhaps no more competitive

congressional plan in the nation than the one offered here. For these reasons, and

others shown in the legislative debates and materials submitted to the trial court, the

Congressional Remedial plan should have been upheld.

C. The Remedial Results

Pursuant to this Court's Order, the General Assembly scored the remedial

plans using the efficiency gap and mean-median tests. As discussed above, these two

tests were chosen, in part, because of the volume of peer reviewed material on the

subject. On 14 February 2022 this Court issued suggested thresholds for these two

tests, opining that experts on the efficiency gap often used 7% as a threshold for

determining whether plans favor one party or another. *Harper v. Hall*, 2022-NCSC-

17, ¶167. This Court also determined that a mean-median difference of 1% or less

would indicate a plan is presumptively constitutional. *Id*. at ¶166. The Court also

mentioned partisan symmetry analysis and a "close-votes, close-seats analysis" but

did not provide guidance on presumptively constitutional thresholds for these

metrics.

Legislative Defendants' expert, Dr. Michael Barber, has conducted a mean-

median analysis, an efficiency gap analysis, and a partisan symmetry analysis of each

of the remedial plans. Specifically, Dr. Barber's mean-median analysis of the

remedial Congressional plan resulted in a mean-median of -.61%. This is less than

the 1% threshold standard cited in this Court's opinion, meaning that the mean-

median analysis indicates that the plan is presumptively constitutional. *Harper v.*

Hall, 2022-NCSC-17, ¶166. Likewise, Dr. Barber's efficiency gap analysis of the remedial Congressional plan found an efficiency gap score of -5.29%. This is less than the 7% threshold, meaning that the efficiency gap analysis indicates that the plan is presumptively constitutional. *Harper v. Hall*, 2022-NCSC-17, ¶167 (Feb. 14, 2022). Additionally, Dr. Barber's partisan symmetry analysis of the remedial Congressional plan shows a small vote bias for 50% of the seats of .6%. This means that if Democrats win 50.6% of the state-wide vote they would win 50% of the Congressional seats. Dr. Barber opines that this means the map is responsive and symmetric. Accordingly, a combination of the metrics identified by the North Carolina Supreme Court demonstrates that the remedial Congressional plan is constitutional.

Neither the trial court's order or the Special Master Report, attached thereto, demonstrate how the mean median and efficiency gap, as calculated by Maptitude and Dr. Barber, is different than that calculated by the Special Masters. The Special Masters' Report even notes that "[t]here is disagreement among the parties as to whether the proposed remedial congressional plan meets the presumptively constitutional thresholds suggested by the Supreme Court." While this may be due to potentially using different programs—like Dave's Redistricting versus Maptitude—or a dispute about different ways to calculate the mean median and efficiency gap, apparently the disagreement is of constitutional importance and the reason why the General Assembly's map was rejected. This Court must weigh in and protect our constitutional rights against an apparent razor's edge of commercial application selection or expert witness disagreement.

This Court remanded the case for the trial court "to oversee the redrawing of the maps by the General Assembly or, *if necessary*, by the court." *Harper v. Hall*, 2022-NCSC-17, ¶ 223 (emphasis added). In its prior Order this Court also noted that the General Assembly had the option to submit constitutionally compliant maps—a task it successfully undertook. Therefore, it was not necessary for the Court to approve plans other than the General Assembly's; the issue was only whether the legislatively enacted maps were constitutional. *See McGhee*, 860 F.2d at 115 ("If the remedial plan meets those standards, a reviewing court must then accord great deference to legislative judgments about the exact nature and scope of the proposed remedy, reflecting as it will a variety of political judgments about the dynamics of an overall electoral process[.]" (quotation omitted)).; *Hart v. State*, 368 N.C. 122, 126, 774 S.E.2d 281, 284 (2015). The United States Supreme Court recognized this principle in *Bush v. Vera*, 517 U.S. 952, 977 (1996) (plurality), by holding that constitutional districts drawn meeting traditional redistricting criteria "may pass strict scrutiny without having to defeat rival compact districts designed by Plaintiffs' Experts in endless 'beauty contests.'" The trial court erred in going beyond the legislatively enacted remedial plans and drafting a congressional plan of its own. This Court should stay the enforcement of that errant decision to protect against further, unwarranted violation of the separation of powers—a right also deemed fundamental to the people of North Carolina.

II.   THE SPECIAL MASTER'S FINDINGS REGARDING MEAN-MEDIAN AND
       EFFICIENCY GAP ARE CLEARLY ERRONEOUS.

The Special Masters' findings regarding the mean-median and efficiency gap

scores are grossly deficient and clearly erroneous. *See State v. Reed*, 373 N.C. 498,

507, 838 S.E.2d 414, 421 (2020) (the trial court's factual findings are reviewed for

clear error). (FOF ¶ 57).

While the assistants to the Special Masters disclose that they used "Dave's

redistricting" to calculate scores for mean-median and efficiency gap, they do not say

whether they looked at other sources besides the reports filed by the parties' experts.

It would be error for fact-finders to consider information other than the evidence in

the record as the parties have had no opportunity to evaluate or cross examine the

assistants on why they selected other sources. Nor have the assistants or the Special

Masters produced their actual scores referenced by them to determine whether the

2022 congressional map failed to comply with the parameters established by the

Supreme Court. The Superior Court's lack of transparency regarding the alleged

congressional calculations makes it impossible for the General Assembly to

investigate the Special Masters' findings.

Next, as explained by Legislative Defendants' expert Dr. Michael Barber, there

are numerous ways to calculate the efficiency gap and endless possibilities for the

election sets used to calculate it. (Dr. Barber Report on Remedial Districts, App. 43–

45). There is no consensus on the best way to make efficiency gap calculations and

no court, including the North Carolina Supreme Court, has identified the required

method. Nor is there a consensus on the underlying election sets that should be used.

The ability of experts to choose different methods for calculating the efficiency gap that suits their purposes was demonstrated by NCLCV Plaintiffs' expert Dr. Moon Duchin, who used two different methods within her same report. Certainly, the North Carolina Supreme Court did not advise the General Assembly on the required elections sets, but it did affirm the original findings of fact of the superior court that relied almost exclusively on a 12-election ensemble used by Dr. Mattingly (the "Mattingly 12"). In making its factual findings, the superior court failed to reference any other elections set. How exactly was the General Assembly to discern which election sets should be used to calculate efficiency gap and mean-median or guess which election sets would be adopted by assistants to the Special Masters whom Legislative Defendants have had no opportunity to depose?

There is also no consensus concerning the election sets that should be used to calculate mean-median. As demonstrated by the expert reports in this case, like the elections adopted by an expert as proxies for the efficiency gap, the ultimate score under mean-median can be intentionally manipulated by the expert by testing different election sets until he or she gets the result desired by their clients. Out of endless possibilities of election sets, the General Assembly used the 12-election set offered by Dr. Mattingly and relied upon the Superior Court in its original decision.

Finally, the General Assembly uses the Maptitude program to draw and evaluate maps. This is a national vendor whose programs are used by legislatures throughout the country. The efficiency gap and mean-median scores calculated by Matitude for the 2022 remedial congressional plan essentially match the calculations

by Dr. Barber and do not exceed the parameters set by the Supreme Court. (Compare App. 43-45 to 82, 83). If the General Assembly's software, provided by a national vendor whose program is regularly used by many other state legislatures, that it used reported that the remedial congressional map met the parameters for efficiency gap and mean-median, how can the findings on alleged illegal partisan intent by the North Carolina Constitution, not be clearly erroneous. Moreover, how can the Superior Court's findings on discriminatory effect also fail the clearly erroneous test when the Maptitude program confirms there is no discriminatory effect.

The trial court's holding exemplifies the problems resulting for the ambiguous standards set the North Carolina Supreme Court. In particular, the Court did not provide guidance on either the correct methods for calculating efficiency gap or mean-median or the correct election sets that must be used. Nor did it require that results from multiple election sets be averaged, or that discretion was possible regarding which method and which elections. The decision by the Superior Court exemplifies how these mathematical tests can be manipulated to obtained the desired results of the map drawer. Under the Supreme Court's first decision in this case, the black box map for Congress now imposed on the people of North Carolina violates voters constitutional rights in a far more egregious manner than any map drawn to date by the General Assembly.

III.   THE TRIAL COURT'S ADOPTED CONGRESSIONAL PLAN VIOLATES THE FEDERAL CONSTITUTION

The trial court's 23 February 2022 Order states that the General Assembly failed to propose a constitutionally compliant congressional map as the basis for then the trial court selecting one of its own. This was erroneous.

In selecting its own remedial congressional map the trial court is likely violating federal law. The *federal* Constitution provides that the North Carolina General Assembly is responsible for establishing congressional districts.   "The Framers addressed the election of Representatives to Congress in the Elections Clause." *Rucho v. Common Cause*, 139 S. Ct. 2484, 2495 (2019). It provides that "[t]he Times, Places and Manner" of congressional elections "shall be prescribed in each State by the Legislature thereof" unless "Congress" should "make or alter such Regulations." U.S. Const. art. I, § 4, cl. 1. The Elections Clause harbors no ambiguity; the word "Legislature" was "not one 'of uncertain meaning when incorporated into the Constitution.'" *Smiley v. Holm*, 285 U.S. 355, 365 (1932) (quoting *Hawke v. Smith*, 253 U.S. 221, 227 (1920)). Here, it refers undisputedly to the General Assembly, not the North Carolina courts.

Thus, "[t]he only provision in the Constitution that specifically addresses" politics in congressional redistricting plans "assigns [the matter] to the political branches," not to judges. *Rucho*, 139 S. Ct. at 2506. What's more, the Elections Clause is the *sole* source of state authority over congressional elections; regulating elections to federal office is not an inherent state power. *Cook v. Gralike*, 531 U.S. 510, 522 (2001); *U.S. Term Limits, Inc. v. Thornton*, 514 U.S. 779, 805 (1995). Thus, for a court

applying state law to have any authority to address Plaintiffs' claims, it must derive from the Elections Clause. Any other exercise of power is *ultra vires* as a matter of federal law.

This case is in all material respects like *Carson v. Simon*, 978 F.3d 1051 (8th Cir. 2020), where the Eighth Circuit rejected a state court's effort to alter state legislation on the ground that the state constitution required that change. In *Carson*, the Minnesota Secretary of State "agreed" with private plaintiffs "to *not* enforce the ballot receipt deadline" codified by Minnesota statute, and a "state court entered the consent decree order" against such enforcement on state constitutional grounds. *Id.* at 1056. The Eighth Circuit found that this likely violated the federal Constitution, reasoning "that the Secretary's actions in altering the deadline for mail-in ballots likely violates the Electors Clause of Article II, Section 1 of the United States Constitution," which, like the Elections Clause, delegates power over presidential elections to state legislatures. *Id.* at 1059. "Simply put, the Secretary has no power to override the Minnesota Legislature." *Id.* at 1060. So too here: the trial court lacked the authority to reject the General Assembly's remedial congressional plan and doing so violated the separation of powers and overrode the North Carolina General Assembly in setting the lines of congressional districts.

MOTION TO STAY

Pursuant to Rule 23(e) of the North Carolina Rules of Appellate Procedure, Defendants respectfully move this Court to issue a temporary stay of the trial court's 22 February 2019 Order, and Order filing for the 2022 elections to proceed to open on

February 24, 2022 pursuant to the congressional plan enacted as a remedial plan in N.C. Sess. Law 2022-3. Under no circumstances do Defendants request a further delay of the elections scheduled to commence with filing on February 24, 2022. Defendants further incorporate and rely on the arguments presented in the foregoing petition for writ of supersedeas in support of this Motion for Temporary Stay.

CONCLUSION

The trial court erroneously concluded that the Legislature's enacted remedial maps were not entitled to the presumption of constitutionality. As noted, they were the only plans proposed by the General Assembly, as required by the federal and state constitutions. North Carolina has not passed legislation or amended its constitution to allow for a commission of three retired judges, aided by out-of-state mathematicians, to create district plans for our states 7.2 million plus voters. Rather, the trial court went beyond judicial review of whether the enacted remedial plans met this Court's constitutional criteria and created its own map. Adjudicating whether attention to partisanship in a legislatively enacted plan was balanced and not advantageously merited out, which the enacted remedial plans did, may be the role of our state courts; however, the court usurping the constitutional role of the General Assembly and enacting new districting plans on its on is a direct violation of the separation of powers and must immediately be halted by this Court.

VERIFICATION

The undersigned attorney for Defendants, after being duly sworn, says:

The contents of the foregoing motion for temporary stay and petition for writ of supersedeas are true to my knowledge, except those matters stated upon information and belief and, as to those matters, I believe them to be true.

Pursuant to Appellate Rule 23, I also hereby certify that the documents attached to this Petition are true and correct copies of *the filings* in the Wake County Superior Court regarding the remedial process, including the trial court's 23 February 2022 Order; however, the massive volume of data supporting the various plans (unless referenced herein) will be transferred to this Court upon the Court's direction of how it would like to receive the files.

Wake County, North Carolina

Sworn and subscribed before me this the 23rd day of February 2022.

Christine S. Dillard
Notary's Printed Name, Notary Public

My Commission Expires: 5/17/26

22

Respectfully submitted this 23rd day of February 2022.

/s/ Phillip J. Strach

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CERTIFICATE OF SERVICE

It is hereby certified that on this the 23rd day of February, 2022, the foregoing was served on the individuals below by email:

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__Appendix__

Contents of Appendix

STATE OF NORTH CAROLINA

COUNTY OF WAKE

NORTH CAROLINA LEAGUE, OF
CONSERVATION VOTERS, INC., *et
al.*,

     Plaintiffs,

COMMON CAUSE,
     Plaintiff-Intervenor,

v.

REPRESENTATIVE DESTIN HALL,
in his official capacity as Chair of the
House Standing Committee on
Redistricting, *et al.*,
     Defendants.

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
FILE NO. 21 CVS 015426

STATE OF NORTH CAROLINA

COUNTY OF WAKE

REBECCA HARPER, *et al.*,
     Plaintiffs,

v.

REPRESENTATIVE DESTIN HALL,
in his official capacity as Chair of the
House Standing Committee on
Redistricting, *et al.*,
     Defendants.

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
FILE NO. 21 CVS 500085

ORDER ON REMEDIAL PLANS

1

THIS MATTER comes before the undersigned three-judge panel pursuant to the February 4, 2022, Order of the Supreme Court of North Carolina ("Supreme Court Remedial Order) for review of Remedial Redistricting Plans to apportion the state legislative and congressional districts within North Carolina (hereinafter collectively referred to as the "Remedial Plans") enacted by the North Carolina General Assembly on February 17, 2022. 2022 N.C. Sess. Laws. 2 (also known as Senate Bill 744 and hereafter referred to as "Remedial Senate Plan"); 2022 N.C. Sess. Laws. 4 (also known as House Bill 980 and hereafter referred to as "Remedial House Plan"); 2022 N.C. Sess. Laws. 3 (also known as Senate Bill 745 and hereafter referred to as "Remedial Congressional Plan").

The Remedial Plans were enacted following entry of the Supreme Court Remedial Order. This Court entered a Judgment on January 11, 2022, wherein the Court upheld the constitutionality of the 2021 Enacted State Legislative and Congressional redistricting plans (hereinafter "Enacted Plans"). Thereafter, Harper Plaintiffs, North Carolina League of Conservation Voters Plaintiffs, and Plaintiff-Intervenor Common Cause (hereinafter collectively referred to as "Plaintiffs") appealed this Court's Judgment directly to the Supreme Court of North Carolina. On February 4, 2022, the Supreme Court of North Carolina entered its Remedial Order, with opinion to follow, adopting in full this Court's findings of fact in the January 11, 2022, Judgment; however, the Supreme Court concluded that the Enacted Plans are unconstitutional under N.C. Const., art. I, §§ 10, 12, 14, and 19 and remanded the action to this Court for remedial proceedings. On February 14, 2022, the Supreme

Court filed its full opinion in this action. *Harper v. Hall*, 2022-NCSC-17 (Feb. 14, 2022).

Pursuant to the Supreme Court Remedial Order and full opinion, and after reviewing all remedial and alternative plans submitted to this Court, as well as additional documents, materials, and information pertaining to the submitted plans, including the report of this Court's appointed Special Masters and comments received from the parties, this Court sets out the following:

FINDINGS OF FACT

I.   Summary of Requirements for Remedial Process

1.   The Supreme Court's Order required the submission to this Court of remedial state legislative and congressional redistricting plans that "satisfy all provisions of the North Carolina Constitution"; both the General Assembly, and any parties to this action who chose to submit proposed remedial plans for this Court's consideration, were required to submit such plans, and additional information, on or before February 18, 2022, at 5:00 p.m.

2.   The Supreme Court's Order also provided for a comment period in which parties to these consolidated cases were permitted to file and submit to this Court comments on any plans submitted for this Court's consideration by February 21, 2022 at 5:00 p.m.

3.   The Supreme Court's Order also mandated that this Court must approve or adopt constitutionally compliant remedial plans by noon on February 23, 2022.

4.   This Court subsequently entered an order on February 8, 2022, providing initial guidance on the remedial phase of the litigation before this Court,

requiring written submissions containing the information the Supreme Court set forth in its Order pertaining to redistricting plans in general and the ordered Remedial Plans specifically. The written submissions were required to provide an explanation of the data and other considerations the mapmaker relied upon to create any submitted proposed remedial plan and to determine that the proposed remedial plan was constitutional—*i.e.*, compliant with the Supreme Court Remedial Order. The full opinion of the Supreme Court, *Harper v. Hall*, 2022-NCSC-17, thereafter provided further guidance for the Remedial Plans.

5.　　On February 16, 2022, this Court entered an Order appointing three former jurists of our State appellate and trial courts—Robert F. Orr, Robert H. Edmunds, Jr., and Thomas W. Ross—to serve as Special Masters for the purposes of: 1) assisting this Court in reviewing any Proposed Remedial Plans enacted and submitted by the General Assembly or otherwise submitted to the Court by a party in these consolidated cases; and, 2) assisting this Court in fulfilling the Supreme Court's directive to this Court to develop remedial plans based upon the findings in this Court's January 11, 2022, Judgment should the General Assembly fail to enact and submit Proposed Remedial Plans compliant with the Supreme Court's Order within the time allowed. This Appointment Order also required the submission of additional information, data, and materials for review by the Court, the parties, and the Special Masters.

