STATE OF NORTH CAROLINA

COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
21 CVS 50085

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.

HARPER PLAINTIFFS' PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECREE

TABLE OF CONTENTS

Page

Harper Plaintiffs respectfully submit the following Proposed Findings of Fact, Proposed Conclusions of Law, and Proposed Decree.

PROPOSED FINDINGS OF FACT

A. Republicans Repeatedly Gerrymandered North Carolina's Congressional, State House, and State Senate Redistricting Plans During the Last Decade

1. In the 2010 elections, Republicans gained control of both the North Carolina House and the North Carolina Senate for the first time since 1870. The House and Senate each established redistricting committees that were jointly responsible for preparing congressional and legislative redistricting plans (the "2011 Plans").

2. The House and Senate Redistricting Committees engaged Dr. Thomas Hofeller to draw the House, Senate, and congressional plans. Dr. Hofeller and his team drew the 2011 Plans at the North Carolina Republican Party headquarters in Raleigh using mapmaking software licensed by the North Carolina Republican Party. Dr. Hofeller's goal was to maximize Republican advantage. Dr. Hofeller later testified that the Committee Chairs instructed him to "create as many [congressional] districts as possible in which GOP candidates would be able to successfully compete for office." Deposition of Thomas Hofeller ("Hofeller Dep.") at 123:2-23 (Jan. 24, 2017). And Republican leaders similarly admitted in court filings that "political considerations played a significant role in the enacted [2011 legislative] plans," and that the plans were "designed to ensure Republican majorities in the House and Senate." *Dickson v. Rucho*, No. 201PA12-3, 2015 WL 4456364, at *16, 55 (N.C. July 13, 2015).

3. The 2011 legislative plans were challenged and invalidated as unlawful racial gerrymanders in *Covington v. North Carolina*, 316 F.R.D. 176, 176-78 (M.D.N.C. 2016), *aff'd* .137 S. Ct. 2211 (2017). The 2011 congressional plan was invalidated as an unlawful racial gerrymander in *Harris v. McCrory*, 159 F. Supp. 3d 600 (M.D.N.C. 2016).

4. The General Assembly proceeded to draw remedial legislative and congressional maps. Republicans held supermajority control of both chambers of the General Assembly at that time and thus had the power to draw the new plans unilaterally.

5. Legislative Defendants again engaged Dr. Hofeller, who was instructed to use political data, namely statewide elections, to draw a map that would ensure 10 Republican congressional seats and 3 Democratic seats. *See* Deposition of Representative David Lewis ("Lewis Dep.") at 162:24-163:7, 166:13-169:1 (Jan. 26, 2017); Hofeller Depo. 175:19-23, 178:14-20, 188:19-190:2.

6. At a meeting on February 16, 2016, the Joint Committee charged with drawing the 2016 congressional plan adopted a set of criteria (the "2016 Adopted Criteria") that included "Partisan Advantage" as one official criterion. This criterion required the new plan to preserve Republicans' existing 10-3 advantage in North Carolina's congressional delegation. The criterion read as follows:

> **Partisan Advantage**: The partisan makeup of the congressional delegation under the enacted plan is 10 Republicans and 3 Democrats. The Committee shall make reasonable efforts to construct districts in the 2016 Contingent Congressional Plan to maintain the current partisan makeup of North Carolina's congressional delegation.

7. In explaining this Partisan Advantage criterion, Representative Lewis proposed that the Committee "draw the maps to give a partisan advantage to 10 Republicans and 3 Democrats because I do not believe it's possible to draw a map with 11 Republicans and 2 Democrats." Joint Comm. Session, Feb. 16, 2016, at 50:6-10. Representative Lewis "acknowledge[d] freely that this would be a political gerrymander." *Id.* at 48:4-5.

8. The Joint Committee adopted "Political Data" as another criterion, which stated:

> **Political Data:** The only data other than population data to be used to construct congressional districts shall be election results in statewide contests since January 1, 2008, not including the last two presidential contests. Data identifying the race of

> individuals or voters shall not be used in the construction or consideration of districts in the 2016 Contingent Congressional Plan. Voting districts ("VTDs") should be split only when necessary to comply with the zero deviation population requirements set forth above in order to ensure the integrity of political data.

9. Representative Lewis left no doubt as to how this political data would be used, telling the Joint Committee members he "want[ed] to make clear that to the extent [we] are going to use political data in drawing this map, it is to gain partisan advantage on the map. I want that criteria to be clearly stated and understood." Joint Comm. Session, Feb. 16, 2016, at 53:24-54:4.

10. The General Assembly passed the 2016 congressional plan in February 2016. No Democrat in either chamber voted for the 2016 congressional plan.

11. The 2016 congressional plan achieved precisely its intended partisan effects—a guaranteed 10-3 Republican advantage in North Carolina's congressional delegation. In the 2016 elections, Democratic congressional candidates in North Carolina won a combined 47% of the statewide vote, and yet won only 3 of 13 seats (23%). The results were even more striking in 2018. Democrats won a majority of the statewide vote (50.9%, when adjusting for one uncontested race in which Democrats did not field a candidate) but carried only 3 of the 13 seats (23%).

12. The General Assembly gerrymandered the remedial state legislative maps the following year in strikingly similar fashion. At a July 26, 2017 joint meeting of the House and Senate Redistricting Committees, Representative Lewis and Senator Hise disclosed that Republican leadership would again employ Dr. Hofeller to draw the new House and Senate plans.

13. At another joint meeting on August 10, 2017, the House and Senate Redistricting Committees voted on criteria to purportedly govern the new plans. Representative Lewis proposed as one criterion: "election data[:] political consideration and election results data may

be used in drawing up legislative districts in the 2017 House and Senate plans." Joint Comm. Hr'g, Aug. 10, 2017, at 132. The House and Senate Committees adopted the "election data" criterion on a party-line vote. *Id.* at 141-48. No Democrat on the Committees voted for the criterion, but all 32 Republican members of the Committees did. *Id.*

14. The General Assembly passed the 2017 House and Senate plans on party-line votes. No Democratic Senator voted in favor of either plan. The sole Democratic member of the House who voted for the plans was Representative William Brisson, who switched to become a Republican several months later.

15. The 2017 state legislative plans achieved their intended partisan effects. In the 2018 Senate elections, Democratic candidates won 50.5% of the two-party statewide vote, but only 21 of 50 seats (42%). And in the 2018 House elections, Democratic candidates won 51.2% of the two-party statewide vote, but only 55 of 120 seats (46%).

16. Subsequently, both sets of remedial plans were invalidated as unconstitutional partisan gerrymanders by three-judge panels of this Court.

17. In *Common Cause v. Lewis*, No. 18 CVS 014001, 2019 WL 4569584 (N.C. Super. Sep. 03, 2019), the court struck down the 2017 legislative maps as violating North Carolina Constitution's Free Elections Clause, Equal Protection Clause, and Freedom of Speech and Freedom of Assembly Clauses. *Id.* at *2-3.

18. In *Harper v. Lewis* (*Harper I*), the same panel preliminary enjoined the 2016 congressional plan as an extreme partisan gerrymander that locked in a 10-3 Republican advantage and violated North Carolina's Free Elections Clause, Equal Protection Clause, and Free Speech and Assembly Clauses. The House and Senate passed a remedial plan on straight party-line votes on November 14 and 15, 2019. The *Harper I* court held that there was

insufficient time to assess the new maps before the primary election.

B. Legislative Defendants Drew the 2021 Plans in Secret and Concealed the True Map-drawing Process to Create a Façade of Transparency

19. In late 2021, after the release of redistricting data from the 2020 decennial census, the General Assembly passed new House, Senate, and congressional plans. Because Republicans control both chambers of the General Assembly, they once again had unilateral control over the map-drawing process.

1. The Redistricting Committees' Adopted Criteria Trumpeted Transparency But Permitted Obvious Workarounds

20. On August 12, the House Committee on Redistricting and the Senate Committee on Redistricting and Elections adopted criteria (the "2021 Adopted Criteria") to guide the enactment of new plans. Unlike the 2016 adopted criteria, which provided that "[r]easonable efforts shall be made not to divide a county into more than two districts," the 2021 Adopted Criteria included no similar limitation.

21. While the 2021 Adopted Criteria provided that "[p]artisan considerations and election results data shall not be used in the drawing of districts in the 2021 Congressional, House, and Senate plans," both the map-drawing process and the maps that were ultimately adopted made clear that this admonition was not followed.

22. Legislative Defendants sought to instill public confidence in that preordained result by requiring legislators to draw and submit maps using software on computer terminals in the redistricting committee hearing rooms. PX79 at 3:1-20 (statement of Rep. Destin Hall, Chairman, H. Comm. on Redistricting) (Oct. 5, 2021 H. Redistricting Comm. Hr'g Tr.). According to Representative Destin Hall—Chairman of the House Redistricting Committee and one of the Legislative Defendants—North Carolinians could be confident in the process because

that software did not include political data, and the House and Senate Committees would only consider maps drawn and submitted on the software. *Id.* at 52:3-8.

23. According to Representative Hall explained to the Committee on October 5, a day before legislators began drawing maps in the public terminal room, the Committee and "the House as a whole" would "only consider maps that are drawn in this committee room, on one of the four stations." PX79 at 4:15-19. "So if a map is not drawn on one of these four stations, in this committee room, during those committee hours that the committee is open, then those maps will not be considered for a vote by this committee, and of course, will not be considered for a vote by the House." *Id.* at 4:19-24. Legislators could ensure that was the case, Representative Hall asserted, because "when you put a map into one of these computers, that becomes a matter of public record, and we can tell which were drawn on these computers. It has to be drawn in this committee room." *Id.* at 4:25-5:4. Representative Hall assured the public that this process would be fundamentally different from "what's happened in the past," where "some outside entity, a consultant, goes and they draw the map behind closed doors"; in 2021, we "will literally be drawing on the stations that you see." *Id.* at 41:23-42:13.

24. That turned out not to be true, due to an obvious, intentional loophole. While the four computer terminals in the committee hearing room did not *themselves* have election data loaded onto them, the House and Senate Committees did nothing to prevent legislators and their staff from relying on pre-drawn maps created using political data, or even direct consultation of political data itself.

25. Chairman Hall explained in October hearings that the Committees did not intend to prevent any such practices, and he made clear that he interpreted the 2021 Adopted Criteria to allow the use of political data in the drawing of maps so long as the data were not loaded onto

the computer terminals in the committee hearing room. PX79 at 66:11-66:16 (Representative Reives asserting that this process "sounds [like] an easy get around, in a legal sense, around the criteria that we've set up"); *id.* at 66:17 (Chairman Hall responding: "I don't think I have the ability to police members of this committee, nor do I want to . . . I know I'm not going to bring in a map and sit down and draw it, but you know, the reality is, we're elected officials.").

26. Representative Hall and Senator Ralph E. Hise, Jr., one of the Chairs of the Senate Redistricting Committee, confirmed that no restrictions on the use of outside maps were ever implemented or enforced. PX145 at 70:22-71:1 (Hall Depo.) (Q: "[Y]ou in fact did not examine what members brought into the room during the map drawing sessions, did you?" A: "I think I've made pretty clear so far. No, I didn't do that, nor would I do that."); PX 146 at 34:16-20 (Hise Rough Tr.) (Q: "Did you do anything to prevent members from bringing concept maps or draft maps or anything like that with them into the hearing room?" A: "We did not").

27. Democratic legislators proposed limitations that would have prevented these sorts of practices facilitating the use of partisan election data in the creation of the maps. For example, on August 17, Representative Pricey Harrison submitted additional proposed criteria that—among several other transparency-increasing measures—would have required disclosure of "all consultants and outside counsel who would be participating in the redistricting process" and would have prohibited consideration of maps "drawn using data or methods disclosed to the public in advance." PX51 at 3-4 (declaration); PX52 (proposal). The House Committee did not adopt any of her recommendations. PX51 ¶¶ 13-14.

2. The 2021 Plans Were Drawn Outside the Committee Hearing Room That Was Designated for All Map-drawing

28. The absence of any restrictions on what materials legislators could consult in developing the maps had real consequences. Representative Hall testified that when drawing the

enacted House plan, he relied on maps created by his staff outside the public map-drawing room. Representative Hall testified that he personally drew nearly all of the House map enacted as House Bill 976, and that he did so over multiple days at an official computer terminal. PX145 at 110:4-9, 116:11-15, 120:5-24. But Representative Hall also testified that, between his sessions at the public terminal, he repeatedly met with his then-General Counsel, Dylan Reel, and others for "strategy sessions" about the map-drawing in a private room adjacent to the public map-drawing room. *Id.* at 128:2-132:17.

29. In several of these strategy sessions, Representative Hall, Mr. Reel, and in some cases Speaker Moore's Chief of Staff Neil Inman (and potentially others) reviewed "concept maps" of several county groupings for the House map. PX145 at 141:20-142:19, 145:7-146:18. Representative Hall would study these "concept maps" in the private room, and then rely on them to draw district lines for that particular county cluster on the public terminal. *Id.* at 128:7-131:5, 222:2-223:2. In at least "a couple" of instances, Mr. Reel accompanied Representative Hall into the public map-drawing room and displayed an image of a "concept map" on his smartphone while Representative Hall drew the district lines on the public terminal. *Id.* at 222:2-9, 230:13-17.

30. Representative Hall testified that, to the best of his recollection, he relied on these concept maps for "around five" House county clusters in total, including Wake County, Pitt County, the Forsyth-Stokes county cluster, and (potentially) Mecklenburg County, and possibly others. PX145 at 132:18-139:11.

31. All of the private "concept maps" were drawn by Mr. Reel. PX145 at 125:2-5. From August 2021 until this December, Mr. Reel was General Counsel to Representative Hall as Chair of the Rules Committee and Redistricting Committee; he is now a lobbyist and consultant

at McGuire Woods. *Id.* at 223:15-23. Mr. Reel did not use the computer terminals set up in the House Committee room to draw the concept maps. *Id.* at 123:14-18. Representative Hall in fact did not know whose computer was used to draw them, *id.* at 123:11-13, or even whether it was issued by the legislature, *id.* at 148:22-24, though he knew it "wasn't [his own] computer," *id.* at 125:10, and "assume[d]" it was Mr. Reel's, 148:18-19.

32. Nor did Representative Hall know which redistricting software Mr. Reel used to draw the concept maps. PX145 at 150:2-154:1. Representative Hall acknowledged that some popular map-drawing applications (for example, Dave's Redistricting) come pre-loaded with election data and racial data. *Id.* at 151:7-22. He testified that could not be sure whether the concept maps were drawn using that type of software. *Id.* at 151:23-152:4. Yet he made no effort to verify that the "concept maps" had not been drawn using election data or racial data—or even to determine generally whether his staff had "consulted any partisan or elections data." *Id.* at 122:16-18.

33. Representative Hall, Mr. Reel, and Mr. Inman viewed these "concept maps" on a laptop computer in their private meeting room, outside of the publicly accessible committee hearing room that had been designated for all map-drawing and away from the videocameras set up to record and livestream the map-drawing process. PX145 at 154:2-10.

34. Unlike maps drawn on the computer terminals in the hearing room, these "concept maps" are not, and were never, publicly available. PX145 at 158:13-24. There is no public information—no video, no audio, no meeting notes, no list of attendees—about Representative Hall's and Mr. Reel's "strategy sessions" during which these "concept maps" were developed and discussed, or about the "concept maps" themselves. *Id.* at 158:25-159:17. These strategy sessions were ad hoc, not "scheduled at all." *Id.* at 132:3-9.

35. Representative Hall offered no explanation for why these strategy sessions were held in private. PX145 at 156:10-158:12. There was "no one in [the] strategy sessions that would have been forbidden in the public hearing room." *Id.* at 155:11-15. And according to Representative Hall, he would have been free to bring copies of the concept maps into the public map-drawing room (as Mr. Reel did on at least a few occasions). *Id.* at 155:16-156:3.

36. Prior to Representative Hall's deposition on December 27, 2021, Legislative Defendants had not disclosed this involvement of Mr. Reel in the redistricting process or the existence of these or any "concept maps." They in fact insisted the opposite, both to Harper Plaintiffs, to the Court, and to the public. In particular, after *Harper* Plaintiffs on December 21 issued discovery requests seeking documents and information concerning the 2021 map-drawing process—specifically including "draft redistricting plans (whether partial or complete)"—Legislative Defendants told *Harper* Plaintiffs that they would not be responding in part because all information Plaintiffs sought was "publicly available" on the General Assembly's website and on YouTube. Legislative Defendants made the same representation to the Court in opposing *Harper* Plaintiffs' motion to compel responses to their discovery requests. The Court granted the motion, requiring Legislative Defendants to respond by the morning of December 28.

37. In their discovery responses, Legislative Defendants identified for the first time several non-legislators, including Mr. Reel, who participated in drawing maps and whose activities were not publicly known, contradicting their previous assertion to *Harper* Plaintiffs and to the Court that all the information sought by Plaintiffs was "publicly available." They also reaffirmed the existence of these "concept maps" used in the drawing of several House county clusters. Yet Legislative Defendants insisted that they had no obligation to produce the concept maps or related materials on the ground that Legislative Defendants themselves lacked

immediate physical possession: "[n]either Defendant Hall nor the other Legislative Defendants have copies of these concept maps or any information or data related to such maps." *Harper* Plaintiffs again moved to compel, explaining that the lack of physical possession was irrelevant under the plain terms of their discovery requests and under Rule 34, which requires production of materials not just in a party's physical possession, but also in their legal custody or control.

38. The Court agreed and granted *Harper* Plaintiffs' second motion to compel. The Court referenced N.C.G.S. § 120-133(a), which provides that "documents prepared by legislative employees for legislators concerning redistricting the North Carolina General Assembly or the Congressional Districts are no longer confidential and become public records upon the act establishing the relevant districting plan becoming law. Present and former legislative employees may be required to disclose information otherwise protected by N.C.G.S. § 120-132 concerning redistricting the North Carolina General Assembly or the Congressional Districts upon the act establishing the relevant district plan becoming law." Order on Mot. Compel at 5 (citing N.C.G.S. § 120-133(a)). The Court concluded that "although Mr. Dylan Reel is no longer an employee of Representative Hall, he is plainly a legislative employee, N.C.G.S. § 120-129(2), and the documents provided by Mr. Reel for Representative Hall were no longer confidential and become public records as of November 4, 2021, when S.L. 2021-175 (House Bill 976) was enacted, N.C.G.S. § 120-133(a)." *Id.* at 6. Accordingly, the Court found that the concept maps and all related data and information were sufficiently in "Representative Hall's control and custody" such that he could easily request them from his former staffer "on demand." *Id.* at 6. The Court ordered that Legislative Defendants produce the requested materials by 9 a.m. the next day, and directed that "[i]f the concept maps or any related information identified in Legislative Defendants' response to Interrogatory No. 2 have been lost or destroyed, Legislative Defendants

shall identify the lost or destroyed material with specificity and certify to that loss or destruction." *Id.*

39. On December 31, Legislative Defendants served supplemental responses that yet again did not produce the concept maps or any related data. Instead, Legislative Defendants' sole reference to the concept maps came in a single sentence in the supplemental interrogatory responses: "Defendant Hall states that after the Court's order of December 29, 2021, he called Dylan Reel and Mr. Reel stated that the concept maps that were created *were not saved, are currently lost and no longer exist.*" PX680 at 4 (emphasis added).

40. Despite the Court's December 29 order requiring "Legislative Defendants [to] identify the lost or destroyed material with specificity," Legislative Defendants provided no further information about the missing files—not even basic facts about the devices on which these files were created or stored, or the nature of the files themselves. Legislative Defendants' responses also failed to identify images of the concept maps that, according to Representative Hall, were on Mr. Reel's smartphone and were used in drawing the enacted House map. *Harper* Plaintiffs had specifically identified these images in their motion to compel, *see* Mot. to Compel at 3, 5, 6, 8, and in an email sent to Legislative Defendants' counsel following Representative Hall's deposition, *see* Mot. to Compel Ex. C at 1. Legislative Defendants also referred only to the concept maps themselves, failing to explain whether there is any additional information "related" to these maps—for example, data on the computer or smartphone or that Mr. Reel or others consulted from elsewhere when creating the concept maps—which this Court expressly required be produced. Order on Mot. to Compel at 7.

41. *Harper* Plaintiffs moved for discovery sanctions based on Legislative Defendants' spoliation of relevant evidence and their failure to comply with the Court's order. *Harper*

Plaintiffs requested that this Court impose sanctions permitted under North Carolina law governing spoliation and under Rule 37, including (1) to draw an adverse inference that the destroyed materials would have shown that Legislative Defendants considered partisan and racial data during the map-drawing process, and (2) to preclude Legislative Defendants from introducing testimony or evidence that Legislative Defendants did not consider partisan or racial data during the map-drawing process.

42. For the reasons set forth in *Harper* Plaintiffs' motion, the Court agrees that the requested sanctions are warranted. Legislative Defendants undisputedly have lost or destroyed files that constitute public records bearing directly on the highly relevant question of what information map-drawers considered when drawing the enacted plans. At the time of the destruction, which occurred in late October 2021 at the very earliest, there clearly was a high likelihood of litigation that would place the map-drawers' intent squarely at issue—litigation that Legislative Defendants themselves referred to on the public record while discussing the mapmaking process. As this Court previously recognized, the spoliated information "goes to the heart of the dispute in this redistricting matter." Order on Mot. to Compel at 4. The circumstances of the destruction, and Legislative Defendants' refusal to provide even basic information about the deleted files, further confirm that evidentiary sanctions are warranted. And while the spoliated evidence bears most directly on the 2021 House map, Representative Hall's reliance on pre-drawn, never-disclosed draft maps provides circumstantial evidence that a similar process used followed in creating the Senate and congressional plans. The Court therefore finds that the mapmakers considered partisan data in drawing all of the enacted plans.

3. The Public Hearings Were a Farce

43. Over the next two months, Legislative Defendants held a truncated series of public hearings that amounted to little more than a farce. North Carolinians received little

advanced notice of these hearings, as Legislative Defendants waited until September 1 to announce that the first round of public hearings would begin on September 8, PX86, even though Senator Hise admitted that Legislative Defendants could have commenced committee meetings and pre-map drawing public hearings as early as January. *See* Hise Dep. Tr. 143:4-144:22. Worse, Legislative Defendants announced public hearings on the final maps only a few days before they would begin on October 25. PX 29. And they ignored recommendations from Democratic committee members to schedule additional hearings throughout the state with more advanced notice. PX52; Hise Dep. Tr. 33:13-34:7.

44. Adding insult to injury, Legislative Defendants largely ignored public testimony submitted during these hearings. Representative Harrison testified that the Committees received a large volume requests from members of the public to make public comments about the redistricting process and the proposed maps available online—a step that the Committees refused to take. PX52. Public testimony about the maps under consideration also went unheeded: Residents of the Sandhills overwhelmingly asked that their communities be united in one congressional district centered on Cumberland County, while residents of Guilford County almost unanimously opposed the division of their county into three districts. *Id.*

4. The 2021 Plans Were Passed on Strict Party-Line Votes

45. The 2021 Congressional Plan was passed on strict party-line votes in the House on November 4 and the Senate on November 2. No Democrat in either chamber voted for the plan.

46. The General Assembly enacted the 2021 House Plan, on strict party-line votes, on November 4. No Democrat in either chamber voted for the plan.

47. The General Assembly enacted the 2021 Senate Plan, on strict party-line votes, on November 4. No Democrat in either chamber voted for the plan.

C. The 2021 Congressional Plan Was Designed Intentionally and Effectively To Maximize Republican Advantage in the State's Congressional Delegation

48. The analysis and conclusions of Plaintiffs' experts establishes that the 2021 Congressional Plan is an extreme partisan outlier intentionally and carefully designed to maximize Republican advantage in North Carolina's Congressional delegation. Three of Plaintiffs' experts—Drs. Chen, Mattingly, and Pegden—employed computer simulations to generate alternative Congressional plans to serve as a baseline for comparison to the enacted Congressional plan. Even though these experts employed different methodologies, each expert found that the enacted plan is an extreme outlier that could only have resulted from an intentional effort to secure Republican advantage. Plaintiffs' expert Dr. Christopher Cooper explained how this gerrymandering was carried out in each of the 14 congressional districts and has led to a substantial disconnect between the ideology and policy preferences of North Carolina's citizenry and their representatives in the General Assembly. The Court credits the analysis and conclusions of each of Plaintiffs' experts individually, and the Court concludes that the findings of each of these experts, using different methodologies, powerfully reinforce that the 2021 Congressional Plan is an extreme, intentional, and effective partisan gerrymander.

49. Legislative Defendants offered no defense of the 2021 Congressional Plan. No expert witness opined that it was not an extreme partisan gerrymander and no expert witness criticized any of the analysis by Plaintiffs' experts.

1. Dr. Jowei Chen

50. Plaintiffs' expert Jowei Chen, Ph.D., is an Associate Professor in the Department of Political Science at the University of Michigan, Ann Arbor. Chen Rep. 2 ¶2. Dr. Chen is also a Research Associate Professor at the Center for Political Studies of the Institute for Social

Research at the University of Michigan and a Research Associate at the Spatial Social Science Laboratory at Stanford University. *Id.*

51. Dr. Chen has extensive experience in redistricting matters. Chen Rep. 2 ¶4. Dr. Chen has published academic papers on legislative districting and political geography in several political science journals, including The American Journal of Political Science and The American Political Science Review, and Election Law Journal. *Id.* at 2 ¶3. His academic areas of expertise include legislative elections, spatial statistics, geographic information systems (GIS) data, redistricting, racial politics, legislatures, and political geography. *Id.* He also has expertise in the use of computer simulations of legislative districting and in analyzing political geography, elections, and redistricting. *Id.*

52. Dr. Chen has presented expert testimony regarding his simulation methodology in numerous prior partisan gerrymandering lawsuits, and his analysis has been consistently credited and relied upon by the courts in these cases. Chen Rep. 2-3 ¶4; *see League of Women Voters v. Commonwealth*, 178 A.3d 737, 818 (Pa. 2018) (finding "Dr. Chen's expert testimony" to be "[p]erhaps the most compelling evidence" in invalidating Pennsylvania's congressional plan as an unconstitutional partisan gerrymander); *Raleigh Wake Citizens Ass'n v. Wake Cty. Bd. of Elecs.*, 827 F.3d 333, 344 (4th Cir. 2016) ("T]he district court clearly and reversibly erred in rejecting Dr. Chen's expert testimony."); *League of Women Voters of Mich. v. Benson*, 373 F. Supp. 3d 867, 907 (E.D. Mich. 2019) ("[T]he Court has determined that Dr. Chen's data and expert findings are reliable."); *Common Cause v. Rucho*, 279 F. Supp. 3d 587, 666 (M.D.N.C.), *vacated and remanded and other grounds*, 138 S. Ct. 2679 (2018) ("Dr. Mattingly's and Dr. Chen's simulation analyses not only evidence the General Assembly's discriminatory intent, but also provide evidence of the 2016 Plan's discriminatory effects"); *City of Greensboro v. Guilford*

Cty. Bd. of Elecs., 251 F. Supp. 3d 935, 943 (M.D.N.C. 2017) (relying upon the "computer simulations by Dr. Jowei Chen" to find impermissible partisan intent); *Common Cause v. Lewis*, 2019 WL 4569584, at *18 ("The Court gives great weight to Dr. Chen's findings and, to the extent set forth below, adopts his conclusions.").

53. The Court accepts Dr. Chen in this case as an expert in redistricting, the use of computer simulations of redistricting, political geography, and geographic information systems.

54. Using his computer simulation methodology, Dr. Chen analyzed whether partisan intent predominated in the drawing the of the 2021 enacted congressional plan and subordinated the General Assembly's mandated redistricting criteria (PX34 "Adopted Criteria"), including avoiding county and voting tabulations district ("VTD") splits and creating compact districts. Chen Rep. 3 ¶6. Dr. Chen further analyzed the partisan bias of the enacted congressional plan on a statewide and district-by-district basis. *Id.*

55. Based on his analysis, Dr. Chen concluded that partisan intent predominated over the 2021 Adopted Criteria in drawing the adopted congressional plan, and that the Republican advantage in the enacted plan cannot be explained by North Carolina's political geography or adherence to the Adopted Criteria. Chen Rep. 49 ¶¶77-78, 98, 100. Dr. Chen found that the plan was an extreme partisan statistical outlier on every level—statewide, regionally, and on a district-by-district basis—and by every measure analyzed—overall seat share, partisan vote-share ranges, number of competitive districts, and various widely-used partisan bias measures. The Court credits Dr. Chen's findings and adopts each of his conclusions.

56. In his academic research on legislative districting, partisan and racial gerrymandering, and electoral bias, Dr. Chen has developed various computer simulation programming techniques that allow him to produce a large number of nonpartisan districting

plans that adhere to traditional districting criteria using U.S. Census geographies as building blocks. Chen Rep. 4 ¶7. Dr. Chen's simulation process ignores all partisan and racial considerations when drawing districts, and the computer simulations are instead programmed to draw districting plans following various traditional districting goals, such as equalizing population, avoiding county and Voting Tabulation District (VTD) splits, and pursuing geographic compactness. *Id.* By randomly generating a large number of districting plans that closely adhere to these traditional districting criteria, Dr. Chen assesses an enacted plan drawn by a state legislature and determines whether partisan goals motivated the legislature to deviate from these traditional districting criteria. *Id.* Specifically, by holding constant the application of nonpartisan, traditional districting criteria through the simulations, he is able to determine whether the enacted plan could have been the product of something other than partisan considerations. *Id.*

57. In his simulation set here, Dr. Chen programmed his algorithm to follow the traditional districting principles mandated by the General Assembly's Adopted Criteria. Chen Rep. 5 ¶8; PX34. This is the same method Dr. Chen employed in *Common Cause v. Lewis*, 2019 WL 4569584, and *Harper v. Lewis*, No. 19 CVS 012667 (N.C. Super. 2019). Chen Rep. 5 ¶8.

58. Specifically, Dr. Chen programmed the computer algorithm to create 1,000 independent simulated plans adhering to the following seven districting criteria mandated by the 2021 Adopted Criteria: (1) population equality (2) contiguity, (3) minimizing county splits and (4) minimizing VTD splits, and prioritizing the other traditional redistricting principles set forth in the Adopted Criteria of (5) compactness, (6) avoiding incumbent pairings, and (7) avoiding splitting municipalities. Chen Rep. 6-9 ¶11; PX34.

59. The Court finds that Dr. Chen's computer algorithm properly adhered to the Adopted Criteria, as well as traditional redistricting principles. The Court further finds that Dr. Chen's interpretation and application of the Adopted Criteria is fully consistent with General Assembly's requirements and guidance. The Court further finds that Dr. Chen's application of these criteria is consistent with generally accepted redistricting principles and practice.

a) The enacted congressional plan does not adhere to the Adopted Criteria.

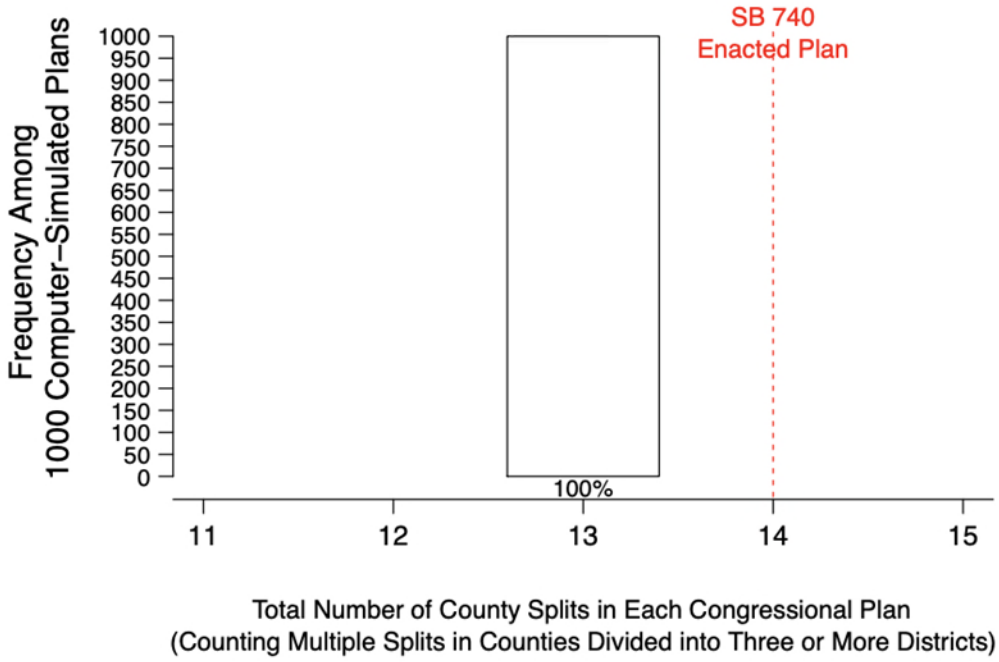
60. Dr. Chen compared his 1,000 computer-simulated plans to the enacted 2021 congressional plan along a number of measures. First, Dr. Chen compared the number of counties that the simulated and enacted congressional plans split. The enacted congressional plan splits 14 counties. Chen Rep. 11-12 ¶17; tbl. 1. In Dr. Chen's simulations, no plan splits more than 13 counties while maintaining equal population among all districts and avoiding pairing of incumbents in any one district, as required by the Adopted Criteria. *Id.* at 12 ¶17; PX34. From this, Dr. Chen concluded that the enacted congressional plan does not comply with the Adopted Criteria's rule against unnecessary division of counties. *Id.* at 13 ¶18.