6.　　The Appointment Order further provided that the Special Masters were authorized to hire assistants and advisors reasonably necessary to complete their

work. Pursuant to this authorization, the Special Masters hired the following advisors to assist in evaluating the Remedial Plans:

   a. Bernard Grofman: PhD in political science from the University of Chicago, and currently the Jack W. Peltason Endowed Chair and Distinguished Professor at the University of California, Irvine, School of Social Sciences;

   b. Tyler Jarvis: PhD in mathematics from Princeton University, and currently a Professor at Brigham Young University's College of Physical and Mathematical Sciences;

   c. Eric McGhee: PhD in political science from the University of California, Berkeley, and currently a Senior Fellow at Public Policy Institute of California, a non-partisan, non-profit think tank; and,

   d. Samuel Wang: PhD in Neurosciences from Stanford University, and currently a Professor of neuroscience at Princeton University and Director of the Electoral Innovation Lab.

7.   The Court finds that these advisors were reasonably necessary to facilitate the work of the Special Masters to provide this Court with an analysis of the Remedial Plans.[1]

II.   The General Assembly's Remedial Plans as a Whole

8.   Pursuant to the Supreme Court's directive, the General Assembly enacted Remedial Plans and, through the Legislative Defendants, timely submitted the Remedial Plans to this Court on February 18, 2022.

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[1] On February 20, 2022, counsel for Harper Plaintiffs submitted a notice of communications wherein the Court was informed that Dr. Wang and Dr. Jarvis had contacted some of Harper Plaintiffs' retained experts by email regarding their algorithms and analysis models. Legislative Defendants subsequently filed a motion to disqualify Dr. Wang and Dr. Jarvis from assisting the Special Masters. The Special Masters have provided additional review of the issues presented in this motion, as noted in the Report attached to this Order, and the Court will address the Motion in a separate order that will be filed contemporaneously herewith.

A. **Participants in the General Assembly's Drawing of Remedial Plans**

9.   The House participants involved in the drawing of the Remedial Plans consisted of twenty-one Republican members and one Democratic member, with five Republican staff members and two Democratic staff members.

10.   The Senate participants involved in the drawing of the Remedial Plans consisted of four Republican members and five Democratic members, with four Republican staff members and one Democratic staff member.

11.   The General Assembly members were also supported by fifteen Legislative Analysis and Bill Drafting Division staff members, as well as four Information Systems Division staff members.

12.   Legislative Defendants, through counsel, also relied for limited purposes on their experts and non-testifying experts in this case, including Clark Bensen and Sean Trende for statistical analysis, Dr. Jeffrey Lewis to conduct a Racially Polarized Voting Analysis for both the 2021 and the 2022 districts, and Dr. Michael Barber for statistical analyses of the Remedial Plans and other BVAP-related information.

B. **The General Assembly's Remedial Criteria for Drawing the Remedial Plans**

13.   The General Assembly's Remedial Criteria governing the remedial map drawing process were those neutral and traditional redistricting criteria adopted by the Joint Redistricting Committees on August 12, 2021, (received into evidence at trial as exhibit LDTX15) unless the criteria conflicted with the Supreme Court Remedial Order and full opinion.

14. Although expressly forbidden by the previously-used August 2021 Criteria, the General Assembly as part of its Remedial Criteria intentionally used partisan election data as directed by the Supreme Court's Remedial Order. The General Assembly did so by loading such data into Maptitude, the map drawing software utilized by the General Assembly in creating districting plans. The elections used by the General Assembly to evaluate the projected partisan effects of district lines were as follows: Lt. Gov 2016, President 2016, Commissioner of Agriculture 2020, Treasurer 2020, Lt. Gov. 2020, US Senate 2020, Commissioner of Labor 2020, President 2020, Attorney General 2020, Auditor 2020, Secretary of State 2020, and Governor 2020.

15. The Court finds that the General Assembly's use of partisan data in this manner comported with the Supreme Court Remedial Order.

C.   The General Assembly's Racially Polarized Voting Analysis

16. Paragraph 8 of the Supreme Court Remedial Order required the General Assembly to "assess whether, using current election and population data, racially polarized voting is legally sufficient in any area of the state such that Section 2 of the Voting Rights Act requires the drawing of a district to avoid diluting the voting strength of African-American voters."

17. The General Assembly conducted an abbreviated racially polarized voting ("RPV") analysis to determine whether racially polarized voting is legally sufficient in any area of the state such that Section 2 of the Voting Rights Act *requires* the drawing of a district to avoid diluting the voting strength of African American voters during the remedial process. Legislative Defendants' expert Dr. Jeffery B.

Lewis ran an analysis and concluded that all three Remedial Plans provide African Americans with proportional opportunity to elect their candidates of choice.

18.   The Court finds that the General Assembly satisfied the directive in the Supreme Court Remedial Order to determine whether the drawing of a district in an area of the state is required to comply with Section 2 of the Voting Rights Act.

D.   Plaintiffs' Objections and Comments to the Plans

19.   Pursuant to the Supreme Court's directive, Plaintiffs timely submitted comments on and objections to the Remedial Plans on February 21, 2022.

20.   NCLCV Plaintiffs object to the Remedial Senate and Congressional Plans. NCLCV Plaintiffs do not specifically object to the Remedial House Plan but instead request the Court conduct its own analysis of the Remedial House Plan.

21.   Harper Plaintiffs object to the Remedial Congressional Plan and Remedial Senate Plan. Harper Plaintiffs do not object to the Remedial House Plan.

22.   Plaintiff Common Cause objects to all three Remedial Plans in general and specifically contends the Remedial Senate and House Plans must be redrawn for Senate District 4 and House District 10.

E.   Report of Special Masters

23.   Pursuant to this Court's Appointment Order, the Special Masters prepared a Report containing their analysis and submitted that Report to this Court for its consideration. The Report is attached to this Order as an exhibit and has been filed with the Court.

24.   The Special Masters, and their advisors, conducted an analysis of the Remedial Plans using a variety of metrics to determine whether the submitted maps

meet the requirements of the North Carolina Constitution as set out by the Supreme Court of North Carolina in its Remedial Order and full opinion.

25. The Special Masters' findings demonstrate that the Remedial House and Senate Plans meet the requirements of the Supreme Court's Remedial Order and full opinion.

26. The Special Masters' findings demonstrate that the Remedial Congressional Plan does not meet the requirements of the Supreme Court's Remedial Order and full opinion.

27. This Court adopts in full the findings of the Special Masters and sets out additional specific findings on the Remedial Plans' compliance with the Supreme Court Remedial Order below.

III. Remedial Congressional Plan

A. The General Assembly's Starting Point and Subsequently Proposed Amendments

28. In determining the base map for the Congressional Districts in the Remedial Congressional Plan that was eventually enacted, the Senate started from scratch.

29. There was a House Draft of a remedial congressional plan that was never voted on and therefore never considered by a committee or the full General Assembly.

30. Senator Clark offered one amendment to the Remedial Congressional Plan, a statewide plan, that was tabled.

31. The Remedial Congressional Plans passed the Senate by a vote of 25-19. The "aye" votes in the Senate were solely by members of the Republican party, while the "no" votes in the Senate were solely by members of the Democratic Party. The Remedial Congressional Plan passed the House by voice vote along party lines.

B.   Analysis of Partisanship Reflected in the Remedial Congressional Plan

32. The Remedial Congressional Plan reflects key differences from the 2021 Enacted Congressional Plan in the projected partisan makeup of certain districts.

> a. Four congressional districts are some of the most politically competitive in the country (*i.e.*, presidential election differences of less than 5%): District 6, District 7, District 13, and District 14.
>
> b. Wake and Mecklenburg Counties are only split across two districts unlike in the 2021 Enacted Congressional Plan when each county was split across three districts.

33. The Supreme Court Remedial Order stated that a combination of different methods could be used to evaluate the partisan fairness of a districting plan; of those methods, the General Assembly used the "mean-median" test and the "efficiency gap" test to analyze the partisan fairness of the Remedial Plans.

34. The Court finds, based upon the analysis performed by the Special Masters and their advisors, that the Remedial Congressional Plan is not satisfactorily within the statistical ranges set forth in the Supreme Court's full opinion. *See Harper v. Hall*, 2022-NCSC-17, ¶166 (mean-median difference of 1% or less) and ¶167 (efficiency gap less than 7%).

35.   The Court finds that the partisan skew in the Remedial Congressional Plan is not explained by the political geography of North Carolina.

IV.   Remedial Senate Plan

A.   The General Assembly's Starting Point and Subsequently Proposed Amendments

36.   In determining the base map for the State Senate Districts, the Senate also started from scratch. The Senate altered two county groupings and adopted groupings for Senate Districts 1 and 2 that were preferred by Common Cause Plaintiffs. The remaining county groupings remained the same. As a result, the 13 wholly-contained single district county groupings in the Remedial Plan were kept from the Enacted Plan.

37.   Alternative county groupings were proposed but not adopted.

a. The Senate considered the Democratic members' preferred alternate grouping for Forsyth County, which pairs it with Yadkin instead of Stokes County, but it was determined that the resulting districts in Alexander, Wilkes, Surry, and Stokes Counties would have been less compact. Additionally, Yadkin County is more Republican than Stokes County.

b. Alternative county groupings around Buncombe County were considered as well, but the Senate determined that any change from the chosen grouping would have resulted in districts that would have been significantly less compact.

38.   The Remedial Senate Plan passed the Senate by a vote of 26-19. The "aye" votes in the Senate were solely by members of the Republican party, while the "no" votes in the Senate were solely by members of the Democratic Party. The Remedial Senate Plan passed the House by voice vote along party lines.

B.   Analysis of Partisanship Reflected in the Remedial Senate Plan

39.   The process for the development of the Remedial Senate Plan began with separate maps being drawn by the Senate Democratic Caucus and the Republican Redistricting and Election Committee members, respectively. The plans were then exchanged and discussed; however, after the two groups could not come to a resolution, the plan proposed by the Republican Redistricting and Election Committee members was then put to a vote by the Senate Committee and advanced to the full chamber.

40.   The Remedial Senate Plan includes ten districts that were within ten points in the 2020 presidential race.

41.   The Remedial Senate Plan reflects key differences from the 2021 Enacted Senate Plan in the projected partisan makeup of districts in certain county groupings.

> a. In the Cumberland-Moore County grouping, Senate District 21 is now more competitive.
>
> b. In the Iredell-Mecklenburg County grouping, one district is more competitive.

    c. In New Hanover County, the districts were made more competitive, resulting in a Senate District 7 that leans Democratic.

    d. In Wake County, Senate Districts 17 and 18 are more Democratic leaning.

42. The Court finds, based upon the analysis performed by the Special Masters and their advisors, that the Remedial Senate Plan is satisfactorily within the statistical ranges set forth in the Supreme Court's full opinion. *See Harper v. Hall*, 2022-NCSC-17, ¶166 (mean-median difference of 1% or less) and ¶167 (efficiency gap less than 7%).

43. The Court finds that to the extent there remains a partisan skew in the Remedial Senate Plan, that partisan skew is explained by the political geography of North Carolina.

C. The General Assembly's Consideration of Incumbency Protection and Traditional Neutral Districting Criteria

44. For the Remedial Senate Plan, current members of either chamber who announced retirement or their intention to seek another office were not considered as "incumbents."

45. In the Senate, incumbency was considered evenly. No Senators are double bunked unless as a result of the mandatory county groupings, and no Democratic members are double bunked with other incumbents.

46. The Court finds that the measures taken by the General Assembly for the purposes of incumbency protection in the Remedial Senate Plan were applied evenhandedly.

47. The current membership of the General Assembly was elected under a districting plan that was approved by the trial court in *Common Cause v. Lewis* and, as stated above, the General Assembly began anew the process of drawing district lines after choosing county groupings for the remedial state legislative districts in this case.

48. The Court finds that the measures taken by the General Assembly for the purposes of incumbency protection in the Remedial Senate Plan do not perpetuate a prior unconstitutional redistricting plan.

49. The Court finds that the measures taken by the General Assembly for the purposes of incumbency protection in the Remedial Senate Plan are consistent with the equal voting power requirements of the North Carolina Constitution.

50. The Court finds that the General Assembly did not subordinate traditional neutral districting criteria to partisan criteria or considerations in the Remedial Senate Plan.

V. Remedial House Plan

A. The General Assembly's Starting Point and Subsequently Proposed Amendments

51. In determining the base map for the State House Districts, the House started from scratch after keeping only the 14 districts that were the product of single district county groupings.

52.   The Remedial House Plan was ultimately amended by six amendments offered by Democratic Representatives.

a.   Three amendments, drawn by Representative Reives, redrew certain districts in Wake, Mecklenburg, and Buncombe, which were already Democratic leaning, to be more Democratic leaning.

b.   An additional amendment, also drawn by Representative Reives, added an additional district in Cabarrus County that is more Democratic leaning.

c.   An amendment offered by Representative Meyer swapped two precincts in Orange County in order to keep Carrboro whole.

d.   An amendment offered by Representative Hawkins adjusted district lines in Durham County in order to better follow educational district lines.

53.   The Remedial House Plan passed the House by a vote of 115-5 and was passed by the Senate by a vote of 41-3. The "aye" votes in the House and Senate were by members of both political parties. The "no" votes in the House and Senate were solely by members of the Democratic Party.

B.   Analysis of Partisanship Reflected in the Remedial House Plan

54.   The Remedial House Plan reflects key differences from the 2021 Enacted House Plan in the projected partisan makeup of districts in certain county groupings.

16

a. Buncombe County, which consisted of 1 Republican and 2 Democratic districts in the Enacted Plan, consists of 3 Democratic districts in the Remedial House Plan.

b. Pitt County, which consisted of 1 Republican and 1 Democratic district in the Enacted Plan, consists of 2 Democratic districts in the Remedial House Plan.

c. Guilford County now consists of 6 Democratic leaning districts.

d. Cumberland County now consists of 3 Democratic districts and 1 competitive district.

e. Mecklenburg and Wake Counties now consist of 13 Democratic leaning districts each.

f. New Hanover, Cabarrus, and Robeson Counties now contain an additional competitive district each.

55. The Court finds, based upon and confirmed by the analysis of the Special Masters and their advisors, that the Remedial House Plans are satisfactorily within the statistical ranges set forth in the Supreme Court's full opinion. *See Harper v. Hall*, 2022-NCSC-17, ¶166 (mean-median difference of 1% or less) and ¶167 (efficiency gap less than 7%).

56. The Court finds that to the extent there remains a partisan skew in the Remedial House Plan, that partisan skew is explained by the political geography of North Carolina.

C.   **The General Assembly's Consideration of Incumbency Protection and Traditional Neutral Districting Criteria**

57.   For the Remedial House Plan, current members of either chamber who announced retirement or their intention to seek another office were not considered as "incumbents."

58.   In the House, incumbency was considered evenly. The only discretionary double bunking in the Remedial House Plan pairs two Republican members. There was no discretionary double bunking of Democratic members. The few double bunked members are double bunked solely as a result of the mandatory county groupings.

59.   The Court finds that the measures taken by the General Assembly for the purposes of incumbency protection in the Remedial House Plan were applied evenhandedly.

60.   The current membership of the General Assembly was elected under a districting plan that was approved by the trial court in *Common Cause v. Lewis* and, as stated above, the General Assembly began anew the process of drawing district lines after choosing county groupings for the remedial state legislative districts in this case.

61.   The Court finds that the measures taken by the General Assembly for the purposes of incumbency protection in the Remedial House Plan do not perpetuate a prior unconstitutional redistricting plan.

62.   The Court finds that the measures taken by the General Assembly for the purposes of incumbency protection in the Remedial House Plan are consistent with the equal voting power requirements of the North Carolina Constitution.

63.   The Court finds that the General Assembly did not subordinate traditional neutral districting criteria to partisan criteria or considerations in the Remedial House Plan.

VI.   Plaintiffs' Alternative Remedial Plans

64.   The following alternative remedial plans for the Court's consideration were submitted by NCLCV Plaintiffs, Harper Plaintiffs, and Plaintiff-Intervenor Common Cause on February 18, 2022 (hereinafter referred to as "NCLCV Alternative Plans"; "Harper Alternative Plans"; "Common Cause Alternative Plans"; or collectively, "Alternative Plans").

65.   Although Plaintiffs submitted Alternative Plans, because the Court is satisfied with the Remedial House and Senate Plans, the Court did not need to consider an alternative plan for adoption.

66.   Furthermore, the Court, in following N.C.G.S. § 120-2.4(a1), has chosen to order the use of an interim districting plan for the 2022 North Carolina Congressional election that differs from the Remedial Congressional Plan to the extent necessary to remedy the defects identified by the Court.

VII.   Special Masters' Interim Congressional Plan

67.   As part of their Report, the Special Masters have developed a recommended congressional plan ("Interim Congressional Plan") for this Court to consider due to their findings, which the Court has adopted, that the Remedial Congressional Plan does not satisfy the requirements of the Supreme Court Remedial Order and full opinion.

68.   The Court finds that the Interim Congressional Plan recommended by the Special Masters was developed in an appropriate fashion[2], is consistent with N.C.G.S. § 120-2.4(a1), and is consistent with the North Carolina Constitution and the Supreme Court's full opinion.

Based upon the foregoing findings of fact, the Court makes the following:

CONCLUSIONS OF LAW

1.   In *Harper v. Hall*, 2022-NCSC-17, the Supreme Court stated:

We do not believe it prudent or necessary to, at this time, identify an exhaustive set of metrics or precise mathematical thresholds which conclusively demonstrate or disprove the existence of an unconstitutional partisan gerrymander. *Cf. Reynolds v. Sims*, 377 U.S. 533, 578 (1964) ("What is marginally permissible in one [case] may be unsatisfactory in another, depending on the particular circumstances of the case. Developing a body of doctrine on a case-by-case basis appears to us to provide the most satisfactory means of arriving at detailed constitutional requirements in the area of . . . apportionment."). As in *Reynolds*, "[l]ower courts can and assuredly will work out more concrete and specific standards for evaluating state legislative apportionment schemes in the context of actual litigation." *Id.* However, as the trial court's findings of fact indicate, there are multiple reliable ways of demonstrating the existence of an unconstitutional partisan gerrymander. In particular, mean-median difference analysis; efficiency gap analysis; close-votes, close-seats analysis; and partisan symmetry analysis may be useful in assessing whether the mapmaker adhered to traditional neutral districting criteria and whether a meaningful partisan skew necessarily results from North Carolina's unique political geography. If some combination of these metrics demonstrates there is a significant likelihood that the districting plan will give the voters of all political parties substantially equal opportunity to translate votes into seats across the plan, then the plan is presumptively constitutional.

Id. at ¶163.

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[2] The data files (e.g., block equivalency, shape files, population deviation results) are included in the court file with this order in native format. The equivalent of the "stat pack" has been requested from the Special Masters' advisor and will be placed in the court file and provided to the parties as soon as available.

2.   Plaintiffs have urged upon this court that we must adopt plans that "treat voters of both political parties fairly." They argue that the "LD Congressional and Senate Plans are not fair." Further, they argue that the Supreme Court ordered "fair maps" and that "[b]ecause the LD Congressional and Senate Plans are not fair maps, . . . the Court should adopt one of the fairer maps before it – such as the NCLCV Maps." We see Plaintiffs' arguments as tantamount to urging this Court to adopt a proportional representation standard, which the Supreme Court, in its order, specifically disavowed. *Id.* at ¶169.

3.   The Court concludes that the Remedial Senate Plan satisfies the Supreme Court's standards.

4.   The Court concludes that the Remedial House Plan satisfies the Supreme Court's standards.

5.   Because the Court concludes that the enacted Remedial Senate and House Plans meet the Supreme Court's standards and requirements in the Supreme Court Remedial Order and full opinion, the Remedial Senate and House Plans are presumptively constitutional.

6.   Furthermore, no evidence presented to the Court is sufficient to overcome this presumption for the Remedial Senate and House Plans, and those plans are therefore constitutional and will be approved.

7.   The Court concludes that the Remedial Congressional Plan does not satisfy the Supreme Court's standards.

8.   Plaintiffs suggest that if we conclude that a Remedial Plan passed by the General Assembly does not satisfy the Supreme Court's standards, we should simply jettison that plan and adopt one of their plans. We do not believe that our conclusion on the Remedial Congressional Plan—that it fails to satisfy the Supreme Court's standards—automatically results in the adoption of an alternate plan proposed by Plaintiffs. Given that the ultimate authority and directive is given to the Legislature to draw redistricting maps, we conclude that the appropriate remedy is to modify the Legislative Remedial Congressional Plan to bring it into compliance with the Supreme Court's order. *See* N.C.G.S. § 120-2.4(a1).

9.   Because the Court concludes that the enacted Remedial Congressional Plan does not meet the Supreme Court's standards and requirements in the Supreme Court Remedial Order and full opinion, the Remedial Congressional Plan is not presumptively constitutional and is therefore subject to strict scrutiny.

10.   The General Assembly has failed to demonstrate that their proposed Congressional map is narrowly tailored to a compelling governmental interest, and we therefore must conclude that the Remedial Congressional Map is unconstitutional.

11.   The Interim Congressional Plan as proposed by the Special Masters satisfies the Supreme Court's standards and should be adopted by this Court for the 2022 North Carolina Congressional elections.

DECREE

BASED UPON THE FOREGOING findings and conclusions, the Court hereby

ORDERS the following:

1. The Remedial Senate Plan and Remedial House Plan, enacted into law by the General Assembly on February 17, 2022, are hereby APPROVED by the Court.

2. The Remedial Congressional Plan, enacted into law by the General Assembly on February 17, 2022, is hereby NOT APPROVED by the Court.

3. The Interim Congressional Plan as recommended by the Special Masters is hereby ADOPTED by the Court and approved for the 2022 North Carolina Congressional elections.

4. As the Special Masters and their retained experts may be called upon to assist this Court in this matter should the need arise in the future, the prohibition in this Court's prior order appointing the Special Masters against contacting the Special Masters or their experts remains in full force and effect.
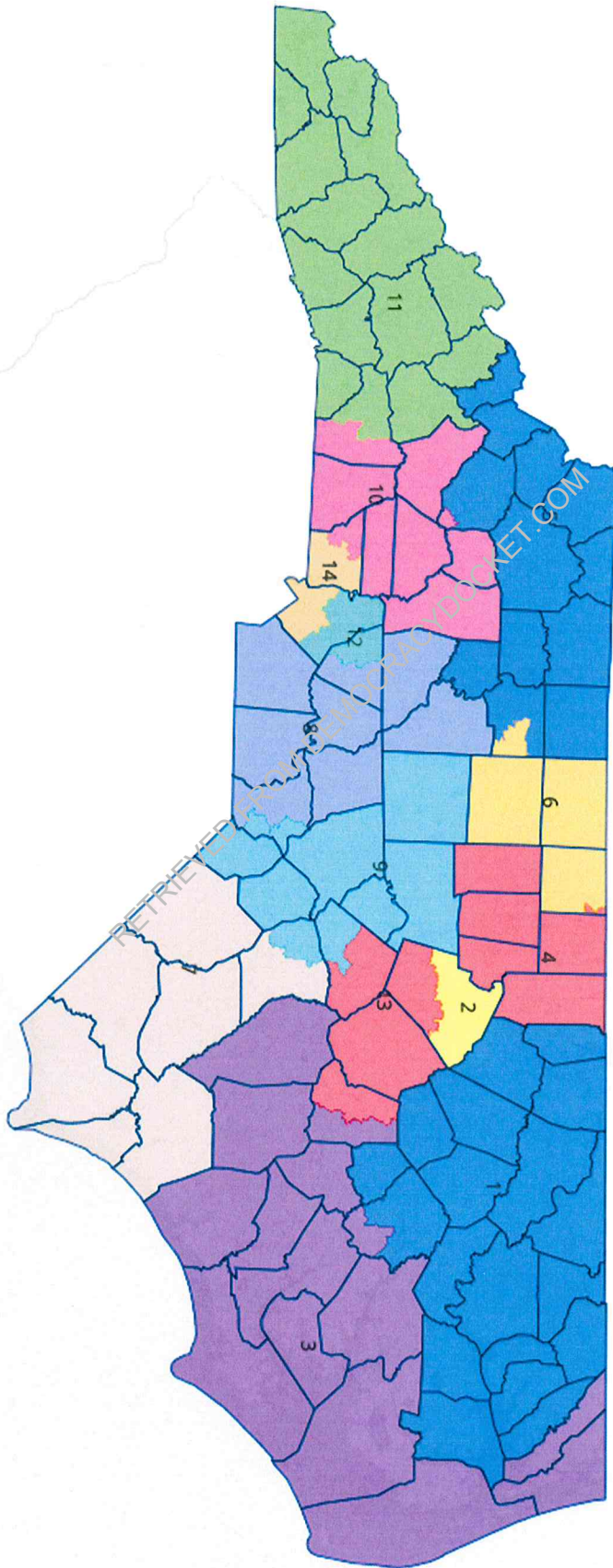
SO ORDERED, this the 23rd day of February, 2022.

A. Graham Shirley, Superior Court Judge

Nathaniel J. Poovey, Superior Court Judge

Dawn M. Layton, Superior Court Judge

Interim Congressional Plan

TO: Judges Shirley, Poovey, and Layton

FROM: Special Masters

DATE: February 23, 2022

SUBJECT: Special Masters' Report – Analysis and Recommendations

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Introduction

Pursuant to the trial court's "Order Appointing Special Masters" on February 16, 2022, ¶ 6, the undersigned now file the following report with the three-judge panel in this case.

Motion for Disqualification

In its Order Appointing the three Special Masters, the Court authorized the undersigned Special Masters (hereinafter "Special Masters") to "hire research and technical assistants and advisors reasonably necessary to facilitate [our] work." We subsequently retained Dr. Bernard Grofman, Dr. Tyler Jarvis, Dr. Eric McGhee, and Dr. Samuel Wang to assist us in satisfying our duties as Special Masters. The Curriculum Vitae for each of these individuals (hereinafter referred to as "advisors") is attached to this report. In this same Order, this Court also ordered the "parties and non-parties may not engage in any *ex parte* communication with the Special Masters about the subject matter of this litigation." *Id.*

We have been informed that Legislative Defendants have filed a motion in this case requesting that this Court disqualify Dr. Wang and Dr. Jarvis as advisors to the Special Masters and take further steps to destroy any work product completed by them and otherwise prohibit the undersigned from considering any information or materials obtained from them. We have investigated this matter and below is a detailed review of our findings.

On February 18, 2022, at 1:01 pm, Dr. Wang emailed Dr. Mattingly requesting the underlying data utilized in his analysis of the 2021 redistricting plans. On this same date at 1:57 p.m., Dr. Mattingly responded, and correspondence between Dr. Wang and Dr. Mattingly continued through February 20, 2022 at 10:23 a.m.

On February 18, 2022, at 1:21 p.m., Dr. Wang emailed Dr. Pedgen, expert for Harper Plaintiffs, seeking the underlying data Dr. Pedgen utilized in his analysis of the 2021 redistricting plans. On this same date at 2:31 p.m., Dr. Pedgen responded to Dr. Wang's inquiry, directing him to use the method utilized by Dr. Mattingly, expert for Harper Plaintiffs and Plaintiff Common Cause. On February 19, 2022, at 6:59 a.m., Dr. Wang responded to Dr. Mattingly's correspondence.

On February 19, 2022, at 4:46 p.m., Dr. Jarvis contacted Dr. Mattingly to request clarification on Dr. Mattingly's analysis and underlying data. Later that day, at 8:13 p.m., Dr. Jarvis contacted Dr. Herschlag, Dr. Mattingly's colleague at Duke University, regarding Dr. Herschlag's analysis and underlying data supporting his analysis of the 2021 redistricting plans to which Dr. Herschlag responded on that same date. All email correspondence between Dr. Wang and Dr. Jarvis and the plaintiff experts Mattingly and Pegden is attached to this report and the email correspondence attached is all of the communication that occurred between the advisors and any of the experts of the parties.

The undersigned acknowledge the technical breach of this Court's mandate that no *ex parte* communication occur between parties and non-parties with the Special Masters. The undersigned, however, respectfully recommend that the Court deny the motion for the following reasons:

- First, these communications between the advisors and Drs. Mattingly and Herschlag do not appear to have been made in bad faith and constitute the only communications between them, written or otherwise. The advisors immediately ceased contact with Drs. Mattingly and Herschlag, and have provided copies of the communications. Therefore, all parties are privy to the extent of the communications.

- Second, their communications directed at experts for Harper Plaintiffs were solely for the purpose of proceeding as quickly as possible within the abbreviated time frame allotted for the remedial process.

- Third, the Special Masters emphasize that, while the communications were in the context of the advisors' preliminary steps to evaluate the 2022 Remedial Plans, the communications sought background information pertaining to the earlier analysis of the 2021 Redistricting Plans performed by Drs. Pegden, Mattingly, and Herschlag in the merits stage of this case that was ultimately received and relied upon by the Court at trial. Additionally, as was later determined, the information sought by Dr. Wang and by Dr. Jarvis was publicly available on Dr. Hershlag's website at the time of the communications questioned herein by the Legislative Defendants.

- Finally, though the analysis provided by Drs. Wang and Jarvis was helpful and consistent with the analysis of our other expert advisors, it was not determinative of any recommendations made by the Special Masters to the court.

<u>Review of Proposed Remedial Plans</u>

Pursuant to the North Carolina Supreme Court's opinion, any plan with a mean-median difference of 1% or less (*Harper*, 2022-NCSC-17 at ¶ 166) and an efficiency gap below 7% (*Harper*, 2022-NCSC-17 at ¶ 167) should be considered presumptively constitutional. Additionally, as the Supreme Court recognized, other metrics may be instructive (*Harper*, 2022-NCSC-17 at ¶ 168). The Special Masters considered the full Order and Opinion of the North Carolina Supreme Court along with, the submissions from all of the parties as well as the reports of the advisors and reached the following conclusions:

I.   **Proposed Remedial House Plan**

The advisors as well as the experts of the parties ("experts") all found the efficiency gap of the proposed remedial House plan to be less than 7%. The majority of the advisors and experts found the mean-median difference of the proposed remedial House plan to be less than 1%. In addition to these facts, the Special Masters considered the findings of the advisors on the partisan symmetry analysis, the declination metrics, and their opinions on partisan bias and evidence of partisan gerrymandering. Considering all of this information as well as the totality of circumstances, the Special Masters conclude under the metrics identified by the North Carolina Supreme Court that the proposed remedial House plan meets the test of presumptive constitutionality. Further the Special Masters did not find substantial evidence to overcome the presumption of constitutionality and recommend to the trial court that it give appropriate deference to the General Assembly and uphold the constitutionality of the remedial House plan.

II.   **Proposed Remedial Senate Plan**

All of the advisors and experts found the efficiency gap of the proposed remedial Senate plan to be less than 7%. The majority of the advisors and experts found the mean-median difference of the proposed remedial Senate plan to be less than 1%. In addition to these facts, the Special Masters considered the findings of the advisors on the partisan symmetry analysis, the declination metrics, and their opinions on partisan bias and evidence of partisan gerrymandering. Considering all of this information as well as the totality of circumstances, the Special Masters conclude under the metrics identified by the North Carolina Supreme Court the remedial Senate plan meets the test of presumptive constitutionality. Further the Special Masters did not find substantial evidence to overcome the presumption of constitutionality and recommend to the trial court that it give appropriate deference to the General Assembly and uphold the constitutionality of the remedial Senate plan.

III. Proposed Remedial Congressional Plan

Unlike the proposed remedial House and Senate plans, there is substantial evidence from the findings of the advisors that the proposed congressional plan has an efficiency gap above 7% and a mean-median difference of greater than 1%. The Special Masters considered this evidence along with the advisors' findings on the partisan symmetry analysis and the declination metrics. There is disagreement among the parties as to whether the proposed remedial congressional plan meets the presumptively constitutional thresholds suggested by the Supreme Court. The Special Masters, considering the reports of their advisors and the experts of the parties while giving appropriate deference to the General Assembly, are of the opinion that the proposed remedial congressional plan fails to meet the threshold of constitutionality and recommend that the Trial Court reject the proposed remedial congressional plan as being unconstitutional.

Given the recommendation that the Trial Court reject the proposed remedial congressional plan, and consistent with the instructions from the three-judge panel and the Order of the Supreme Court of North Carolina, the Special Masters have submitted a modified version of the proposed remedial congressional plan submitted by the Legislative Defendants. It is our opinion that the attached plan satisfies the requirements of the Supreme Court.

The following data files for the modified congressional plan are included with this report:

1. Block equivalency files in .CSV format for each district and the plan as a whole;
2. Environmental Systems Research Institute, Inc. (ESRI) shapefiles for each district and the plans as a whole;
3. Color maps in .PDF format of the plan as a whole;
4. Population totals and deviations for each district based on the 2020 Census P.L. 94-171 dataset; and
5. Note: due to time constraints, the functional equivalent of what the General Assembly includes in its "stat pack" is not included with this report; however, if requested we will endeavor to obtain this from Dr. Grofman.

In redrawing certain district lines, the undersigned considered all of the submitted plans and related commentary. Being mindful that the Constitution of North Carolina provides that the General Assembly has the responsibility of redistricting, we focused on the proposed remedial congressional plan submitted by the Legislative Defendants. On that basis, the Special Masters worked solely with Dr. Bernard Grofman and his assistant to amend the Legislative Defendants' plan to

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enhance its consistency with the opinion of the Supreme Court of North Carolina, the Constitutions of the United States and of North Carolina, and the expressed will of the General Assembly.

Dr. Grofman prepared a preliminary exemplar map at the Special Masters' request and thereafter at the instruction of the Special Masters prepared three maps for consideration. One of these maps raised potential VRA concerns and so was discarded. A second map did not meet the 1% threshold for mean-median difference and so was likewise discarded. The Special Masters then modified the third prepared map in order to improve the efficiency gap and mean-median difference scores as well as compactness and contiguity measures.

The following parties were involved in the process of redrawing the plans:

    a. Robert F. Orr
    b. Robert H. Edmunds, Jr.
    c. Thomas W. Ross
    d. Dr. Bernard N. Grofman
    e. Zachary R. Griggy (Research Assistant to Dr. Grofman)
    f. Adam H. Steele, Senior Judicial Fellow (for administrative purposes only)
    g. Alison J. Rossi, Judicial Fellow (for administrative purposes only)
    h. Danielle Smith, Judicial Fellow (for administrative purposes only)

Dave's Redistricting App was used in the redrawing of the plan.

The Special Masters believe the modified congressional plan recommended for adoption to the Trial Court achieves the partisan fairness and "substantially equal voting power" required by the Supreme Court of North Carolina without diluting votes under the Voting Rights Act while maintaining the number of county splits, retaining equal population, compactness, and contiguity, as well as respecting municipal boundaries. Dr. Grofman's analysis of the modified congressional plan recommended by the Special Masters indicates that the plan has an efficiency gap of 0.63%, a mean-median difference of 0.69%, seat bias of 0.28%, and vote bias of 0.10%. According to Dr. Grofman, "this is the most non-dilutive plan in partisan terms of any map that has been submitted to the Court."

Accordingly, the Special Masters recommend to the Trial Court that it order the State of North Carolina to utilize the modified congressional plan prepared by the Special Masters in the 2022 Congressional election.

This the 23rd day of February 2022.

Robert H. Edmunds, Jr.   _Robert F. Orr_   _Thomas W. Ross_

Robert H. Edmunds, Jr.   Robert F. Orr   Thomas W. Ross

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was served on the persons

indicated below via electronic transmission by e-mail addressed as follows:

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Service is made upon local counsel for all attorneys who have been granted pro hac vice admission, with the same effect as if personally made on a foreign attorney within this state.

This the 23rd day of February 2022.

_____
Kellie Z. Myers
Court Administrator - 10th Judicial District
Kellie.Z.Myers@nccourts.org

Report on Remedial Districting Plans
for North Carolina

Dr. Michael Barber

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Contents

1 Introduction and Qualifications

I have been asked by counsel for the Legislative Defendants to analyze the 2022 Remedial district plans for the North Carolina House, Senate, and Congressional districts recently passed by the North Carolina General Assembly. These were enacted as N.C. session laws 2022-2 (Senate, S744), 2022-3 (Congressional, S745), and 2022-4 (House, H980).

I analyze the plans by measuring each plan according to measures of partisan fairness suggested by the North Carolina Supreme Court. These measures are: the median-mean, efficiency gap, close-votes close-seats, and partisan symmetry. I also compute a partisan index based on 12 statewide elections used by one of Plaintiff's experts and present this index and the range of statewide election results for each district in each plan.

The results show that in all three plans (Congress, House, Senate), and across all measures, the Remedial plans exhibit extremely small degrees of bias and are significant improvements over the previous districts on these metrics.