61. Additionally, Dr. Chen found that the three-way splits of three counties in the enacted congressional plan, is something that occurs only 1.7% of the time in the simulated plans. Chen Rep. 13 ¶19. Dr. Chen concluded that the enacted congressional plans' level of concentrating multiple county splits within a single county is an outcome that does not occur in a vast majority of the simulated plans drawn. *Id.* Dr. Chen also found that Mecklenburg, Wake, and Guilford counties were never split multiple times in his simulations. *Id.*

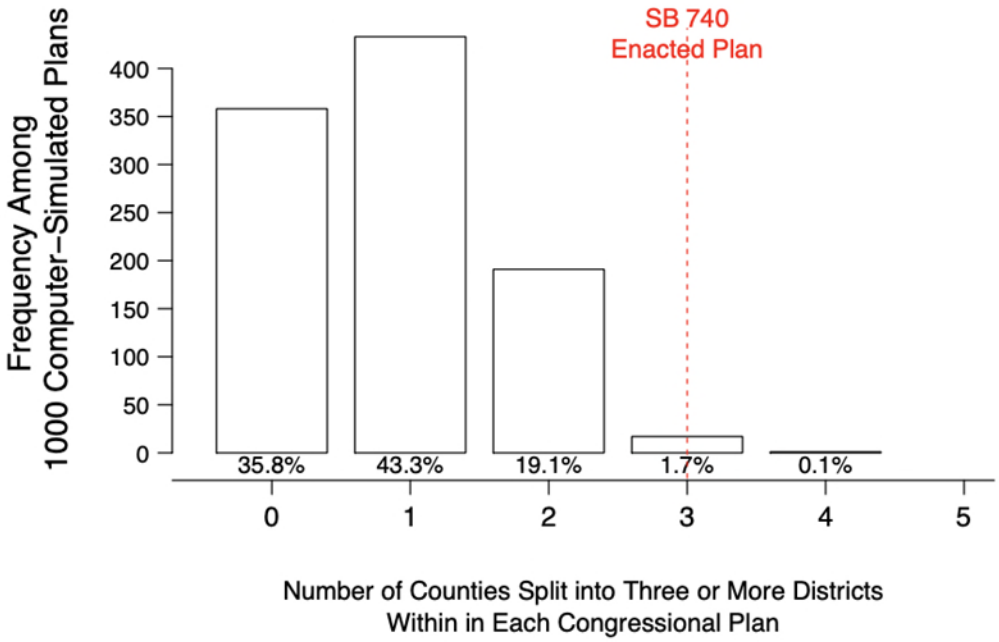
62. Figure 1 in Dr. Chen's report depicts how the enacted congressional plan compares to the number of counties split and the number of counties split into three or more districts within each congressional plan in Dr. Chen's 1,000 simulations.

Figure 1:

Comparison of Total County Splits in Enacted SB 740 Plan and 1,000 Computer–Simulated Plans



Number of Counties Split Multiple Times
in Enacted SB 740 Plan and 1,000 Computer–Simulated Plans



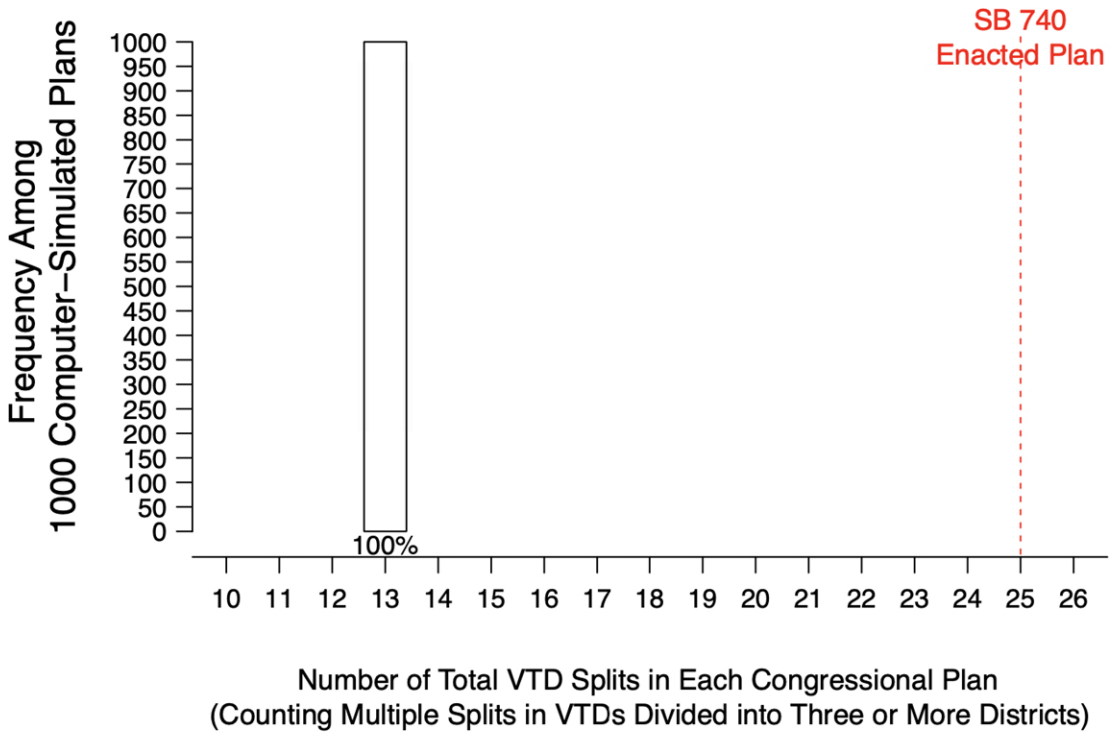
63. The Court finds that the enacted congressional plan fails to follow and subordinates the Adopted Criteria's requirement that counties be split only for reasons of population equality or for the protection of incumbents. The Court finds that the enacted congressional plan splits more counties than is necessary. The Court also finds that the enacted congressional plan unnecessarily splits three heavily Democratic counties—Mecklenburg, Wake, and Guilford Counties—into three districts each.

64. Dr. Chen also compared the number of VTDs split in the enacted congressional plan to his 1,000 simulations. Dr. Chen found that, while the simulated congressional plans split only 13 VTDs, the enacted congressional plan contains 25 VTD splits, almost double the number of VTDs that are necessary to split to maintain population equality as required by the Adopted Criteria. Chen Rep. 15 ¶22; PX34. From this, Dr. Chen concluded that the enacted congressional plan violates the Adopted Criteria's requirement that VTDs "should be split only when necessary." *Id.* at 15 ¶23.

65. Figure 2 in Dr. Chen's report depicts the number of VTDs split under the enacted congressional plan and the 1,000 simulations in Dr. Chen's simulations:

Figure 2:

Comparison of Total VTD Splits in Enacted SB 740 Plan and 1,000 Computer–Simulated Plans



66. The Court finds that the enacted congressional plan fails to follow, and subordinates, the Adopted Criteria's requirement of avoiding the unnecessary splitting of VTDs. The Court finds that the enacted congressional plan splits far more VTDs than is necessary.

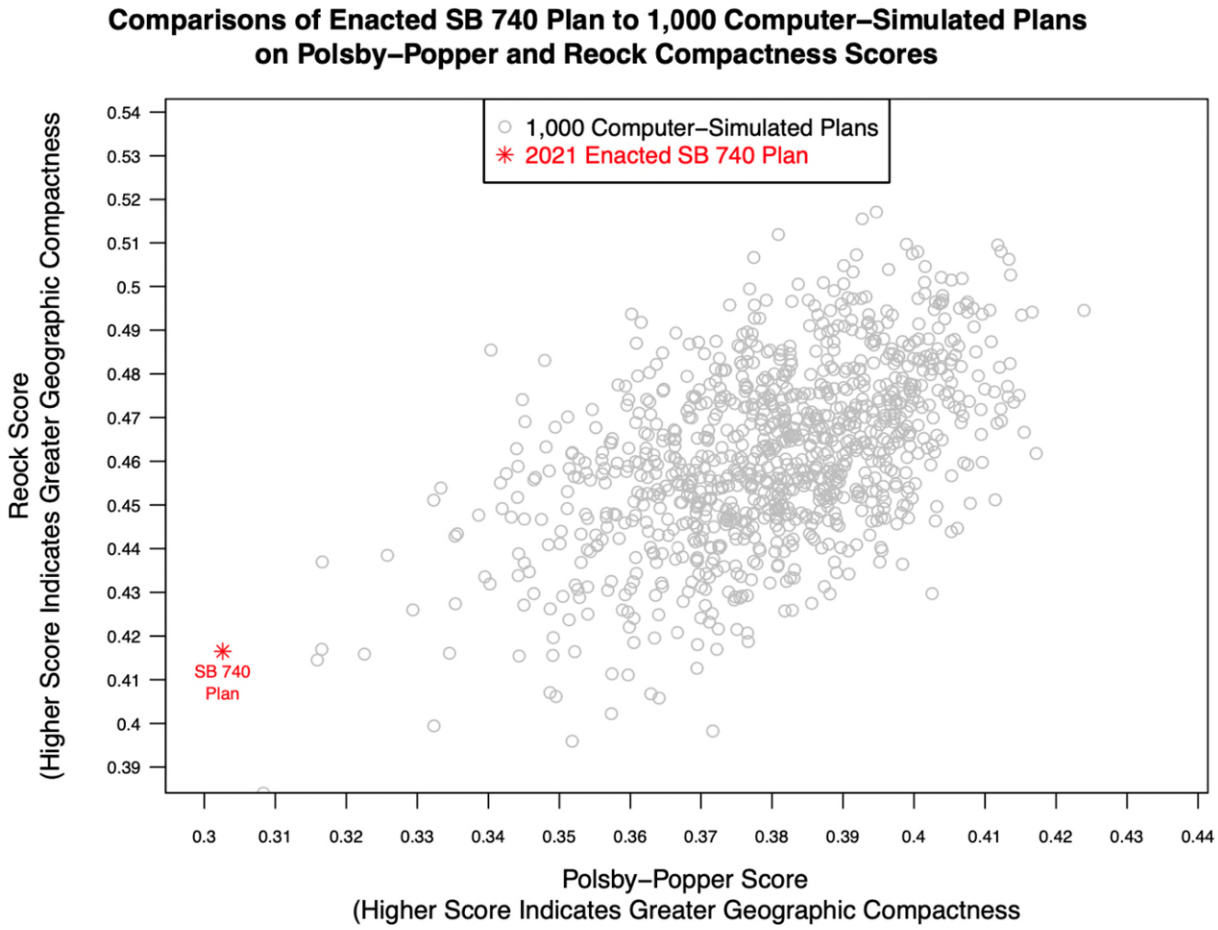
67. Dr. Chen found that the enacted congressional plan is also less compact than almost all of his 1,000 simulations. Dr. Chen employed the measures of compactness set forth in the Adopt Criteria, known as Reock and Polsby-Popper scores. PX34. For both measures, a higher score indicates that a plan's districts are more compact. Chen Rep. 17-18 ¶¶26-27.

68. Dr. Chen found that, as measured by Polsby-Popper scores, the enacted congressional plan is far less compact than all 1,000 simulated congressional plans. Chen Rep. 17 ¶26. He further found, as measured by Reock scores, the enacted congressional plan is far

less compact than almost all 1,000 simulated congressional plans. *Id.* at 18 ¶27. From this, Dr. Chen concluded that the enacted congressional plan is significantly less compact than would have been expected from a districting process adhering to the Adopted Criteria. *Id.* at 17-18 ¶¶26-27.

69. Figure 3 in Dr. Chen's report depicts the compactness of the enacted congressional plan and Dr. Chen's 1,000 simulations:

Figure 3:



70. The Court finds that the enacted congressional plan fails to follow, and subordinates, the Adopted Criteria's requirement to draw compact districts. The Court finds that the enacted congressional districts are less compact than they would be under a map-drawing

process that adhered to the Adopted Criteria and prioritized the traditional districting criteria of compactness.

b) The Enacted Congressional Plan is an extreme statistical partisan outlier.

71. To compare the partisanship of his simulated plans to the enacted congressional plan, Dr. Chen used census block-level election results from recent statewide elections in North Carolina. Chen Rep. 21 ¶32. For his analysis, Dr. Chen used the following ten elections: 2016 US President, 2016 US Senator, 2016 Governor, 2016 Lieutenant Governor, 2016 Attorney General, 2020 US President, 2020 US Senator, 2020 Governor, 2020 Lieutenant Governor, and 2020 Attorney General. *Id.* at 21 ¶31. Dr. Chen aggregated the results of these elections into a single composite, referred to as the "Statewide Election Composite."

72. Dr. Chen analyzed these elections because they are the same state and federal offices whose election results were used by the General Assembly during its 2017 legislative redistricting process, and the 2017 redistricting process was the most recent one in which the leadership of the General Assembly's redistricting committees publicly announced how the General Assembly would evaluate the partisanship of its own districting plans. Chen Rep. 21 ¶31. Additionally, past voting history in federal and statewide elections is a strong predictor of future voting. *Id.* at 20 ¶28.

73. By overlaying these past election results onto the enacted congressional plan, Dr. Chen calculated the Republican share of the votes cast from within each district in the enacted congressional plan and in each simulated plan. Chen Rep. 20 ¶28. Based on these calculations, Dr. Chen directly compared the partisanship of the enacted congressional plan and the simulated plans. *Id.* Dr. Chen used these comparisons to determine whether the partisanship of individual enacted districts and the partisan distribution of seats in the enacted congressional plan could

reasonably have arisen from a districting process adhering to the Adopted Criteria and its explicit prohibition on partisan considerations. *Id.*

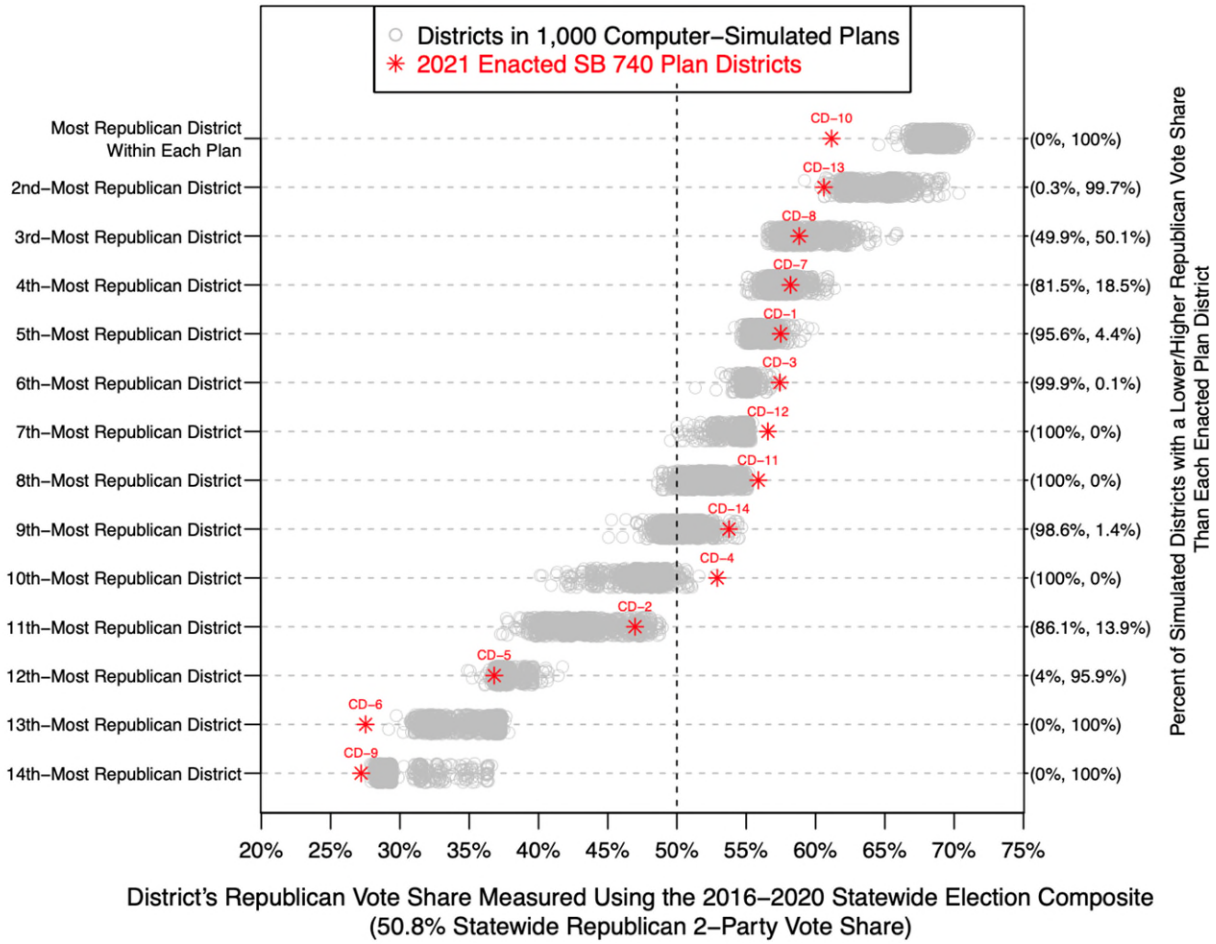
74. The Court finds that the use of statewide elections by Plaintiffs' experts to measure the partisanship of simulated and enacted districts to be a reliable methodology. The Court further credits Dr. Chen's use of the ten elections comprising the Statewide Election Composite.

75. To measure the partisanship of his simulated districts and the enacted districts, Dr. Chen obtained precinct-level results for the elections in the ten elections in the Statewide Election Composite and aggregated the census block-level results to the district level. Chen Rep. 21 ¶32. In other words, using the census blocks that would comprise a particular district in a given simulation and the actual election results from those census blocks, Dr. Chen calculated the percentage total two-party votes in that simulated district for Republican candidates in the 2016-2020 statewide election contests. *Id.* at 21-22 ¶32-33.

76. Figure 4 in Dr. Chen's report compares the partisan distribution of districts in the enacted congressional plan to the partisan distribution of districts in the 1,000 computer-simulated plans:

Figure 4:

Comparisons of Enacted SB 740 Plan Districts to 1,000 Computer–Simulated Plans' Districts



Chen Rep. 22 ¶33; *id.* at 23 ¶35.

77. In Figure 4, the enacted congressional plan's districts are ordered from the most to the least-Republican district, as measured by Republican vote share using the Statewide Election Composite. Chen Rep. 23 ¶35. The red stars mark enacted districts and are labeled with district numbers, while the gray dots represent the corresponding 1,000 simulated districts. In other words, each row compares one district from the enacted congressional plan to 1,000 computer-simulated districts based on Republican vote share. *Id.* at 23-24 ¶35. The two percentages in parentheses in the right margin of this Figure report the percentage of these 1,000 simulated

districts that are less Republican than, and more Republican than, the enacted congressional plan's district. *Id.* at 26 ¶36 .

78. As the bottom row of Figure 4 illustrates, the most-Democratic district in the enacted congressional plan (CD-9) is more heavily Democratic than 100% of the most-Democratic districts in each of the 1,000 computer-simulated plans. Chen Rep. 26 ¶37. Every single one of the computer-simulated counterpart districts would have been more politically moderate than CD-9 in terms of partisanship: CD-9 exhibits a Republican vote share of 27.2%, while all 1,000 of the most-Democratic districts in the computer-simulated plans would have exhibited a higher Republican vote share and would therefore have been more politically moderate. *Id.* at 26 ¶36. Based on this, Dr. Chen concluded that CD-9 packs together Democratic voters to a more extreme extent than the most-Democratic district in 100% of the computer-simulated plans. *Id.* Dr. Chen therefore concluded that CD-9 is an extreme partisan outlier when compared to its 1,000 computer-simulated counterparts, using a standard threshold test of 95% for statistical significance. *Id.* Dr. Chen uses the standard threshold test of 95% for statistical significance throughout his analysis.

79. The same pattern observed for CD-9, exists for CD-6. Chen Rep. 26-27 ¶38. Again, CD-6 is more heavily Democratic than 100% of the corresponding second-most-Democratic districts in each of the 1,000 computer-simulated plans. *Id.* Again, every single one of its computer-simulated counterpart districts would have been more politically moderate than CD-6 in terms of partisanship: CD-6 exhibits a Republican vote share of 27.5%, while 100% of the second-most-Democratic districts in the computer-simulated plans would have exhibited a higher Republican vote share and would therefore have been more politically moderate. Chen *Id.* In other words, like CD-9, CD-6 packs together Democratic voters to a more extreme extent

than the second-most-Democratic district in 100% of the computer-simulated plans. *Id.* at 27 ¶38. From these results, Dr. Chen identified CD-6 as an extreme partisan outlier when compared to its 1,000 computer-simulated counterparts, using a standard threshold test of 95% for statistical significance. *Id.* CD-5, the next most Democratic district in the enacted congressional plan, similarly contains more Democratic voters than over 95% of its counterpart simulated plans. Chen Rep. Figure 4.

80. The same partisan skew exists for the two most-Republican districts in the enacted congressional plan. As the top row of Figure 4 illustrates, the most-Republican district in the enacted congressional plan (CD-10) is less heavily Republican and more heavily Democratic than 100% of the most-Republican districts in each of the 1,000 computer-simulated plans. Chen Rep. 27 ¶39. A similar pattern appears in the second-to-top row of Figure 4, which illustrates that the second most-Republican district in the enacted congressional plan (CD-13) is less heavily Republican and more heavily Democratic than 99.7% of the second-most-Republican districts in each of the 1,000 computer-simulated plans. *Id.*

81. Dr. Chen explained that the two most Republican districts (CD-10 and CD-13) and the three most Democratic districts (CD-9, CD-6, and CD-5), which include more Democratic voters than virtually all of their counterpart districts in the 1,000 computer-simulated plans, draw Democratic voters out of the more moderate districts in the enacted congressional plan. Chen Rep. 27 ¶39. Having fewer Democratic voters in these more moderate districts enhances Republican candidate performance in these districts. *Id.*

82. Dr. Chen explained that the middle six rows in Figure 4 confirm this effect. These rows compare the partisanship of districts in the fifth, sixth, seventh, eighth, ninth, and tenth-most Republican districts (CD-1, 3, 4, 11, 12, and 14) within the enacted congressional plan and

the 1,000 computer-simulated plans. For all six districts, the enacted congressional plan district is a partisan outlier; the enacted congressional plan's district is more heavily Republican than over 95% of its counterpart districts in the 1,000 computer-simulated plans, with three being more heavily Republican than 100% of their counterpart districts. Chen Rep. 28 ¶41.

83. These six enacted congressional plan districts, CD-1, 3, 4, 11, 12, and 14, are more heavily Republican than nearly all of their counterpart computer-simulated plan districts because the five most partisan-extreme districts in the enacted congressional plan, CD-5, 6, 9, 10, and 13, are more heavily Democratic than nearly all of their counterpart districts in the computer-simulated plans. Chen Rep. 28 ¶41; *id.*, Figure 4.

84. Based on these findings, Dr. Chen identified the enacted congressional plan's six most moderate districts, CD-1, 3, 4, 11, 12, and 14 as partisan statistical outliers. Chen Rep. 28-29 ¶¶42-43. Each of these six districts has a Republican vote share that is higher than over 95% of the computer-simulated districts. He also concluded that the four most extreme districts in the enacted congressional plan in terms of partisanship, CD-6, 9, 10, and 13, are partisan statistical outliers. *Id.* Each of these four districts has a Republican vote share that is lower than at least 99.7% of the computer-simulated districts. CD-5 likewise is a partisan statistical outlier, containing more Democratic voters than 95.9% of the computer-simulated districts. Chen Rep. Figure 4. Dr. Chen thus concluded that overall, eleven individual districts in the enacted congressional plan are extreme statistical outliers, exhibiting extreme partisan characteristics that are rarely or never observed in the computer-simulated plan districts. *Id.* at 23 ¶34; *id.* at 29 ¶44.

85. The Court credits Dr. Chen's analysis of whether enacted congressional districts are partisan outliers as compared to non-partisan computer simulated plans. The Court finds that the enacted congressional plan contains 11 districts, CD-1, 3, 4, 5, 6, 9, 10, 11, 12, 13, and 14,

that are extreme partisan outliers, which cannot be explained by adherence to the Adopted Criteria. The Court finds that these enacted congressional districts have partisan compositions that would not have arisen under a map-drawing process that adhered to the Adopted Criteria. The Court finds this to be persuasive evidence that the enacted congressional plan was intentionally designed to give Republicans a partisan advantage.

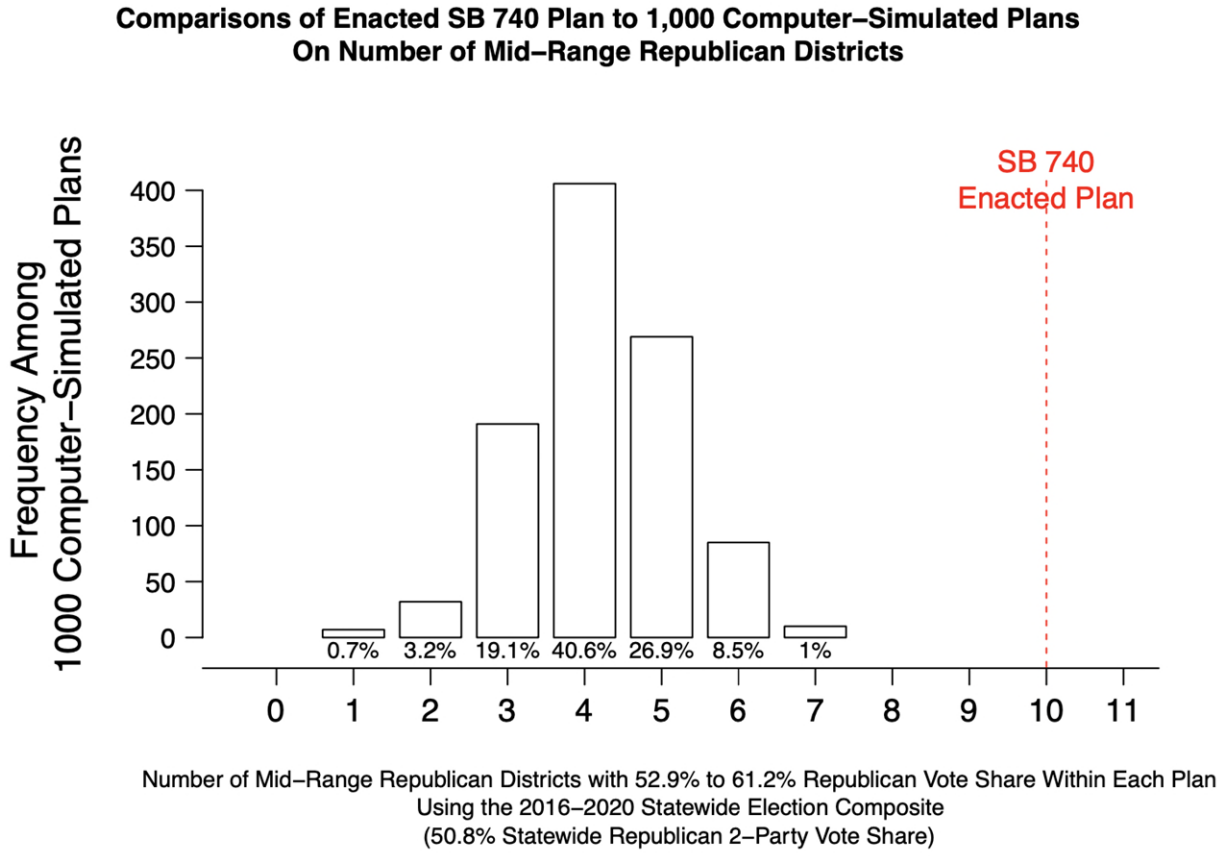
86. Dr. Chen found that the enacted congressional plan's ten most-Republican districts exhibit a significantly narrower range of partisanship than is exhibited by the ten most-Republican districts in each of the computer-simulated plans. Chen Rep. 30 ¶46. Specifically, the enacted congressional plan's ten most-Republican districts all have Republican vote shares within the narrow range of 52.9% to 61.2%. *Id.* at 29 ¶45. Dr. Chen refers to these districts as "Mid-Range Republican Districts," meaning they favor Republican candidates within this narrow range. *Id.* Dr. Chen explained that this narrow range is the product of two distinct dynamics: the two most-Republican districts in the enacted congressional plan are significantly less Republican than nearly all of the corresponding simulated plans' districts, while the enacted congressional plan's middle six districts by Republican vote share (contained in the fifth to tenth rows of Figure 4) are more safely Republican than over 95% of the corresponding computer-simulated districts. *Id.* Dr. Chen explained that the result of these two facts is that the enacted congressional plan contains ten districts that all have Republican vote shares within the narrow range of 52.9% to 61.2%. *Id.*

87. Dr. Chen found that the creation of ten Mid-Range Republican Districts is an outcome that never occurs in the computer-simulated plans and is therefore an extreme statistical outlier. Chen Rep. 30 ¶46. Instead, virtually all of the simulated plans contain from two to six Mid-Range Republican Districts, with the most common outcome among the simulations being

four such districts. *Id.* Based on this, Dr. Chen concluded that the enacted congressional plan is clearly an extreme partisan outlier in terms of maximizing the number of Mid-Range Republican Districts, and that the enacted congressional plan did so to an extreme degree far beyond any of the 1,000 simulated plans created using a partisan-blind computer algorithm that follows the Adopted Criteria. *Id.*

88. Figure 5 in Dr. Chen's report compares the number of Mid-Range Republican Districts in the enacted congressional plan to the number of Mid-Range Republican Districts in the 1,000 computer-simulated plans:

Figure 5:



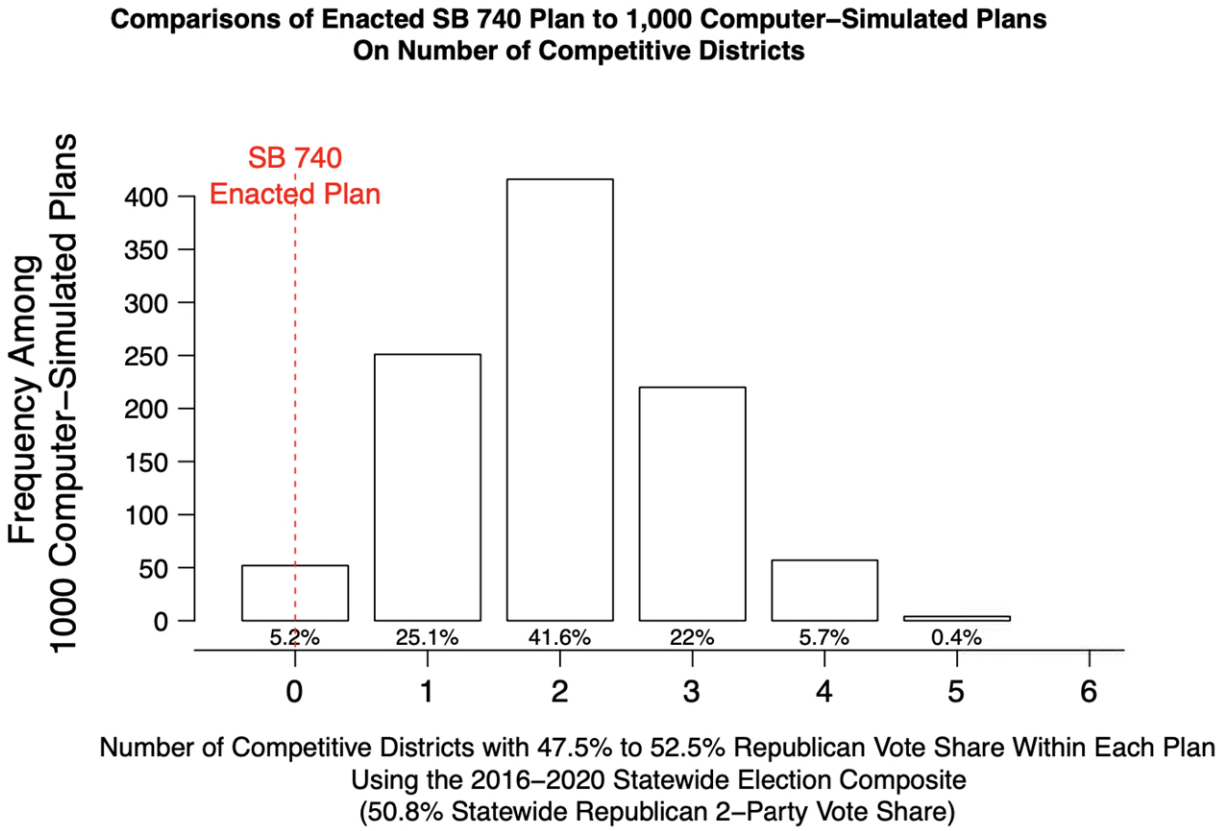
89. Dr. Chen also found that the enacted congressional plan's maximization of Mid-Range Republican Districts necessarily results in fewer competitive districts. Chen Rep. 30 ¶47.

The enacted congressional plan contains zero districts in which the Republican vote share is within 5% of the Democratic vote share. *Id.* Dr. Chen labels districts within this range as "Competitive Districts." The enacted congressional contains no Competitive Districts as measured using the Statewide Election Composite. *Id.* at 30 ¶48.