I am an associate professor of political science at Brigham Young University and faculty fellow at the Center for the Study of Elections and Democracy in Provo, Utah. I received my PhD in political science from Princeton University in 2014 with emphases in American politics and quantitative methods/statistical analyses. My dissertation was awarded the 2014 Carl Albert Award for best dissertation in the area of American Politics by the American Political Science Association.

I teach a number of undergraduate courses in American politics and quantitative research methods.[1] These include classes about political representation, Congressional elections, statistical methods, and research design.

I have worked as an expert witness in a number of cases in which I have been asked to analyze and evaluate various political and elections-related data and statistical methods. Cases in which I have testified at trial or by deposition are listed in my CV, which is attached to the end of this report. I have previously provided expert reports in a number of

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[1]The political science department at Brigham Young University does not offer any graduate degrees.

cases related to voting, redistricting, and election-related issues: *Nancy Carola Jacobson, et al., Plaintiffs, vs. Laurel M. Lee, et al., Defendants. Case No. 4:18-cv-00262 MW-CAS (U.S. District Court for the Northern District of Florida); Common Cause, et al., Plaintiffs, vs. Lewis, et al., Defendants. Case No. 18-CVS-14001 (Wake County, North Carolina); Kelvin Jones, et al., Plaintiffs, v. Ron DeSantis, et al., Defendants, Consolidated Case No. 4:19-cv-300 (U.S. District Court for the Northern District of Florida); Community Success Initiative, et al., Plaintiffs, v. Timothy K. Moore, et al., Defendants, Case No. 19-cv-15941 (Wake County, North Carolina); Richard Rose et al., Plaintiffs, v. Brad Raffensperger, Defendant, Civil Action No. 1:20-cv-02921-SDG (U.S. District Court for the Northern District of Georgia); Georgia Coalition for the People's Agenda, Inc., et. al., Plaintiffs, v. Brad Raffensberger, Defendant. Civil Action No. 1:18-cv-04727-ELR (U.S. District Court for the Northern District of Georgia); Alabama, et al., Plaintiffs, v. United States Department of Commerce; Gina Raimondo, et al., Defendants. Case No. CASE NO. 3:21-cv-00211-RAH-ECM-KCN (U.S. District Court for the Middle District of Alabama Eastern Division); League of Women Voters of Ohio, et al., Relators, v. Ohio Redistricting Commission, et al., Respondents. Case No. 2021-1193 (Supreme Court of Ohio); Adams, et al., Relators, v. DeWine, et al., Respondents. Case No. 2021-1428 (Supreme Court of Ohio)*

In my position as a professor of political science, I have conducted research on a variety of election- and voting-related topics in American politics and public opinion. Much of my research uses advanced statistical methods for the analysis of quantitative data. I have worked on a number of research projects that use "big data" that include millions of observations, including a number of state voter files, campaign contribution lists, and data from the US Census. I have also used geographic information systems and other mapping techniques in my work with political data.

Much of this research has been published in peer-reviewed journals. I have published nearly 20 peer-reviewed articles, including in our discipline's flagship journal, *The American Political Science Review* as well as the inter-disciplinary journal, *Science Advances.* My CV,

which details my complete publication record, is attached to this report as Appendix A.

The analysis and opinions I provide in this report are consistent with my education, training in statistical analysis, and knowledge of the relevant academic literature. These skills are well-suited for this type of analysis in political science and quantitative analysis more generally. My conclusions stated herein are based upon my review of the information available to me at this time. I reserve the right to alter, amend, or supplement these conclusions based upon further study or based upon the availability of additional information. I am being compensated for my time in preparing this report at an hourly rate of $400/hour. My compensation is in no way contingent on the conclusions reached as a result of my analysis. The opinions in this report are my own, and do not represent the view of Brigham Young University.

2 Data and Methods

Across all three plans (Congress, House, Senate) I rely upon election data from 12 statewide elections from 2016-2020. Specifically, I use the 2016 Lieutenant Governor and US Presidential races and the 2020 Commissioner of Agriculture, Treasurer, Lieutenant Governor, US Senate, Commissioner of Labor, US President, Attorney General, Auditor, Secretary of State, and Governor races. These are the same 12 elections used by Dr. Mattingly in his original expert report for his county cluster by county cluster analysis.

3 Congressional Plan

3.1 Partisan Lean of Districts

To measure the expected seat share in the remedial Congressional plan, I compute a partisan index of statewide elections for the 12 statewide partisan elections between 2016-2020 noted above. The index is simply the average of the two-party vote share for all 12

elections. In other words, if a district has an index value of 0.51, this would mean that 51% of the votes cast for the two major parties across these 12 elections went to Democratic candidates. Figure 1 shows this value for each of the 14 Congressional seats. Districts are ordered from least Democratic-leaning at the bottom to most Democratic-leaning at the top. Districts with a partisan index less than 0.50 (i.e. Republican-leaning) are shown as squares and districts with a partisan index greater than 0.50 (i.e. Democratic-leaning) are displayed as triangles.

Of the 14 Congressional districts there are 8 districts with an index less than 0.50 (Republican-leaning, shown as squares) and 6 districts with an index greater than 0.50 (Democratic-leaning shown as triangles). A vertical dashed line is placed at 0.50 in the figure for reference. In the now-enjoined 2021 Enacted Congressional plan there were 10 Republican-leaning districts and 4 Democratic leaning districts.

The grey horizontal lines around each point show the range of election outcomes for all of the 12 statewide elections used to generate the index. As can be seen by the width of the grey horizontal bars in each district, there is substantial variation across the 12 elections. Districts in which the Republican candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored red while districts where the Democratic candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored blue. I call these districts safely partisan since in all 12 of the statewide races the same party won a majority of votes. Districts where the grey horizontal lines cross the 0.50 vertical line indicate districts where both parties have won a majority of the votes in that district. Districts where both parties have won a majority of the two-party vote share in these 12 races are colored green.

Looking at the range across the index, there are 6 districts colored red (reliably Republican) in the figure, 4 blue districts (reliable Democratic), and 4 green districts (competitive) in the Congressional map. Using an alternative definition of competitiveness based on the closeness of the index to 0.50, there are 6 districts with an index less than 0.48, 4

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districts between 0.48 and 0.52 (a commonly used range to define hyper-competitive seats), and 4 districts with an index of greater than 0.52.

Remedial Plan – Congress
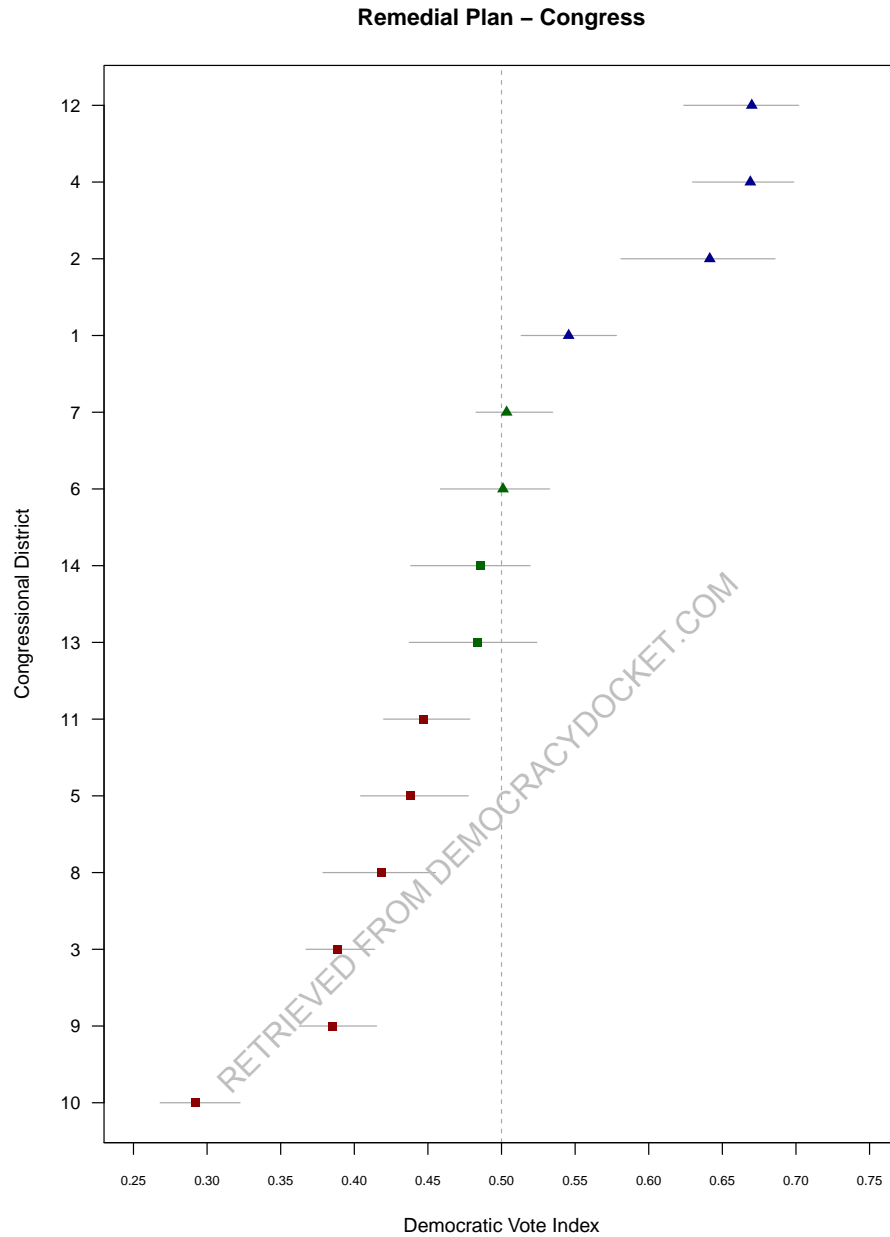
Figure 1: **Partisan Index of Congressional Districts in 2022 Remedial plan:** Partisan Index based on the average of 12 statewide partisan races between 2016-2020. Districts with a partisan index less than .50 (i.e. Republican leaning) are shown as squares and districts with a partisan index greater than .50 (i.e. Democratic leaning) are displayed as triangles. A vertical dashed line is placed at .50 in each panel for reference. The grey lines around each point show the range of election outcomes for all of the 12 statewide elections used to generate the index. Districts in which the Republican candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored red while districts where the Democratic candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored blue. Districts where both parties have won a majority of the two-party vote share in these 12 races are colored green.

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3.2   Measures of Partisan Bias

In its ruling, the Court makes reference to four different measures of partisan bias, based on the analysis, reports, and testimony put forward by various experts during the trial. While scholars of these metrics note their limitations and drawbacks, for purposes of this report I assume their usefulness in light of the Court's decision.[2] Thus, I will consider each of these measures of partisan bias for the Congressional plan.

3.3   Median-Mean Measure

Academic literature describes the median-mean measure as being useful to measure the partisan bias of a districting plan.[3] The median-mean measure is calculated by taking the median value of the partisan index across all 14 districts in a plan (the value for which half of the observations are smaller and half the observations are larger) and subtracting from that the mean partisan index (the simple average) of all of the districts from the median. Consider an example in which there are three districts in a plan with partisan indices of 0.91, 0.46, and 0.40. To find the median we look for the district for which there is one district larger and one district smaller (0.46 in this case). To find the mean, we take the average by dividing the sum of the partisan indices by the number of districts. In this case, (0.91+0.46+0.40)/3 = 0.59. The median-mean value would then be 0.46-0.59 = -0.13. As in this example I take the Democratic vote share of the median district minus the mean

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[2]Stephanopoulos, Nicholas O., and Eric M. McGhee. "Partisan gerrymandering and the efficiency gap." U. Chi. L. Rev. 82 (2015): 831.
Best, Robin E., Shawn J. Donahue, Jonathan Krasno, Daniel B. Magleby, and Michael D. McDonald. "Considering the prospects for establishing a packing gerrymandering standard." Election Law Journal 17, no. 1 (2018): 1-20.
McGhee, Eric. "Rejoinder to 'Considering the prospects for establishing a packing gerrymandering standard'." Election Law Journal 17, no. 1 (2018): 73-82.

[3]See Best, Robin E., Shawn J. Donahue, Jonathan Krasno, Daniel B. Magleby, and Michael D. McDonald. "Considering the prospects for establishing a packing gerrymandering standard." Election Law Journal 17, no. 1 (2018): 1-20. Warrington, Gregory S. "A comparison of partisan-gerrymandering measures." Election Law Journal: Rules, Politics, and Policy 18, no. 3 (2019): 262-281.
Wang, Samuel S-H. "Three tests for practical evaluation of partisan gerrymandering." Stan. L. Rev. 68 (2016): 1263. McDonald, Michael D., and Robin E. Best. "Unfair partisan gerrymanders in politics and law: A diagnostic applied to six cases." Election Law Journal 14, no. 4 (2015): 312-330.

Democratic vote share for all 14 districts in the Remedial plan. Negative numbers indicate a districting plan that favors Republicans and positive numbers indicate a slant in favor of Democrats.

Using the 12 statewide elections described above, the proposed remedial Congressional map has a median-mean value of -0.61%. This value is within the ±1% standard outlined by the court's ruling. Using the same data and method, the now-enjoined 2021 Enacted Congressional plan had a median-mean measure of -5.97%.

3.4 Efficiency Gap Measure

The efficiency gap is another redistricting metric discussed by academics and is similar to the median-mean measure in that it looks for the degree to which a political party's votes statewide are translated into seats in each district.[4] A description of this measure provided by the Brennen Center for Justice summarizes it: "[T]he efficiency gap counts the number of votes each party wastes in an election to determine whether either party enjoyed a systematic advantage in turning votes into seats. Any vote cast for a losing candidate is considered wasted, as are all the votes cast for a winning candidate in excess of the number needed to win."[5] In other words, under the efficiency gap the ideal strategy for a political party to maximize the impact of their voters is to distribute them as evenly as possible across districts so as to win by a narrow margin in the districts they win and lose by very large margins in the districts where they lose. Put another way, under the theory of minimizing wasted votes, "win by a little, lose by a lot" is the ideal strategy for a party to maximize their impact of their voters.[6]

The Brennen Center provides a simple example of how the efficiency gap is calculated:

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[4]McGhee, Eric. "Measuring efficiency in redistricting." Election Law Journal: Rules, Politics, and Policy 16, no. 4 (2017): 417-442. Veomett, Ellen. "Efficiency gap, voter turnout, and the efficiency principle." Election Law Journal: Rules, Politics, and Policy 17, no. 4 (2018): 249-263. Plener Cover, Benjamin. "Quantifying partisan gerrymandering: An evaluation of the efficiency gap proposal." Stan. L. Rev. 70 (2018): 1131.

[5]https://www.brennancenter.org/sites/default/files/legal-work/How_the_Efficiency_Gap_Standard_Works.pdf

[6]Of course, parties have other priorities and winning by a single vote might not be their ideal scenario in reality.

To understand how the efficiency gap works, consider a hypothetical state with 500 residents that is divided into five legislative districts, each with 100 voters. In the most recent election cycle, Democrats won Districts 1 and 2 by wide margins, while Republicans won Districts 3, 4, and 5 in closer races. Overall, Democratic candidates received 55 percent of the statewide vote but won just 40 percent of the legislative seats, while Republican candidates received 45 percent and won 60 percent of the seats. The table below shows the election results for each district.[7]

District	D votes	R Votes	Result
1	75	25	D wins
2	60	40	D wins
3	43	57	R wins
4	48	52	R wins
5	49	51	R wins
Total:	275	225	

Once we have the election results, the first step is to consider the number of "wasted votes" in each district. Because the Republican candidate in this example lost in District 1, all 25 of the votes cast for that candidates are wasted. The Democratic candidate in District 1 won, but by 24 more votes than would be necessary (since all that is needed is 51 votes to win). Thus, there are 24 wasted Democratic votes in this district. Taking the difference indicates that there was a net of 1 Republican wasted vote in this district.

The efficiency gap is then calculated as Efficiency Gap = (Total Democratic Wasted Votes - Total Republican Wasted Votes) / Total Votes.[8] In this example and in analyzing the remedial Congressional plan, I use the Democratic seat and vote margins which means that negative efficiency gap numbers indicate a districting plan that favors Republican voters and positive numbers indicate a plan that favors Democratic voters.

Using the 12 statewide elections described above, the proposed remedial Congressional map has an efficiency gap value of -5.29%. This value is within the ±7% standard outlined by

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[7]https://www.brennancenter.org/sites/default/files/legal-work/How_the_Efficiency_Gap_Standard_Works.pdf
[8]See McGhee, Eric. "Measuring efficiency in redistricting." Election Law Journal: Rules, Politics, and Policy 16, no. 4 (2017): 417-442.

the court's ruling. Using the same data and method, the now enjoined Enacted Congressional plan had a efficiency gap measure of -19.51%.

3.5 Close Votes, Close Seats

The court makes reference to "Dr. Duchin's close-votes-close-seats" analysis and quotes the trial court's determination that a map should not "prevent Democrats from gaining a tie or a majority in the House" (paragraph 199). This measure of partisan fairness is less defined than the median-mean and efficiency gap, and I am not aware of any published work by Dr. Duchin or others that explicitly lays out the mathematical definition or technical components of this test. However, Dr. Duchin describes the general idea in her initial expert report submitted in this case where she states, "The numerical notions of partisan fairness all tend to agree on one central point: an electoral climate with a roughly 50-50 split in partisan preference should produce a roughly 50-50 representational split. I will call this the Close-Votes-Close-Seats principle" (pg. 4, Duchin Report). She goes on to state, "[Close-Votes-Close-Seats] is closely related to the principle of Majority Rule: a party or group with more than half of the votes should be able to secure more than half of the seats. In fact, Close-Votes-Close-Seats is essentially a corollary (or byproduct) of Majority Rule. It is not practicable to design a map that always attains these properties, but by contrast a map that consistently thwarts them should be closely scrutinized and usually rejected." (pg. 4, Duchin Report).

In another redistricting case in Pennsylvania, Dr. Duchin further describes how she would measure and display this concept. She states, "To illustrate Close-Votes-Close-Seats, Majority Rule, and other norms of partisan fairness, it is helpful to examine a plot that shows vote shares on one axis and seat outcomes on the other. A plan can be overlaid with a vote pattern to see how the seat share relates to the vote share for that election. Repeating this across a range of different kinds of elections provides a robust view of the performance of the plan. Majority Rule, then, translates to the idea that the Southeast and Northwest

quadrants should be avoided" (pg. 14).[9]

With this in mind, Figure 2 produces the type of chart that Dr. Duchin describes. The left figure shows the results for the 2021 Enacted Congressional plan and the right panel shows the results for the 2022 Remedial Congressional plan. The horizontal axis of each chart measures the statewide vote share earned by the Democratic candidates for each of the 12 statewide elections discussed above. The vertical axis of each figure measure the proportion of districts where the Democratic candidate won a majority of the votes in that same election. In other words, this chart is measuring the degree to which statewide votes are translated to seats. Per Dr. Duchin's test, the "northwest" and "southeast" quadrants of this figure, colored in red, indicate outcomes that are anti-majoritarian, or places where a party wins a majority of the votes statewide but those votes are not translated into a majority of the seats.[10]

In each figure there are 12 dots, one for each of the 12 statewide elections. We see that in the enjoined 2021 Enacted Congressional plan there are 4 points in the lower right panel representing anti-majoritarian outcomes. Furthermore, as one moves along the horizontal axis, the dots tend not to move upwards along the vertical axis, indicating a map that is not especially responsive to changes in voters' preferences.

The 2022 Remedial map is very different. Only 1 of the 12 points (Attorney General 2020) reside in the lower right quadrant where the Democratic candidate for office won a majority of the votes but those votes would not have translated into a majority of the seats. Notably, in this one election the Democratic candidate won with 50.13% of the vote.

All of the remaining 11 elections produce majoritarian outcomes where a majority of votes statewide translate into a majority of the seats for Congress. These are the dots in the lower left (southwest) and upper right (northeast) quadrants of the figure.

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[9]https://www.pacourts.us/Storage/media/pdfs/20220216/190511-feb.14,2022-exceptionswithbriefinsupportincorporated(govwolf).pdf, retrieved Feb 16, 2022.

[10]It is important to note that when discussing "seats won" by a party, we are not discussing actual congressional or legislative election outcomes but rather whether the candidate for statewide office being considered, when their votes are disaggregated across the different legislative districts, won a majority of votes in each of those districts.

It is not expected that all of the points will fall outside of the red quadrants. As Dr. Duchin states, "It is not practicable to design a map that always attains these properties" (pg. 4, Duchin Report), however, the Remedial Congressional plan performs very well in that 11 of the 12 elections result in majoritarian outcomes.

Furthermore, the points in the 2022 Remedial Congressional plan exhibit a general upward slope, meaning that as a party wins more votes statewide their share of the seats based on those votes tends to likewise increase. This indicates a map that is more responsive to changes in voters' preferences.

Figure 2: **Close-Votes-Close-Seats Analysis**
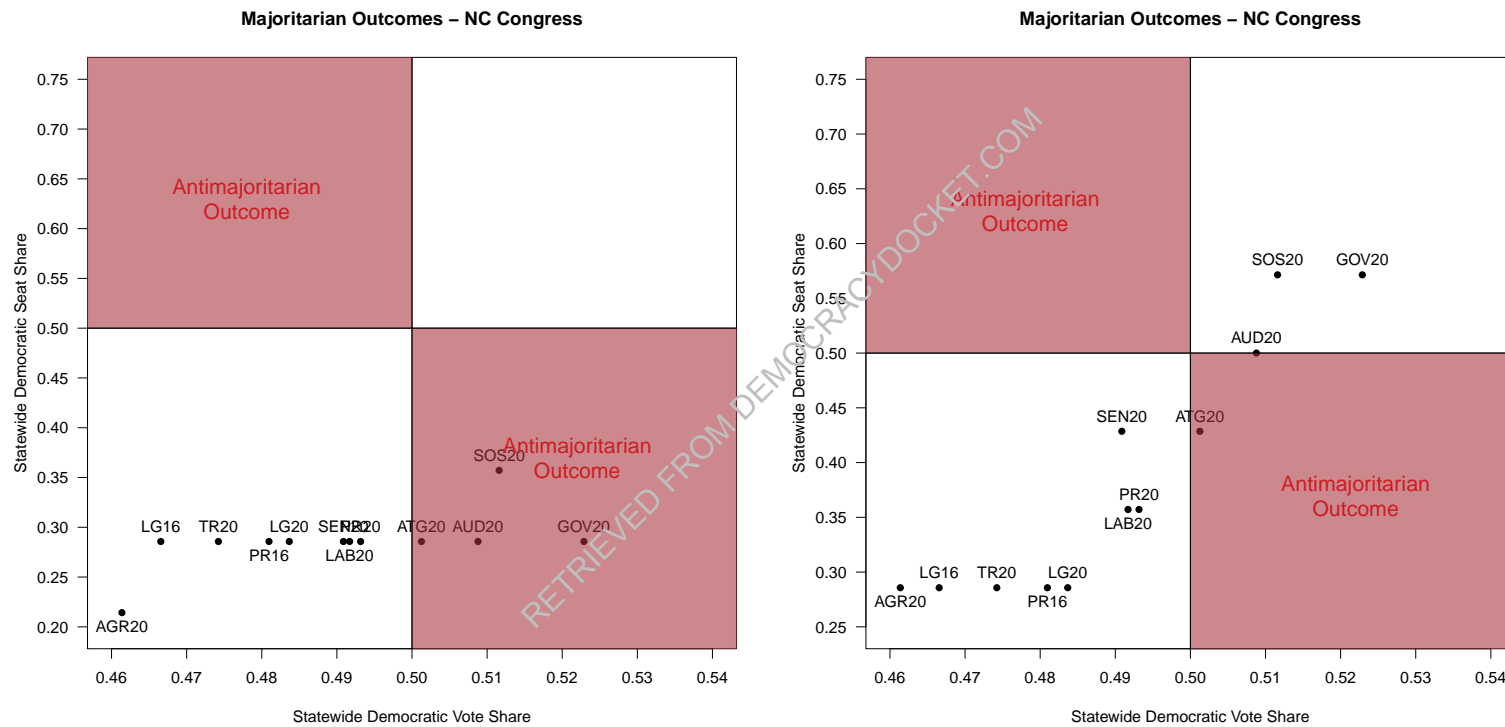
(a) 2021 Enacted Plan

(b) 2022 Remedial plan

Note: Each dot in the figure is a statewide election. The horizontal axis shows the Democratic vote share in each election. The vertical axis shows the proportion of districts that would be won when statewide votes are disaggregated across districts. The left panel shows this for the 2021 Enacted map. The right panel shows this for the 2022 Remedial map.

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3.6 Partisan Symmetry

According to academic literature, the idea behind the concept of partisan symmetry is to attempt to measure whether a redistricting plan treats both parties equally. In his expert report in this case, Dr. Chen discusses this concept, stating: "Another common measure of partisan bias is based on the concept of partisan symmetry and asks the following question: Under a given districting plan and given a particular election-based measure of district partisanship, what share of seats would each party win in a hypothetical tied election (i.e., 50% vote share for each of two parties)" (pg. 46). This statement illustrates one of the key ideas of the concept of partisan symmetry - how seats are distributed across the two political parties in a hypothetical election in which both political parties receive 50% of the votes.

The concept, however, can be extended beyond an analysis of a 50/50 tie. More broadly, the concept of partisan symmetry implies that a particular vote share for Party A that yields a particular seat share for Party A should, in turn, produce roughly the same result for Party B.[11] In other words, if Republicans win 53% of the statewide vote and obtain 60% of the seats in a chamber, then partisan symmetry would suggest that if Democrats were to win 53% of the statewide vote, they should also win 60% of the seats.[12]

A common way academic studies measure partisan symmetry is by producing a seats-votes curve generated by a uniform partisan swing.[13] The basic idea is to look at the vote share in each district and increase/decrease the vote share in each district by a uniform amount across a range of outcomes. As you do this, we note the change in the number of districts won/lost by a party. What this produces is a figure where the horizontal axis shows the statewide vote share across a range of value and the vertical axis shows the proportion of districts carried by a party for each of the vote shares. Each point then shows the

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[11]Nagle, John F., and Alec Ramsay. "On measuring two-party partisan bias in unbalanced states." Election Law Journal: Rules, Politics, and Policy 20, no. 1 (2021): 116-138.

[12]It is often the case that the party that wins a majority of the votes wins more than their proportion of votes in seats. This is referred to as the "winners bonus."

[13]See https://www.amacad.org/news/redistricting-and-representation for an example and explanation by Dr. Duchin.

translation of statewide votes (horizontal axis) to the statewide proportion of seats (vertical axis). Connecting these points creates what is called a seats-votes curve.

Under the partisan symmetry measure, a symmetric plan should exhibit two properties. First, the seats-votes curve should cross, or be very close to, the point (0.5, 0.5), which would indicate a plan where 50% of the votes statewide yields 50% of the seats statewide. Of course, not all plans will perfectly cross this point, but the further a seats-votes curve is from the 50/50 point, the less symmetric the plan is. Furthermore, the seats-votes curve should increase and decrease at roughly the same rate on either side of the 0.50 value. In other words, as Democrats gain more votes statewide, the translation of those votes to seats should be similar to when Republicans gain an equally large share of the votes.

Figure 3 shows the seats-votes curve from a uniform partisan swing for the Congressional maps. The left panel shows this for the 2021 Enacted Congressional map and the right panel shows this for the 2022 Remedial Congressional map. It is immediately apparent that the 2021 Enacted Congressional map is less symmetric than the 2022 Remedial Congressional map.

Each figure notes two important statistics. The first, seat bias at 50% vote, indicates the distance between 50% of the seats and the predicted seat share when the both parties obtain 50% of the votes. In the 2021 Enacted plan this value is 21.4%, or three seats in the 14 district plan. In other words, in the enjoined 2021 Enacted Congressional plan when Democrats win 50% of the vote we would predict that they would win 28.6% of the seats (4/14). The 2022 Remedial Congressional plan is much improved by this measure. Now when Democrats win 50% of the vote is is predicted that they will win 42.8% of the seats (6/14).

The next statistic to note is the "vote bias for 50% of seats", which measures the proportion of the statewide vote that we would expect a party to need to win in order to obtain 50% of the seats. In the enjoined 2021 Enacted Congressional plan this is 5.9%. In other words, we would expect Democrats to have to win 55.9% of the statewide vote before

they would receive 50% of the 14 seats in the congressional delegation. This statistic is also much improved in the 2022 Remedial Congressional plan. Here the vote bias for 50% of seats is 0.6%, meaning that we would expect Democrats to win 7 out of the 14 seats for Congress when they obtain 50.6% of the statewide vote.

The final thing to note in the partisan symmetry analysis is the overall trajectory of the seats-votes curves in each plot. The 2022 Remedial Congressional plan moves in a much smoother and symmetric manner from the bottom left to top right quadrants of the figure. This is not the case in the 2021 Enacted Congressional plan. Here the line is much less symmetric in these two quadrants. In the bottom left quadrant the line is relatively flat while in the top right quadrant the line is relatively steep. This would indicate asymmetry in a plan whereas the line in the 2022 Remedial plan is much more symmetric.

4 Conclusion for Congressional Plan

Overall, the 2022 Remedial plan for North Carolina's congressional districts is an improvement over the 2021 Enacted Congressional plan on the four measures outlined by the Court. The Remedial plan is within the Court's thresholds on the median-mean (-0.61%) and efficiency gap (-5.29%) measures. The plan produces majoritarian outcomes in 11 of the 12 elections considered in the close-votes-close-seats analysis and the plan is much more responsive and symmetric in the seats-votes curves that measure partisan symmetry.

Figure 3: **Partisan Symmetry Analysis**
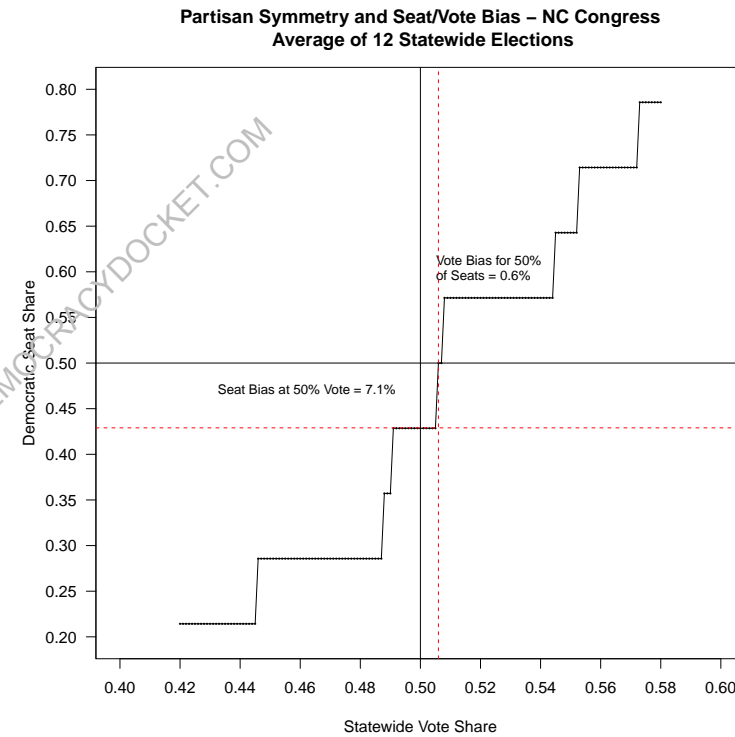
(a) 2021 Enacted Plan

(b) 2022 Remedial plan

Note: The horizontal axis measures the statewide vote share from a uniform swing. The vertical axis shows the expected Democratic share of seats. The seats-votes curve shows the relationship between statewide vote shares and expected statewide seat shares. The left panel shows this for the 2021 Enacted map. The right panel shows this for the 2022 Remedial map.

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5 State House Plan

5.1 Partisan Lean of Districts

Figure 4 shows the partisan lean for each of the 120 seats in the 2022 Remedial House plan for the North Carolina House of Representatives. Districts are ordered from least Democratic-leaning at the bottom to most Democratic-leaning at the top. Districts with a partisan index less than 0.50 (i.e. Republican-leaning) are shown as squares and districts with a partisan index greater than 0.50 (i.e. Democratic-leaning) are displayed as triangles.

Of the 120 districts in the 2022 Remedial House plan, there are 63 districts with an index less than 0.50 (Republican-leaning, shown as squares) and 57 districts with an index greater than 0.50 (Democratic-leaning shown as triangles). A vertical dashed line is placed at 0.50 in the figure for reference. In the now-enjoined 2021 Enacted House plan there were 70 Republican-leaning districts and 50 Democratic leaning districts.

The grey horizontal lines around each point show the range of election outcomes for all of the 12 statewide elections used to generate the index. As can be seen by the width of the grey horizontal bars in each district, there is substantial variation across the 12 elections. Districts in which the Republican candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored red while districts where the Democratic candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored blue. I call these districts safely partisan since in all 12 of the statewide races the same party won a majority of votes. Districts where the grey horizontal lines cross the 0.50 vertical line indicate districts where both parties have won a majority of the votes in that district. Districts where both parties have won a majority of the two-party vote share in these 12 races are colored green.

Looking at the range across the index, there are 55 districts colored red (reliably Republican) in the figure, 42 blue districts (reliable Democratic), and 23 green districts

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(competitive) in the House map. Using an alternative definition of competitiveness based on the closeness of the index to 0.50, there are 59 districts with an index less than 0.48, 12 districts between 0.48 and 0.52 (a commonly used range to define hyper-competitive seats), and 49 districts with an index of greater than 0.52.

Remedial Plan – House
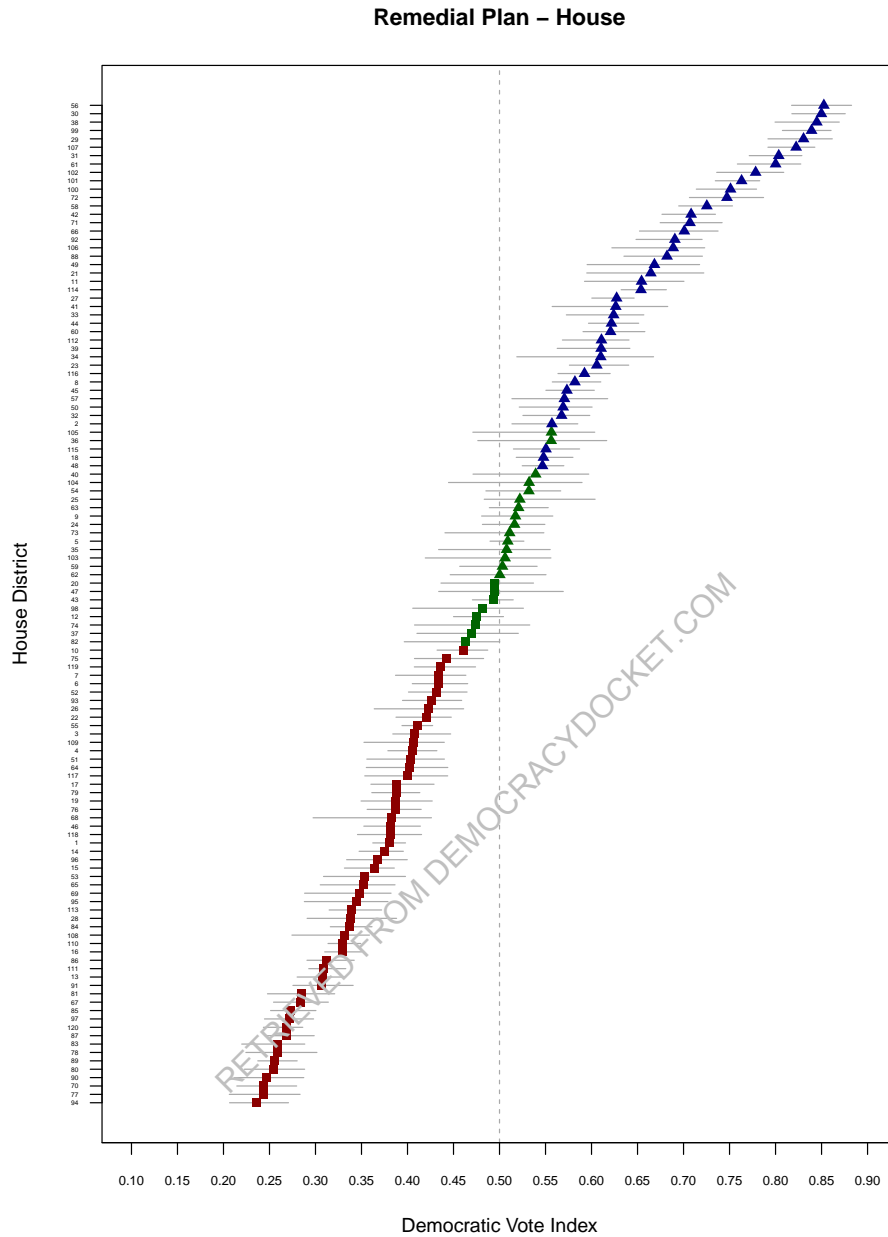
Figure 4: **Partisan Index of House Districts in 2022 Remedial plan:** Partisan Index based on the average of 12 statewide partisan races between 2016-2020. Districts with a partisan index less than .50 (i.e. Republican leaning) are shown as squares and districts with a partisan index greater than .50 (i.e. Democratic leaning) are displayed as triangles. A vertical dashed line is placed at .50 in each panel for reference. The grey lines around each point show the range of election outcomes for all of the 12 statewide elections used to generate the index. Districts in which the Republican candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored red while districts where the Democratic candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored blue. Districts where both parties have won a majority of the two-party vote share in these 12 races are colored green.