90. Dr. Chen found that the enacted congressional plan's failure to include any Competitive Districts is an outcome that rarely occurs in the computer-simulated plans and is nearly a statistical outlier. Chen Rep. 32 ¶49. Only about 5% of the 1,000 simulated plans fail to have a single Competitive District, and the vast majority of the computer-simulated plans contain two or more such districts. *Id.*

91. Figure 6 in Dr. Chen's report compares the number of Competitive Districts in the enacted congressional plan to the number of Competitive Districts in the 1,000 computer-simulated plans:

Figure 6:



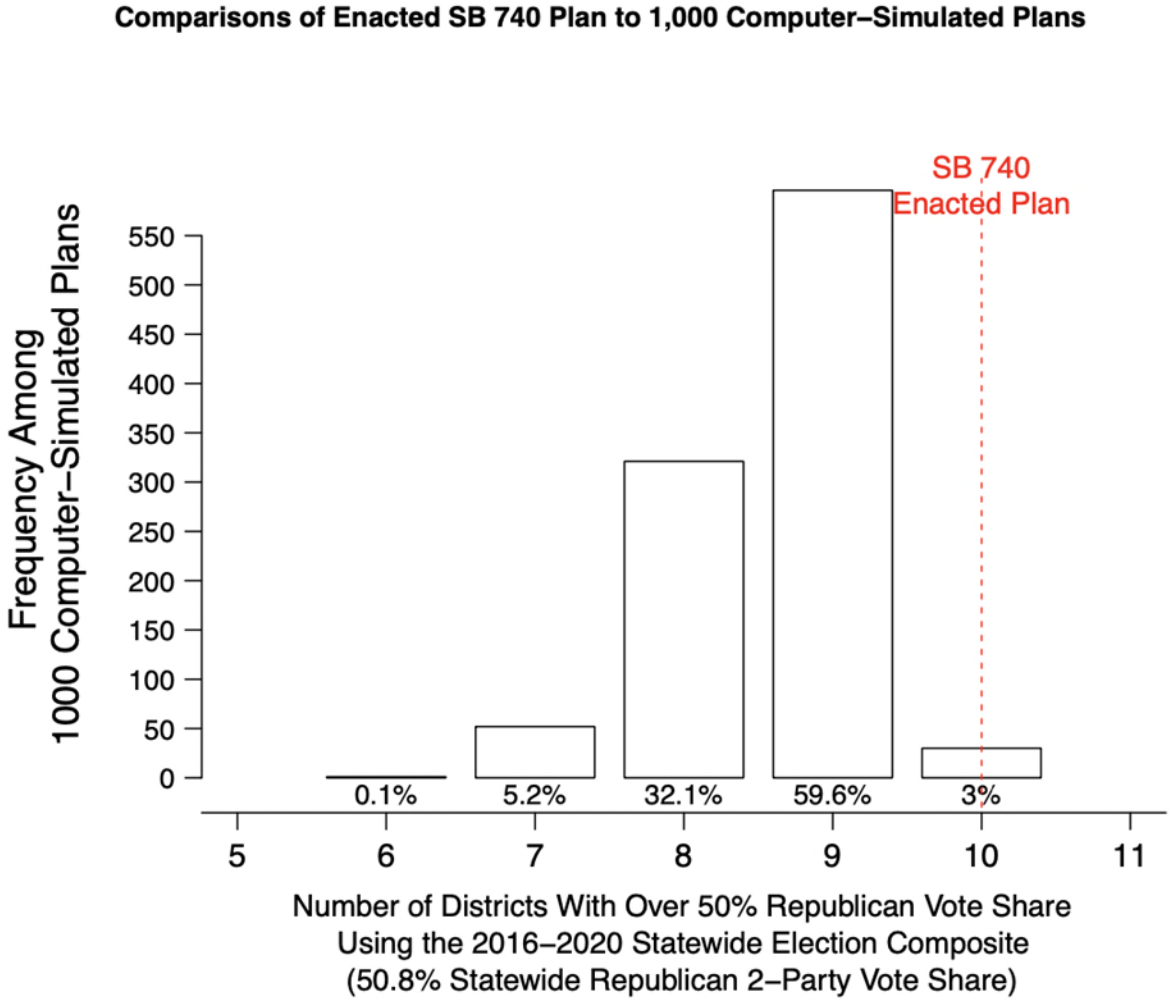
92. The Court credits Dr. Chen's analysis of Mid-Range Republican and Competitive Districts. The Court finds Dr. Chen's analysis of Mid-Range Republican and Competitive Districts to be powerful evidence of the intent and effects of Legislative Defendants' partisan gerrymander. Dr. Chen's analysis of Mid-Range Republican and Competitive Districts is persuasive evidence that the enacted congressional plan was designed specifically to ensure that Republicans can efficiently and consistently win at least ten congressional seats and that Democrats are packed into the remaining districts. The Court further finds that the frequency of Mid-Range Republican and Competitive Districts in the enacted congressional plan would not have occurred under a map-drawing process that adhered to the Adopted Criteria. The Court

finds this to be persuasive evidence that the enacted congressional plan was intentionally designed to give Republicans a partisan advantage.

93. Dr. Chen also analyzed the number of total Republican-favoring districts in the enacted congressional plan, which are defined as a district having greater than 50% Republican vote share as measured using the Statewide Election Composite. Chen Rep. 32 ¶50. While the enacted congressional plan has 10 Republican districts, only 3% of the computer-simulated plans create 10 Republican-favoring districts, and no computer-simulated plan ever creates more than 10 Republican districts. *Id.* Based on these results, Dr. Chen concluded that in terms of the total number of Republican-favoring districts created by the plan, the enacted congressional plan is a statistical outlier when compared to the 1,000 computer-simulated plans. *Id.* at 32 ¶51. The enacted congressional plan creates the maximum number of Republican districts that ever occurs in any computer-simulated plan, and more Republican districts than 97% of the computer-simulated plans, which were drawn using a non-partisan districting process adhering to the Adopted Criteria. *Id.*

94. Figure 7 in Dr. Chen's report depicts the distribution of Republican seats under the enacted congressional plan and under Dr. Chen's 1,000 simulations:

Figure 7:



95. Dr. Chen explained that the number of Democratic districts estimated for his simulated plans is depressed by the fact that the elections in his Statewide Election Composite were relatively favorable for Republicans. Chen Rep. 34 ¶52. As a result, the projected number of Republican seats would be lower in the computer-simulated plans if one measured district partisanship using a statewide election whose outcome was more partisan-balanced or even favorable to Democrats. *Id.*

96. Dr. Chen also measured the number of Republican districts that would exist under his simulated plans and the enacted congressional plan under a variety of electoral environments.

Chen Rep. 34 ¶54; *id.* at 86-95, Figures B1-B10. The ten individual elections in the Statewide Election Composite showed a range of different electoral outcomes, ranging from a Republican vote share of 47.7% to 53.3%. *Id.* at 86-95, Figures B1-B10. Across this range of electoral environments, the enacted congressional plan always creates a 10-4 distribution of seats in favor of Republican candidates. *Id.* at 34 ¶54. Based on this, Dr. Chen concluded that the enacted congressional plan's 10-4 distribution is durable across a range of electoral conditions. *Id.*

97. Dr. Chen measured the number of Republican districts that would exist under his simulated plans and the enacted congressional plan under electoral environments that are more neutral or even favorable to Democrats. Dr. Chen analyzed the number of Republican districts using only the 2016 Attorney General election, which was a near tie. Chen Rep. 34 ¶54; *id.* at 86, Figure B1. Using the 2016 Attorney General results, the enacted congressional plan still produced 10 Republican seats, but that outcome never occurs in the 1,000 computer-simulated plans, indicating that the enacted congressional plan is even more of a partisan statistical outlier under electoral conditions that are close to even. Dr. Chen also analyzed the number of Republican districts using only the 2020 gubernatorial contest in which the Democratic candidate defeated the Republican candidate by 4.5%. *Id.* at 35 ¶56; *id.* at 92, Figure B7. Using this election, the enacted congressional plan again contains 10 Republican-favoring districts out of 14. *Id.* at 35 ¶56. And again, none of the 1,000 simulated plans ever contain 10 districts favoring the Republican candidate. *Id.* The enacted congressional plan's creation of 10 Republican favoring districts is therefore an extreme partisan outlier that is durable even in Democratic favorable electoral conditions. *Id.* In fact, the 10-to-4 Republican partisan advantage under the enacted congressional plan appears to become even more of an extreme partisan outlier under Democratic-favorable elections. *Id.*

98. The Court credits Dr. Chen's analysis of Republican-leaning districts in the enacted congressional plan. The Court finds Dr. Chen's analysis of the enacted congressional plan to be powerful evidence of the intent and effects of Legislative Defendants' partisan gerrymander. The analysis establishes that the effects of the gerrymander are even more extreme in electoral environments that are better for Democrats. Dr. Chen's analysis of the enacted congressional plan under various electoral outcomes is persuasive evidence that the enacted congressional plan was designed specifically to ensure that Democrats cannot win more than four congressional seats under any reasonably foreseeable electoral environment. The Court further finds that the number Republican-leaning districts in the enacted congressional plan would be lower under a map-drawing process that adhered to the Adopted Criteria. The Court finds this to be persuasive evidence that the enacted congressional plan was intentionally designed to give Republicans a partisan advantage.

c) The enacted congressional plan is an extreme partisan outlier based on many widely-accepted measures of partisan bias.

99. Dr. Chen next examined the enacted congressional plan as compared to the simulated plans under a variety of methods redistricting scholars commonly use to compare the relative partisan bias of different districting plans. Chen Rep. 35 ¶56.

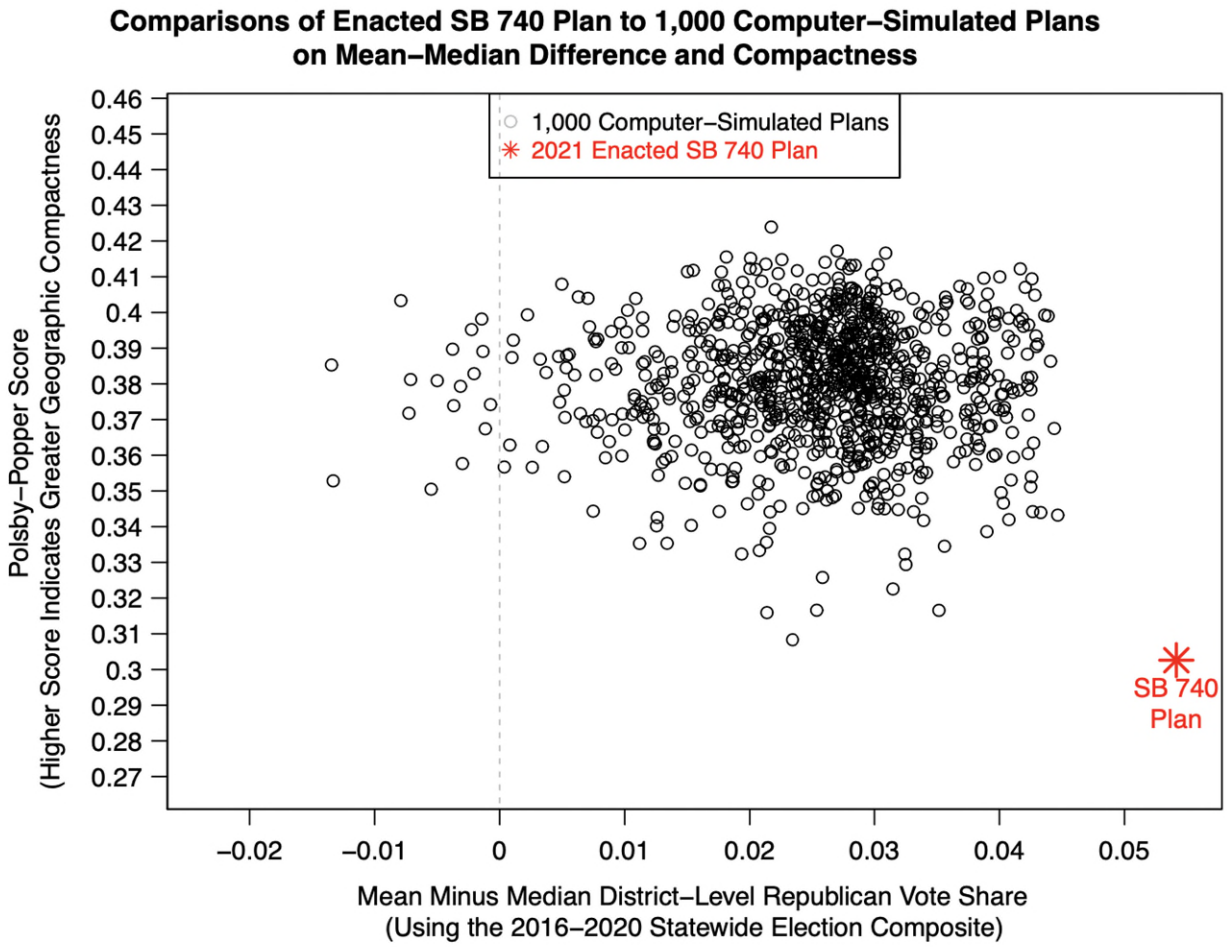
100. First, Dr. Chen examined the enacted congressional plan's mean-median difference and compared it to the simulated plans. Chen Rep. 35 ¶57. A plan's mean-median difference is calculated as the mean district-level Republican vote share, minus the median district-level Republican vote share. *Id.* For the enacted congressional plan, the mean is calculated as the average of the Republican vote shares in each of the 14 districts. *Id.* The median, in turn, is the Republican vote share in the district where Republican performed the middle-best. *Id.* For a congressional plan containing 14 districts, the median district is

calculated as the average of the Republican vote share in the districts where Republican performed the 7th and 8th best across the state. *Id.* Using the Statewide Election Composite to measure partisanship, the districts in the enacted congressional plan have a mean Republican vote share of 50.8%, while the median district has a Republican vote share of 56.2%. *Id.* at 36 ¶58. Thus, the enacted congressional plan has a mean-median difference of +5.4%, indicating that the median district is skewed significantly more Republican than the plan's average district. *Id.* Based on this, Dr. Chen found that the enacted congressional plan's mean-median difference indicates that voters are distributed across districts in such a way that most districts are significantly more Republican-leaning than the average North Carolina congressional district, while Democratic voters are more heavily concentrated in a minority of the enacted congressional plan's districts. *Id.*

101. Dr. Chen then compared the enacted congressional plan's mean-median difference to those of the computer-simulated plans. Dr. Chen found that the enacted congressional plan's +5.4% mean-median difference is an outcome never observed across the 1,000 simulated plans and that the simulated plans all exhibit mean-median differences that range from -0.1% to +4.6%. Chen Rep. 37 ¶60. The middle 50% of the computer-simulated plans have mean-median differences ranging from +2.1% to +3.1%, indicating a much smaller degree of skew in the median district than occurs under the enacted congressional plan. Dr. Chen thus concluded that the mean-median difference analysis confirmed that the enacted congressional plan creates an extreme partisan outcome that cannot be explained by North Carolina's political geography or by adherence to Adopted Criteria.

102. Figure 8 in Dr. Chen's report depicts the distribution of simulated maps on mean-median difference and Polsby-Popper scores:

Figure 8:



103. The Court finds Dr. Chen's mean-median analysis to be persuasive evidence that the enacted congressional plan was designed to give Republicans a partisan advantage that cannot be explained by adherence to the Adopted Criteria or North Carolina's political geography.

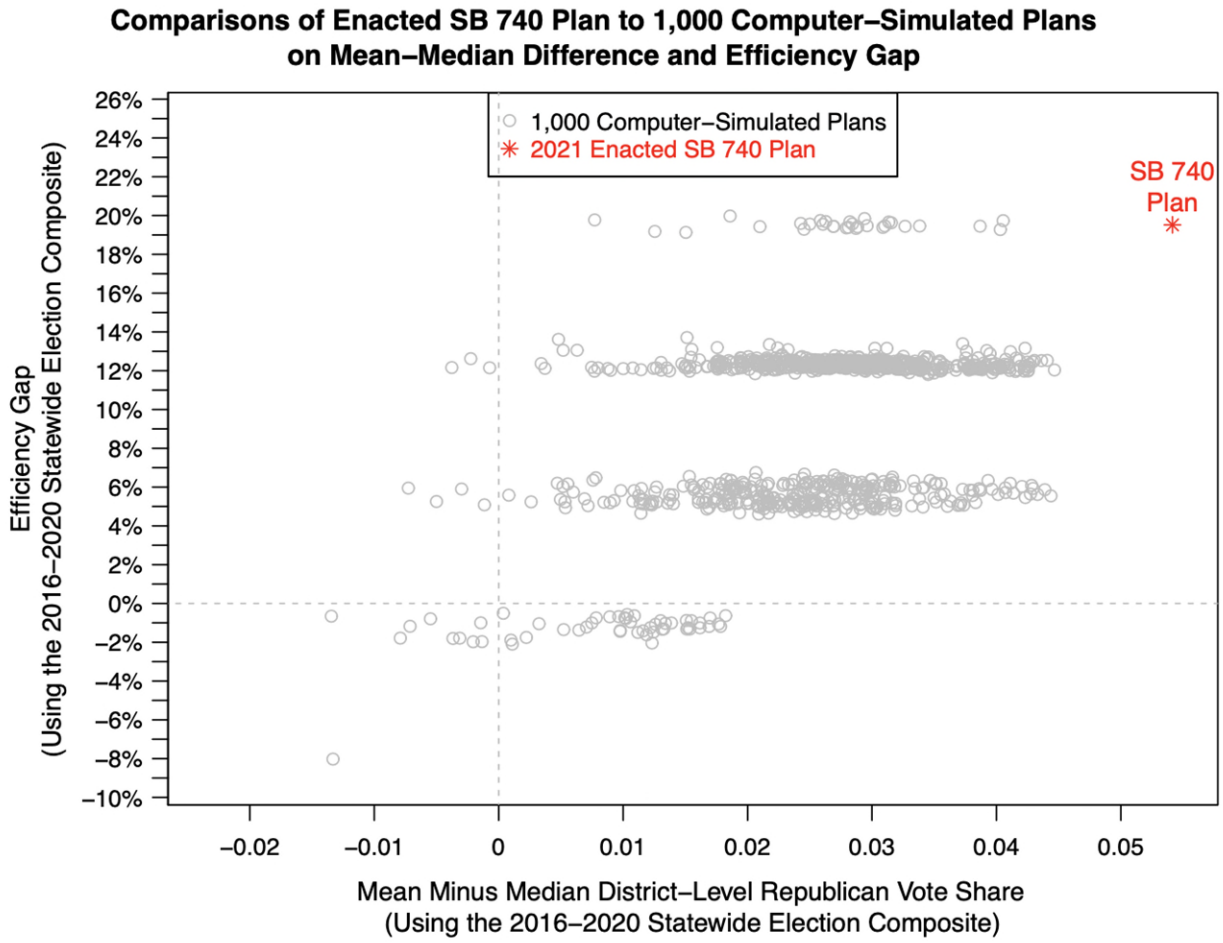
104. Dr. Chen next analyzed another commonly used measure of a districting plan's partisan bias called the efficiency gap. Chen Rep. 39 ¶62. The efficiency gap provides a measure of the degree to which more Democratic or Republican votes are wasted across an entire districting plan. *Id.* at 40 ¶63. The efficiency gap is calculated using the total sum of surplus votes in districts a party won and lost votes in districts where that party lost. *Id.* at 39-40 ¶62. In a district lost by a given party, all of the party's votes are considered lost votes; in a district won

by a party, only the party's votes exceeding the 50% threshold necessary for victory are considered surplus votes. *Id.* A party's total wasted votes for an entire districting plan is the sum of its surplus votes in districts won by the party and its lost votes in districts lost by the party. *Id.* The efficiency gap is then calculated as total wasted Democratic votes minus total wasted Republican votes, divided by the total number of two-party votes cast statewide across all seven elections. *Id.* A positive efficiency gap indicates more Democratic wasted votes, while a negative efficiency gap indicates more Republican wasted votes. *Id.*

105. Dr. Chen found that the enacted congressional plan exhibits an efficiency gap of 19.5%, indicating that the plan results in far more wasted Democratic votes than wasted Republican votes. Chen Rep. 40-41 ¶66. Specifically, the difference between the total number of wasted Democratic votes and wasted Republican votes amounts to 19.5% of the total number of votes statewide. *Id.* Dr. Chen compared the enacted congressional plan's efficiency gap with the computer-simulated plans and found that the enacted congressional plan's efficiency gap is larger than the efficiency gaps exhibited by 98.7% of the computer-simulated plans. *Id.* Dr. Chen thus concluded that the efficiency gap analysis confirms that the enacted congressional plan creates an extreme partisan outcome that cannot be explained by North Carolina's political geography or the Adopted Criteria. *Id.*

106. Figure 9 in Dr. Chen's report depicts the distribution of simulated maps and the enacted congressional plan on efficiency gap and mean-median difference:

Figure 9:



107. The Court finds Dr. Chen's efficiency gap analysis to be persuasive evidence that the enacted congressional plan was designed to give Republicans a partisan advantage that cannot be explained by adherence to the Adopted Criteria or North Carolina's political geography.

108. Dr. Chen next analyzed another commonly used measure of a districting plan's partisan bias called the lopsided margins test. Chen Rep. 43 ¶67. The basic premise of the lopsided margins measure is that a partisan-motivated map-drawer may attempt to pack the opposing party's voters into a small number of extreme districts that are won by a lopsided margin. *Id.* For example, a map-drawer attempting to favor Party A may pack Party B's voters

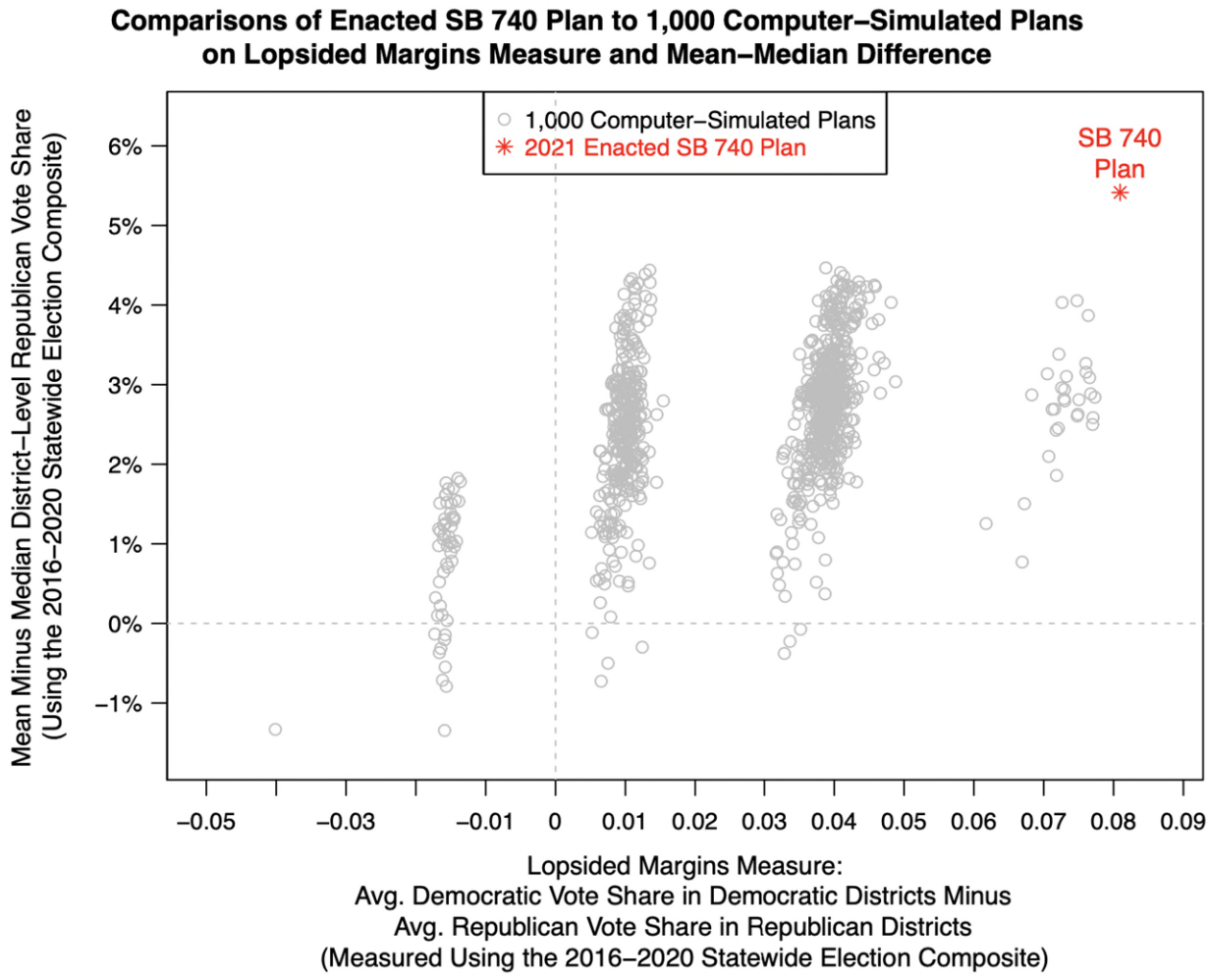
into a small number of districts that very heavily favor Party B. *Id.* This packing would then allow Party A to win all the remaining districts with relatively smaller margins. *Id.* This sort of partisan manipulation in districting would result in Party B winning its districts by extremely large margins, while Party A would win its districts by relatively small margins. *Id.*

109. Here, the lopsided margins test is performed by calculating the difference between the average margin of victory in Republican-favoring districts and the average margin of victory in Democratic-favoring districts. Based on the Statewide Election Composite, the four Democratic-favoring districts have an average Democratic vote share of 65.4%, while the ten Republican-favoring districts have an average Republican vote share of 57.3%. Chen Rep. 43 ¶68. Therefore, the difference between the average Democratic margin of victory in Democratic-favoring districts and the average Republican margin of victory in Republican-favoring districts is +8.1%, which is calculated as 65.4% - 57.3%. *Id.* Thus, the lopsided margins measure of the enacted congressional plan is +8.1%. *Id.*

110. Dr. Chen compared the enacted congressional plan's lopsided margins measure with the computer simulated plans and found that the simulated plans all have a smaller lopsided margins measure than the enacted congressional plan. Chen Rep. 44 ¶70. Dr. Chen further found that a significant minority of the 1,000 simulated plans have a lopsided margins measure of between -2% to +2%, indicating a plan in which Democrats and Republicans win their respective districts by similar average margins. *Id.* Based on this, Dr. Chen found that the enacted congressional plan is an extreme outlier compared to the simulated plans on the lopsided margins measure, and that the enacted congressional plan's extreme packing of Democrats into Democratic-favoring districts was not simply the result of North Carolina's political geography, combined with adherence to the Adopted Criteria.

111. Figure 10 in Dr. Chen's report depicts the distribution of simulated maps and the enacted congressional plan on the lopsided margins measure and the mean-median difference:

Figure 10:



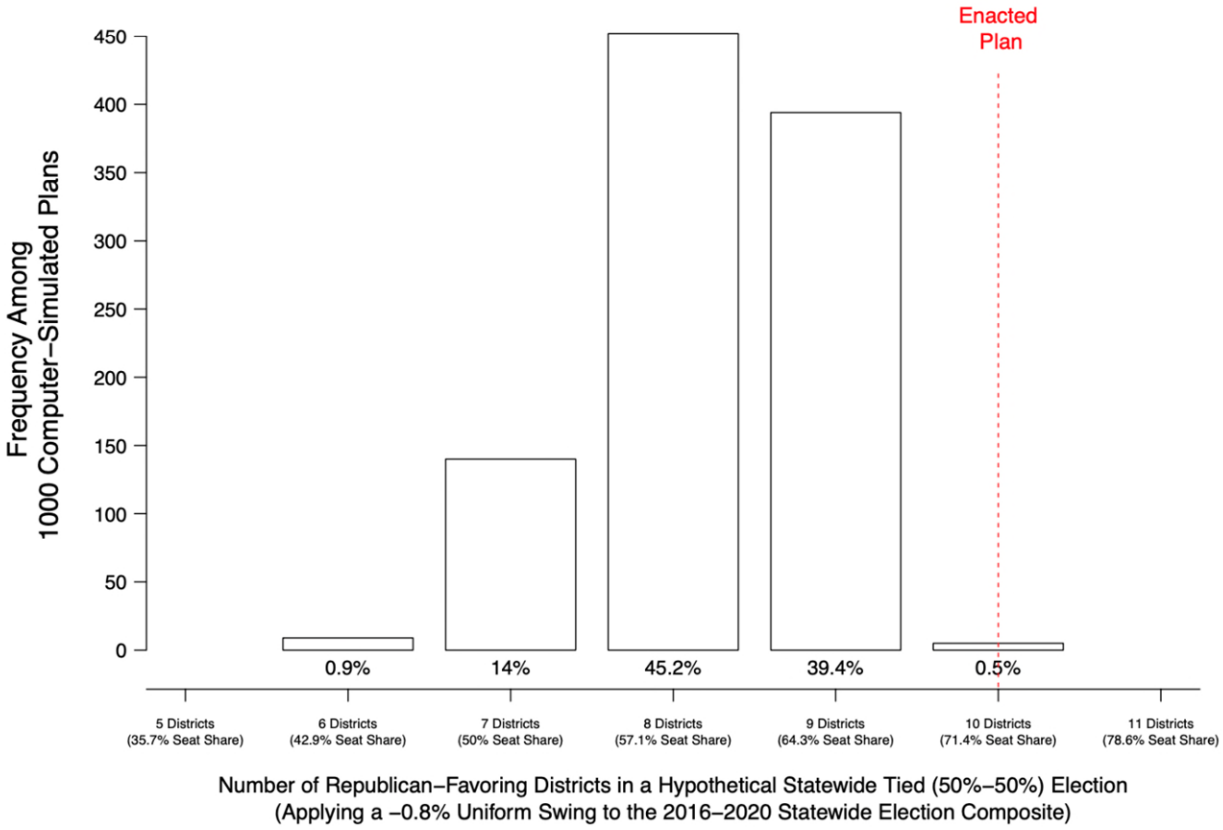
112. The Court finds Dr. Chen's lopsided margins measure analysis to be persuasive evidence that the enacted congressional plan was designed to give Republicans a partisan advantage that cannot be explained by adherence to the Adopted Criteria or North Carolina's political geography.

113. Dr. Chen next analyzed another common measure of partisan bias in a districting plan based on the concept of partisan symmetry. Chen Rep. 46 ¶72. This analysis, which Dr.

Chen calls "partisan symmetry based on uniform swing," examines what share of seats a party would win under the enacted congressional plan in a hypothetical tied election. *Id.* Because the Statewide Election Composite produces a statewide Republican vote share of 50.8%, Dr. Chen used a uniform swing of -0.8% in order to estimate the partisanship of districts under a hypothetical tied election in which each party wins exactly 50% of the statewide vote. *Id.* After applying this -0.8% uniform swing, Dr. Chen compared the number of Republican-favoring districts in the enacted congressional plan and the simulated plans. *Id.* at 46-47 ¶73. Dr. Chen found that in the enacted congressional plan 71.4% of the districts (10 out of 14) are Republican-favoring after applying the uniform swing, while 99.5% of the 1,000 simulated plans have a measure that is closer to 50% than the enacted congressional plan's measure. *Id.* at 47 ¶74. Dr. Chen further found that over 60% of the simulated plans are between 40% and 60%. *Id.* at 47 ¶75. Based on these results, Dr. Chen concluded that enacted congressional plan creates a durable Republican majority for North Carolina's congressional delegation, such that even when Democrats win 50% of the statewide vote, Republicans will still be favored in 10 out of 14 (71.4%) of the congressional districts, while Democrats will only be favored in 4 out of the 14 (28.6%) districts. *Id.* at 47 ¶76.

114. Figure 11 in Dr. Chen's report depicts the distribution Republican-leaning districts based on partisan symmetry based on uniform swing:

Figure 11:
Comparisons of SB 740 Enacted Plan to 1,000 Computer–Simulated Plans
On Partisan Symmetry Based on Uniform Swing



115. The Court finds that Dr. Chen's analysis of the enacted congressional plan under a hypothetical tied election is persuasive evidence that the enacted congressional plan was designed specifically to ensure that Democrats cannot win more than four congressional seats under any reasonably foreseeable electoral environment.

116. The Court credits each of Dr. Chen's partisan bias analyses. The Court further finds that each of Dr. Chen's partisan bias analyses to be to be powerful evidence that the enacted congressional plan was intentionally designed to give Republicans a partisan advantage.

117. The Court further credits Dr. Chen's overall statewide conclusions based on his computer simulations. Based on all of these analyses, Dr. Chen found that the enacted congressional plan fails to minimize county splits, fails to minimize VTD splits, and is

significantly less geographically compact than is reasonably possible under a districting process that follows the Adopted Criteria. Chen Rep. 49 ¶77. He also concluded that the enacted congressional plan is an extreme partisan outlier when compared to computer-simulated plans produced by a process following the Adopted Criteria. *Id.* Based on these findings, Dr. Chen concluded that partisanship predominated in the drawing of the enacted congressional plan and subordinated the traditional districting principles of avoiding county splits, avoiding VTD splits, and geographic compactness. *Id.* at 49 ¶78. Dr. Chen also concluded the enacted congressional plan achieved partisan goals that could not otherwise have been achieved under a partisan-neutral districting process that follows the Adopted Criteria. *Id.* The Court adopts these conclusions and finds that the enacted congressional plan subordinates the Adopted Criteria and traditional redistricting criteria for partisan advantage. The Court finds that Legislative Defendants split more counties and VTDs across the enacted congressional plan than necessary, and made the enacted congressional districts less compact than necessary, in order to accomplish their predominant partisan goals.

d) The enacted congressional plan is an extreme partisan statistical outlier at the regional level.