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5.2   Median-Mean Measure

Using the 12 statewide elections described above, the proposed 2022 Remedial House map has a median-mean value of -0.70%. This value is within the ±1% standard outlined by the court's ruling. Using the same data and method, the 2021 Enacted House plan had a median-mean measure of -3.36%.

5.3   Efficiency Gap Measure

Using the 12 statewide elections described above, the proposed 2022 Remedial House map has an efficiency gap value of -0.84%. This value is within the ±7% standard outlined by the Court's ruling. Using the same data and method, the 2021 Enacted House plan had an efficiency gap measure of -7.16%.

5.4   Close Votes, Close Seats

Figure 5 shows the close-votes-close-seats analysis for both the 2021 now-enjoined and 2022 Remedial House plan. The left figure shows the results for the 2021 Enacted House plan and the right panel shows the results for the 2022 proposed Remedial House plan. The horizontal axis of each chart measures the statewide vote share earned by the Democratic candidates for each of the 12 statewide elections discussed above. The vertical axis of each chart measures the proportion of districts where the Democratic candidate won a majority of the votes in that same election. in other words, this chart is measuring the degree to which statewide votes are translated to seats. The "northwest" and "southeast" quadrants, colored in red, indicate outcomes that are anti-majoritarian, or places where a party wins a majority of the votes statewide but those votes are not translated into a majority of the seats.[14]

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[14]It is important to note that when discussing "seats won" by a party, we are not discussing actual congressional or legislative election outcomes but rather whether the candidate for statewide office being considered, when their votes are disaggregated across the different legislative districts, won a majority of votes in each of those districts.

In each figure there are 12 dots, one for each of the 12 statewide elections. We see that in the 2021 Enacted House plan there are 4 points in the lower right panel representing anti-majoritarian outcomes. The 2022 Remedial House map is very different. Only 1 of the 12 points (Attorney General 2020) resides in the lower right quadrant where the Democratic candidate for office won a majority of the votes but those votes would not have translated into a majority of the seats. Notably, in this election the Democratic candidate won with only 50.13% of the vote.

All of the remaining 11 elections produce majoritarian outcomes where a majority of votes statewide translate into a majority of the seats in the House. These are the dots in the lower left (southwest) and upper right (northeast) quadrants of the figure.

It is not expected that all of the points will fall outside of the red quadrants. As Dr. Duchin states, "It is not practicable to design a map that always attains these properties" (pg. 4, Duchin Report), however, the 2022 Remedial House plan performs very well in that 11 of the 12 elections result in majoritarian outcomes.

Furthermore, the points in the 2022 Remedial plan exhibit a general upward slope, meaning that as a party wins more votes statewide their share of the seats based on those votes tends to likewise increase. This indicates a map that is more responsive to changes in voters' preferences.

Figure 5: **Close-Votes-Close-Seats Analysis**
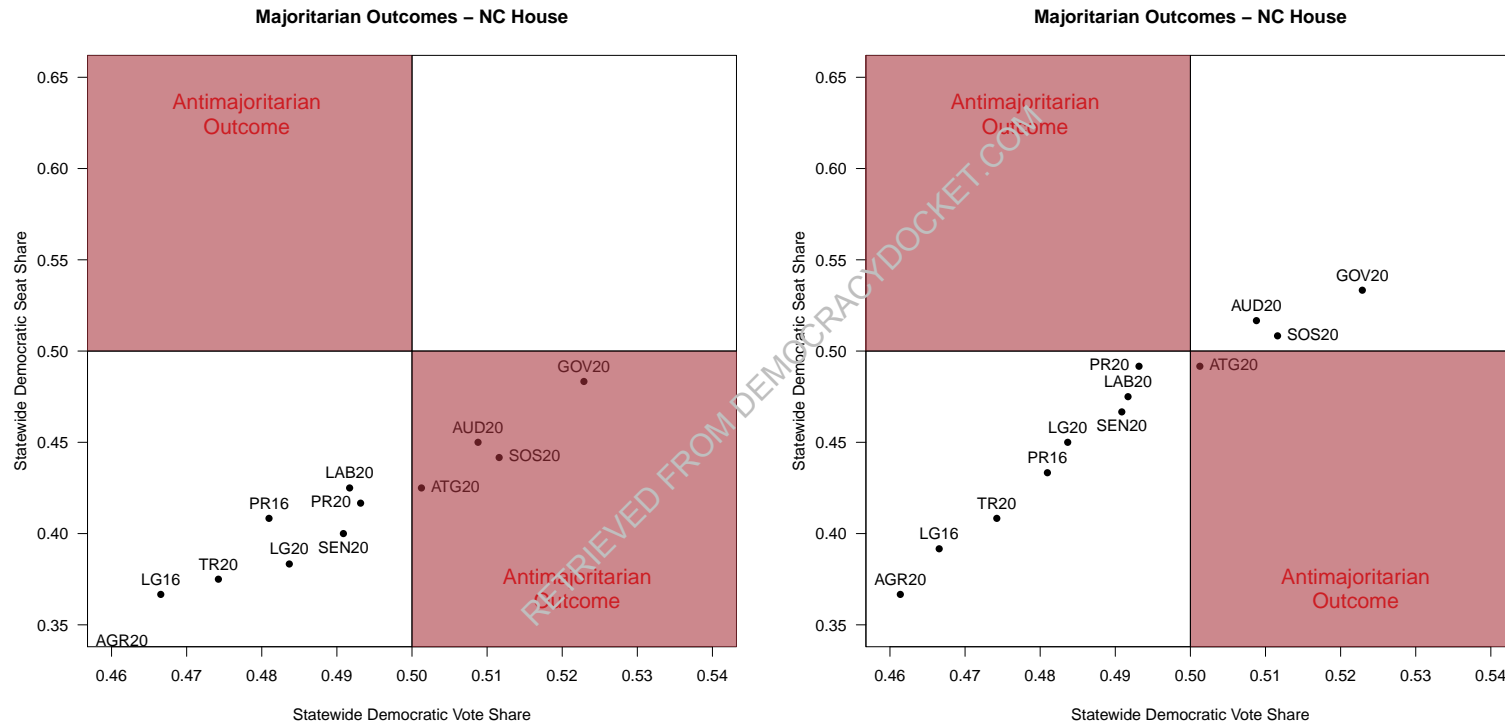
(a) 2021 Enacted Plan

(b) 2022 Remedial plan

Note: Each dot in the figure is a statewide election. The horizontal axis shows the Democratic vote share in each election. The vertical axis shows the proportion of districts that would be won when statewide votes are disaggregated across districts. The left panel shows this for the 2021 Enacted map. The right panel shows this for the 2022 Remedial map.

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5.5   Partisan Symmetry

Figure 6 shows the seats-votes curve from a uniform partisan swing for the state House maps. The left panel shows this for the 2021 Enacted House map and the right panel shows this for the 2022 Remedial House map. It is immediately apparent that the 2021 Enacted House map is less symmetric than the 2022 Remedial House map.

Each figure notes two important statistics. The first, seat bias at 50% vote, indicates the distance between 50% of the seats and the predicted seat share when the both parties obtain 50% of the votes. In the 2021 Enacted plan this value is 7.5%. In other words, in the 2021 Enacted House plan when Democrats win 50% of the vote we would predict that they would win 42.5% of the seats. The 2022 Remedial House plan is much improved on the partisan symmetry metric. Now when Democrats win 50% of the vote it is predicted that they will win 50% of the seats.

The next statistic to note is the "vote bias for 50% of seats", which measures the proportion of the statewide vote that we would expect a party to need to win in order to obtain 50% of the seats. In the 2021 Enacted House plan this is 3.1%. In other words, we would expect Democrats to have to win 53.1% of the statewide vote before they would receive 50% of the seats in the state House. This statistic is also much improved in the 2022 Remedial House plan. Here the vote bias for 50% of seats is -0.2%, meaning that we would expect Democrats to win 60 out of the 120 seats in the chamber when they obtain 49.8% of the statewide vote.

The final thing to note is the overall trajectory of the seats-votes curves in each plot. The 2022 Remedial House plan moves in a much smoother and symmetric manner from the bottom left to top right quadrants of the figure. This is not the case in the 2021 Enacted House plan, where the line is much less symmetric in these two quadrants. The 2022 Remedial House plan also passes exactly through the 50/50 point at the middle of the graph.

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Figure 6: **Partisan Symmetry Analysis**
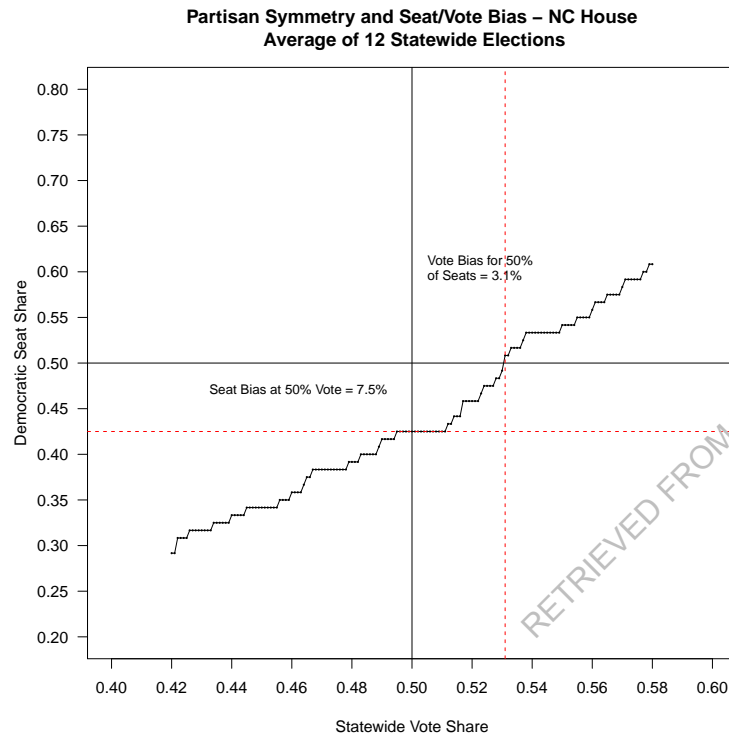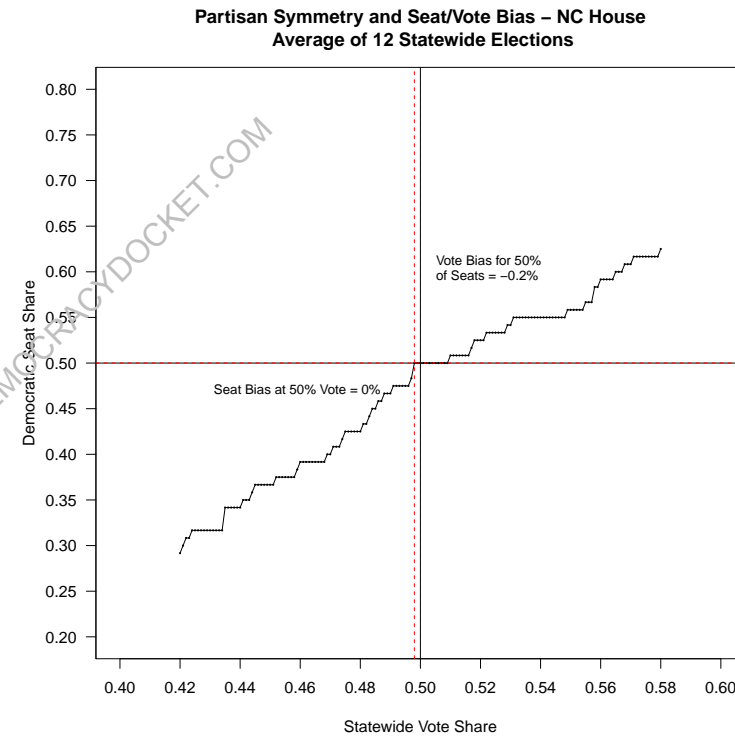
(a) 2021 Enacted Plan

(b) 2022 Remedial plan

Partisan Symmetry and Seat/Vote Bias – NC House
Average of 12 Statewide Elections

Vote Bias for 50%
of Seats = 3.1%

Seat Bias at 50% Vote = 7.5%

Democratic Seat Share

Statewide Vote Share

Partisan Symmetry and Seat/Vote Bias – NC House
Average of 12 Statewide Elections

Vote Bias for 50%
of Seats = −0.2%

Seat Bias at 50% Vote = 0%

Democratic Seat Share

Statewide Vote Share

Note: The horizontal axis measures the statewide vote share from a uniform swing. The vertical axis shows the expected Democratic share of seats. The seats-votes curve shows the relationship between statewide vote shares and expected statewide seat shares. The left panel shows this for the 2021 Enacted map. The right panel shows this for the 2022 Remedial map.

5.6   Considerations of Race

During the trail court hearing various plaintiffs discussed the racial composition of House districts, the presence or absence of racially polarized voting, and the thresholds necessary for Black voters to elect the candidates of their choice. Table 1 below shows the Black voting age population percent for districts with Black incumbents for the districts used in the 2018 election cycle, the 2020 election cycle, the 2021 now-enjoined districts, and the 2022 Remedial plan.

6   Conclusion for North Carolina House Plan

Overall, the 2022 Remedial plan for North Carolina's state House districts is an improvement over the 2021 Enacted House plan on the four measures outlined by the Court. The Remedial House plan is within the Court's thresholds on the median-mean (-0.70%) and efficiency gap (-0.84%) measures. The plan produces majoritarian outcomes in 11 of the 12 elections considered in the close-votes-close-seats analysis and the plan is responsive and symmetric using the seats-votes curve to measure partisan symmetry.

Table 1: BVAP for House Districts with Black Incumbents

Incumbent	2018 District	2018 District %BVAP	Incumbent	2020 District	2020 District %BVAP	SL-2021-175 District	SL-2021-175 %BVAP	2022 Remedial District	2022 Remedial District %BVAP
Hunter	5	44.32%	Hunter	5	42.23%	5	38.59%	5	38.59%
Smith, K.	8	44.85%	Smith, K.	8	43.74%	8	45.45%	8	38.13%
Smith, R.	21	39.00%	Smith, R.	21	38.68%	10	34.27%	10	34.37%
Willingham	23	51.83%	Willingham	23	51.53%	23	53.41%	23	53.41%
Cooper-Suggs	24	38.11%	Cooper-Suggs	24	39.14%	24	37.52%	24	38.50%
Gailliard	25	40.73%	Gailliard	25	43.63%	25	41.00%	25	39.97%
Alston	29	37.49%	Alston	29	38.43%	29	39.58%	29	31.03%
Hawkins	31	49.56%	Hawkins	31	41.29%	31	39.72%	31	45.63%
Garrison	32	49.12%	Garrison	32	49.17%	32	43.24%	32	43.36%
Gill	33	44.18%	Gill	33	41.48%	33	30.91%	33	34.01%
Batch	37	14.34%							
Hulley	38	48.30%	Jones, A.	38	41.46%	38	45.44%	38	43.91%
			Roberson	39	37.83%	39	33.04%	39	33.65%
Lucas	42	42.23%	Lucas	42	40.97%	42	40.97%	42	41.97%
Floyd	43	49.96%							
Pierce	48	36.13%	Pierce	48	37.09%	48	37.09%	48	37.09%
Reives	54	15.74%	Reives	54	13.56%	54	11.60%	54	11.60%
Quick	58	42.66%	Quick	58	44.95%	58	44.65%	58	48.38%
Brockman	60	40.06%	Brockman	60	35.86%	60	36.15%	60	34.68%
Terry	71	36.56%	Terry	71	42.04%	71	41.19%	71	34.81%
Montgomery	72	47.51%	Baker, A.	72	35.76%	72	34.96%	72	40.46%
Beasley	92	30.16%	Brown	92	42.04%	92	40.82%	92	34.38%
Majeed	99	49.54%	Majeed	99	37.71%	99	48.91%	99	48.75%
Logan	101	50.82%	Logan	101	49.89%	101	48.79%	101	53.42%
Lofton	104	6.22%	Lofton	104	12.76%	104	9.10%	104	9.76%
Cunningham	106	38.00%	Cunningham	106	48.48%	106	45.47%	106	37.58%
Alexander	107	49.39%	Alexander	107	55.65%	107	49.16%	107	59.22%

Note: BVAP percents are "% any part Black."

7   State Senate Plan

7.1   Partisan Lean of Districts

Figure 7 shows the partisan lean based on the index of statewide elections for each of the 50 seats in the 2022 Remedial plan for the North Carolina Senate. Districts are ordered from least Democratic-leaning at the bottom to most Democratic-leaning at the top. Districts with a partisan index less than 0.50 (i.e. Republican-leaning) are shown as squares and districts with a partisan index greater than 0.50 (i.e. Democratic-leaning) are displayed as triangles.

Of the 50 districts there are 28 districts with an index less than 0.50 (Republican-leaning, shown as squares) and 22 districts with an index greater than 0.50 (Democratic-leaning shown as triangles). A vertical dashed line is placed at 0.50 in the figure for reference. In the now-enjoined 2021 Enacted plan there were 30 Republican-leaning districts and 20 Democratic leaning districts.

The grey horizontal lines around each point show the range of election outcomes for all of the 12 statewide elections used to generate the index. As can be seen by the width of the grey horizontal bars in each district, there is substantial variation across the 12 elections. Districts in which the Republican candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored red while districts where the Democratic candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored blue. I call these districts safely partisan since in all 12 of the statewide races the same party won a majority of votes. Districts where the grey horizontal lines cross the 0.50 vertical line indicate districts where both parties have won a majority of the votes in that district. Districts where both parties have won a majority of the two-party vote share in these 12 races are colored green.