118. In addition to the above statewide analyses, Dr. Chen also examined the extent to which partisan bias affected the map-drawing process within specific cities and regions of the state. Chen Rep. 50 ¶79. Dr. Chen found that the enacted congressional plan's districts in each region examined exhibit extreme political bias when compared to the computer-simulated districts in the same regions. *Id.*

119. Dr. Chen first examined the Piedmont Triad area. The enacted congressional plan splits Guilford County into three different districts: CD-7, 10, and 11. Chen Rep. 50 ¶80. These three fragments of Guilford County voted solidly Democratic in recent statewide elections but

were each combined with more Republican areas in surrounding counties across the Piedmont Triad area. *Id.* This splitting results in CD-7, 10, and 11 being safely Republican, each with a Republican vote share between 55.9% and 61.2%. *Id.*

120. Dr. Chen found that the enacted congressional plan's cracked Democratic voters in the region to a more extreme extent than virtually all of the computer-simulated plans. Chen Rep. 50 ¶81. The enacted congressional plan achieved this "extreme cracking" by creating districts that are significantly less compact than virtually all of the Guilford County districts in the computer-simulated plans. *Id.*

121. Figure 12 in Dr. Chen's report compares the partisanship of the enacted congressional plan's districts in the Piedmont Triad area to the corresponding districts in the 1,000 computer-simulated plans:

Figure 12: Piedmont Triad Area:
Comparison of Individual Districts' Republican Vote Shares
in the SB 740 Plan and in 1,000 Computer–Simulated Plans

122. The top row of Figure 12 presents the district within each plan that contains the most amount of the city of Greensboro's population. Chen Rep. 51 ¶82. In the enacted congressional plan, this district is CD-11. *Id.* Figure 12 compares the Republican vote share of CD-11 to the Republican vote shares of the districts that contain the largest portion of Greensboro residents in each of the 1,000 simulated plans. *Id.* This Figure demonstrates that CD-11 is more safely Republican than 99.6% of the computer-simulated Greensboro districts. *Id.* In fact, CD-11 exhibits a 55.9% Republican vote share, even though 96.1% of the simulated districts containing Greensboro are Democratic-favoring districts. *Id.* Dr. Chen concluded that it is clear that the enacted congressional plan created a safe Republican district for Greensboro,

because a partisan-neutral districting process following the Adopted Criteria would have almost always placed Greensboro in a Democratic-favoring district. *Id.*

123. The second row of Figure 12 illustrates a similar finding regarding the city of High Point in Guilford County. Chen Rep. 51 ¶83. The enacted congressional plan places High Point into CD-10, which has a Republican vote share of 61.2%. *Id.* CD-10 is more heavily Republican than 99.6% of High Point-based districts in the 1,000 simulated plans. *Id.* Nearly all of the simulated plans place High Point into a Democratic-favoring district, but the enacted congressional plan manages to place High Point into an anomalously Republican district. *Id.*

124. The third row of Figure 12 reveals a similar finding regarding CD-7, the third district containing a fragment of Guilford County. CD-7 contains the city of Burlington and has a 58.2% Republican vote share, making it more heavily Republican than 99.7% of the Burlington-based districts in the 1,000 computer-simulated plans. Chen Rep. 51-52, ¶84. Figure 12 shows that 95.5% of the Burlington districts in the simulated plans favor Democrats. *Id.* Based on this, Dr. Chen concluded that the enacted congressional plan "created a far more Republican-favorable district for Burlington than could be reasonably expected from a partisan-blind districting process." *Id.*

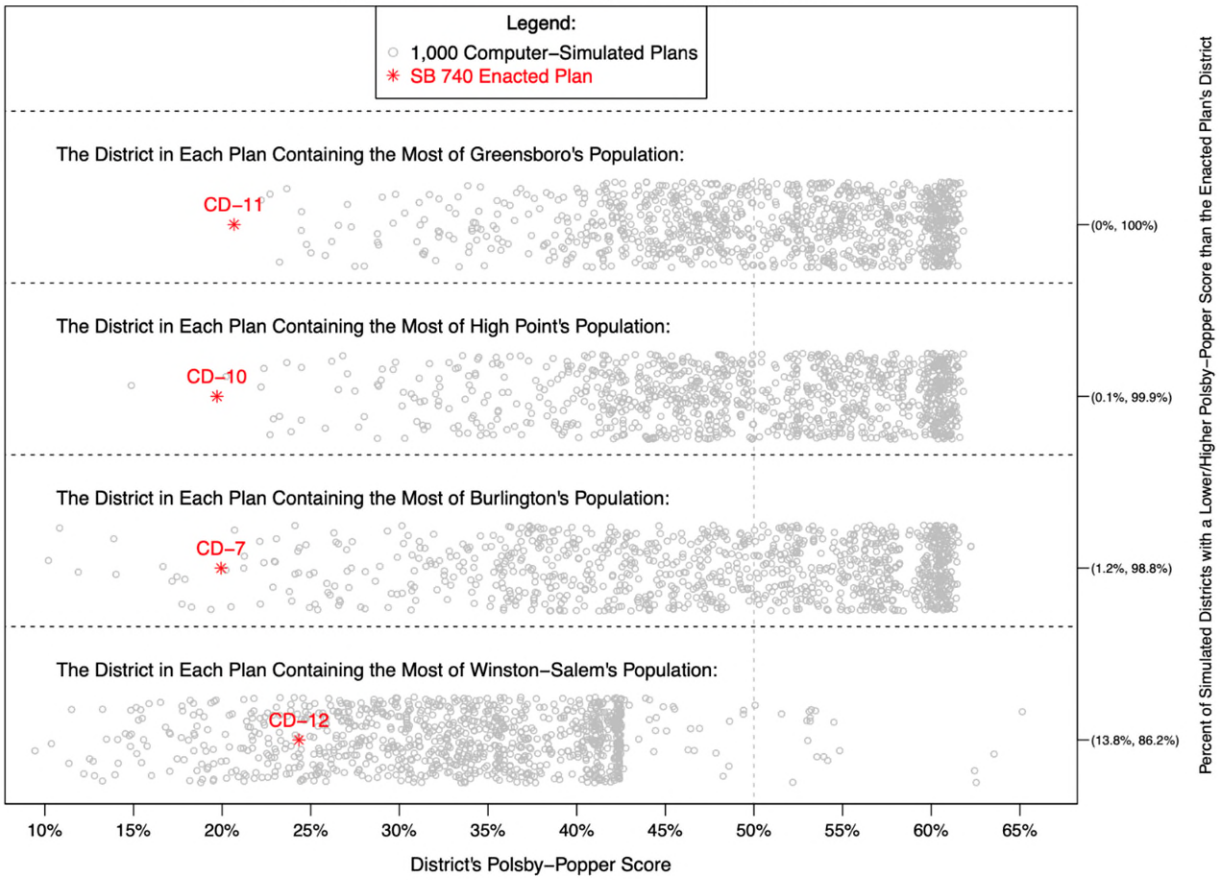
125. Dr. Chen explained that the creation of three Republican districts (CD-7, 10, and 11) in the Guilford County area required bringing Republican voters in from surrounding districts. One such district was CD-12, a safely Republican district containing Winston-Salem and covering areas in the Piedmont Triad region to the west of Guilford County. Chen Rep. 52, ¶85. The fourth row of Figure 12 compares the partisanship of CD-12 to the simulated plans' districts containing Winston-Salem. *Id.* The results show that under a partisan-blind districting process, Winston-Salem would normally be placed into a more heavily Republican district than

CD-12 of the enacted congressional plan. *Id.* CD-12 is less heavily Republican than 91.4% of the 1,000 simulated districts containing the most of Winston-Salem's population. *Id.* Dr. Chen explained that this "suggests that CD-12 was drawn to be less extremely Republican than should be expected, given the political geography of the Piedmont Triad area. As a result, more Republican voters could be placed in the surrounding districts, particularly CD-10 and CD-11, that split up Guilford County." *Id.*

126. Dr. Chen then asked whether the enacted congressional plan's cracking of Guilford County Democrats into three districts could have resulted from a mapdrawing process attempting to follow the Adopted Criteria. Chen Rep. 54 ¶86. Dr. Chen found "the opposite": he concluded that "[t]he General Assembly managed to split Guilford County into three safe Republican districts by subordinating the districting principles required by the Adopted Criteria." *Id.* He further explained that the vast majority (75.6%) of simulated plans did not split Guilford County a single time, and if the County was split, it was usually split only once. *Id.*

127. Figure 13 in Dr. Chen's report compares the Polsby-Popper compactness score of the enacted congressional plan's districts in the Piedmont Triad area to the 1,000 computer-simulated plans:

Figure 13: Piedmont Triad Area:
Comparison of Individual Districts' Compactness Scores
in the SB 740 Plan and in 1,000 Computer–Simulated Plans



128. The first row of Figure 13 demonstrates that the enacted congressional plan's CD-11 has a lower Polsby-Popper score than all 1,000 of the Greensboro-based districts in the simulated plans. Chen Rep. 54 ¶87. The second and third rows of Figure 13 illustrate a nearly identical conclusion regarding CD-7 and CD-10, the other two districts covering Guilford County. *Id.* Based on these results, Dr. Chen concluded that "the Enacted Plan subordinated geographic compactness in pursuit of Republican partisan advantage in the drawing of district boundaries in the Piedmont Triad area." *Id.*

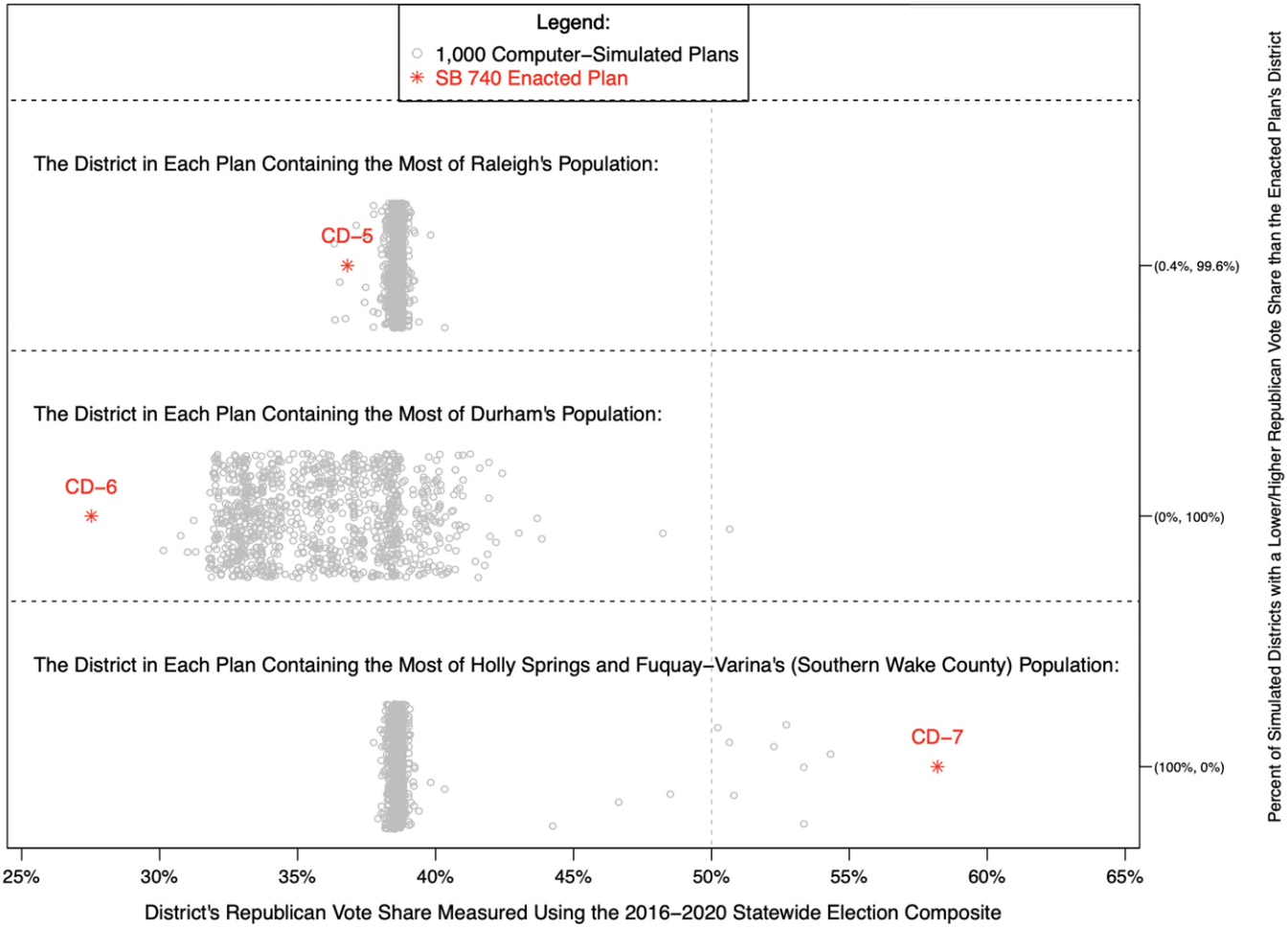
129. The Court finds that the three-way splitting of Guilford County and resulting creation of three safe Republican districts in the Piedmont Triad area could not have resulted naturally from the region's political geography or the districting principles required by the

Adopted Criteria. The Court further finds that the General Assembly subordinated geographic compactness considerations in order to advantage the Republican Party in the Piedmont Triad area.

130. Dr. Chen next conducted similar analyses of the districts in the Research Triangle. Chen Rep. 56 ¶ 88.

131. Figure 14 in Dr. Chen's report compares the partisanship of the enacted congressional plan's districts in the Research Triangle to the corresponding districts in the 1,000 computer-simulated plans:

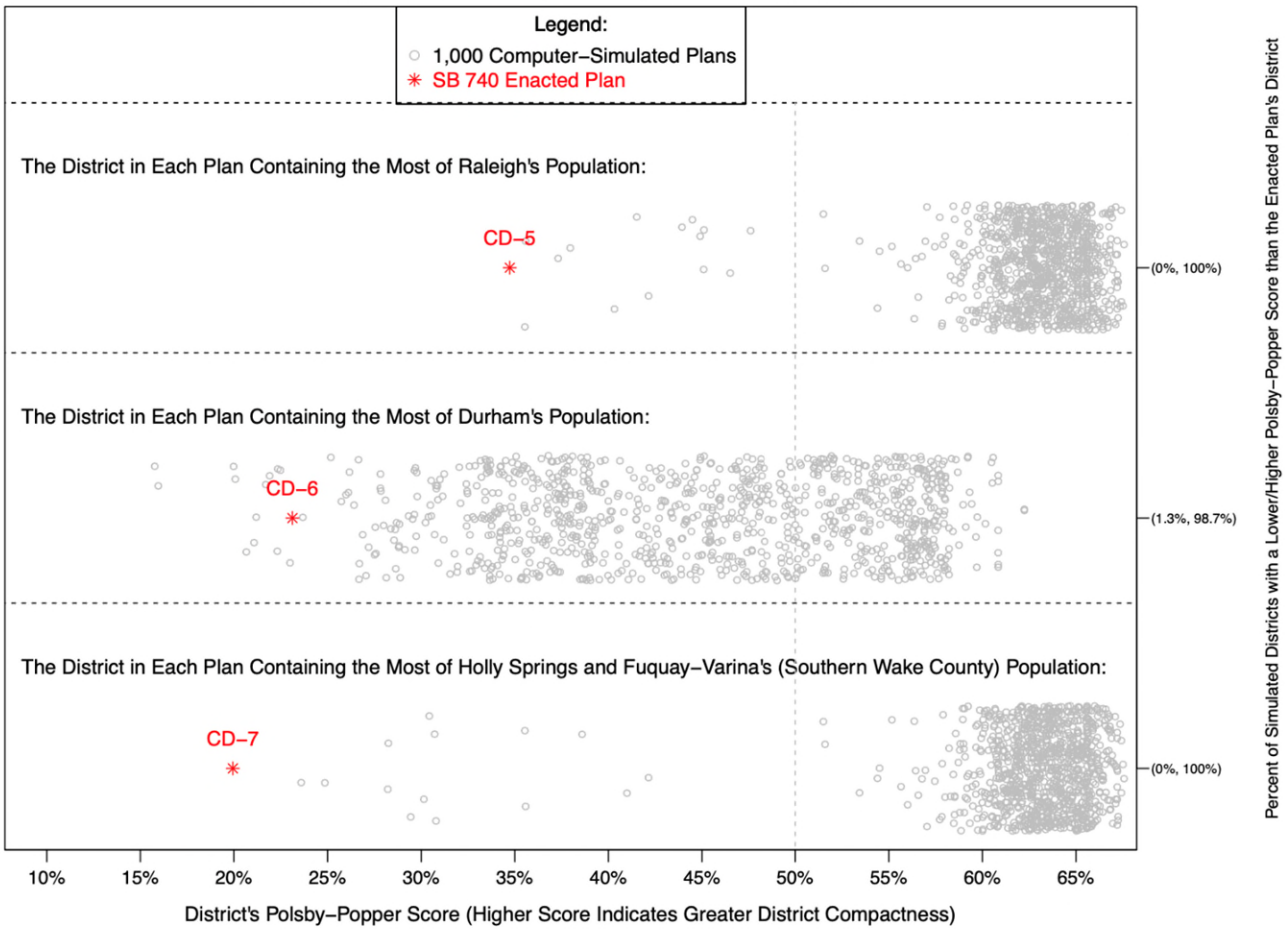
Figure 14: Research Triangle Area:
Comparison of Individual Districts' Republican Vote Shares
in the SB 740 Plan and in 1,000 Computer–Simulated Plans



132. The top row of Figure 14 compares the Republican vote shares of the enacted congressional plan's and each simulated plan's district containing the most of Raleigh's population. Chen Rep. 56 ¶88. The second row similarly compared the enacted congressional plan's and each simulated plan's district containing the most of Durham's population. These rows demonstrate that the enacted congressional plan's Raleigh-based district (CD-5) and Durham-based district (CD-6) are more heavily packed with Democrats than almost 100% of the simulated districts containing Raleigh and Durham.

133. Figure 15 in Dr. Chen's report compares the Polsby-Popper compactness score of the enacted congressional plan's districts in the Research Triangle to the 1,000 computer-simulated plans:

Figure 15: Research Triangle Area:
Comparison of Individual Districts' Compactness Scores
in the SB 740 Plan and in 1,000 Computer–Simulated Plans



134. The top two rows of Figure 15 demonstrate that CD-5 and CD-6 are less geographically compact than nearly 100% of the computer-simulated districts containing Raleigh and Durham. Chen Rep. 56 ¶ 89. Dr. Chen concluded that the "extreme degree of Democratic voter packing in CD-5 and CD-6 is not the result of the Research Triangle's political geography or the Adopted Criteria." *Id.*

135. Because the enacted congressional plan packs Democratic voters into CD-5 and CD-6, the surrounding districts are more safely Republican than they would have been in the absence of such packing. Chen Rep. 56 ¶ 90. For example, CD-7 of the enacted congressional plan combines politically moderate Southern Wake County with counties to the west of the

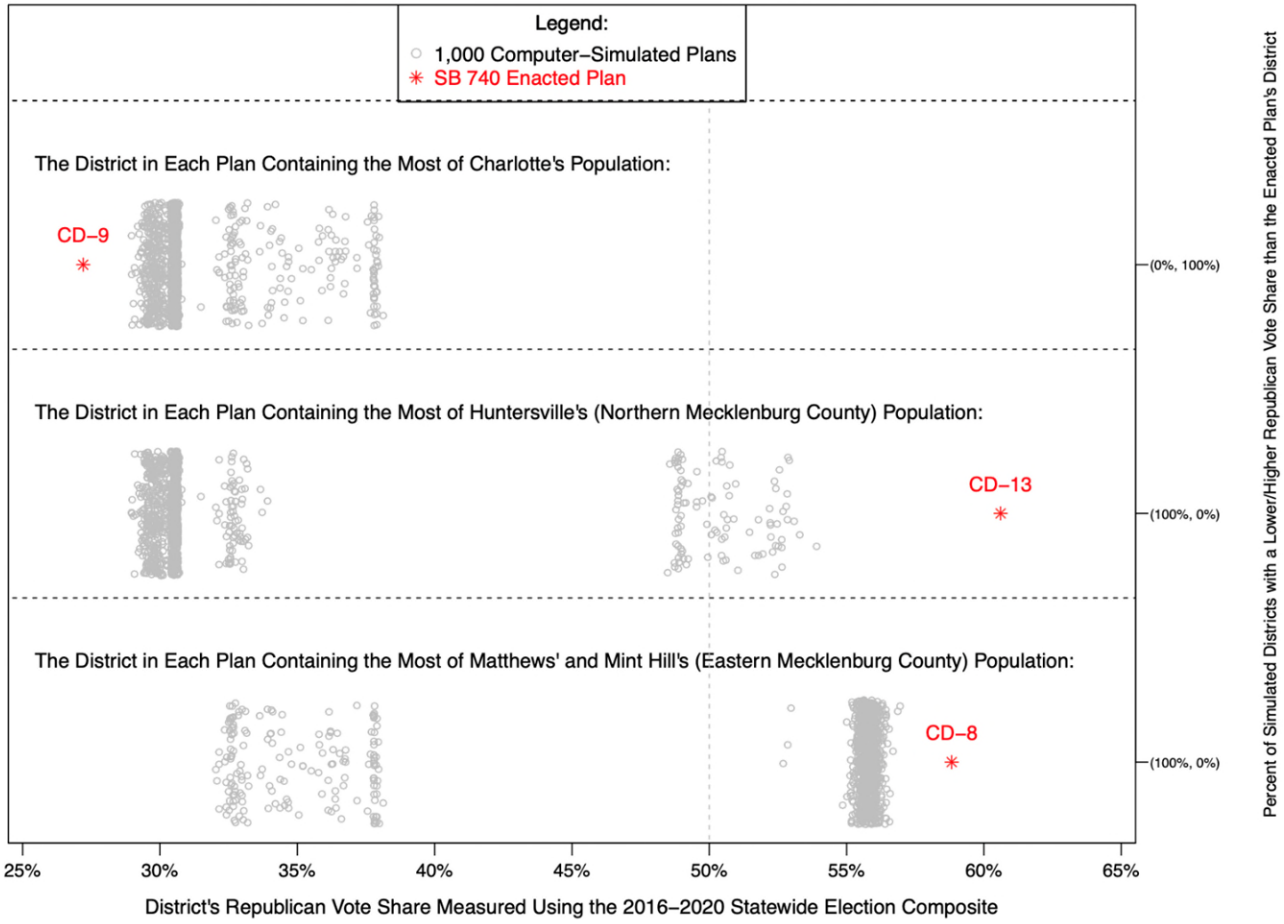
Research Triangle. *Id.* The third row of Figure 15 compares the partisanship of the enacted congressional plan's and each simulated plan's district containing the most of Holly Springs's and Fuquay-Varina's populations in Southern Wake County. *Id.* Figure 15 demonstrates that 99.2% of the simulated plans place Southern Wake County into a Democratic-favoring district, and 100% of the simulated districts containing Southern Wake County are less extremely Republican than CD-7. *Id.* at 57 ¶90. Dr. Chen explained that "the General Assembly was able to create a safe Republic district by combining Southern Wake County with other Republican-favoring counties to the west of the Research Triangle," creating "an extreme statistical outlier." *Id.* Dr. Chen concluded that "CD-7 is a partisan outlier that was enabled by the packing of Democratic voters in CD-5 (Raleigh) and CD-6 (Durham)." *Id.*

136. The Court finds that the enacted congressional plan unnaturally packs Democrats in its Raleigh-based and Durham-based districts by subordinating geographic compactness in the drawing of CD-5 and CD-6. The Court further finds that this could not have resulted naturally from the region's political geography or the districting principles required by the Adopted Criteria.

137. Finally, Dr. Chen examined Mecklenburg County. Chen Rep. 60 ¶91.

138. Figure 16 in Dr. Chen's report compares the partisanship of the enacted congressional plan's districts in Mecklenburg County to the corresponding districts in the 1,000 computer-simulated plans:

Figure 16: Mecklenburg County:
Comparison of Individual Districts' Republican Vote Shares
in the SB 740 Plan and in 1,000 Computer–Simulated Plans



139. The top row of Figure 16 compares the partisanship of the enacted congressional plan's CD-9 with the partisanship of each simulated plan's district containing the most of Charlotte's population. Chen Rep. 60 ¶91. The enacted congressional plan's CD-9 is more heavily Democratic than 100% of the simulated plans' districts containing the most of Charlotte. *Id.*

140. The second and third rows of Figure 16 illustrate that, as a result, the surrounding suburban districts in the enacted congressional plan are more safely Republican than their geographic counterparts in all of the computer-simulated plans. Chen Rep. 60 ¶92. The second

row of Figure 16 compares the partisanship of the enacted congressional plan's district and each simulated plan's district containing the most of Huntersville's (Northern Mecklenburg County) population. *Id.* Dr. Chen explained that in the simulated plans, Huntersville is either placed within the same district as most of Charlotte, resulting in a heavily Democratic district, or is grouped with other counties outside of Mecklenburg, thus forming a politically competitive district with a Republican vote share close to 50%. *Id.* But the enacted congressional plan's places Huntersville into a district (CD-13) that is much more strongly Republican than all 1,000 of the simulated districts containing Huntersville. *Id.*

141. A similar result is seen in Eastern Mecklenburg County. The third row of Figure 16 compares the partisanship of the enacted congressional plan's district and each simulated plan's district containing the most of Mint Hill's and Matthews' (Eastern Mecklenburg County) population. Chen Rep. 60 ¶93. Again, the enacted congressional plan places Eastern Mecklenburg County into a district (CD-8) that is more strongly Republican than all 1,000 of the computer-simulated districts containing Mint Hill and Matthews. *Id.*

142. Based on this data, Dr. Chen concluded that the enacted congressional plan "packed Democrats in Mecklenburg County to an extent greater than what naturally occurs as a result of the area's political geography." Chen Rep. 60 ¶94.

143. The Court finds that that the enacted congressional plan's created a Charlotte district that is more heavily Democratic than what could be expected from a partisan-blind map-drawing process. The Court further finds that this could not have resulted naturally from the region's political geography or the districting principles required by the Adopted Criteria.

144. The Court finds that that the enacted congressional plan's created a Charlotte district that is more heavily Democratic than what could be expected from a partisan-blind map-

drawing process. The Court further finds that this could not have resulted naturally from the region's political geography or the districting principles required by the Adopted Criteria.

145. The Court further credits Dr. Chen's overall regional conclusions regarding the packing and cracking of Democrats in the Piedmont Triad Area, the Research Triangle Area, and Mecklenburg County. The Court further finds that this could not have resulted naturally from the region's political geography or the districting principles required by the Adopted Criteria. The Court adopts Dr. Chen's conclusions and finds that the enacted congressional map subordinated the Adopted Criteria and traditional districting criteria in each of these regions in order to accomplish their predominant partisan goals.

e) North Carolina's political geography does not explain the partisan bias of the enacted congressional plan.

146. The Court also credits and adopts Dr. Chen's conclusions that the partisan bias of the enacted congressional plan cannot be explained by North Carolina's political geography. Chen Rep. 64 ¶100. Political geography can create a natural advantage for Republicans in Republican vote share in suburban and rural districts, where for example, Democratic voters are clustered in urban areas because of the common districting principle of drawing geographically compact districts. *Id.* at 63 ¶95. But Dr. Chen programmed a computer algorithm that drew simulated plans using North Carolina's unique political geography. *Id.* As Dr. Chen, explained "the entire premise of conducting districting simulations is to fully account for North Carolina's unique political geography, its political subdivision boundaries, and its districting criteria, as mandated by the Adopted Criteria." *Id.* at 63 ¶96. Thus, the simulation analysis allowed Dr. Chen to identify how much of the electoral bias in the enacted congressional plan is caused by North Carolina's political geography and how much is caused by the map-drawer's intentional efforts to favor one political party over the other. *Id.* at 63-64 ¶97. Dr. Chen concluded that the

enacted congressional plan's partisan bias goes beyond any "natural" level of electoral bias caused by North Carolina's political geography or the political composition of the state's voters. *Id.* at 64 ¶98. The Court further adopts Dr. Chen's conclusion that this extreme, additional level of partisan bias in the enacted congressional plan can be directly attributed to the map-drawer's intentional efforts to favor the Republican Party. *Id.* at 64 ¶100.

147. Finally, the Court finds that Defendants offered no evidence to rebut Dr. Chen's analysis. They presented no rebuttal evidence and offered no criticism of Dr. Chen's data, methodology, or findings.

2. Dr. Jonathan Mattingly

148. Jonathan Mattingly, Ph.D., is a North Carolina native, and the James B. Duke Professor of Mathematics at Duke. Mattingly Rep. 2; Mattingly CV. He was the chair of the Duke math department between 2016 and 2020. Mattingly CV. He also is a professor in the Duke Statistics Department. Mattingly Rep. 2. Dr. Mattingly is an expert in applied mathematics, probability, and statistical science. Dr. Mattingly developed his method of evaluating partisan gerrymandering in his academic research, where he leads a group at Duke University which conducts non-partisan research to understand and quantify gerrymandering. *Id.*

149. Dr. Mattingly has testified in two previous cases. In the federal partisan gerrymandering case relating to North Carolina's congressional districts, the federal court credited Dr. Mattingly's testimony and concluded that his analysis "provide[d] strong evidence" of partisan gerrymandering. *Rucho*, 279 F. Supp. 3d at 644. The court found that his simulations "not only evidence the General Assembly's discriminatory intent, but also provide evidence of the 2016 Plan's discriminatory effects." *Id.* at 666. In the 2019 *Common Cause* case, the court found that "Dr. Mattingly's simulated maps provide a reliable and statistically accurate baseline against which to compare the 2017 Plans," that "[b]y comparing Dr. Mattingly's simulated plans

to the enacted plans, the Court can reliably assess whether the characteristics and partisan outcomes under the enacted plans could plausibly have resulted from a nonpartisan process," and that Dr. Mattingly's analysis allows the court to "reliably assess whether the enacted plans reflect extreme partisan gerrymanders." *Common Cause*, 2019 WL 4569584, at *29.

150. For his congressional analysis in this case, Dr. Mattingly generated a collection, or "ensemble," of nonpartisan, alternative redistricting maps using the Markov chain Monte Carlo computer algorithm, which is a well-established algorithm which dates back at least to the Manhattan Project. Mattingly Rep. 5, 72. Dr. Mattingly performed this analysis independently, not for purposes of this litigation, and published the results on his blog at Duke on November 8, 2021. *See* https://sites.duke.edu/quantifyinggerrymandering/files /2021/11/congressionalReport.pdf.

151. Dr. Mattingly generated approximately 80,000 congressional plans. Mattingly Rep. 72. The Markov chain Monte Carlo algorithm that Dr. Mattingly employed ensured that the collection of maps was a stable, random and representative sample from the distribution of nonpartisan maps that adhere to the redistricting criteria. *Id.* All of Dr. Mattingly's simulated maps were contiguous, minimized the splitting of counties, and yielded plans that were of similar compactness to the enacted plan. *Id.* Dr. Mattingly ensured that the total population of any district was within 1% of the ideal district population; he has verified in his prior work that the smalls changes necessary to require perfect population balance, which would require splitting VTDs, do not affect the results seen in an ensemble of maps where 1% population deviation is permitted. *Id.*

152. The Court, like the 2019 *Common Cause* Court, finds that Dr. Mattingly's simulated maps provide a reliable and statistically accurate baseline against which to compare

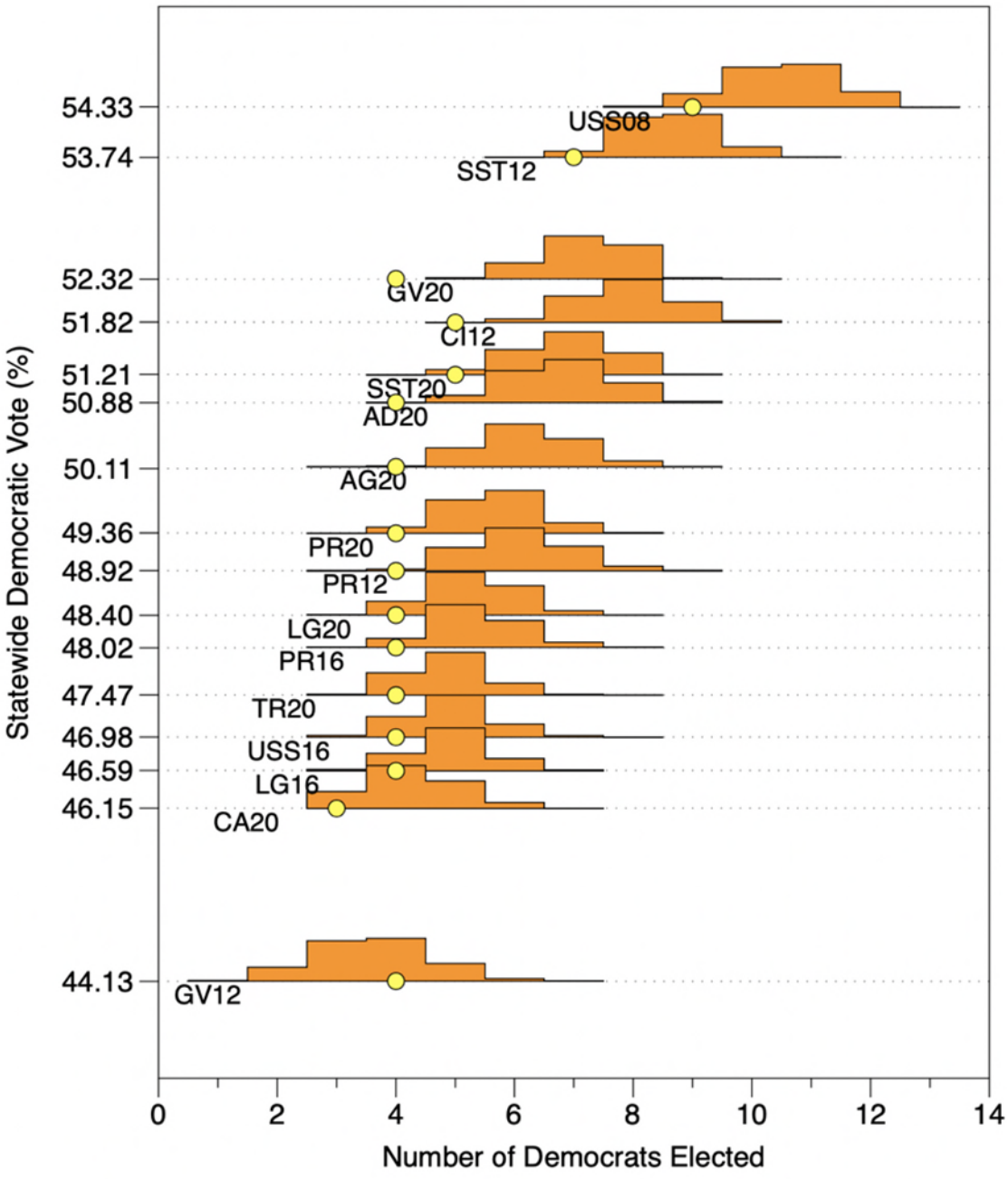
the 2021 Congressional Plan and finds that the simulated maps allow the Court to reliably assess whether the characteristics and partisan outcomes of the 2021 Congressional Plan could plausibly have resulted from a nonpartisan process or be explained by North Carolina's political geography. The Court can also reliably assess whether the 2021 Congressional Plan reflects an extreme partisan gerrymander. The partisan bias that Dr. Mattingly identified by comparing the enacted plan to his nonpartisan ensemble of plans could not be explained by political geography or natural packing. Mattingly Rep. 3. Moreover, Dr. Mattingly's analysis did not rest on any assumption about proportional representation.

153. After creating a representative sample of 80,000 maps, Dr. Mattingly used votes from multiple prior North Carolina statewide elections to compare the partisan performance and characteristics of the 2021 Congressional Plan to the simulated plans. Mattingly Rep. 74. These elections reflected a range of electoral outcomes ranging from elections where Democrats won only 44.13% of the statewide vote to elections where Democrats won 54.33%. *Id.*

154. Dr. Mattingly concluded that the Congressional map is "an extreme partisan gerrymander." Mattingly Rep. 75. The enacted map sticks at 4 Democrats and 10 Republicans despite large shifts in the statewide vote fraction across a wide variety of elections, in elections where no nonpartisan map would elect as few as 4 Democrats and many would elect 7 or 8. Mattingly Rep. 75. Dr. Mattingly concluded that the map is "an extreme outlier" that is "highly non-responsive to the changing opinion of the electorate." *Id.* at 74-75. He explained that, "[w]ithout holding the election one largely knows that the result will be 10 Republicans and 4 Democrat[]s." *Id.* at 74. The Court credits Dr. Mattingly's conclusions.

155. A chart (Fig. 9.0.1) visually demonstrating Dr. Mattingly's results is below. Dr. Mattingly plotted the results of statewide elections using the enacted 2021 Congressional Plan

and his nonpartisan simulations. He ordered the elections vertically from bottom (most Republican vote share) to top (most Democratic vote share), and then plotted the number of seats that Democrats would expect to receive under the nonpartisan plans using orange histograms. Using nonpartisan maps, the Democratic seat count would be expected to fall in the tallest part of the orange histogram. Dr. Mattingly used yellow dots to report how many seats Democrats would win in Congress using the results of each statewide election under the enacted Congressional plan. If the enacted plan is a pro-Republican outlier, the yellow dot is to the left of the orange histogram (meaning the enacted plan elects fewer Democratic seats). Mattingly Rep. 74.



Mattingly Figure 9.0.1: Each histogram represents the range and distribution of possible Democratic seats won in the ensemble of plans; the height is the relative probability of observing the result. The yellow dots represent the results from the enacted congressional plan under the various historic votes.

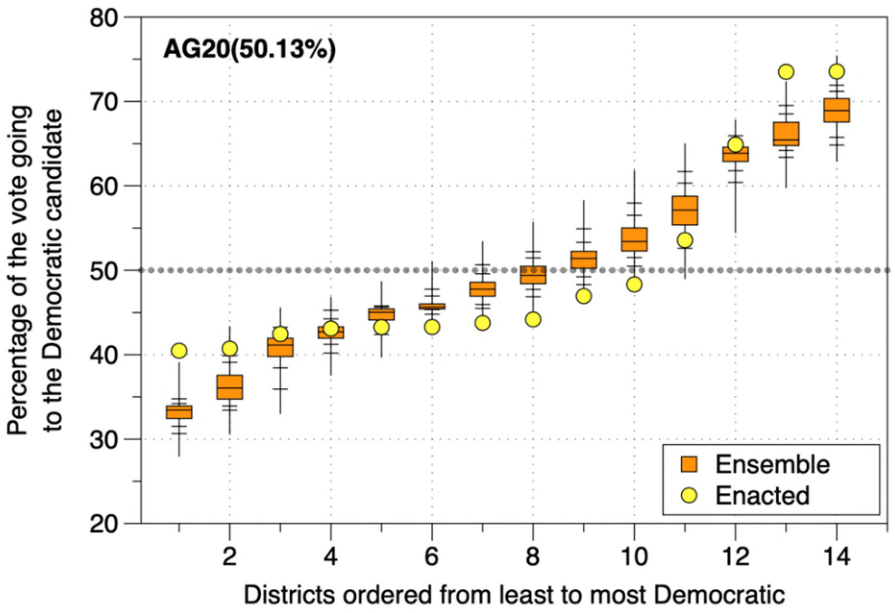
156. The chart shows that, as the statewide Democratic vote fraction increases and the orange histograms representing the nonpartisan maps gradually shift to the right, signaling that

more Democrats are elected, the yellow dots representing the enacted plan sticks at 4 seats. Over the statewide vote Democratic partisan vote range of 46.59% to 52.32%, the enacted map only twice changes the number of Republicans elected, and only to 5. Mattingly Rep. 74. By contrast, a map drawn without partisan influence would gradually shift from around 4 Democrats to around 8 Democrats. *Id.* When Democrats win 52.32% percent of the statewide vote in the Governor 2020 election, for example, the overwhelming majority of simulated nonpartisan maps award Democrats 7 or 8 seats, while the enacted map sticks at 4 seats. That outcome that is *never* seen across any of the 80,000 nonpartisan maps, as the fact that the yellow dot is far to the left of the orange histogram demonstrates.

157. Dr. Mattingly's separate analysis of the structure of the enacted Congressional plan provided further confirmation that the plan is an extreme partisan gerrymander, even putting aside the effect on seat count in any particular election. He demonstrated that the General Assembly cracked and packed Democratic voters for partisan gain.

158. Dr. Mattingly ordered the 14 districts in the congressional plan in his ensemble of nonpartisan plans from lowest to highest based on the Democratic vote fraction in each district, using statewide elections. Mattingly Rep. 75, Fig. 9.0.2; *see also* Mattingly Rep. 95-97.

159. Below is an example of Dr. Mattingly's structural analysis of the 14 districts in the congressional plan using the votes from the 2020 Attorney General's Election. *See* Mattingly Rep. 75. These charts are called ranked marginal box-plots.



160. The yellow dots in the ranked box plots represent the Democratic vote fraction in the enacted plan for each district ordered from least to most Democratic; the oranges boxes represent the Democratic vote fraction across Dr. Mattingly's ensemble of nonpartisan plans. The key in the top lefthand corner shows the statewide election (Attorney General 2020) and the Democratic statewide vote fraction in that election.

161. The chart shows extreme packing of Democrats in the three most Democratic districts – where their votes are wasted – as shown by the fact that the yellow dots in those districts are far to the top of the orange box plots, and in the case of the two most Democratic districts, essentially of the charts. Mattingly Rep. 75. The chart likewise shows extreme cracking of Democrats from the next 7 to 9 most Democratic districts, as shown by the fact that the yellow dots fall well below the orange box plots. *Id.* In the most Republican districts on the far left of the chart, Democrats are again packed in so that their votes are wasted. *Id.* Cracking Democrats from the more competitive districts and packing them into the most heavily Republican and heavily Democratic districts is the key signature of gerrymandering and it is

responsible for the enacted congressional plan's non-responsiveness when more voters favor Democratic candidates. *Id.*

162. Repeating the same analysis using every statewide election between 2016 and 2020 shows the same structural cracking and packing. Mattingly Rep. 75, Fig. 9.0.2; *see also* Mattingly Rep. 95-97.

163. Dr. Mattingly also quantified this extreme cracking and packing in Table 4 in his report. Mattingly Rep. 76. Across his 80,000 simulated nonpartisan plans, *not a single one* had the same or more Democratic voters packed into the three most Democratic districts – i.e., the districts Democrats would win no matter what – in comparison to the enacted plan. *Id.* And not a *single one* had the same or more Republican voters in the next seven districts – i.e., the competitive districts – in comparison to the enacted plan. *Id.* That was true across every single statewide election in 2016 and 2020. *Id.*

3. Dr. Wesley Pegden

164. Wesley Pegden, Ph.D., is Associate Professor in the Department of Mathematical Sciences at Carnegie Mellon University, and testified as an expert in probability. PX523 at 1 (Pegden Report). Dr. Pegden has published numerous papers on discrete mathematics and probability in high-impact, peer-reviewed journals, and has been awarded multiple prestigious grants, fellowships, and awards. *Id.*; PX524 (Pegden CV). He previously served on Pennsylvania's bipartisan Redistricting Reform Commission under appointment by the Governor. PX524 at 1.

165. Dr. Pegden's academic work on redistricting involves Markov Chains. A Markov Chain is "a sequence of random changes." PX523 at 1 (Pegden Report). In 2017, before Dr. Pegden had ever served as an expert in redistricting litigation, he published a peer-reviewed article (PX628) entitled "Assessing Significance in a Markov Chain Without Mixing" in the

Proceedings of the National Academy of Sciences—a top-ranked, science-wide journal. PX523 n.1. This article provides a new way to demonstrate that a given object is an outlier compared to a set of possibilities. PX628.

166. Dr. Pegden explained that there are three ways to show that a given object is an outlier. The first, most basic way is simply to examine every single member of the entire set of possibilities, and then determine whether the object in question is different than all or most of those possibilities. The second form of outlier analysis is to take a random sample from the set of possibilities, and then compare the object in question to that sample. This type of analysis is the basis of most modern statistics, and is the form of outlier analysis used by Drs. Chen and Mattingly in generating nonpartisan simulated plans and comparing the enacted plans to those random nonpartisan plans.

167. The third form of outlier analysis, developed by Dr. Pegden and his co-authors, begins with the object in question, uses a Markov chain to make a series of small, random changes to the object, and then compares the objects generated by making the small changes to the original object. PX628 at 1. Dr. Pegden's article illustrates this methodology using a redistricting plan. *Id.* at 3-5. The article demonstrates that, by using an existing plan as a starting point and then making small random changes to the district boundaries, one can prove the extent to which the existing plan is an outlier compared to all possible maps meeting certain criteria. *Id.* Dr. Pegden's article proves mathematical theorems showing that this approach can establish a redistricting plan's outlier status in a way that is rigorously grounded in mathematics. PX523 at 4 (Pegden Report).

168. In 2020—before this case was filed or the 2021 Plans were enacted—Dr. Pegden and three co-authors (including Dr. Mattingly) published a peer-reviewed article (PX627) titled

"Separating Effect from Significance in Markov Chain Tests" in the journal *Statistics and Public Policy*. This article further developed the form of outlier analysis described in Dr. Pegden's previous article with newer, more powerful statistical tools.

169. In this case, Dr. Pegden used his form of outlier analysis to evaluate whether and to what extent the 2021 Plans were drawn with the intentional and extreme use of partisan considerations. To do so, using a computer program, Dr. Pegden began with the enacted plans, made a sequence of small random changes to the maps while respecting certain nonpartisan constraints, and then evaluated the partisan characteristics of the resulting comparison maps. PX523 at 3-11. As explained in further detail below, Dr. Pegden found that the enacted congressional plan is more favorable to Republicans than 99.9999% of the comparison maps his algorithm generated by making small random changes to the enacted plans. *Id.* at 13. And based on these results, Dr. Pegden's theorems prove that the enacted congressional map is more carefully crafted to favor Republicans than at least 99.9999% of all possible maps of North Carolina satisfying the nonpartisan constraints imposed in his algorithm. *Id.*

170. Dr. Pegden's analysis proceeded in several steps. He began with the enacted map. His computer program then randomly selected a geographic unit on the boundary line between two districts and attempted to move or "swap" the unit from the district it is in into the neighboring district. PX523 at 8-9.

171. Dr. Pegden's method uses two different geographic units, VTDs and geounits. PX523 at 8. For the congressional plan, Dr. Pegden's primary analysis used VTDs, not geounits. *Id.* But to verify that the choice between VTDs and geounits did not affect his results, he also repeated his analyses using geounits, which allows for the splitting of VTDs. *Id.* at 8, 46. Created by a computer program, geounits are compact collections of census blocks that lie

entirely within one VTD and one district, containing on average 1000 people. There are roughly four geounits per VTD. *Id.* at 8.

172. When attempting to swap a randomly selected VTD or geounit from one district to another, Dr. Pegden allowed the swap to occur only if certain constraints were satisfied. PX523 at 7 (Pegden Report). These constraints were based on the 2021 Adopted Criteria and included: contiguity, compact districts, county preservation, municipal preservation, VTD preservation, incumbency protection, and population deviation. *Id.*

173. Dr. Pegden applied these constraints in a "conservative" way, to "avoid second-guessing the mapmakers' choices in how they implemented the districting criteria." PX523 at 7. For example, his algorithm generated a comparison map only if it included an equal or lesser number of county splits, municipal splits, and VTD splits as the enacted plan. *Id.* His comparison maps could not double-bunk any incumbents that were not double-bunked in the enacted plan. *Id.* For compactness, comparison maps needed to have a Polsby-Popper score within a 5% margin of the enacted plan. And for population deviation, comparison maps needed to have district populations within 2% of the ideal district population. *Id.*

174. Dr. Pegden ran several "robustness checks" to ensure that implementing the criteria differently would not affect the results of his analysis. PX523 at 39-47. For incumbency, he re-ran his analysis without restricting the double-bunking of incumbents. *Id.* at 41. For compactness, he re-ran his analysis allowing for 0% difference between the compactness of generated maps and the enacted map, and also allowing for a 10% difference. *Id.* at 42-43. He also used a different measure of compactness altogether to ensure that using the Polsby-Popper measure was not affecting his results. *Id.* at 44. For district population, Dr. Pegden re-ran his analysis with a 1% threshold for population deviation and a 0.5% deviation (the latter of

which allowed for VTD splits). *Id.* at 10, 45-46. He also ran a version of his analysis using, as his baseline map, a version of the enacted map that split no VTDs. *Id.* at 10, 47. None of these changes affected Dr. Pegden's conclusion that the congressional map is an extreme partisan outlier and is more carefully crafted to ensure Republican advantage that nearly every possible redistricting plan. *Id.* at 41-47.

175. Because of this conservative implementation of the enacted criteria, Dr. Pegden's algorithm does not seek to generate maps better than the enacted plan in terms of their adherence to non-partisan criteria like compactness. PX523 at 7. Rather, Dr. Pegden's approach accepts the decisions the map-maker made and asks whether, "even if we accept that the mapmakers have made appropriate choices with respect to nonpartisan criteria such as compactness, population deviation, municipality preservation, incumbency protection, and so on, does their plan nevertheless stand out with respect to its *partisan* qualities?" *Id.*

176. Once Dr. Pegden's algorithm made a swap satisfying his constraints, his algorithm evaluated the partisan characteristics of the comparison map that resulted from the swap. PX523 at 5, 9-10. For his main analysis, Dr. Pegden used data from the 2020 Attorney General race to analyze the congressional plan. *Id.* at 39. Dr. Pegden also re-ran his analysis using three additional elections—the 2020 Presidential election, the 2020 Lieutenant Governor election, and the 2020 Governor election. *Id.* at 39-40. Using these different historical elections did not alter Dr. Pegden's conclusions. *Id.*

177. To evaluate the partisan characteristics of each comparison map, Dr. Pegden's algorithm calculates the number of seats Democratic candidates would win, on average, if a random uniform swing were repeatedly applied to the historical voting data being used. PX523 at 9-10. This metric captures how a given comparison map would perform over a range of

electoral environments centered around the base election being used (*i.e.*, the 2020 Attorney General's election for Dr. Pegden's primary analysis). *Id.*

178. Dr. Pegden's algorithm repeats the foregoing steps billions or trillions of times. The algorithm begins with the enacted map, makes a small random change complying with certain constraints, and uses historical voting data to evaluate the partisan characteristics of the resulting map. PX523 at 5. The algorithm then repeats those steps, each time using the comparison map generated by the previous change as the starting point. *Id.* By repeating this process many times, Dr. Pegden's algorithm generates a large number of comparison maps in sequence, each map differing from the previous map only by one small random change. *Id.* at 5, 8.

179. Each sequence of billions or trillions of small changes in Dr. Pegden's analysis is one "run." PX523 at 5. For the congressional plan, a run consisted of approximately one trillion small changes. *Id.* His algorithm performs multiple runs for each map being analyzed, with each run beginning with the enacted plan as the starting point. *Id.*

180. The comparison maps generated by Dr. Pegden's algorithm are not intended to provide a baseline for what neutral, nonpartisan maps of the North Carolina House or Senate should look like. PX523 at 7, 10. Instead, Dr. Pegden's comparison maps are intended to be *similar* to the enacted map in question with respect their relevant nonpartisan characteristics, in order to assess how carefully created the enacted plan is to maximize partisan advantage. *Id.* Thus, when Dr. Pegden reports the number of Democratic seats expected under a particular set of generated maps, that does not necessarily reflect the number of Democratic seats that would be expected under a representative set of neutral, nonpartisan districting maps. *Id.* at 10. Nor does Dr. Pegden's method "evaluate the fairness of a districting by whether it produces a 'small' or

'large number of seats for one party." *Id.* The number of Democratic seats expected "is merely a metric used to compare one map to another"—*i.e.*, to determine whether "the enacted map is [an] extreme outlier with respect to how optimized for partisanship it is compared to the set of alternative comparison districts of North Carolina satisfying the districting criteria [he] impose[s]." *Id.*

181. Dr. Pegden performed two levels of analysis on the comparison maps generated by his algorithm. Dr. Pegden's first-level analysis is simple: he reports what happened in each run when his algorithm made random swaps to the enacted plan's district boundaries. PX523 at 5, 12. For the enacted congressional map, Dr. Pegden reports that—in every run—the enacted map was more favorable to Republicans than 99.9999% of the comparison maps generated by his algorithm making small random changes to the district boundaries. *Id.* at 13.

182. Even without using applying the mathematical theories developed in his academic papers, Dr. Pegden's first-level analysis provides "strong, intuitively clear evidence" that the 2021 congressional plan was "drawn to optimize partisan advantage in the enacted plan." In every run, the enacted congressional plan was in the most partisan 0.000031% of the approximately one trillion maps generated making tiny random changes to the district's boundaries. PX523 at 13. "[I]f the districting had not been drawn to carefully optimize its partisan bias, we would expect naturally that making small random changes to the districting would not have such a dramatic and consistent partisan effect." *Id.* at 5.

183. Dr. Pegden's second-level analysis provides mathematically precise calculations of how carefully crafted the plan is—that is, how precisely the district boundaries align with partisan voting patterns so as to advantage Republicans—when compared not just to the comparison maps generated in each run of his algorithm, but to *all possible maps of North*

Carolina that satisfy his constraints. PX523 at 6-7. In other words, Dr. Pegden is able to determine—to a mathematical certainty—the extent to which the enacted plan is an outlier relative to every single other possible congressional map of North Carolina that could exist meeting the contiguity, equal population, compactness, and political subdivision constraints that his algorithm applies. Dr. Pegden reports that the enacted congressional map is more carefully crafted for Republican partisan advantage than at least 99.9999% of all possible maps of North Carolina satisfying his constraints. *Id.* at 13.

184. The results of Dr. Pegden's second-level analyses follow from his theorems, which have been vetted by mathematicians and are not subject to debate or difference of opinion. PX523 at 6, 37-38. But the results of Dr. Pegden's second-level analyses also are intuitive. In effect, Dr. Pegden's analysis shows that the enacted congressional plan is not only highly advantageous to Republicans, but also is surrounded in the space of maps by a sea of other maps that are *less* advantageous to Republicans. What Dr. Pegden's theorems establish is that it is impossible—even in principle—for a typical map of North Carolina (or any other state) to be favorable to Republicans and be surrounded by maps that are less favorable to Republicans. It is this mathematical truth that allows Dr. Pegden to calculate the degree to which the enacted plan is carefully crafted for partisan advantage compared with all other possible maps of North Carolina, using an established formula whose key input is the map's partisan outlier status among the generated maps. *Id.* at 6.

185. These striking results cannot be explained by North Carolina's political geography. PX523 at 4. Dr. Pegden's algorithm compares the enacted map to other maps of North Carolina, with the very same political geography. And Dr. Pegden's theorems do not depend on any aspect of North Carolina's political geography—the theorems are absolutely true

and valid for any state with any political geography. *Id.* Indeed, Dr. Pegden's theorems are absolutely true and valid not just for redistricting plans, but for any abstract space on which one could imagine taking a random walk using a Markov chain. *Id.* at 37-38; PX628 (journal article).

186. The results of Dr. Pegden's statewide analyses also conclusively show that it is possible for a North Carolina mapdrawer to make intentional and extreme use of partisan considerations even within the constraints set forth in the 2021 Adopted Criteria. All of Dr. Pegden's comparison maps respect all constraints set forth in the 2021 Adopted Criteria at least as much as the enacted plan. PX523 at 7. And in his algorithm, Dr. Pegden applied those constraints in an extremely conservative way that respects the choices made by the mapdrawer with respect to compactness and the divisions and preservation of particular counties and municipalities. Even within those constraints, there were many maps for a mapdrawer to choose from; what Dr. Pegden's analysis shows is that the mapdrawer here intentionally chose maps that were more carefully crafted for Republican partisan advantage than at least 99.9999% of all possible alternatives.

4. Dr. Christopher Cooper

187. Christopher A. Cooper, Ph.D., has been a tenured or tenured-track professor of in the field of political science since 2002 and is currently the Robert Lee Madison Distinguished Professor of Political Science and Public Affairs at Western Carolina University. PX425 at 1 (Cooper Rep.). Dr. Cooper was previously accepted as an expert in *Common Cause v. Lewis, et al.*, 18 CVS 014001 (Sept. 3, 2019), where the court credited his opinions and gave "great weight to" his analysis and conclusions regarding the partisan effect of the General Assembly maps enacted in 2017. *Common Cause*, at 38.

188. The Court accepted Dr. Cooper as an expert in political science with a specialty in the political geography and political history of North Carolina. The Court gives great weight to Dr. Cooper's testimony, analysis, and conclusions.

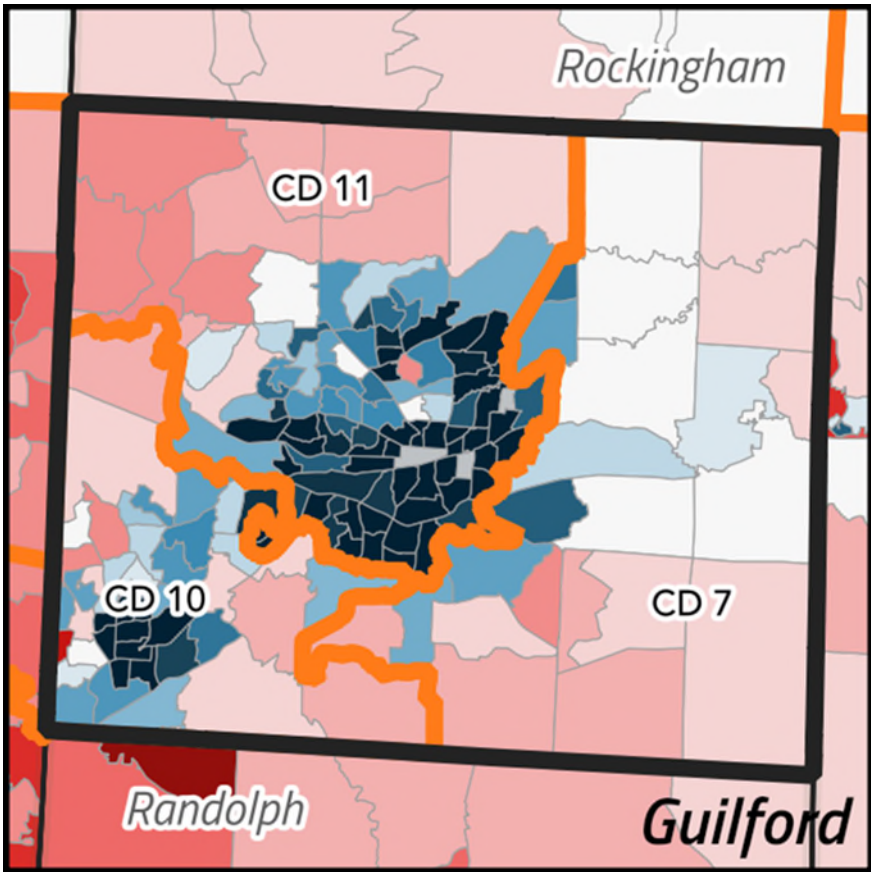
189. Dr. Cooper testified regarding his analysis of the 2021 Congressional Plan the partisan effects of each district's boundaries. The Court finds Dr. Cooper's analysis of the 2021 Congressional Plan to be persuasive and consistent with Plaintiffs' other experts' findings regarding the packing and cracking of Democratic voters in these districts, as described below.

190. Dr. Cooper testified that although North Carolina gained an additional congressional seat as a result of population growth that came largely from the Democratic-leaning Triangle (Raleigh-Durham-Chapel Hill) and the Charlotte metropolitan areas, the number of anticipated Democratic seats under the enacted map actually decreases, with only three anticipated Democratic seats, compared with the five seats that Democrats won in the 2020 election. Cooper Rep. 3.

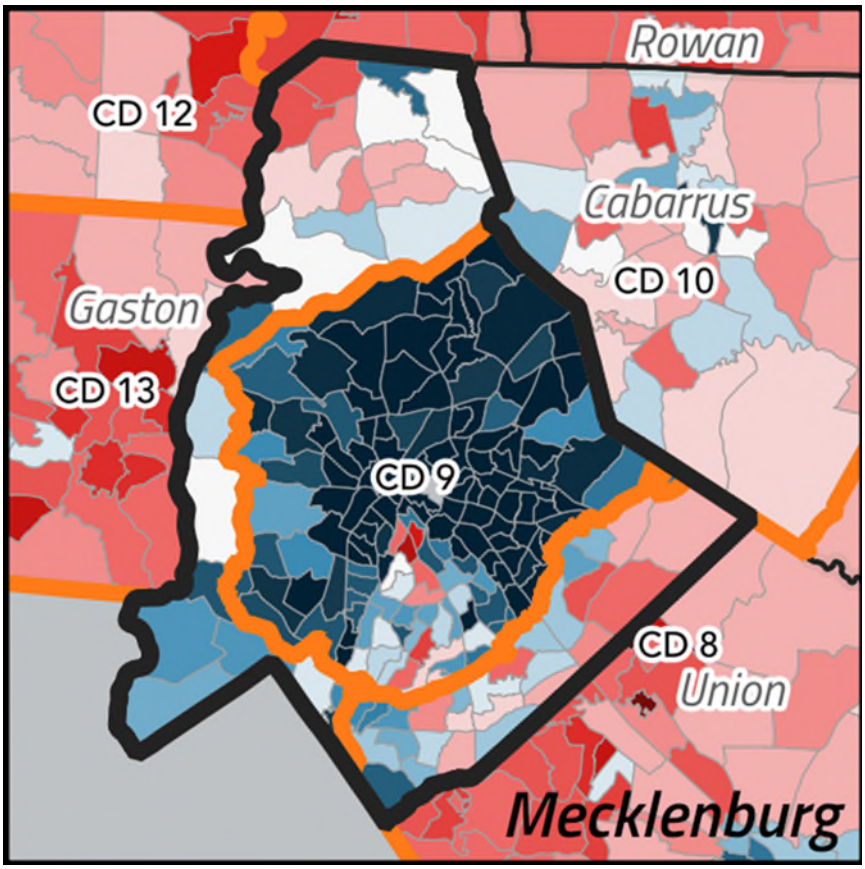
191. Dr. Cooper testified that the 2021 Congressional Plan reduces the anticipated number of Democratic seats, disadvantaging Democratic voters, by splitting the Democratic-leaning counties of Guilford, Mecklenburg, and Wake among three congressional districts each. Cooper Rep. 3. There was no population-based reason to divide each of these three Democratic-leaning counties across three districts and in the congressional plan in effect for the 2020 election, Guilford County fell entirely within one district, while Mecklenburg and Wake counties were each divided into only two districts. Cooper Rep. 3.

192. Dr. Cooper produced a series of maps showing the congressional district boundaries in Guilford, Mecklenburg, and Wake counties, displaying the congressional district boundaries in yellow, the county boundaries in black, and VTD boundaries in gray. Dr. Cooper

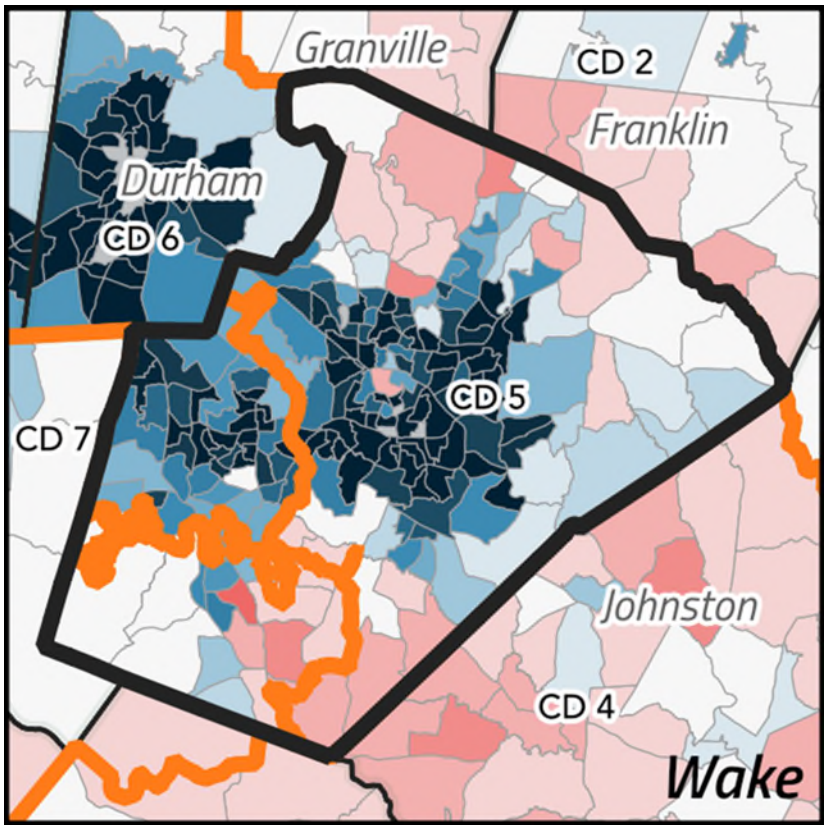
also used the combined, two-party vote differential in the results of the 2020 Secretary of Labor and Attorney General elections to measure and display partisanship of the VTDs on these maps. In each map, darker red shading indicates a larger Republican vote margin in the VTD, darker blue shading indicates a larger Democratic vote margin in the VTD, and lighter colors indicate VTDs that were closer to evenly split in Democratic and Republican vote shares in the 2020 Secretary of Labor and Attorney General elections. Cooper Rep. 15.