Looking at the range across the index, there are 24 districts colored red (reliably Republican) in the figure, 18 blue districts (reliable Democratic), and 8 green districts (com-

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petitive) in the House map. Using an alternative definition of competitiveness based on the closeness of the index to 0.50, there are 25 districts with an index less than 0.48, 6 districts between 0.48 and 0.52 (a commonly used range to define hyper-competitive seats), and 19 districts with an index of greater than 0.52.

Remedial Plan – Senate
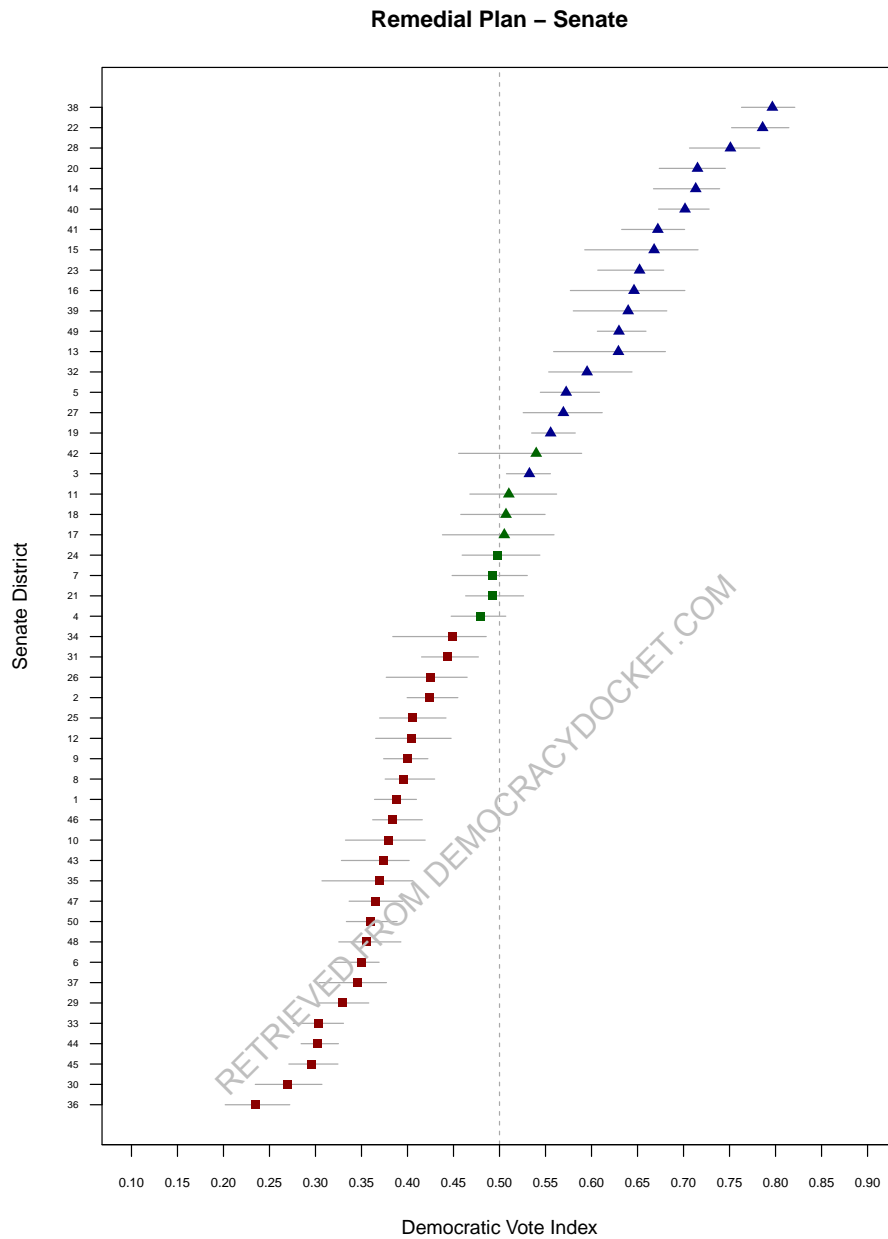
Figure 7: **Partisan Index of Senate Districts in 2022 Remedial plan:** Partisan Index based on the average of 12 statewide partisan races between 2016-2020. Districts with a partisan index less than .50 (i.e. Republican leaning) are shown as squares and districts with a partisan index greater than .50 (i.e. Democratic leaning) are displayed as triangles. A vertical dashed line is placed at .50 in each panel for reference. The grey lines around each point show the range of election outcomes for all of the 12 statewide elections used to generate the index. Districts in which the Republican candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored red while districts where the Democratic candidate for statewide elections won the majority of the two-party vote share in all 12 races are colored blue. Districts where both parties have won a majority of the two-party vote share in these 12 races are colored green.

7.2 Median-Mean Measure

Using the 12 statewide elections described above, the proposed 2022 Remedial Senate map has a median-mean value of -0.65%. This value is within the ±1% standard outlined by the court's ruling. Using the same data and method, the now-enjoined 2021 Enacted Senate plan had a median-mean measure of -3.49%.

7.3 Efficiency Gap Measure

Using the 12 statewide elections described above, the proposed 2022 Remedial Senate plan has an efficiency gap value of -3.97%. This value is within the ±7% standard outlined by the court's ruling. Using the same data and method, the now enjoined 2021 Enacted Senate plan had an efficiency gap value of -8.04%.

7.4 Close Votes, Close Seats

Figure 8 shows the close-votes-close-seats analysis for the Senate plan. The left figure shows the results for the 2021 Enacted Senate plan and the right panel shows the results for the 2022 proposed Remedial Senate plan. The horizontal axis of each chart measures the statewide vote share earned by the Democratic candidates for each of the 12 statewide elections discussed above. The vertical axis of each chart measures the proportion of districts where the Democratic candidate won a majority of the votes in that same election. In other words, this chart is measuring the degree to which statewide votes are translated to seats. The "northwest" and "southeast" quadrants, colored in red, indicate outcomes that are anti-majoritarian, or places where a party wins a majority of the votes statewide but those votes are not translated into a majority of the seats.

In each figure there are 12 dots, one for each of the 12 statewide elections. We see that in the 2021 Enacted Senate plan there are 4 points in the lower right panel representing anti-majoritarian outcomes. The 2022 Remedial Senate map is very different. Only 1 of the

12 points (Attorney General 2020) reside in the lower right quadrant where the Democratic candidate for office one a majority of the votes but those votes would not have translated into a majority of the seats. Notably, in this election the Democratic candidate won with only 50.13% of the vote.

All of the remaining 11 elections produce majoritarian outcomes where a majority of votes statewide translate into a majority of the seats for the state Senate (the Governor 2020 race produces a 25/25 tie). These are the dots in the lower left (southwest) and upper right (northeast) quadrants of the figure.

It is not expected that all of the points will fall outside of the red quadrants. As Dr. Duchin states, "It is not practicable to design a map that always attains these properties" (pg. 4, Duchin Report), however, the 2022 Remedial plan performs very well in that 11 of the 12 elections result in majoritarian outcomes.

Furthermore, the points in the 2022 Remedial plan exhibit a general upward slope, meaning that as a party wins more votes statewide their share of the seats based on those votes tends to likewise increase. This indicates a map that is more responsive to changes in voters' preferences.

Figure 8: **Close-Votes-Close-Seats Analysis**
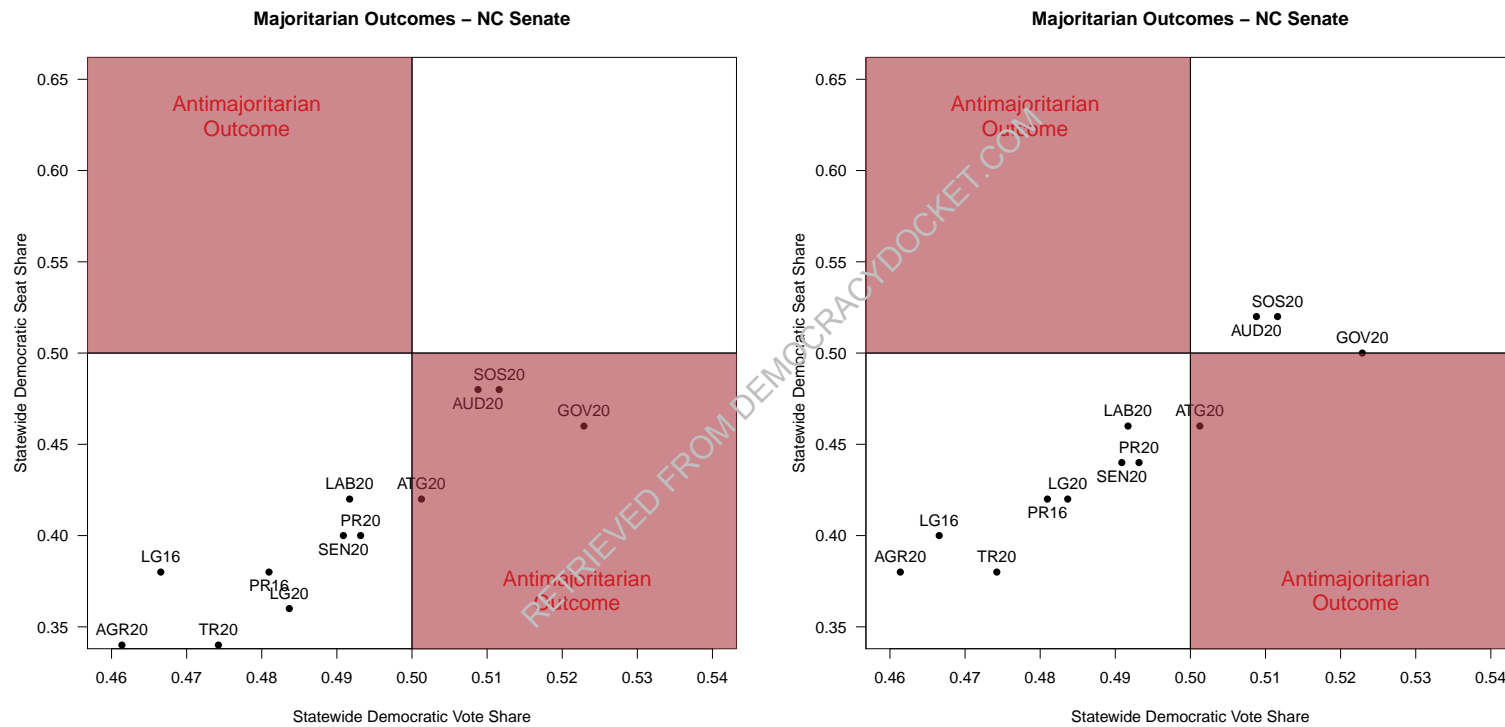
(a) 2021 Enacted Plan

(b) 2022 Remedial plan

Note: Each dot in the figure is a statewide election. The horizontal axis shows the Democratic vote share in each election. The vertical axis shows the proportion of districts that would be won when statewide votes are disaggregated across districts. The left panel shows this for the 2021 Enacted map. The right panel shows this for the 2022 Remedial map.

7.5   Partisan Symmetry

Figure 9 shows the seats-votes curve from a uniform partisan swing for the state Senate maps. The left panel shows this for the 2021 Enacted Senate map and the right panel shows this for the 2022 Remedial Senate map. It is immediately apparent that the 2021 Enacted Senate map is less symmetric than the 2022 Remedial Senate map.

Each figure notes two important statistics. The first, seat bias at 50% vote, indicates the distance between 50% of the seats and the predicted seat share when the both parties obtain 50% of the votes. In the 2021 Enacted Senate plan this value is 6%. In other words, in the 2021 Enacted Senate plan when Democrats win 50% of the vote we would predict that they would win 44% of the seats. The 2022 Remedial Senate plan is much improved on this measure. Now when Democrats win 50% of the vote it is predicted that they will win 50% of the seats.

The next statistic to note is the "vote bias for 50% of seats", which measures the proportion of the statewide vote that we would expect a party to need to win in order to obtain 50% of the seats. In the 2021 Enacted Senate plan this is 2.9%. In other words, we would expect Democrats to have to win 52.9% of the statewide vote before they would receive 50% of the seats in the state Senate. This statistic is also much improved in the 2022 Remedial Senate plan. Here the vote bias for 50% of seats is exactly 0%, meaning that we would expect Democrats to win 25 out of the 50 seats in the chamber when they obtain 50% of the statewide vote.

The final thing to note is the overall trajectory of the seats-votes curves in each plot. The 2022 Remedial Senate plan moves in a much smoother and symmetric manner from the bottom left to top right quadrants of the figure. This is not the case in the 2021 Enacted Senate plan. Here the line is much less symmetric in these two quadrants. In the bottom left quadrant the line is relatively flat while in the top right quadrant the line is relatively steep. This would indicate asymmetry in a plan whereas the line in the 2022 Remedial Senate plan is much more symmetric and passes exactly through the 50/50 point at the middle of the

37

graph.

Figure 9: **Partisan Symmetry Analysis**
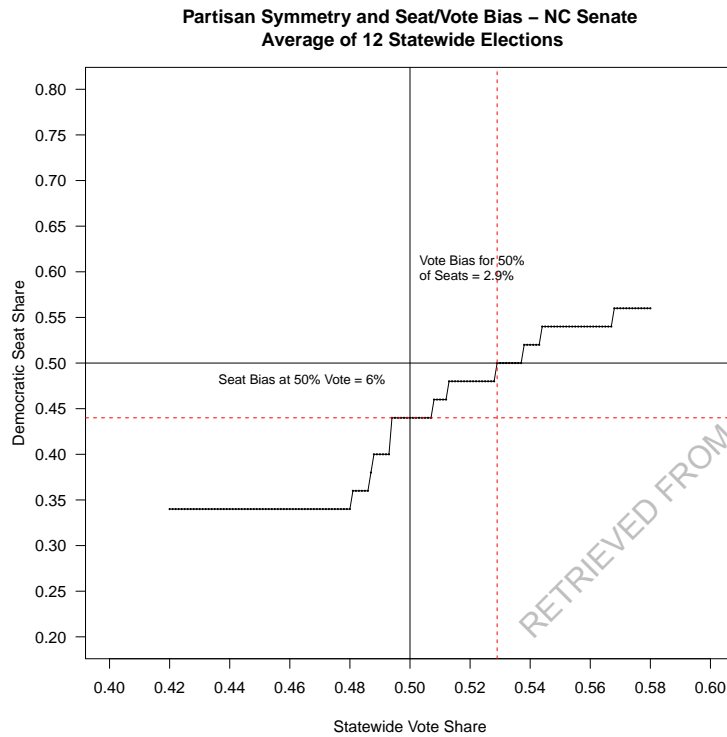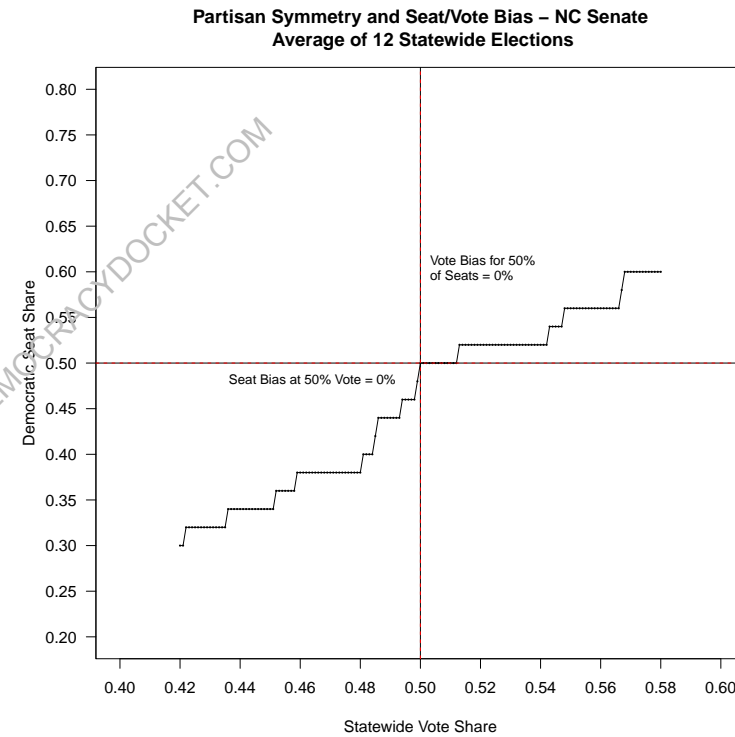
(a) 2021 Enacted Plan

(b) 2022 Remedial plan

Partisan Symmetry and Seat/Vote Bias – NC Senate
Average of 12 Statewide Elections

Partisan Symmetry and Seat/Vote Bias – NC Senate
Average of 12 Statewide Elections

Note: The horizontal axis measures the statewide vote share from a uniform swing. The vertical axis shows the expected Democratic share of seats. The seats-votes curve shows the relationship between statewide vote shares and expected statewide seat shares. The left panel shows this for the 2021 Enacted map. The right panel shows this for the 2022 Remedial map.

7.6   Considerations of Race

During the trail court hearing various plaintiffs discussed the racial composition of Senate districts, the presence or absence of racially polarized voting, and the thresholds necessary for Black voters to elect the candidates of their choice. Table 2 shows the Black voting age population percent for districts with Black incumbents for the districts used in the 2018 election cycle, the 2020 election cycle, the 2021 now-enjoined Enacted Senate districts, and the 2022 Remedial Senate plan.

8   Conclusion for North Carolina Senate Plan

Overall, the 2022 Remedial plan for North Carolina's Senate districts is an improvement over the 2021 Enacted plan on the four measures outlined by the Court. The 2022 Remedial plan is within the Court's thresholds on the median-mean (-0.65%) and efficiency gap (-3.97%) measures. The plan produces majoritarian outcomes in 11 of the 12 elections considered in the close-votes-close-seats analysis and the plan is responsive and symmetric using the seats-votes curve to measure partisan symmetry.