Cooper Map 1


Rowan
CD 12
Cabarrus
CD 10
Gaston
CD 13
CD 9
CD 8
Union
Mecklenburg

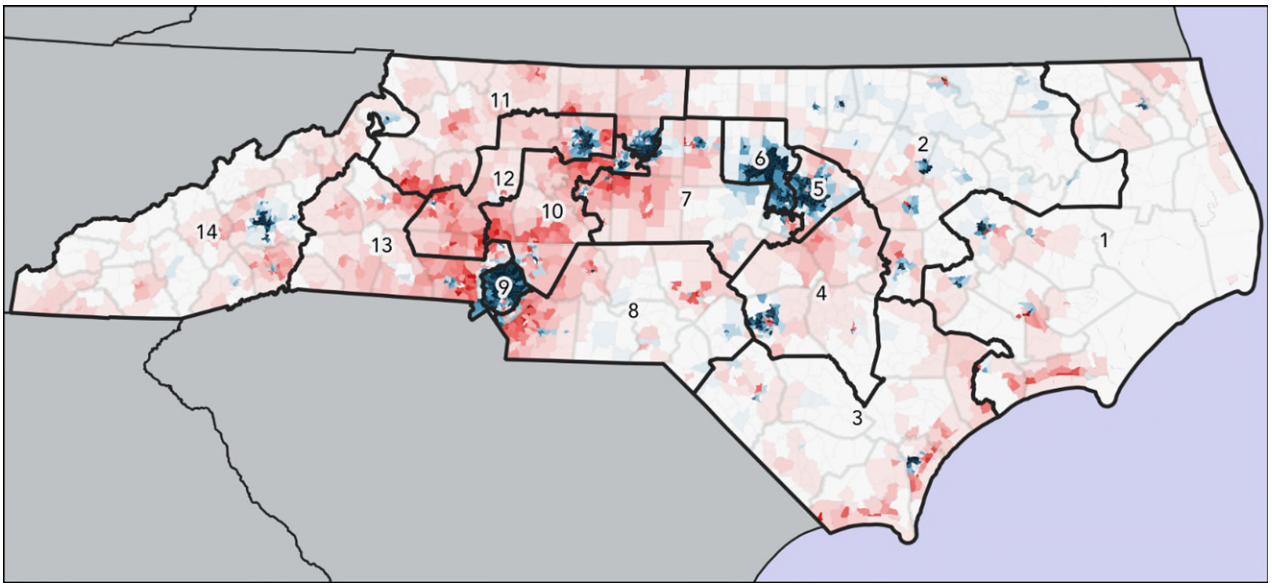
Cooper Map 2



Cooper Map 3

193. As Dr. Cooper testified, the congressional district map is "best understood as a single organism" given that the boundaries drawn for a particular congressional district in one part of the state will necessarily affect the boundaries drawn for districts elsewhere in the state. Cooper Rep. 15. Thus, the "cracking and packing" of Democratic voters in Guilford, Mecklenburg, and Wake counties has "ripple effects throughout the map." Cooper Rep. 15.

194. Dr. Cooper produced a map showing the state-wide congressional map with red-and-blue shading of VTDs based on the two-party vote margin in the results of the 2020 Secretary of Labor and Attorney General elections. This map illustrates how the cracking and packing of Democratic voters in Guilford, Mecklenburg, and Wake counties have affected the partisan leaning of other districts in the 2021 Congressional Plan.



Cooper Map 4

195. Dr. Cooper calculated the two-party vote margin in the results of the 2020 Secretary of Labor and Attorney General elections for the districts in the 2021 Congressional Plan in order to estimate the partisan lean of each district. By this measure, Dr. Cooper estimates that the 2021 Congressional Plan will result in 10 Republican seats, 3 Democratic seats, and 1 competitive seat. Other measures of the partisan lean of each district in the 2021 Congressional Plan, including the Cook Political Report's Partisan Voter Index (PVI) and the percentage of the electorate that voted for Donald Trump in the 2020 election, are consistent with the two-party vote margin in the results of the 2020 Secretary of Labor and Attorney General elections. Cooper Rep. 20 & Table 1.

Table 1. Summary Data for Each Enacted Congressional District

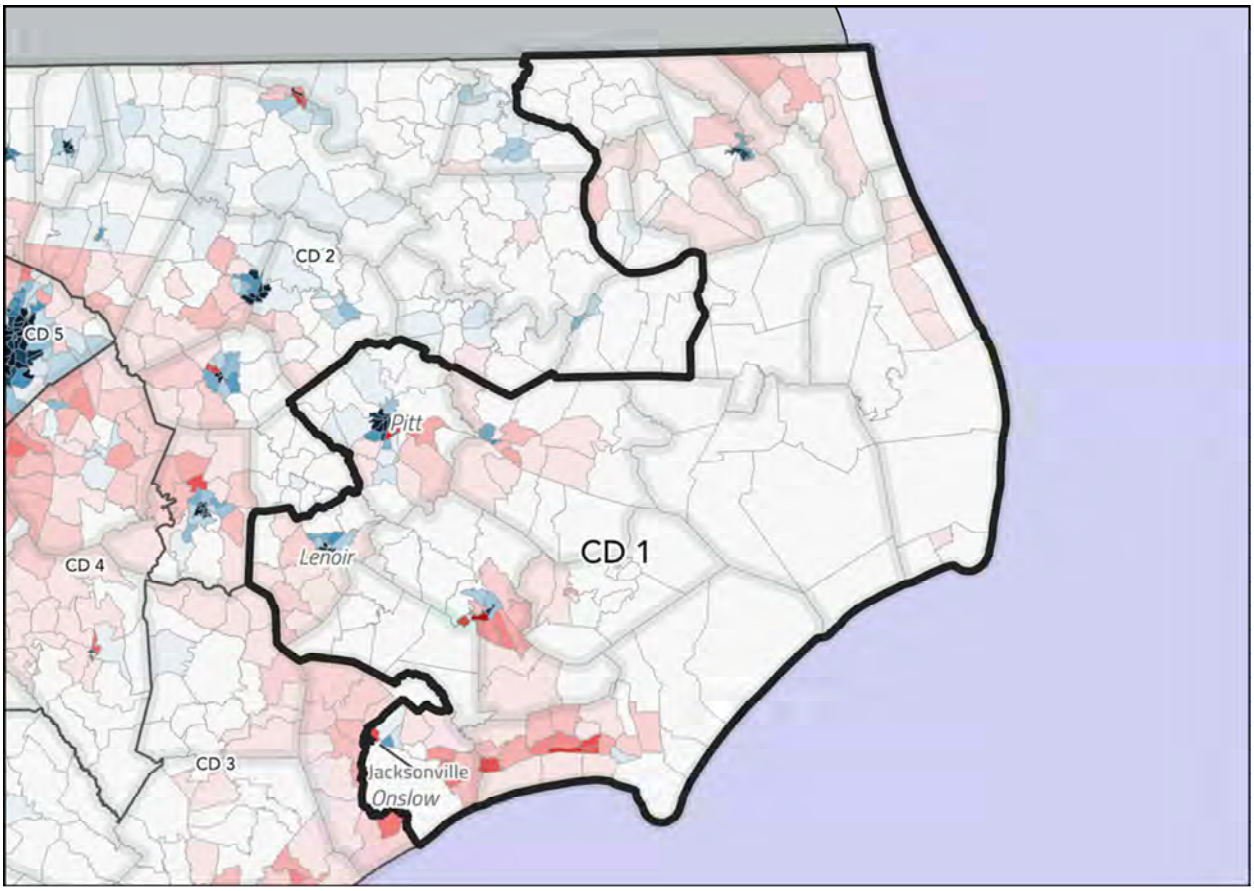
District	PVI	CCSC	Trump Perc
1	R+10	R +98,969	57%
2	Even	D +40,396	48%
3	R+10	R +111,451	58%
4	R+5	R +28,045	53%
5	D+12	D +227,327	34%
6	D+22	D +374,786	25%
7	R+11	R +115,682	57%
8	R+11	R +125,842	57%
9	D+23	D +325,717	25%
10	R+14	R +156,833	60%
11	R+9	R +94,407	57%
12	R+9	R +102,404	56%
13	R+13	R +150,187	60%
14	R+7	R +58,387	53%

196. Dr. Cooper also found that the 2021 Congressional Plan places the residences of an incumbent Republican representative and an incumbent Democratic representative within a new, overwhelmingly Republican district, NC-11, "virtually guaranteeing" that the Democratic incumbent will lose her seat. Cooper Rep. 4. The 2021 Congressional Plan includes one district where no incumbent congressional representative resides. That district, NC-4, "overwhelmingly favors" the Republican candidate according to Dr. Cooper's estimates of the partisan lean. Cooper Rep. 4.

197. Dr. Cooper's analysis of each congressional district's boundaries further illustrate the partisan effects of the 2021 Congressional Plan, as described below.

198. NC-1 is in the northeastern corner of the state and includes part of the former NC-1 and NC-3. As Dr. Cooper's testified and his map illustrates, Legislative Defendants included the Democratic-leaning areas of Pitt County within NC-1, allowing for a greater Republican advantage in bordering NC-2, to the west.

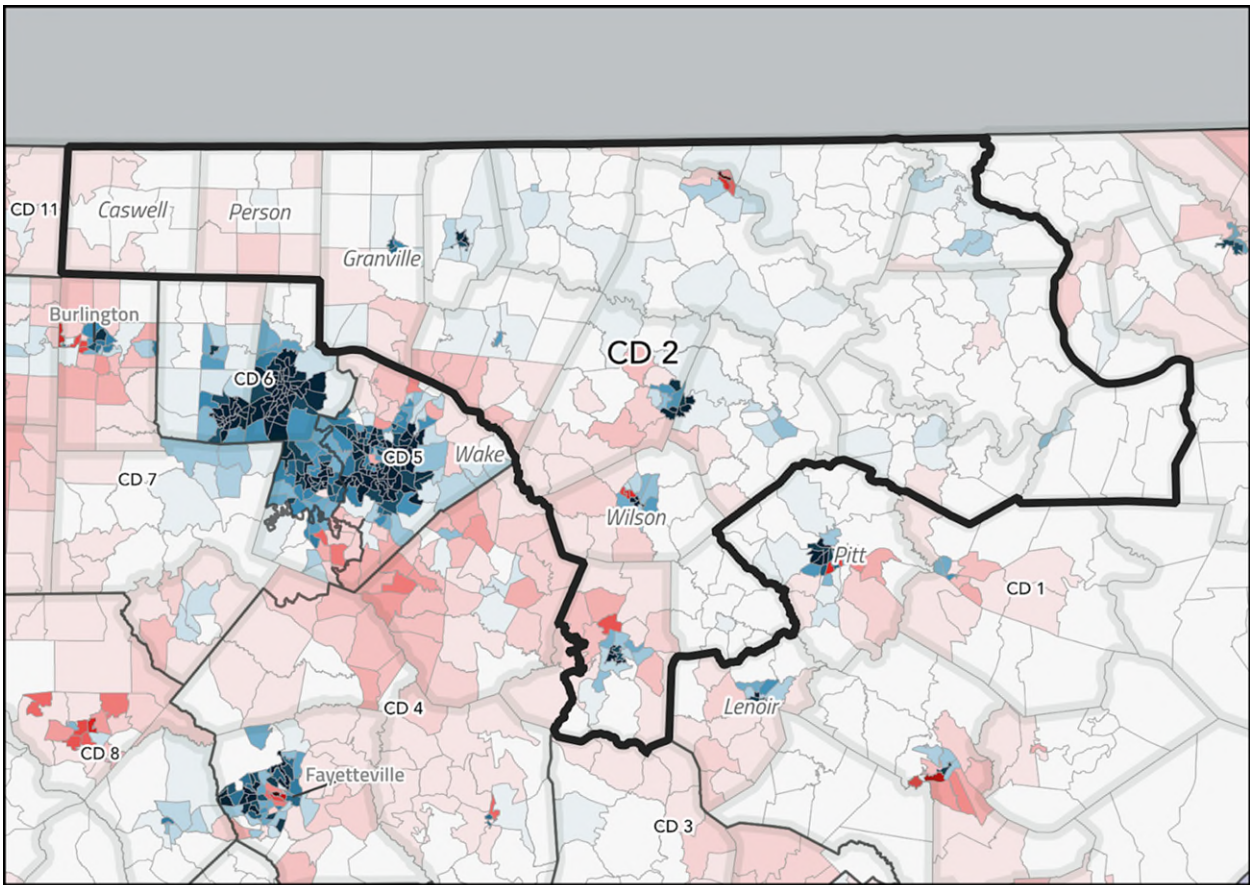
199. Dr. Cooper determined that NC-1 is likely to elect a Republican candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-1, as well as other measures. Cooper Rep. 21.



Cooper Map 5

200. NC-2 stretches from Albemarle Sound, in the east, to the Raleigh-Durham-Chapel Hill metropolitan area and includes Caswell County, northeast of Greensboro, to the west. Washington County and Caswell County have never been paired together in a congressional map in North Carolina's history. Cooper Rep. 23.

201. NC-2 includes the "core" of former NC-1, as well as portions of the former NC-4 and NC-13. While the former NC-1 previously included Pitt County, home to East Carolina University in Greenville, NC-2 does not include Pitt County. Cooper Rep. 23.

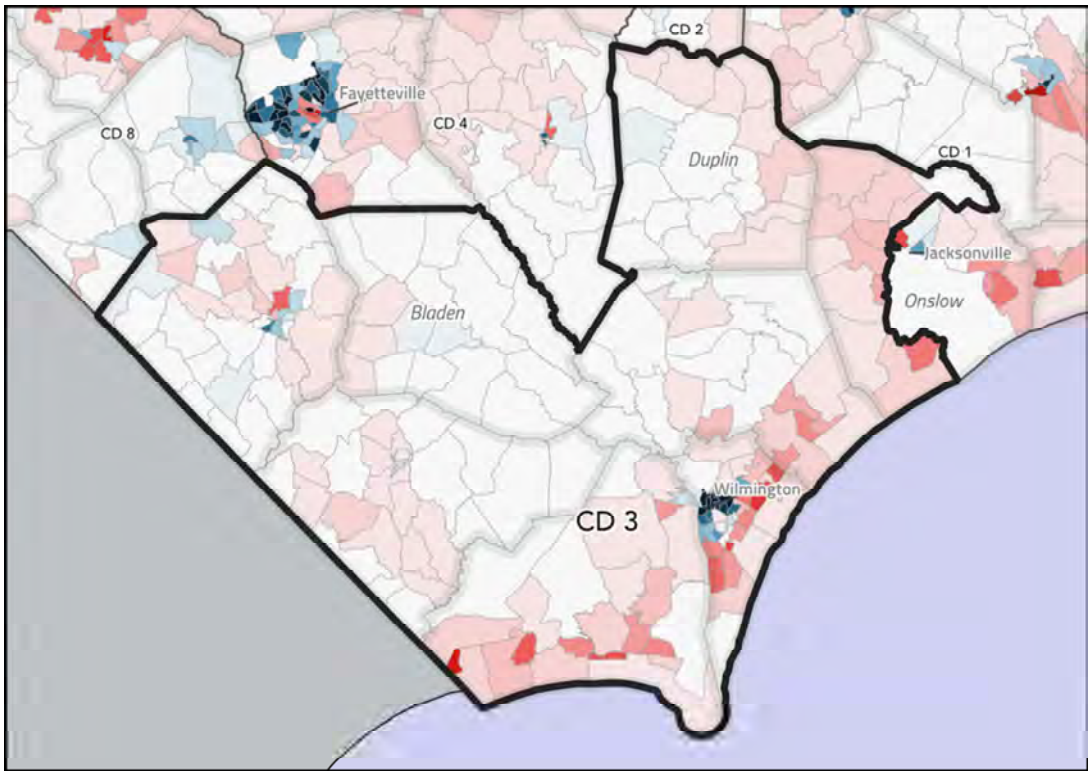


Cooper Map 6

202. Dr. Cooper determined that NC-2 is now a "competitive" district based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-2, as well as other measures.

203. Most of the area that comprises NC-2 is represented by Democrat G.K. Butterfield in a Democratic-leaning district. Representative Butterfield, who is the longest serving member of North Carolina's congressional delegation, announced that he will not seek re-election after the 2021 Congressional Plan was enacted. Cooper Rep. 23.

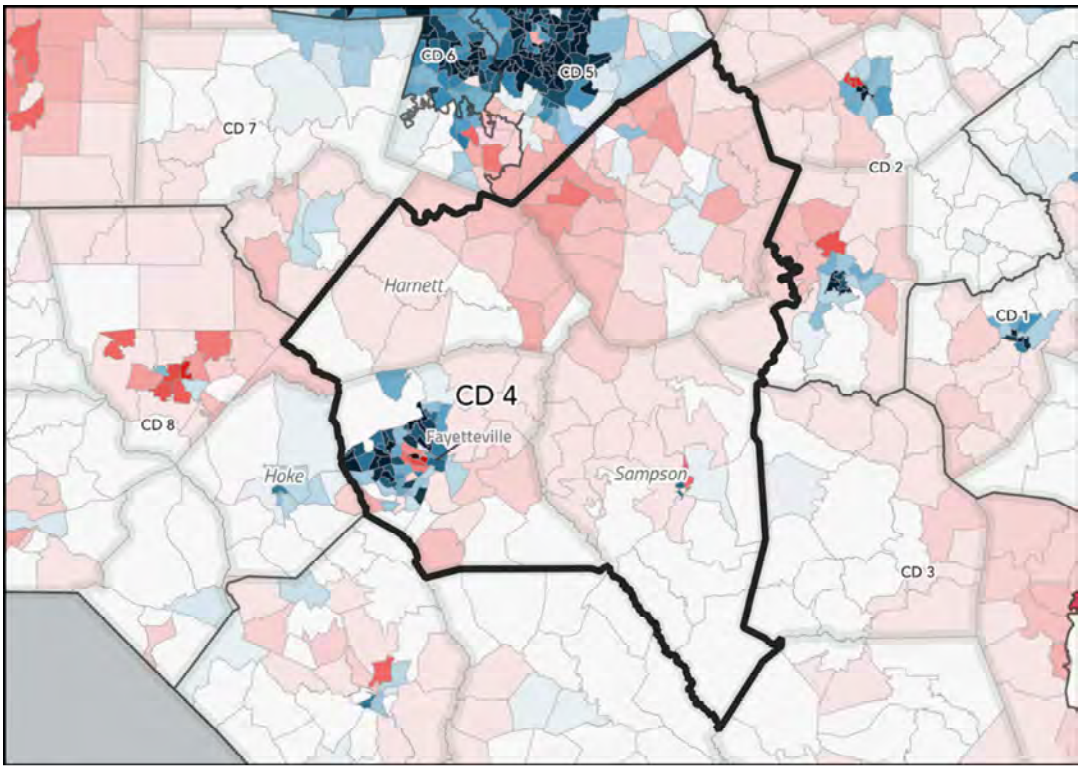
204. NC-3 combines portions of the Sandhills, on its western boundary, with the coastal enclave in and around Wilmington and a piece of Onslow County, in the east. NC-3 includes portions of three former districts, NC-3, NC-7, and NC-9.



Cooper Map 7

205. Dr. Cooper determined that NC-3 is likely to elect a Republican candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-3, as well as other measures. Cooper Rep. 25.

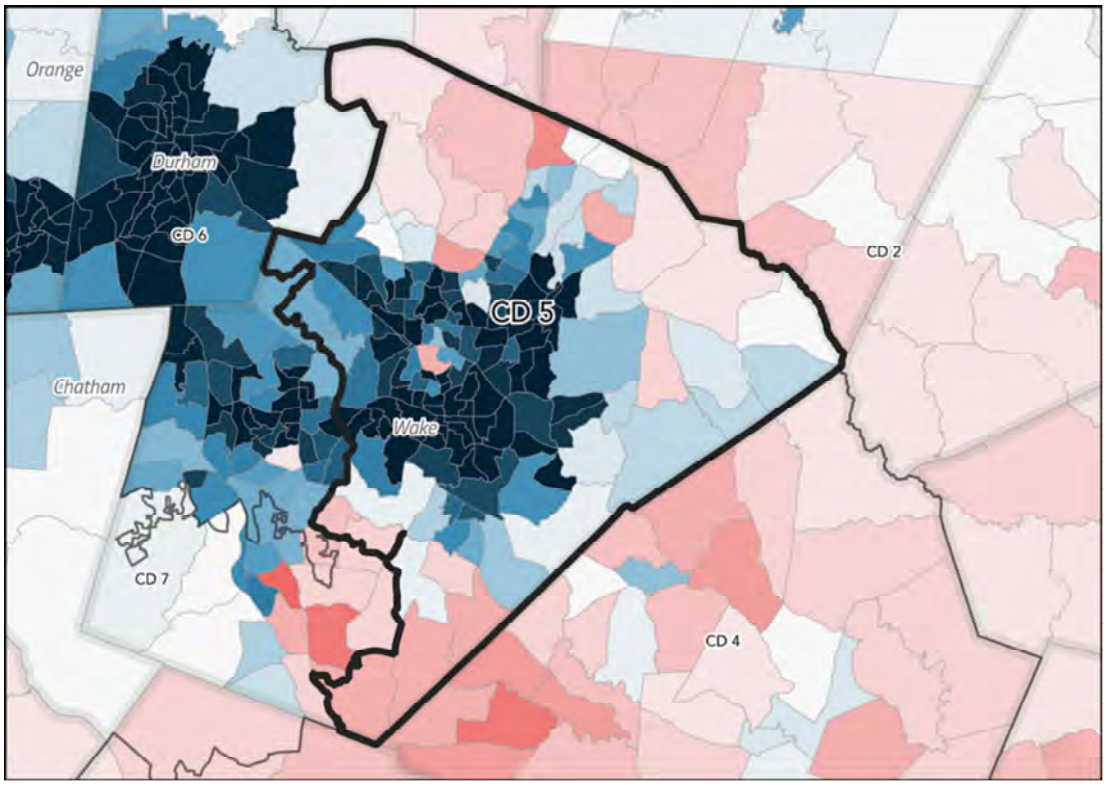
206. NC-4 contains portions of the Sandhills, including Cumberland and Johnson countries along with parts of Harnett and Wayne counties. NC-4's boundaries thereby combine the Democratic-leaning areas in Fayetteville with Republican-leaning areas that were in the former NC-7 and NC-8. Cooper Rep. 27.



Cooper Map 8

207. NC-4 does not contain the residence of an incumbent congressional representative. Dr. Cooper determined that NC-4 is likely to elect a Republican candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-4, as well as other measures. Cooper Rep. 27.

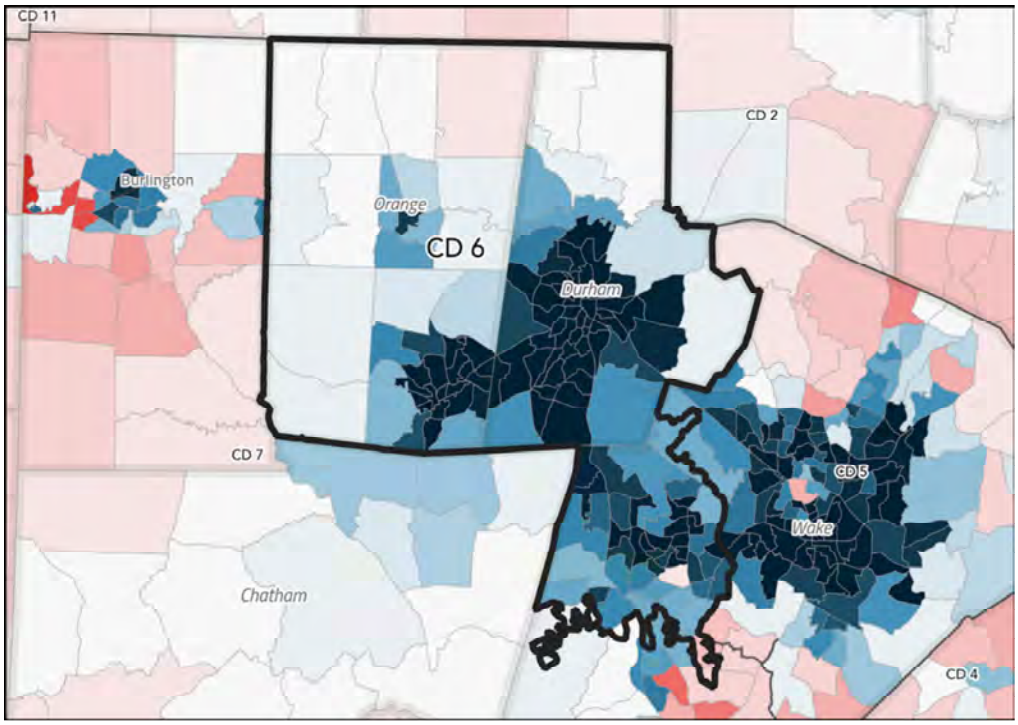
208. NC-5 sits entirely within Wake County and is one of the three districts that includes a part of that county. It is made up of portions of former NC-2 and NC-4 and packs the Democratic voters in these heavily-Democratic areas into one district, increasing the probability that Republican candidates will win in the adjacent districts. Cooper Rep. 29.



Cooper Map 9

209. Dr. Cooper determined that NC-5 is likely to elect a Democratic candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-5, as well as other measures. Cooper Rep. 29.

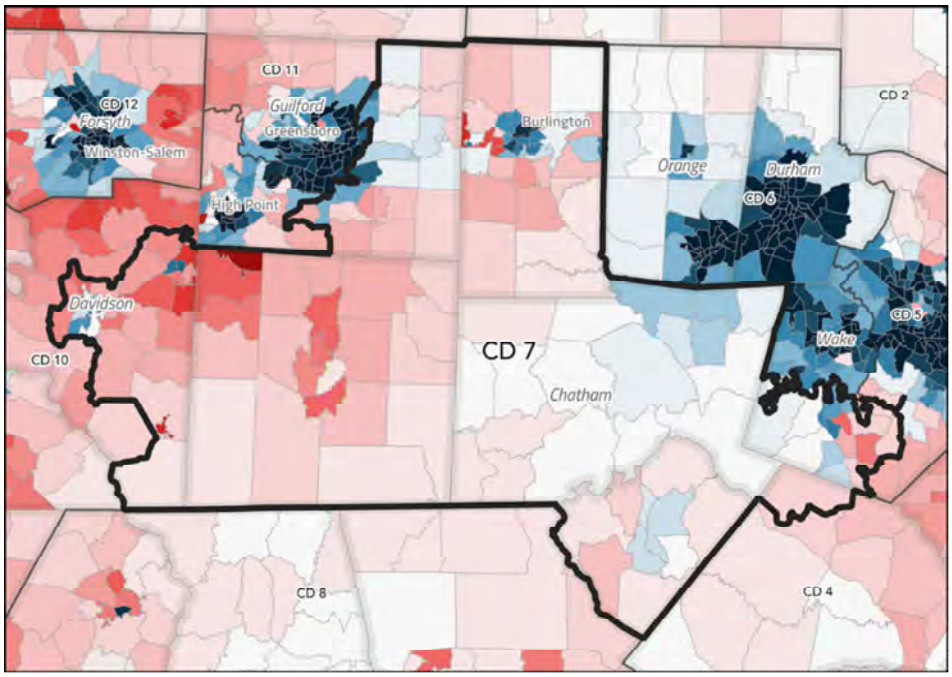
210. NC-6 includes all of Orange and Durham counties as well as part of Wake County, combining portions of the former NC-4 and NC-2. As Dr. Cooper testified, NC-6 packs a greater proportion of Democratic voters into a single district than any district from the former congressional plan, increasing the probability that Republicans can win in the adjacent districts. There are only four marginally Republican-leaning VTDs in NC-6. Cooper Rep. 31.



Cooper Map 10

211. Dr. Cooper determined that NC-6 is likely to elect a Democratic candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-6, as well as other measures. Cooper Rep. 31.

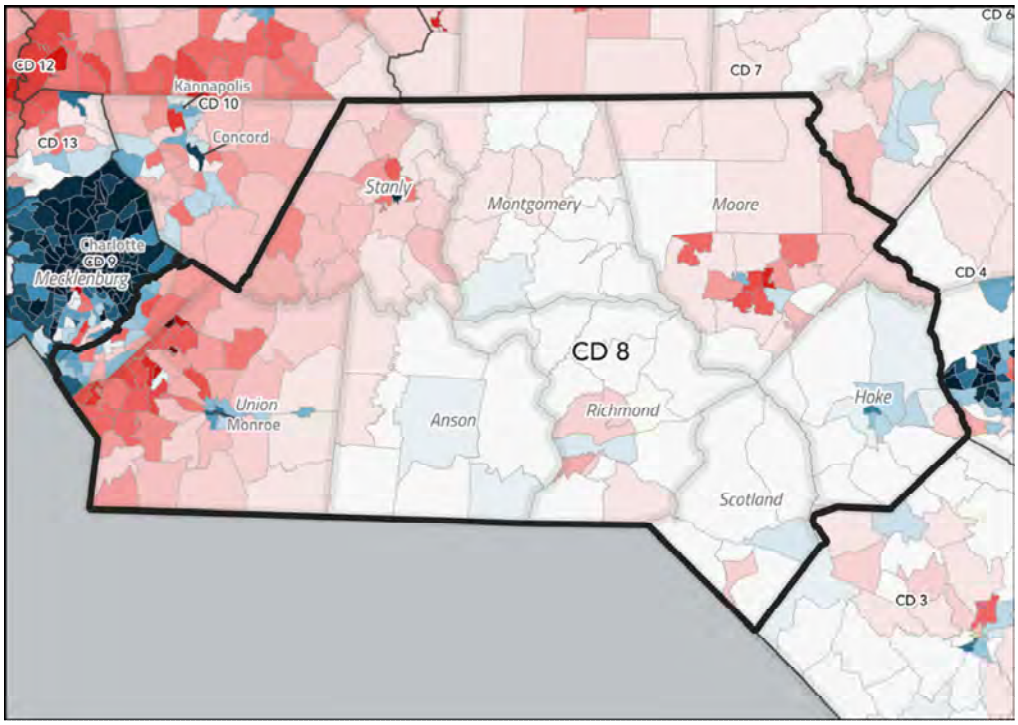
212. NC-7 includes Randolph, Alamance, Chatham, and Lee counties along with portions of Guilford, Wake, and Davison counties. It is made up of portions of former NC-2, NC-4, NC-6, and NC-13. As Dr. Cooper's map of NC-7 indicates, the boundaries of NC-7 split Guilford and Wake counties but do not include the most Democratic-leaning VTDs in those counties within the district. Cooper Rep. 33.



Cooper Map 11

213. Dr. Cooper determined that NC-7 is likely to elect a Republican candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-7, as well as other measures. Cooper Rep. 33.

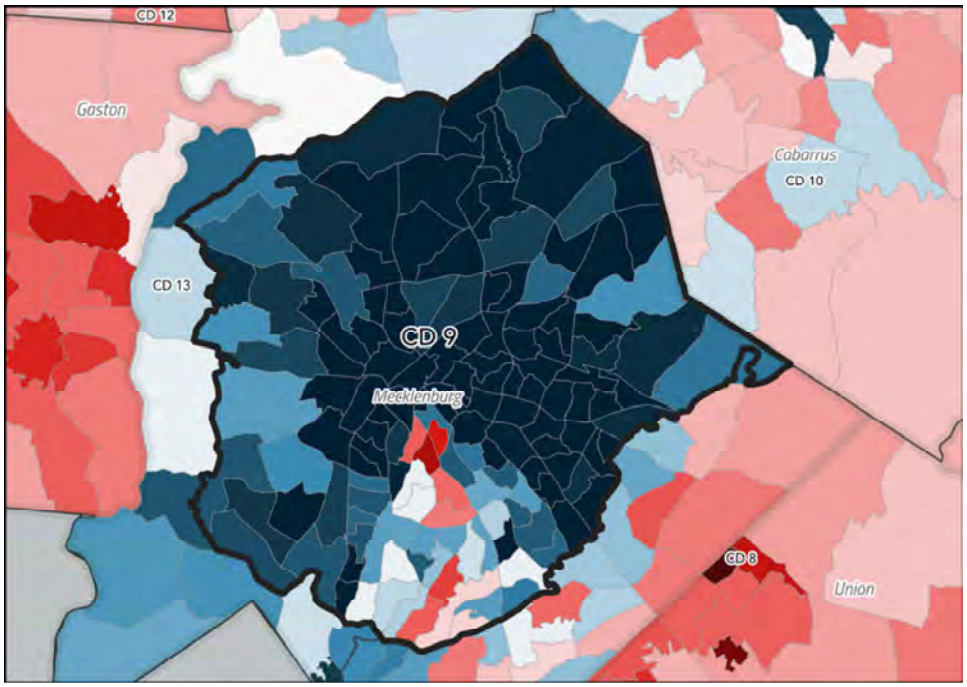
214. NC-8 includes portions of the Sandhills, stretching from the eastern side of Mecklenburg County, in the west, to include Hoke and Scotland counties, in the east. It is made up of portions of former NC-8, NC-9, and NC-12. As Dr. Cooper's map of NC-8 indicates, NC-8's western boundary splits Mecklenburg County in such a way that the most Democratic-leaning VTDs within that county fall outside of NC-8. Cooper Rep. 35.



Cooper Map 12

215. Dr. Cooper determined that NC-8 is likely to elect a Republican candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-8, as well as other measures. Cooper Rep. 35.

216. NC-9 sits within Mecklenburg County and includes portions of the former NC-9 and NC-12. As Dr. Cooper's map indicates, NC-9 packs the most-Democratic VTDs in Mecklenburg County within one district, while most Republican-leaning and competitive VTDs are placed outside its boundaries, in NC-13 to the west and NC-8 to the east, allowing those districts to be more favorable to Republican candidates. Cooper Rep. 37.

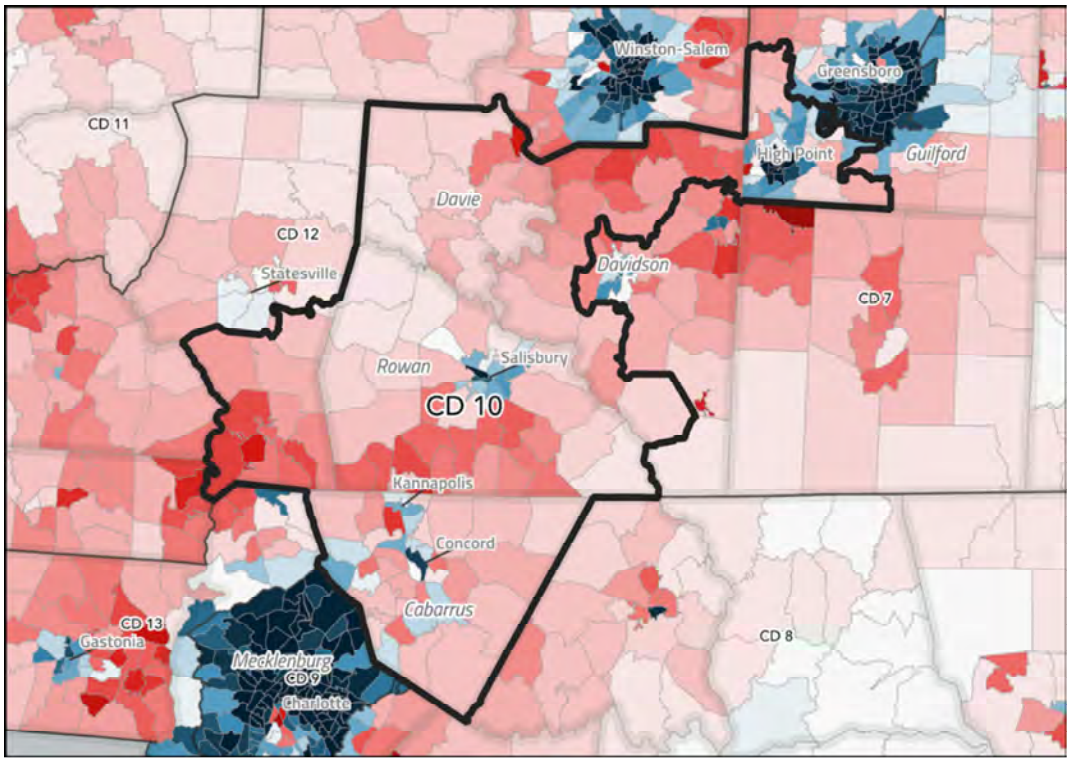


Cooper Map 13

217. Dr. Cooper determined that NC-9 is likely to elect a Democratic candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-9, as well as other measures. Cooper Rep. 37.

218. NC-10 includes all of Rowan, Cabarrus, and Davie counties and parts of Iredell, Davidson, and Guilford counties. It combines portions of former NC-6, NC-9, NC-10, and NC-13. As Dr. Cooper's map indicates, NC-10 includes heavily-Democratic VTDs in High Point, within Guilford County, as well as Democratic-leaning VTDs in Salisbury, Kannapolis, and Concord, in Rowan and Cabarrus counties. But NC-10 separates the Democratic voters in those areas from other pockets of Democratic voters just across NC-10's boundaries in Guilford, Forsyth, and Mecklenburg counties. While North Carolina's Piedmont Triad (High Point, Winston-Salem, and Greensboro) was previously kept together in one district (former NC-6), the Piedmont Triad—and the Democratic voters there—are split across three districts, NC-10, NC-

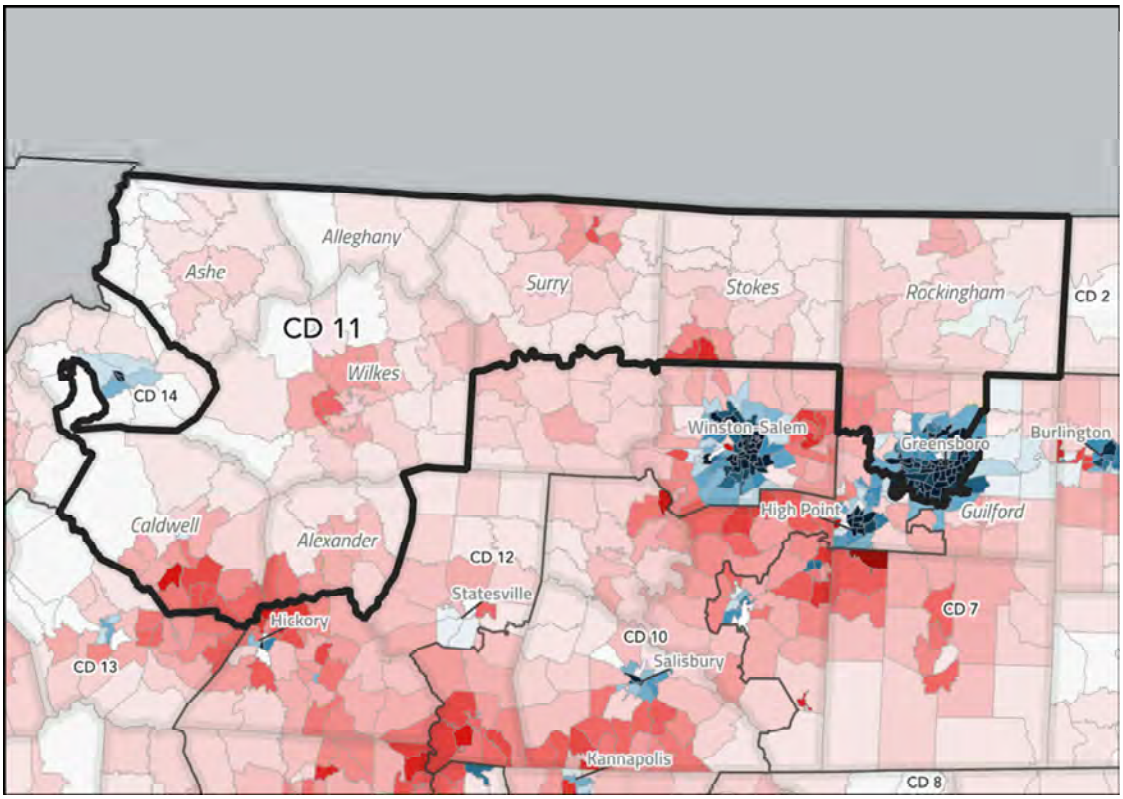
11, and NC-12. Cooper Rep. 39. The former NC-6 is represented by Democrat Kathy Manning, who is now "double-bunked" with Republican Virginia Foxx in NC-11, a Republican leaning district. Cooper Rep. 4.



Cooper Map 14

219. Dr. Cooper determined that NC-10 is likely to elect a Republican candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-10, as well as other measures. Cooper Rep. 39.

220. NC-11 includes Greensboro, within Guilford County, as well as Rockingham, Stokes, Surry, Alleghany, Ashe, Wilkes, Caldwell, and Alexander counties and a "boot-shaped sliver" of Watauga County. NC-11 is made up of portions of the former NC-5, NC-6, and NC-10. Cooper Rep. 41.



Cooper Map 15

221. As Dr. Cooper testified, Caldwell County, in the west, and Rockingham, in the east, have never shared a congressional representative in the history of North Carolina. Dr. Cooper also testified that some of the locations in NC-11—particularly the "high country" areas in Watauga and Ashe counties and Greensboro, in the Piedmont—lack "shared community interests," sitting in different media markets, with different area codes. Cooper Rep. 41.

222. NC-11 includes the Democratic-leaning VTDs in Greensboro in the same district as heavily-Republican VTDs to the north and the west in an "overwhelmingly Republican district," thereby ensuring that Greensboro voters will not be represented by a Democrat. Cooper Rep. 41.

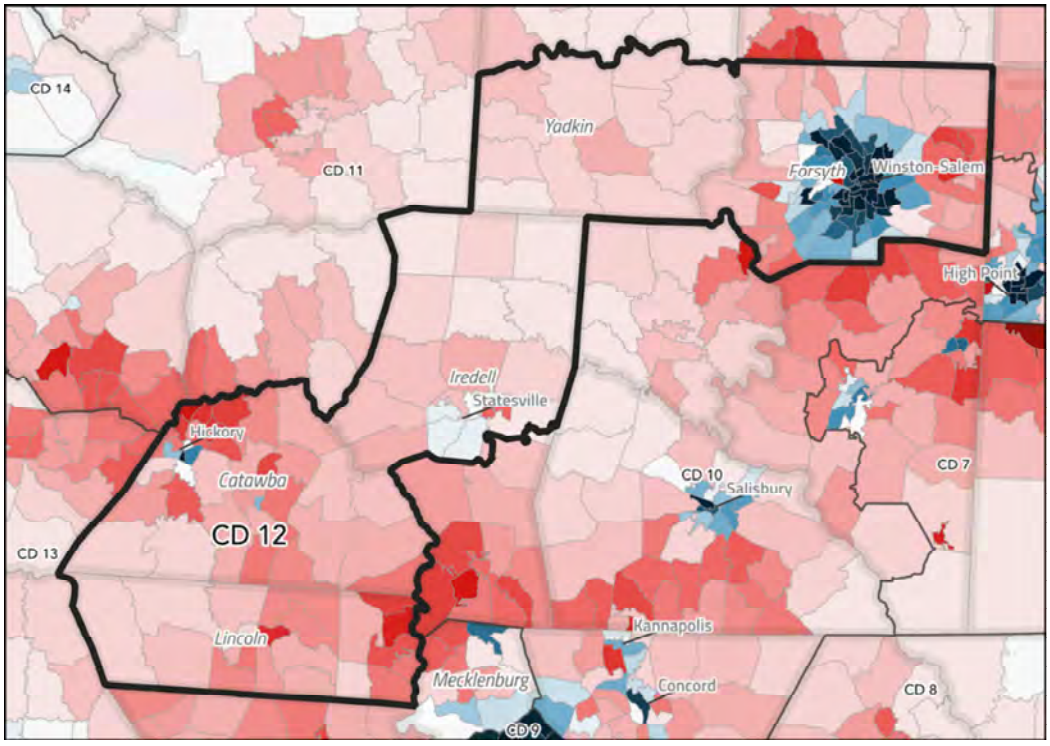
223. The portion of NC-11 that includes the residence of Republican incumbent Virginia Fox is a "tiny sliver of Watauga County" that is connected to Caldwell County by a

narrow passage of land that is "roughly three miles wide and requires a traverse of the Daniel Boone Scout Trail." Cooper Rep. 41.

224. Dr. Cooper determined that NC-11 is likely to elect a Republican candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-11, as well as other measures. Cooper Rep. 41.

225. NC-12 stretches from Lincoln County, in the southwest, through Catawba, Iredell, Yadkin, and Forsyth counties, in the northeast.

226. As Dr. Cooper's map indicates, NC-12's boundaries separate the Democratic-leaning VTDs in Winston-Salem and the Democratic-leaning VTDs in High Point (in NC-10), combining Winston-Salem with Republican-leaning VTDs further south. Republican incumbent Patrick McHenry currently resides in the southeast corner of NC-12, on the other end of the district from Winston-Salem. Cooper Rep. 43.

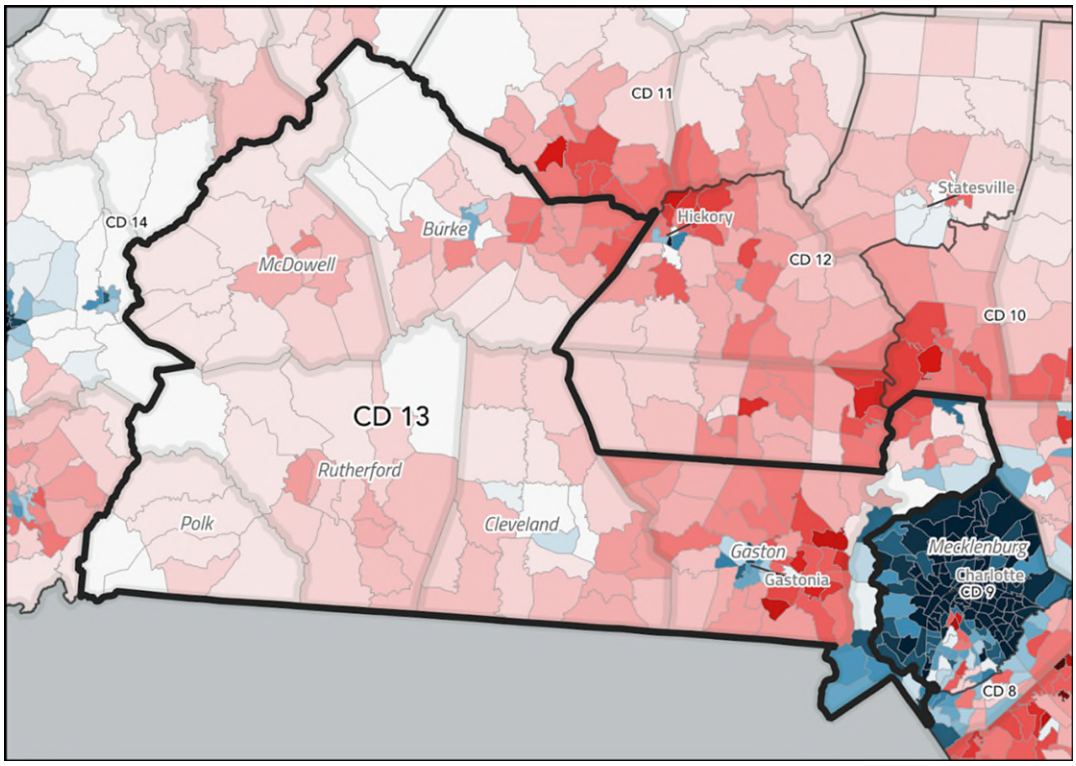


Cooper Map 16

227. Dr. Cooper determined that NC-12 is likely to elect a Republican candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-12, as well as other measures. Cooper Rep. 43.

228. NC-13 includes the Polk, Rutherford, McDowell, Burke, Cleveland, and Gaston counties, as well as a portion of western Mecklenburg County. NC-13 is made up of portions of former NC-5, NC-10, NC-11, and NC-12. As Dr. Cooper testified, until the 2021 Congressional Plan, Polk County and Mecklenburg County have never been included in the same congressional district. Cooper Rep. 45.

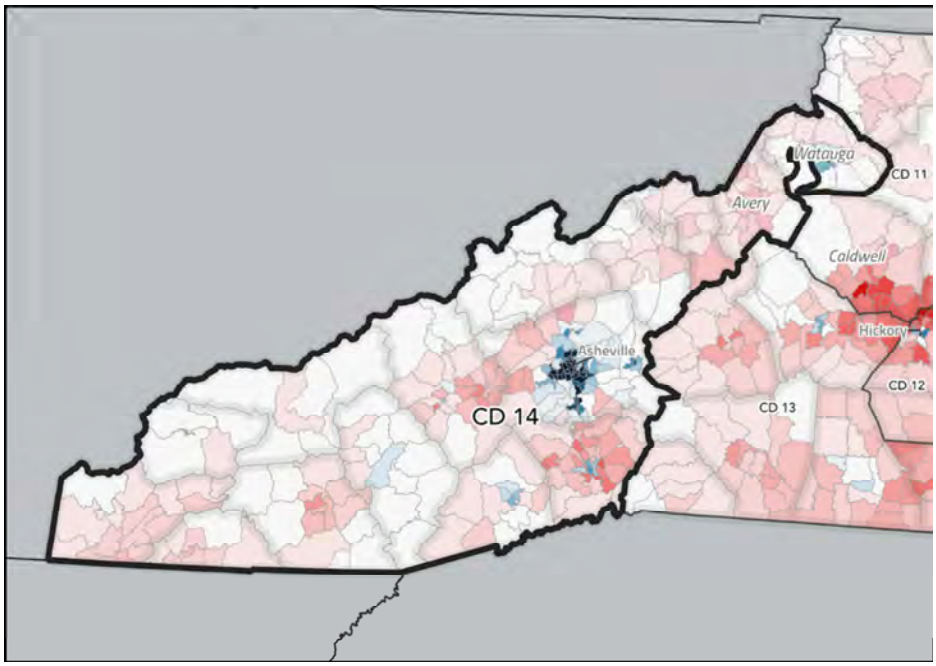
229. Dr. Cooper testified that NC-13 was has been referred to as the "designer district" for Republican Speaker of the House Tim Moore, although Speaker Moore indicated that he would not run for congress after Republican Representative Madison Cawthorn announced he will run in NC-13. Cooper Rep. 45.



Cooper Map 17

230. Dr. Cooper determined that NC-13 is likely to elect a Republican candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-13, as well as other measures. Cooper Rep. 45.

231. NC-14 sits in the southwestern corner of the state and includes most of the former NC-11, as well as part of Watauga County, to the northeast. The former NC-11 also included "Republican strongholds" of Polk and McDowell counties, as well as part of Rutherford County, which are now placed in NC-13. Watauga County has not been in the same congressional district with the southwestern end of the state since 1871, before Graham and Swain counties were in existence. Cooper Rep. 47.



Cooper Map 18

232. Dr. Cooper testified that NC-14 is a "sprawling district" that includes three media markets, and that it would take approximately four hours to traverse from the western end of the district in Murphy to the northeastern corner in Stony Fork, making it difficult to any member of congress to "adequately represent[]" this district. Cooper Rep. 47.

233. Dr. Cooper determined that NC-14 is likely to elect a Republican candidate based on his calculation of the two-party vote differential in the 2020 Secretary of Labor and Attorney General elections in the VTDs that are included within NC-14, as well as other measures. Cooper Rep. 47.

D. The 2021 House and Senate Plans Were Designed Intentionally and Effectively To Maximize Republican Advantage in the General Assembly

234. The analysis and conclusions of Plaintiffs' experts establishes that the 2021 legislative plans are extreme partisan outliers intentionally and carefully designed to maximize Republican advantage and to ensure Republican majorities in both chambers of the General Assembly. Three of Plaintiffs' experts—Drs. Mattingly, and Pegden—employed computer

simulations to generate alternative House and Senate plans to serve as a baseline for comparison to each enacted plan. Even though these experts employed different methodologies, each expert found that the enacted plans are extreme outliers that could only have resulted from an intentional effort to secure Republican advantage on a statewide basis. Legislative Defendants' expert Dr. Michael Barber likewise conducted a simulation and analysis, and he too concluded that the enacted House and Senate plans are partisan outliers. Plaintiffs' expert Dr. Christopher Cooper explained how this gerrymandering was carried out across the State and has led to a substantial disconnect between the ideology and policy preferences of North Carolina's citizenry and their representatives in the General Assembly. The Court credits the analysis and conclusions of each of Plaintiffs' experts individually, and the Court finds that the consistent findings of each of these experts, using different methodologies, powerfully reinforce that the 2021 legislative plans are extreme, intentional, and effective partisan gerrymanders.

1. The Plans Entrench Republican Dominance on a Statewide Basis

235. Plaintiffs' experts Dr. Mattingly, Dr. Pegden, and Dr. Cooper each analyzed the enacted House and Senate plans and concluded that, on a statewide basis, they exhibit extreme partisan bias that could only be attributable to an intentional effort to advantage Republicans. Reinforcing this conclusion, Legislative Defendants' expert Dr. Barber also found that the enacted House and Senate plans are partisan outliers on a statewide basis. *See infra* FOF § G.

a. Dr. Mattingly

236. For both the House and Senate plans, Dr. Mattingly again generated a random representative collection, or "ensemble," of nonpartisan, alternative redistricting maps using the Markov chain Monte Carlo computer algorithm.

237. To generate the maps, Dr. Mattingly used all of the nonpartisan redistricting criteria identified by the General Assembly in its Adopted Criteria. The Markov chain Monte

Carlo algorithm that Dr. Mattingly employed ensured that the collection of maps was a random and representative sample from the distribution of nonpartisan maps that adhere to North Carolina's political geography and nonpartisan redistricting criteria. Mattingly Rep. 9. Dr. Mattingly's simulated maps followed North Carolina's Whole County Provision and minimized county splits and traversals; complied with population deviation requirements; required contiguity; and did not split VTDs; and Dr. Mattingly tuned his algorithm to ensure that the nonpartisan qualities of the simulated maps were similar to the nonpartisan qualities of the enacted map with respect to compactness and, for his primary ensembles, municipality splits. *Id.* In other words he took a random, representative sample of the distribution of all maps that are comparable to the enacted maps in terms of compactness and municipal splits. *Id.*

238. The Court finds that Dr. Mattingly's simulated maps provide a reliable and statistically accurate baseline against which to compare the 2021 enacted legislative plans that allow the Court to reliably assess whether the enacted plans reflect extreme partisan gerrymanders. The partisan bias that Dr. Mattingly identified by comparing the enacted plans to his nonpartisan ensemble of plans could not be explained by political geography or natural packing. Mattingly Rep. 3. Moreover, Dr. Mattingly's analysis did not rest on any assumption about proportional representation. Mattingly Rep. 3.

239. After creating a representative sample of 100,000 statewide maps for the House and Senate, Dr. Mattingly used votes from 16 prior North Carolina statewide elections in 2016 and 2020 to compare the partisan performance and characteristics of the enacted legislative plans to the simulated plans. Mattingly Rep. 10-11.

240. Dr. Mattingly concluded that the 2021 legislative plans were extreme outliers that "systematically favor the Republican Party to an extent which is rarely, if ever, seen in the non-

partisan collection of maps." Mattingly Rep. 2. He concluded that the gerrymander in both chambers was especially effective in preserving Republican supermajorities in instances in which the majority or the vast majority of plans in his ensemble would have broken it. Mattingly Rep. 3, 10. He further concluded that the House map was also especially anomalous under elections where a non-partisan map would almost always give Democrats the majority in the House; the enacted map denied Democrats that majority. He concluded that the probability that this partisan bias arose by chance, without an intentional effort by the General Assembly, was "astronomically small." Mattingly Rep. 3. The Court credits those conclusions.

241. With respect to the House, Dr. Mattingly concluded that the enacted plan showed a systematic bias toward the Republican party, favoring Republicans in every single one of the 16 elections he considered. Mattingly Rep. 11. It was an outlier or extreme outlier in its favoring of Republicans in the vast majority of the elections. *Id.* In particular, as Table 1 demonstrates in its "% Outlier" column, less than 1% (and generally far less than 1%) of the nonpartisan plans in the ensemble elect the same or fewer Democrats than the enacted plan in 13 of the 16 elections he considered. In multiple cases, Table 1 shows that fewer than 10 of the 100,000 enacted maps elected the same or fewer Democrats in the House as the enacted plan. The only three elections where the enacted map is not an extreme outlier are in elections that have strong Republican vote fractions (Treasurer 2020, Senate 2016, and Lieutenant Governor 2016) where the Republicans do not need to gerrymander to keep a supermajority. Mattingly Rep. 12.

% Dem	Election	% Outlier	# Outlier	# Samples
52.32%	GV20	0.118%	118	100000
51.21%	SST20	0.000%	0	100000
50.88%	AD20	0.007%	7	100000
50.20%	AG16	0.451%	451	100000
50.13%	AG20	0.005%	5	100000
50.05%	GV16	0.399%	399	100000
49.36%	PR20	0.007%	7	100000
49.22%	CL20	0.759%	759	100000
49.14%	USS20	0.012%	12	100000
48.40%	LG20	0.009%	9	100000
48.27%	CI20	0.461%	461	100000
47.47%	TR20	5.569%	5569	100000
46.98%	USS16	3.066%	3066	100000
46.59%	LG16	11.778%	11778	100000
46.15%	CA20	0.094%	94	100000

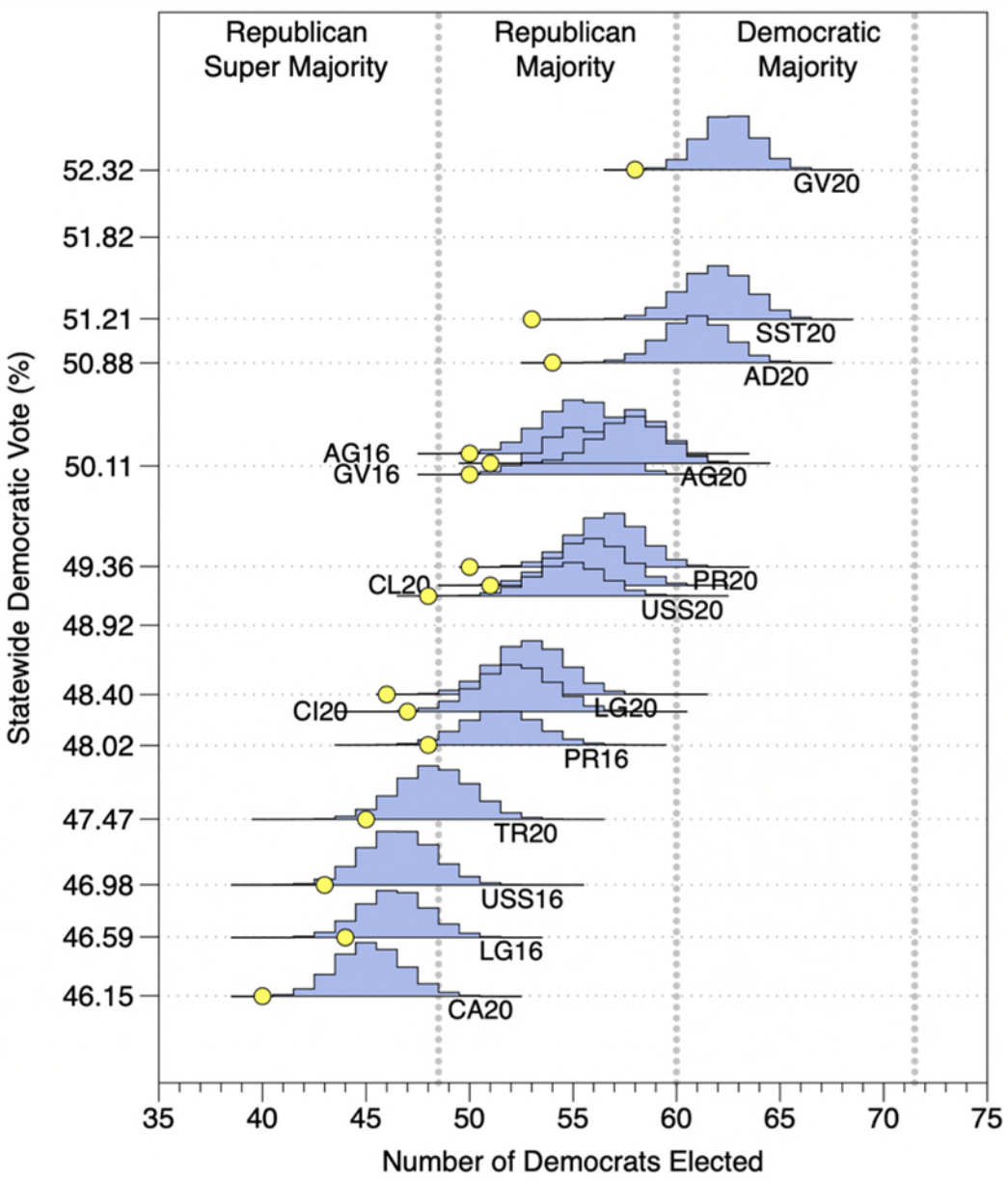
Mattingly Table 1: NC House Collected Seat Histogram Outlier Data. Starting from the left, the first column gives the statewide partisan makeup of the election under consideration whose abbreviation is given in the second column from the left. The right most column gives the total number of plans in the ensemble considered which is 100,000. The second column from the right gives the number of those 100,000 plans which elect the same or less Democrats under the given election. These are the plans which are as much or more of an outlier than the enacted map. The middle column is the percentage of plans which are more or equal of an outlier. (It is calculated by dividing the 2nd column from the right by 100,000 and multiplying by 100 to make a percentage.) The extremely low percentages in the middle column shows that the enacted plan is an extreme outlier across many different electoral settings.

242. Dr. Mattingly concluded that the 2021 House Plan's extreme partisan bias was responsible for creating firewalls protecting the Republican supermajority and majority in the House. The gerrymander's effect was particularly robust when the Republicans were likely to lose the supermajority: the enacted plan sticks at 48 Democratic seats or fewer, even in situations where virtually all of the plans in the nonpartisan ensemble would elect 49 Democratic seats or more. Mattingly Rep. 11. Examples of this are the Lieutenant Governor 2020 election, the

President 2016 election, the Commissioner or Insurance 2020 election, and the Commissioner of Labor 2020 election, all with Democratic vote fractions between 48% and 50%. *Id.* Similarly, Dr. Mattingly concluded that in multiple more Democratic elections where the Democrats would win a majority under most enacted plans, such as the Governor 2020 race, the enacted plan nonetheless sticks below the majority line. *Id.*

243. Dr. Mattingly demonstrated the supermajority and majority firewalls by plotting the results of the statewide elections using the enacted House plan and his nonpartisan simulations in Figure 5.1.1. Mattingly Rep. 11. He ordered the elections vertically from bottom (most Republican vote share) to top (most Democratic vote share), and then plotted the number of seats that Democrats would expect to receive under the nonpartisan plans using blue histograms. *Id.* Using nonpartisan maps, the Democratic seat count would be expected to fall in the tallest part of the blue histogram. *Id.* Dr. Mattingly used yellow dots to report how many seats Democrats would win in the House using the results of each statewide election under the enacted House plan. *Id.* Dr. Mattingly then used three vertical dotted lines to represent the point at which Democrats would break the Republican supermajority, the Republican majority, or win a supermajority themselves. *Id.* If the enacted plan is a pro-Republican outlier, the yellow dot is to the left of the blue histogram (meaning the enacted plan elects fewer Democratic seats). If a yellow dot is to the left of the Republican supermajority or majority line, and the bulk of the blue histogram is to the right, that is an election in which the enacted plan protects the Republican supermajority or majority where Democrats would break the firewalls in a nonpartisan plan. *Id.*

244. Figure 5.1.1 is reproduced below:



Mattingly Figure 5.1.1: The Collected Seat Histogram for the Primary Ensemble on the NC House. The individual histograms give the frequency of the Democratic seat count for each of the statewide elections considered from the years 2016 and 2020. The histograms are organized vertically based on the statewide partisan vote fraction for each election. The more Republican elections are placed lower on the plot while more Democratic elections are placed higher. Three dotted lines denote the boundary between where the supermajorities and simple majorities are in force. The yellow dot represents the enacted plan.

245. Dr. Mattingly's analysis demonstrated that the enacted House plan creates two "firewalls," protecting Republican supermajorities and majorities which Democrats would break

under a nonpartisan plan. This is visually demonstrated by Figure 5.1.1, which shows that the Democratic seat count in the enacted plan consistently stays to the left of the supermajority line even as the Democratic vote share rises and the nonpartisan plans break through the Republican supermajority line. In several cases the enacted plan is completely outside the distribution of nonpartisan plans.

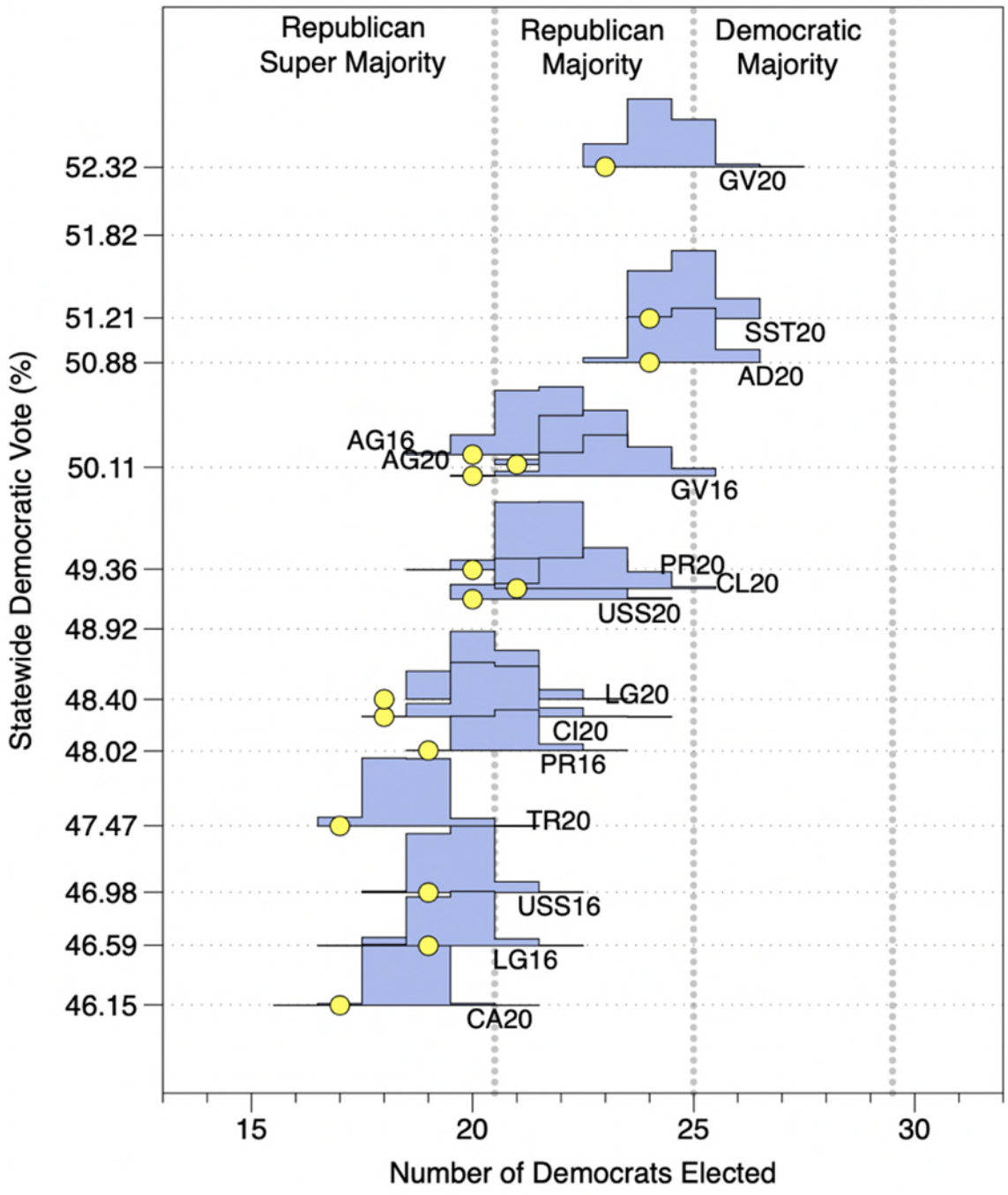
246. In elections where the Democrats won so many votes that the enacted House plan's Republican supermajority firewall breaks, Dr. Mattingly showed that the enacted House plan creates a second firewall preventing the Democrats from breaking the Republican majority. Figure 5.1.1. Using the results of the 2020 Governor, 2020 Secretary of State, and 2020 State Auditor elections—all elections in which the Democrats won over 50.88% of the statewide vote—the enacted plan protects a Republican majority even where the majority or overwhelming majority of nonpartisan plans would break the Republican majority. Figure 5.1.1; Mattingly Rep. 11.