Table 2: BVAP for House Districts with Black Incumbents

Incumbent	2018 District	2018 District %BVAP	Incumbent	2020 District	2020 District %BVAP	SL-2021-173 District	SL-2021-173 District %BVAP	2022 Remedial District	2022 Remedial District %BVAP
Smith, E.	3	44.36%	Bazemore	3	43.04%	1	29.49%	3	42.33%
Fitch	4	47.46%	Fitch	4	47.44%	4	35.02%	4	35.02%
Davis	5	32.94%	Davis	5	35.89%	5	40.35%	5	40.35%
Blue	14	38.85%	Blue	14	33.45%	14	43.25%	14	42.99%
			Batch	17	9.49%	17	10.86%	17	11.47%
Murdock	20	40.35%	Murdock	20	36.79%	20	27.34%	20	27.34%
Clark	21	42.15%	Clark	21	44.13%	24	29.63%	24	29.63%
						19	48.07%	19	39.24%
Foushee	23	12.81%	Foushee	23	11.74%	23	16.73%	23	16.73%
Robinson	28	43.64%	Robinson	28	45.64%	28	51.45%*	28	45.64%
Lewis	32	39.18%	Lowe	32	25.00%	32	35.30%	32	25.19%
			Salvador	39	22.64%	39	40.75%	39	23.13%
Wadell	40	38.88%	Waddell	40	40.59%	40	49.54%	40	38.67%

Note: BVAP percents are "% any part Black." *This district's composition was the result of an amendment offered by that district's incumbent, Democratic Senator Robinson, who stated she thought the district, as amended, was fair and complied with the VRA. The trail court wrote of this: "109. Ultimately, two amendments were accepted in the Senate Committee: (1) An amendment offered by Senator Clark changing the Guilford/Rockingham County grouping (SD26, SD27, and SD28). Senator Hise testified that this amendment was presented at the behest of Senator Robinson, a Democratic member from Guilford, who, under the version presented by the chairs, was double-bunked with Senator Garrett. Trial Tr. 01/05/2022. During debate, Senator Robinson attested in Committee that she understood the amendment complied with the VRA and considered it a fair draw."

I declare under penalty of perjury under the laws of the state of North Carolina that the foregoing is true and correct to the best of my knowledge.

Michael Barber

18 February 2022

Appendix A: Curriculum Vitae

Michael Jay Barber

CONTACT
INFORMATION

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ACADEMIC
APPOINTMENTS

Brigham Young University, Provo, UT

August 2020 - present   Associate Professor, Department of Political Science
2014 - July 2020   Assistant Professor, Department of Political Science
2014 - present   Faculty Scholar, Center for the Study of Elections and Democracy

EDUCATION

Princeton University Department of Politics, Princeton, NJ

Ph.D., Politics, July 2014

- Advisors: Brandice Canes-Wrone, Nolan McCarty, and Kosuke Imai

- Dissertation: "Buying Representation: the Incentives, Ideology, and Influence of Campaign Contributions on American Politics"

- 2015 Carl Albert Award for Best Dissertation, Legislative Studies Section, American Political Science Association (APSA)

M.A., Politics, December 2011

Brigham Young University, Provo, UT

B.A., International Relations - Political Economy Focus, April, 2008

- *Cum Laude*

RESEARCH
INTERESTS

American politics, congressional polarization, political ideology, campaign finance, survey research

PUBLICATIONS

19. **"Ideological Disagreement and Pre-emption in Municipal Policymaking"**
with Adam Dynes
Forthcoming at *American Journal of Political Science*

18. **"Comparing Campaign Finance and Vote Based Measures of Ideology"**
Forthcoming at *Journal of Politics*

17. **"The Participatory and Partisan Impacts of Mandatory Vote-by-Mail"**, with
John Holbein
Science Advances, 2020. Vol. 6, no. 35, DOI: 10.1126/sciadv.abc7685

16. **"Issue Politicization and Interest Group Campaign Contribution Strategies"**,
with Mandi Eatough
Journal of Politics, 2020. Vol. 82: No. 3, pp. 1008-1025

15. **"Campaign Contributions and Donors' Policy Agreement with Presidential Candidates"**, with Brandice Canes-Wrone and Sharece Thrower
Presidential Studies Quarterly, 2019, 49 (4) 770–797

14. **"Conservatism in the Era of Trump"**, with Jeremy Pope
Perspectives on Politics, 2019, 17 (3) 719–736

13. **"Legislative Constraints on Executive Unilateralism in Separation of Powers Systems"**, with Alex Bolton and Sharece Thrower
Legislative Studies Quarterly, 2019, 44 (3) 515–548
Awarded the Jewell-Loewenberg Award for best article in the area of subnational politics published in *Legislative Studies Quarterly* in 2019

12. **"Electoral Competitiveness and Legislative Productivity"**, with Soren Schmidt
American Politics Research, 2019, 47 (4) 683–708

11. **"Does Party Trump Ideology? Disentangling Party and Ideology in America"**, with Jeremy Pope
American Political Science Review, 2019, 113 (1) 38–54

10. **"The Evolution of National Constitutions"**, with Scott Abramson
Quarterly Journal of Political Science, 2019, 14 (1) 89–114

9. **"Who is Ideological? Measuring Ideological Responses to Policy Questions in the American Public"**, with Jeremy Pope
The Forum: A Journal of Applied Research in Contemporary Politics, 2018, 16 (1) 97–122

8. **"Status Quo Bias in Ballot Wording"**, with David Gordon, Ryan Hill, and Joe Price
The Journal of Experimental Political Science, 2017, 4 (2) 151–160.

7. **"Ideologically Sophisticated Donors: Which Candidates Do Individual Contributors Finance?"**, with Brandice Canes-Wrone and Sharece Thrower
American Journal of Political Science, 2017, 61 (2) 271–288.

6. **"Gender Inequalities in Campaign Finance: A Regression Discontinuity Design"**, with Daniel Butler and Jessica Preece
Quarterly Journal of Political Science, 2016, Vol. 11, No. 2: 219–248.

5. **"Representing the Preferences of Donors, Partisans, and Voters in the U.S. Senate"**
Public Opinion Quarterly, 2016, 80: 225–249.

4. **"Donation Motivations: Testing Theories of Access and Ideology"**
Political Research Quarterly, 2016, 69 (1) 148–160.

3. **"Ideological Donors, Contribution Limits, and the Polarization of State Legislatures"**
Journal of Politics, 2016, 78 (1) 296–310.

2. **"Online Polls and Registration Based Sampling: A New Method for Pre-Election Polling"** with Quin Monson, Kelly Patterson and Chris Mann.
Political Analysis 2014, 22 (3) 321–335.

1. **"Causes and Consequences of Political Polarization"** In *Negotiating Agreement in Politics*. Jane Mansbridge and Cathie Jo Martin, eds., Washington, DC: American Political Science Association: 19–53. with Nolan McCarty. 2013.

    - Reprinted in *Solutions to Political Polarization in America*, Cambridge University Press. Nate Persily, eds. 2015

    - Reprinted in *Political Negotiation: A Handbook*, Brookings Institution Press. Jane Mansbridge and Cathie Jo Martin, eds. 2015

AVAILABLE
WORKING PAPERS

"Misclassification and Bias in Predictions of Individual Ethnicity from Administrative Records" (Revise and Resubmit at *American Political Science Review*)

"Taking Cues When You Don't Care: Issue Importance and Partisan Cue Taking"
with Jeremy Pope (Revise and Resubmit)

"A Revolution of Rights in American Founding Documents"
with Scott Abramson and Jeremy Pope (Conditionally Accepted)

"410 Million Voting Records Show the Distribution of Turnout in America Today"
with John Holbein (Revise and Resubmit)

"Partisanship and Trolleyology"
with Ryan Davis (Under Review)

"Who's the Partisan: Are Issues or Groups More Important to Partisanship?"
with Jeremy Pope (Revise and Resubmit)

"Race and Realignment in American Politics"
with Jeremy Pope (Revise and Resubmit)

"The Policy Preferences of Donors and Voters"

"Estimating Neighborhood Effects on Turnout from Geocoded Voter Registration Records."
with Kosuke Imai

"Super PAC Contributions in Congressional Elections"

WORKS IN
PROGRESS

"Collaborative Study of Democracy and Politics"
with Brandice Canes-Wrone, Gregory Huber, and Joshua Clinton

"Preferences for Representational Styles in the American Public"
with Ryan Davis and Adam Dynes

"Representation and Issue Congruence in Congress"
with Taylor Petersen

"Education, Income, and the Vote for Trump"
with Edie Ellison

INVITED
PRESENTATIONS

"Are Mormons Breaking Up with Republicanism? The Unique Political Behavior of Mormons in the 2016 Presidential Election"

- Ivy League LDS Student Association Conference - Princeton University, November 2018, Princeton, NJ

"Issue Politicization and Access-Oriented Giving: A Theory of PAC Contribution Behavior"

- Vanderbilt University, May 2017, Nashville, TN

"Lost in Issue Space? Measuring Levels of Ideology in the American Public"

- Yale University, April 2016, New Haven, CT

"The Incentives, Ideology, and Influence of Campaign Donors in American Politics"

- University of Oklahoma, April 2016, Norman, OK

"Lost in Issue Space? Measuring Levels of Ideology in the American Public"

- University of Wisconsin - Madison, February 2016, Madison, WI

"Polarization and Campaign Contributors: Motivations, Ideology, and Policy"

- Hewlett Foundation Conference on Lobbying and Campaign Finance, October 2014, Palo Alto, CA

"Ideological Donors, Contribution Limits, and the Polarization of State Legislatures"

- Bipartisan Policy Center Meeting on Party Polarization and Campaign Finance, September 2014, Washington, DC

"Representing the Preferences of Donors, Partisans, and Voters in the U.S. Senate"

- Yale Center for the Study of American Politics Conference, May 2014, New Haven, CT

CONFERENCE PRESENTATIONS

Washington D.C. Political Economy Conference (PECO):

- 2017 discussant

American Political Science Association (APSA) Annual Meeting:

- 2014 participant and discussant, 2015 participant, 2016 participant, 2017 participant, 2018 participant

Midwest Political Science Association (MPSA) Annual Meeting:

- 2015 participant and discussant, 2016 participant and discussant, 2018 participant

Southern Political Science Association (SPSA) Annual Meeting:

- 2015 participant and discussant, 2016 participant and discussant, 2017 participant

TEACHING EXPERIENCE

Poli 315: Congress and the Legislative Process

- Fall 2014, Winter 2015, Fall 2015, Winter 2016, Summer 2017

Poli 328: Quantitative Analysis

- Winter 2017, Fall 2017, Fall 2019, Winter 2020, Fall 2020, Winter 2021

Poli 410: Undergraduate Research Seminar in American Politics

- Fall 2014, Winter 2015, Fall 2015, Winter 2016, Summer 2017

AWARDS AND GRANTS	2019 BYU Mentored Environment Grant (MEG), American Ideology Project, $30,000

2017 BYU Political Science Teacher of the Year Award

2017 BYU Mentored Environment Grant (MEG), Funding American Democracy Project, $20,000

2016 BYU Political Science Department, Political Ideology and President Trump (with Jeremy Pope), $7,500

2016 BYU Office of Research and Creative Activities (ORCA) Student Mentored Grant x 3

- Hayden Galloway, Jennica Peterson, Rebecca Shuel

2015 BYU Office of Research and Creative Activities (ORCA) Student Mentored Grant x 3

- Michael-Sean Covey, Hayden Galloway, Sean Stephenson

2015 BYU Student Experiential Learning Grant, American Founding Comparative Constitutions Project (with Jeremy Pope), $9,000

2015 BYU Social Science College Research Grant, $5,000

2014 BYU Political Science Department, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), $3,000

2014 BYU Social Science College Award, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), $3,000

2014 BYU Center for the Study of Elections and Democracy, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), $2,000

2012 Princeton Center for the Study of Democratic Politics Dissertation Improvement Grant, $5,000

2011 Princeton Mamdouha S. Bobst Center for Peace and Justice Dissertation Research Grant, $5,000

2011 Princeton Political Economy Research Grant, $1,500

OTHER SCHOLARLY ACTIVITIES

Expert Witness in Nancy Carola Jacobson, et al., Plaintiffs, vs. Laurel M. Lee, et al., Defendants. Case No. 4:18-cv-00262 MW-CAS (U.S. District Court for the Northern District of Florida)

Expert Witness in Common Cause, et al., Plaintiffs, vs. LEWIS, et al., Defendants. Case No. 18-CVS-14001 (Wake County, North Carolina)

Expert Witness in Kelvin Jones, et al., Plaintiffs, v. Ron DeSantis, et al., Defendants, Consolidated Case No. 4:19-cv-300 (U.S. District Court for the Northern District of Florida)

Expert Witness in Community Success Initiative, et al., Plaintiffs, v. Timothy K. Moore, et al., Defendants, Case No. 19-cv-15941 (Wake County, North Carolina)

Expert Witness in Richard Rose et al., Plaintiffs, v. Brad Raffensperger, Defendant, Civil Action No. 1:20-cv-02921-SDG (U.S. District Court for the Northern District of Georgia)

Georgia Coalition for the People's Agenda, Inc., et. al., Plaintiffs, v. Brad Raffensberger, Defendant. Civil Action No. 1:18-cv-04727-ELR (U.S. District Court for the Northern District of Georgia)

Expert Witness in Alabama, et al., Plaintiffs, v. United States Department of Commerce; Gina Raimondo, et al., Defendants. Case No. CASE No. 3:21-cv-00211-RAH-ECM-KCN (U.S. District Court for the Middle District of Alabama Eastern Division)

Expert Witness in League of Women Voters of Ohio, et al., Relators, v. Ohio Redistricting Commission, et al., Respondents. Case No. 2021-1193 (Supreme Court of Ohio)

ADDITIONAL
TRAINING

EITM 2012 at Princeton University - Participant and Graduate Student Coordinator

COMPUTER
SKILLS

Statistical Programs: R, Stata, SPSS, parallel computing

Updated December 22, 2021

Efficiency Gap

Thursday, February 17, 2022   8:22 PM

Efficiency Gap   5.30%

District	Votes Cast			Total	Votes Wasted			Winner
	All_D	**All_R**			**All_D**	**All_R**		
1	2,428,655	2,038,033		4,466,688	195,310	2,038,033		All_D
2	3,043,597	1,701,559		4,745,156	671,018	1,701,559		All_D
3	1,669,295	2,623,827		4,293,122	1,669,295	477,265		All_R
4	3,099,498	1,535,447		4,634,945	782,025	1,535,447		All_D
5	1,994,671	2,534,345		4,529,016	1,994,671	269,836		All_R
6	2,175,278	2,167,272		4,342,550	4,002	2,167,272		All_D
7	2,252,688	2,222,132		4,474,820	15,277	2,222,132		All_D
8	1,843,129	2,564,638		4,407,767	1,843,129	360,754		All_R
9	1,651,614	2,638,368		4,289,982	1,651,614	493,376		All_R
10	1,340,680	3,242,871		4,583,551	1,340,680	951,095		All_R
11	2,216,635	2,744,117		4,960,752	2,216,635	263,740		All_R
12	2,851,759	1,407,069		4,258,828	722,344	1,407,069		All_D
13	2,147,774	2,293,003		4,440,777	2,147,774	72,614		All_R
14	2,092,540	2,219,208		4,311,748	2,092,540	63,333		All_R
Total	**30,807,813**	**31,931,889**		**62,739,702**	**17,346,314**	**14,023,525**		

Summary	All_D	All_R		Total
Seats	**6**	**8**		**14**
Pct of Seats	**42.86%**	**57.14%**		
Pct of Votes	**49.10%**	**50.90%**		

User:
Plan Name: **SL 2022-3**
Plan Type: **Congressional**

Measures of Political Asymmetry

Thursday, February 17, 2022   8:28 PM

Declination   0.07   **Mean-Median Difference   0.61%**

District	Votes Cast		Total	Winner
	All_D	**All_R**	**Total**	**Winner**
1	2,428,655	2,038,033	4,466,688	All_D
2	3,043,597	1,701,559	4,745,156	All_D
3	1,669,295	2,623,827	4,293,122	All_R
4	3,099,498	1,535,447	4,634,945	All_D
5	1,994,671	2,534,345	4,529,016	All_R
6	2,175,278	2,167,272	4,342,550	All_D
7	2,252,688	2,222,132	4,474,820	All_D
8	1,843,129	2,564,638	4,407,767	All_R
9	1,651,614	2,638,368	4,289,982	All_R
10	1,340,680	3,242,871	4,583,551	All_R
11	2,216,635	2,744,117	4,960,752	All_R
12	2,851,759	1,407,069	4,258,828	All_D
13	2,147,774	2,293,003	4,440,777	All_R
14	2,092,540	2,219,208	4,311,748	All_R
Total	**30,807,813**	**31,931,889**	**62,739,702**	
Seats	**6**	**8**	**14**	
Pct of Seats	**42.86%**	**57.14%**		
Pct of Votes	**49.10%**	**50.90%**		

Maptitude
For Redistricting

STATE OF NORTH CAROLINA

COUNTY OF WAKE

NORTH CAROLINA LEAGUE OF
CONSERVATION VOTERS, et al.,

REBECCA HARPER, et al.,

            Plaintiffs,

vs.

REPRESENTATIVE DESTIN HALL, in his
official capacity as Chair of the House
Standing Committee on Redistricting, et al.,

            Defendants.

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
21 CVS 015426

Consolidated with
21 CVS 500085

LEGISLATIVE DEFENDANTS' NOTICE OF APPEAL

TO THE HONORABLE SUPREME COURT OF NORTH CAROLINA:

Pursuant to Rule 3 of the North Carolina Rules of Appellate Procedure and the Supreme

Court of North Carolina's 4 February 2022 order and 14 February 2022 opinion, Legislative

Defendants hereby give notice of appeal to the Supreme Court of North Carolina from that portion

of the order entered on 23 February 2022 by Superior Court Judges A. Graham Shirley, Nathaniel

J. Poovey, and Dawn M. Layton that rejects the General Assembly's Remedial Congressional Plan

as enacted on 17 February 2002, and adopts a plan by the Special Masters in accordance with the

Supreme Court of North Carolina's order of 4 February 2022 and opinion of 14 February 2022.

Legislative Defendants also give notice of appeal from the same Superior Court's 23 February 2022 order denying Legislative Defendants' motion to disqualify Special Master Assistants Wang and Jarvis.

Respectfully submitted this the 23rd day of February, 2022.

_____

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Katherine McKnight* (VA Bar No. 81482)
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* Admitted Pro Hac Vice

CERTIFICATE OF SERVICE

It is hereby certified that on this the 23rd day of February, 2022, the foregoing was served on the individuals below by email:

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Counsel for Plaintiffs North Carolina League of Conservation Voters, et al.

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