247. Dr. Mattingly found similar results for the Senate, where the enacted plan was an outlier or an extreme outlier in elections where Democrats win a vote share between 47.5% and 50.5%. Mattingly Rep. 21. Dr. Mattingly explained that this range is significant because many North Carolina elections have this vote fraction and this is the range where the non-partisan ensemble shows that Republicans lose the super-majority. *Id.* But the enacted map in multiple elections sticks at less than 21 Democratic seats, preserving a Democratic supermajority. Notably, the enacted map *never* favors the Democratic party in comparison to the non-partisan ensemble in a single one of the 16 elections that Dr. Mattingly considered.

248. In particular, as Dr. Mattingly's Table 2 demonstrates in its "% Outlier" column, less than one half of 1 percent of the nonpartisan plans in the ensemble elect the same or fewer

Democrats than the enacted plan in several of the elections Dr. Mattingly considered in this range where the Democrats would be expected to break the supermajority. Using the Lieutenant Governor 2020 election results, not a single one of Dr. Mattingly's 100,000 non-partisan Senate plans elected the same or fewer Democrats as the enacted plan. *See* Mattingly Rep. 21.

249. Dr. Mattingly demonstrated the supermajority firewall by plotting the results of the statewide elections using the enacted Senate plan and his nonpartisan simulations in Figure 5.2.1, which is similar to Figure 5.1.1 for the House. Mattingly Rep. 22. Although the effect is not as significant as in the House, once again the yellow dot is always to the left or on the left side of the blue histograms, signaling that the enacted plan elects fewer Democrats in each election than the majority or vast majority of plans in the non-partisan ensemble. *Id.* And in particular, Dr. Mattingly found, the Senate plan sticks at 20 Democratic seats across a variety of elections in which the overwhelming majority of non-partisan plans hit 21 and break the supermajority. These elections include U.S. Senate 2020, President 2020, Attorney General 2016, and Governor 2016. Mattingly Rep. 22. Figure 5.2.1 is reproduced below:



Mattingly Figure 5.2.1: The Collected Seat Histogram for the Primary Ensemble on the NC Senate. The individual histograms give the frequency of the Democratic seat count for each of the statewide elections considered from the years 2016 and 2020. The histograms are organized vertically based on the statewide partisan vote fraction for each election. The more Republican elections are placed lower on the plot while more Democratic elections are placed higher. Three dotted lines denote the boundary between where the supermajorities and simple majorities are in force.

250. As Dr. Mattingly explained, and the Court agrees, gerrymandered maps may be designed to neutralize the effectiveness of a particular voting climate, and thus might only be a statistical outlier in terms of seat count in elections reflecting that climate. It is not unusual for gerrymandered maps to sometimes produce typical results, and it is a misconception that a gerrymandered map will behave atypically under every election. Mattingly Rep. 4; Mattingly Rebuttal Rep. 2-3. As Dr. Mattingly explained in his rebuttal report, for example, a poker player might devise a scheme for cheating that he only uses when he has a bad hand and is at risk of losing. Or alternatively, the scheme might not be effective when his opponent draws a royal flush. But it is still cheating even if it only works in 30% of games, and it is still a gerrymander even if it only produces a seat count outlier in some but not all elections. Rebuttal Rep. 2-3.

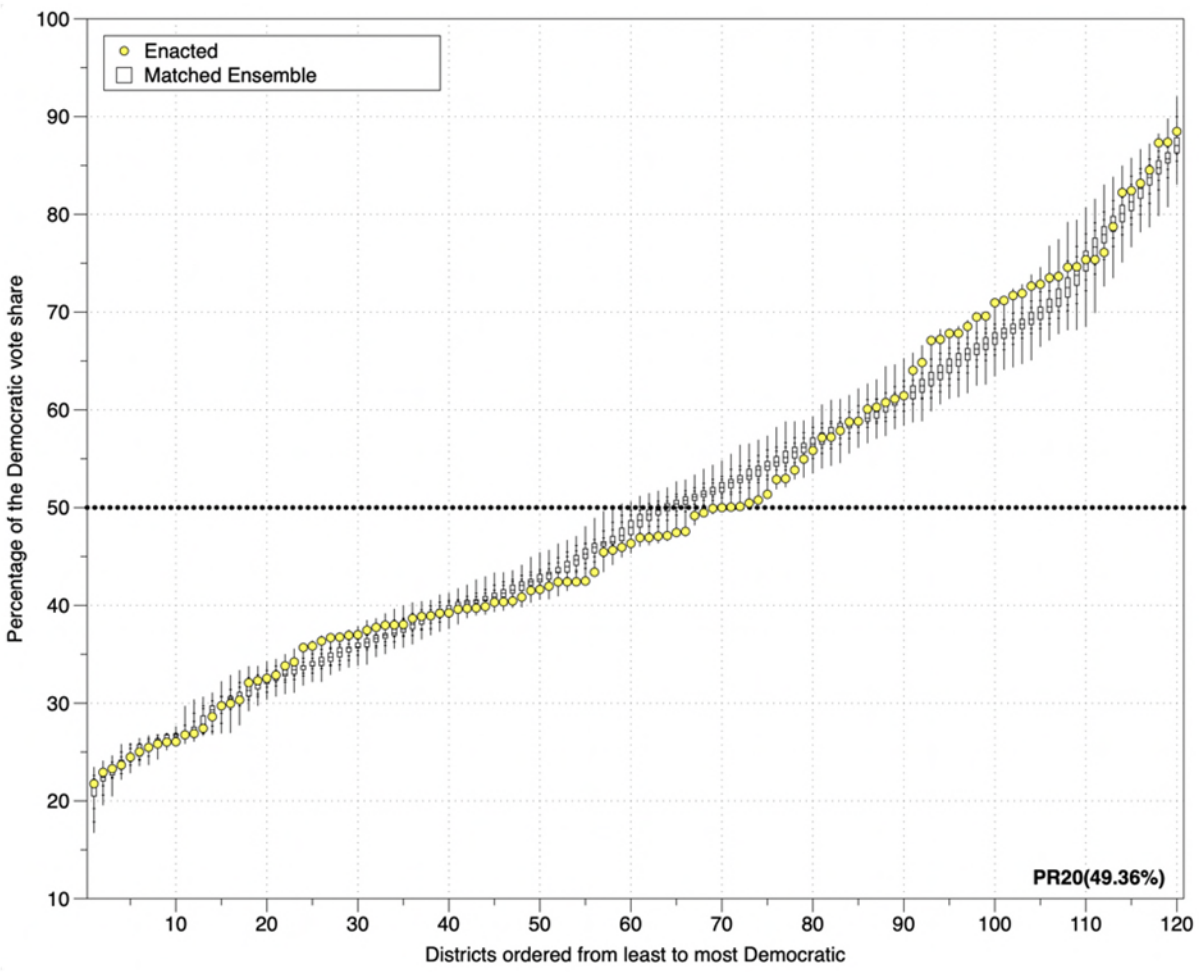
251. Dr. Mattingly's separate analysis of the structure of the enacted House and Senate plans provided further confirmation that both plans are extreme partisan gerrymanders, even putting aside the effect on seat count in any particular election. He demonstrated that the General Assembly cracked and packed Democratic voters for partisan gain across the House and the Senate plans, with a particular focus on cracking Democratic voters out of the middle seats that determine supermajority and majority control of both Chambers.

252. Dr. Mattingly ordered the 120 districts in the House in his ensemble of nonpartisan plans from lowest to highest based on the Democratic vote fraction in each district. He did this for each of the 16 statewide elections he analyzed. Mattingly Rep. 16-18, 79-85.

253. Below is an example of Dr. Mattingly's structural analysis of the 120 districts in the House using the votes from the 2016 Attorney General's Election. *See* PX483 at 13; PX778 at 33 (Mattingly PowerPoint presentation).

254. Dr. Mattingly ordered the 50 districts in the Senate in his ensemble of nonpartisan plans from lowest to highest based on the Democratic vote fraction in each district. He did this for each of the 16 statewide elections he analyzed. Mattingly Rep. 86-92.

255. Below is Figure 5.1.4, which is an example of Dr. Mattingly's structural analysis of the 120 districts in the House using the votes from the 2020 Presidential Election. Mattingly Rep. 16.

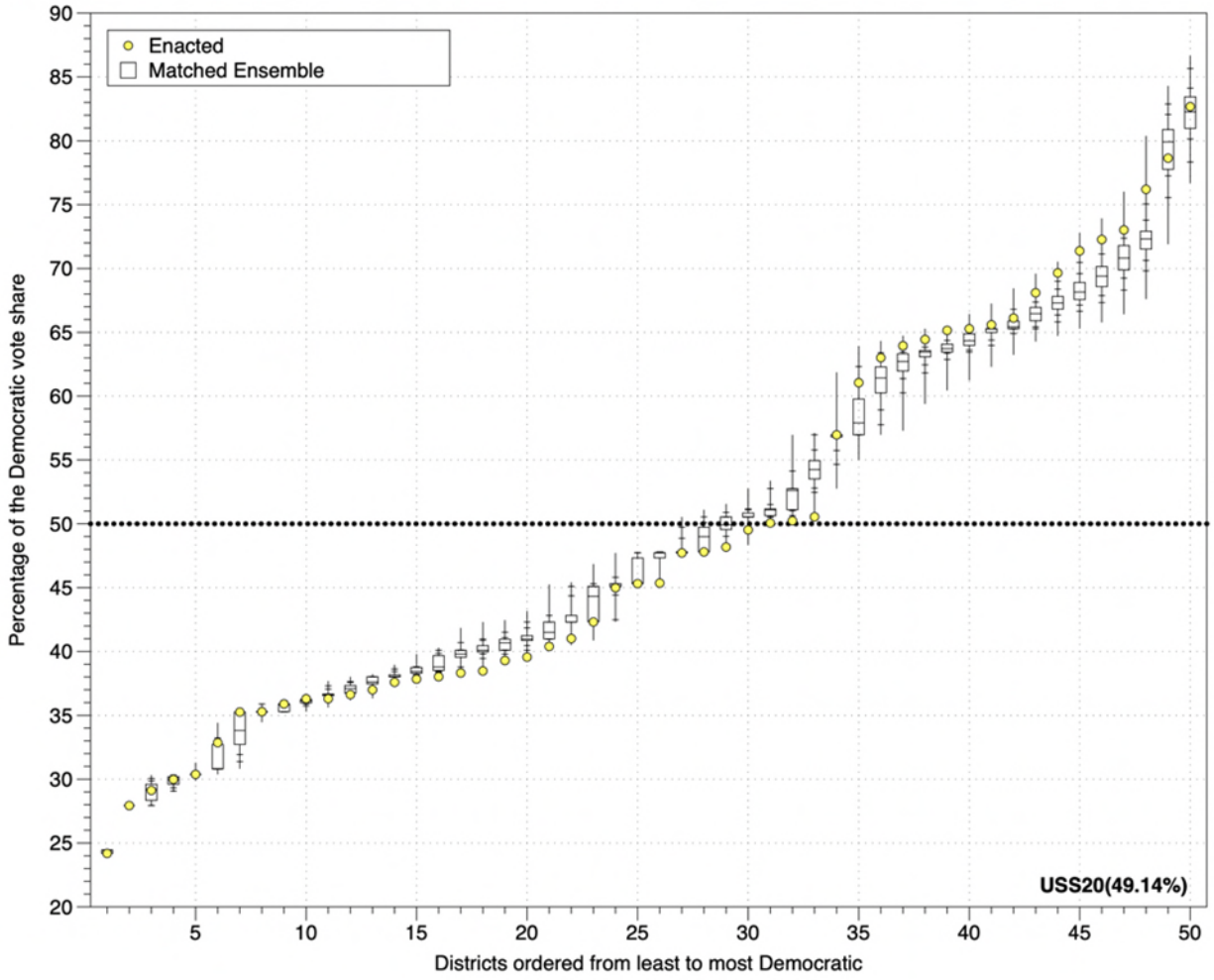


256. The yellow dots in the ranked ordered box plots represent the Democratic vote fraction in the enacted plan for each district ordered from least to most Democratic; the boxes

represent the Democratic vote fraction across Dr. Mattingly's ensemble of nonpartisan plans. Mattingly Rep. 16. The key in the bottom right corner shows the statewide election and the Democratic statewide vote fraction in that election.

257. Dr. Mattingly explained that in the middle districts—between the 60th most Democratic seat and the 80th most Democratic seat—the Democratic vote fraction in the enacted plan is far below the boxes representing the nonpartisan plans. Mattingly Rep. 16. These are the seats that determine the supermajority line and the majority line (if Republicans win the 61st seat, they win the majority, and if they win the 72nd most Democratic seat, they win the supermajority). The systematic depletion of Democratic votes in those districts signals extreme packing, does not exist in the non-partisan ensemble, and is responsible for the map's extreme partisan outlier behavior. Mattingly Rep. 16. Those Democrat votes are instead placed in the 90th to 105th most Democratic district, where they are wasted because those seats are already comfortably Democratic. *Id.* This is shown in the chart by the fact that the yellow dots all fall high above the boxes in that seat range.

258. The same structure appears in the Senate, where virtually all of the seats in the middle range that determines majority and supermajority control have abnormally few Democrats. *See* Mattingly Rep. 24. Figure 5.2.3 is an example:



259. Dr. Mattingly conducted a secondary analysis for each chamber in which he only considered plans that preserved the same or fewer incumbents than the enacted plans. Dr. Mattingly found that this did not affect his results and that "a desire to prevent the pairing of incumbents cannot explain the extreme outlier behavior of the enacted plan." Mattingly Rep. 19, 27.

260. Finally, Dr. Mattingly observed that the enacted Senate plan appeared to split very few municipalities in comparison to what was possible under a nonpartisan ensemble, while the enacted House plan split many more municipalities than necessary. Mattingly Rep. 10. He explored why the House and Senate plans would have treated municipality splits differently by

creating two entirely new ensembles for the House and Senate – in the House, he created a new ensemble that prioritized preserving municipalities (as opposed to matching the enacted plan's preservation of municipalities), and in the Senate, he created an ensemble that did not prioritize preserving municipalities. Mattingly Rep. 10.

261. Dr. Mattingly concluded that the choice to preserve municipalities in the Senate but not in the House appeared to have been a partisan choice. He compared the partisan properties of the new ensembles to his original ensembles and found that, for the Senate plan, relaxing the requirement to preserve municipalities leads to an ensemble that is more favorable to the Democrats, meaning that the enacted plan would be an extreme outlier in more situations. *Compare* Figure 5.2.7 with Figure 5.2.1. Put differently, prioritizing municipality preservation in the Senate plan appears to enable more maps that favor Republicans. By contrast, for the House plan, where the enacted map does not prioritize preserving municipalities, he found that his new ensemble prioritizing municipalities would not have favored the Republican party in comparison. Mattingly Rep. 10. In short, the mapmakers focused on municipalities in the state legislature only when doing so advantaged Republicans.

b. Dr. Pegden

262. Dr. Pegden conducted analyses of the 2021 House and Senate maps using the same method underlying his analysis of the congressional map. PX523 at 14-15. He credibly concluded that the House and Senate maps are extreme partisan outliers in their partisan bias and the degree to which they are optimized for partisan advantage. *Id.*

263. While Dr. Pegden's overall method for analyzing the House and Senate maps was the same as for the congressional map, he made certain changes to his criteria to account for differences in how state legislative maps are drawn in North Carolina. In particular, his comparison house and Senate maps used the same county clustering as used in the enacted maps.

PX523 at 5. And his House and Senate comparison maps needed to have district populations within 5% of the ideal district population—the same threshold that the General Assembly permitted in the 2021 Adopted Criteria. *Id.*; see PX34. All other criteria—contiguity, compactness, county traversals, municipality preservation, VTD preservation, and incumbency protection—were the same as for the congressional analysis. PX523 at 7. And Dr. Pegden performed similar robustness checks to ensure that changes to these criteria (for example, using a different compactness threshold) did not affect his results, which they did not. *Id.* at 48-59.

264. For some county groupings, because of Dr. Pegden's conservative application of his constraints, it was impossible for his algorithm to find a swap that satisfied all of the constraints. PX523 at 8. When this occurred, Dr. Pegden ran a modification of his algorithm allowing multiple swaps in one step. *Id.* at 8-9.

265. For the Duplin/Wayne grouping in the House, even with multi-move swaps, Dr. Pegden's algorithm still was unable to generate any comparison maps meeting all of his constraints, meaning that Dr. Pegden was unable to draw conclusions about that county grouping. PX523 at 17. But as Dr. Pegden explained, the inability of his algorithm to generate suitable comparison maps simply reflects the conservative approach of his methodology; it does not mean that the map for that grouping was not drawn with the intentional use of partisanship. *Id.* at 11.

266. Although Dr. Pegden found that the House and Senate maps are extreme partisan outliers on a statewide basis, his primarily analysis was inconclusive as to four particular House county clusters—Alamance, Brunswick/New Hanover, Cabarrus/Davie/Rowan/Yadkin, and Cumberland—which are discussed in more detail below. PX523 at 33. For these clusters, Dr. Pegden also re-ran his analysis using a different partisan metric—the "wave threshold"—to

determine whether they may have been drawn to achieve "other conceivable partisan goals" besides merely maximizing Republican seat count, "such as facilitating the re-election of particular representatives in particular districts." *Id.* The wave threshold metric captures, for a given map, the smallest uniform swing in election results that would be required to give the Democrats an additional seat. Put differently, this metric captures how large of a Democratic wave election the cluster could withstand without losing any Republican seats. *Id.* For multiple of these groupings discussed further below, Dr. Pegden concluded that the enacted map was an extreme outlier in the degree to which Democratic election performance would need to increase to produce an additional Democratic seat. *Id.* at 34-36.

267. In Dr. Pegden's first-level analysis, he reports that—in every run—the enacted House map was more favorable to Republicans than 99.99999% of the comparison maps generated by his algorithm making small random changes to the district boundaries. PX523 at 14. The enacted Senate map was more favorable to Republicans than 99.9% of comparison maps. *Id.* at 15.

268. As with the congressional plan, Dr. Pegden's second-level analysis provides mathematically precise calculations of how carefully crafted the 2021 House and Senate maps are—that is, how precisely the district boundaries align with partisan voting patterns so as to advantage Republicans—when compared not just to the comparison maps generated in each run of his algorithm, but to all possible maps of North Carolina that satisfy his constraints. For the enacted House map, Dr. Pegden reports that the enacted map is more carefully crafted for Republican partisan advantage than at least 99.9999% of all possible maps of North Carolina satisfying his constraints. PX523 at 14. The enacted Senate map is more carefully crafted for

Republican partisan advantage than at least 99.9% of all possible maps of North Carolina satisfying his constraints. *Id.* at 15.

269. As with the congressional map, Dr. Pegden's striking results for the House and Senate maps cannot be explained by North Carolina's political geography. Dr. Pegden's algorithm compares the enacted maps to other maps of North Carolina, with the very same political geography. Dr. Pegden's algorithm likewise respects all of the 2021 Adopted Criteria, applying their constraints conservatively to respect the choices made by the mapdrawer with respect to compactness and the divisions and preservation of counties and municipalities. Even within those tight constraints, there were many different maps for a mapdrawer to choose from, and the mapdrawer here intentionally chose House and Senate maps that were more carefully crafted for Republican partisan advantage than at least 99.9% of all possible alternatives.

c. Dr. Cooper

270. Consistent with Plaintiffs' other experts, Dr. Cooper testified that the 2021 House and Senate Plans benefit the Republican Party at the expense of Democratic voters. Dr. Cooper testified that although certain county clusters were mandated by the *Stephenson* county clustering rule, Legislative Defendants retained discretion over certain county cluster groupings where there were alternate possibilities. Specifically, Dr. Cooper testified that Legislative Defendants chose from between 16 potential different county cluster maps in the Senate and 8 different potential county cluster maps in the House. In addition, Dr. Cooper testified that Legislative Defendants retained discretion over where to draw the district boundaries within each cluster, with the exception of single district county clusters. Cooper Rep. 49. Dr. Cooper testified that based on his analysis, Legislative Defendants' exercised the discretion that existed in the Senate and House 2021 Plans to draw Senate and House district boundaries in a way that enhanced the Republican candidates' partisan advantage.

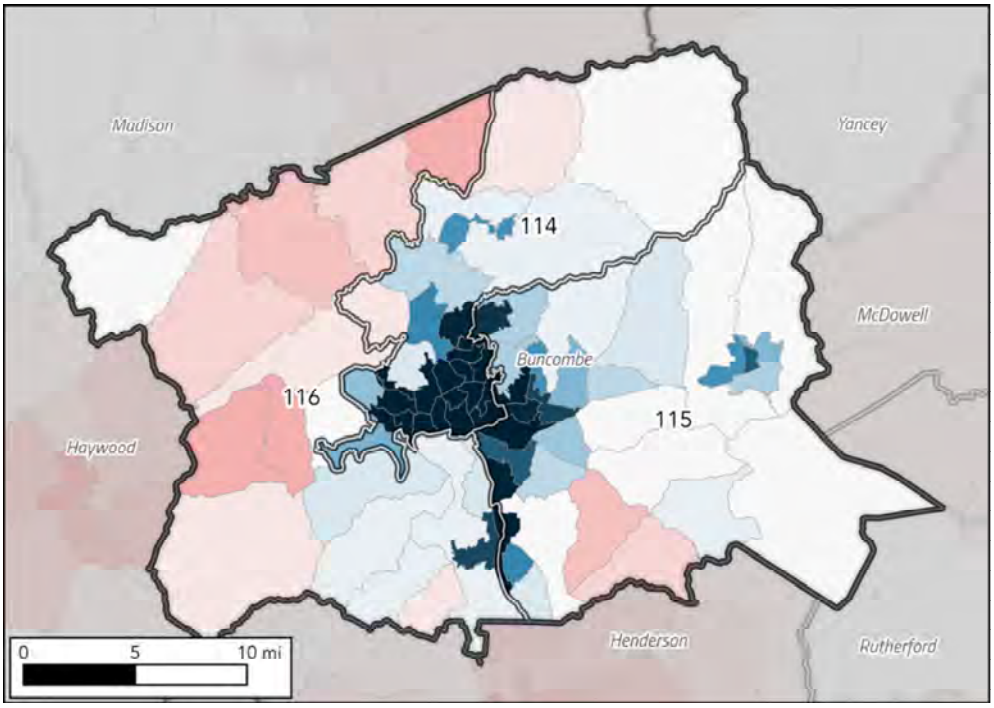
2. The Plans Advantage Republicans in Specific County Groupings

271. Each of *Harper* Plaintiffs' four experts analyzed specific county groupings in the enacted House plan and the enacted Senate plan. Plaintiffs' experts concluded that partisan gerrymandering and bias in these groupings was responsible for the extreme partisan bias that they found in their statewide analysis of the enacted House and Senate plans. The results of the analysis conducted by Legislative Defendants' expert Dr. Barber reinforce this conclusion.

a. House Groupings

(i) Buncombe

272. The Buncombe county grouping contains House Districts 114, 115, and 116. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.



Cooper Map 37

273. Dr. Cooper testified that "Buncombe is an overwhelmingly Democratic county and has been trending more Democratic each year." All three House Districts in Buncombe are currently represented by Democrats. Cooper Rep. 79.

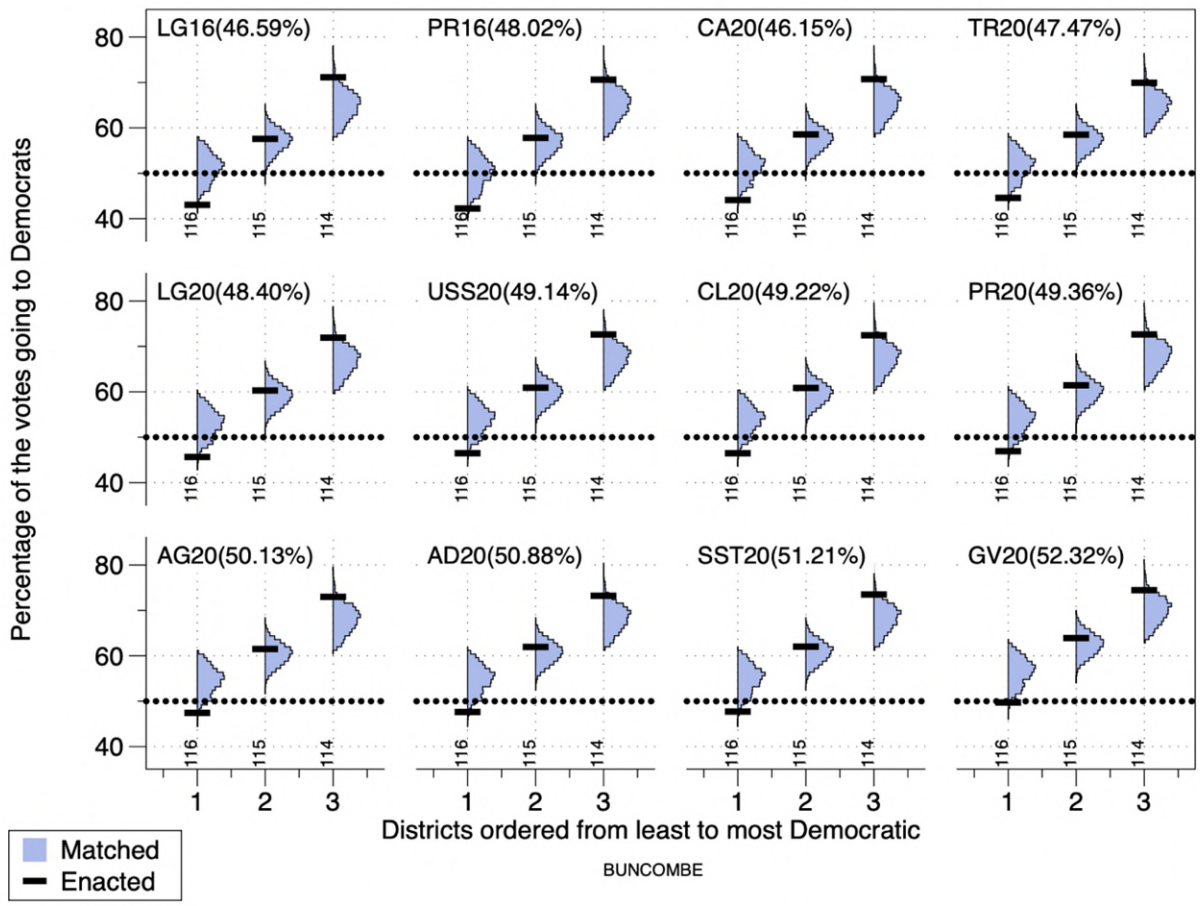
274. But as Dr. Cooper's testimony and map indicates, Legislative Defendants shifted the district lines where they meet in Asheville to pack as many Democratic voters as possible into House District 114, thereby creating a Republican-leaning district in House District 116. Prior to the enactment of these gerrymandered lines in the 2021 House Plan, the district in the western part of Buncombe County that is now House District 116 was considered a "safely Democratic district." Cooper Rep. 79.

275. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Buncombe county grouping is an extreme partisan gerrymander.

276. Dr. Mattingly analyzed individual county groupings by plotting the Democratic vote fraction in each district in the grouping, ordered from least to most Democratic. Figure 6.1.13 is an example of this for the Buncombe House grouping. He conducted this analysis for the enacted plan (represented by a black line in his county-grouping-level figures) and for his ensemble of nonpartisan plans (represented by the blue histograms), using 12 prior statewide elections in 2020 and 2016. Mattingly Rep. 38. If the black line representing the enacted plan is above the dotted black line at 50%, the Democrats win that district under the enacted plan. *Id.* If all or the bulk of the blue histogram representing the ensemble is above the dotted black line at 50%, the Democrats would expect to win that district under the ensemble. *Id.* Dr. Mattingly labeled the historical election whose statewide vote counts he was using at the top of each plot. Black lines that are at the bottom of the corresponding blue histogram represent districts that Democrats have been cracked out of, because the enacted plan has many fewer Democrats than

would be expected in the nonpartisan plans; black lines that are at the top of the corresponding blue histogram represent districts that Democrats have been packed into. *Id.*

277. Figure 6.1.13 shows Dr. Mattingly's analysis of the Buncombe House county grouping:



278. As the figure above shows, Democrats were packed into the most Democratic leaning district in this grouping (114), and cracked out of the most Republican district (116). Mattingly Rep. 38. In the enacted plan, there is a huge jump in Democratic vote share between the least Democratic district and the middle Democratic district. Figure 6.1.13. Dr. Mattingly testified that this jump signifies intentional gerrymandering and means that elections in the grouping will be nonresponsive to the votes cast. As the figure above shows, the gerrymander cost Democrats a seat in multiple electoral environments, because the black line for District 116

often falls below the 50% line in elections where the majority or overwhelming majority of the blue histogram rises above it (for example, the Governor 2020, President 2020, and Senate 2020 race, among other examples). *See* Figure 6.1.13.

279. Dr. Mattingly mathematically quantified the cracking and packing across all the 2020 and 2016 statewide elections he considered. Specifically, Dr. Mattingly calculated the average Democratic vote share in the two least Democratic districts and the average Democratic vote share in the three most Democratic districts, for both the enacted plans and his ensemble plans. PX 359 at 16 (Mattingly Report). He found that, across every election, at most 1.2% of the plans in the nonpartisan ensemble had the same or fewer Democrats in the least Democratic district as the enacted plan (District 116). This signifies extreme cracking of Democrats to enable Republicans to win a district they would not win under the nonpartisan ensemble. The Court credits Dr. Mattingly's conclusion that the Buncombe cluster is a pro-Republican gerrymander.

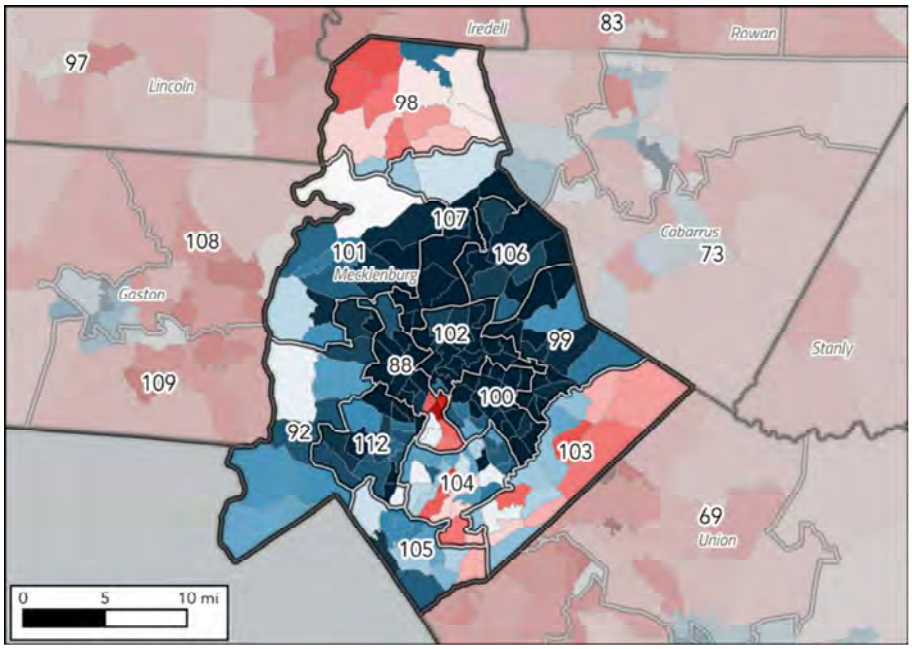
280. Dr. Pegden found that the Buncombe House county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 99.979% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.938% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 16. The Court credits Dr. Pegden's analysis and conclusions.

281. In the Buncombe House cluster, under each of the 11 elections that Legislative Defendants' expert Dr. Barber considered, Democrats win 2 seats under the enacted map, even though, under 10 of those 11 elections, Democrats would have won 3 districts in the majority of

Dr. Barber's simulations, including in 98% of the simulations under the 2020 Governor election. Barber Rep. 98.

(ii) Mecklenburg

282. The Mecklenburg county grouping contains House Districts 88, 92, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, and 112. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.

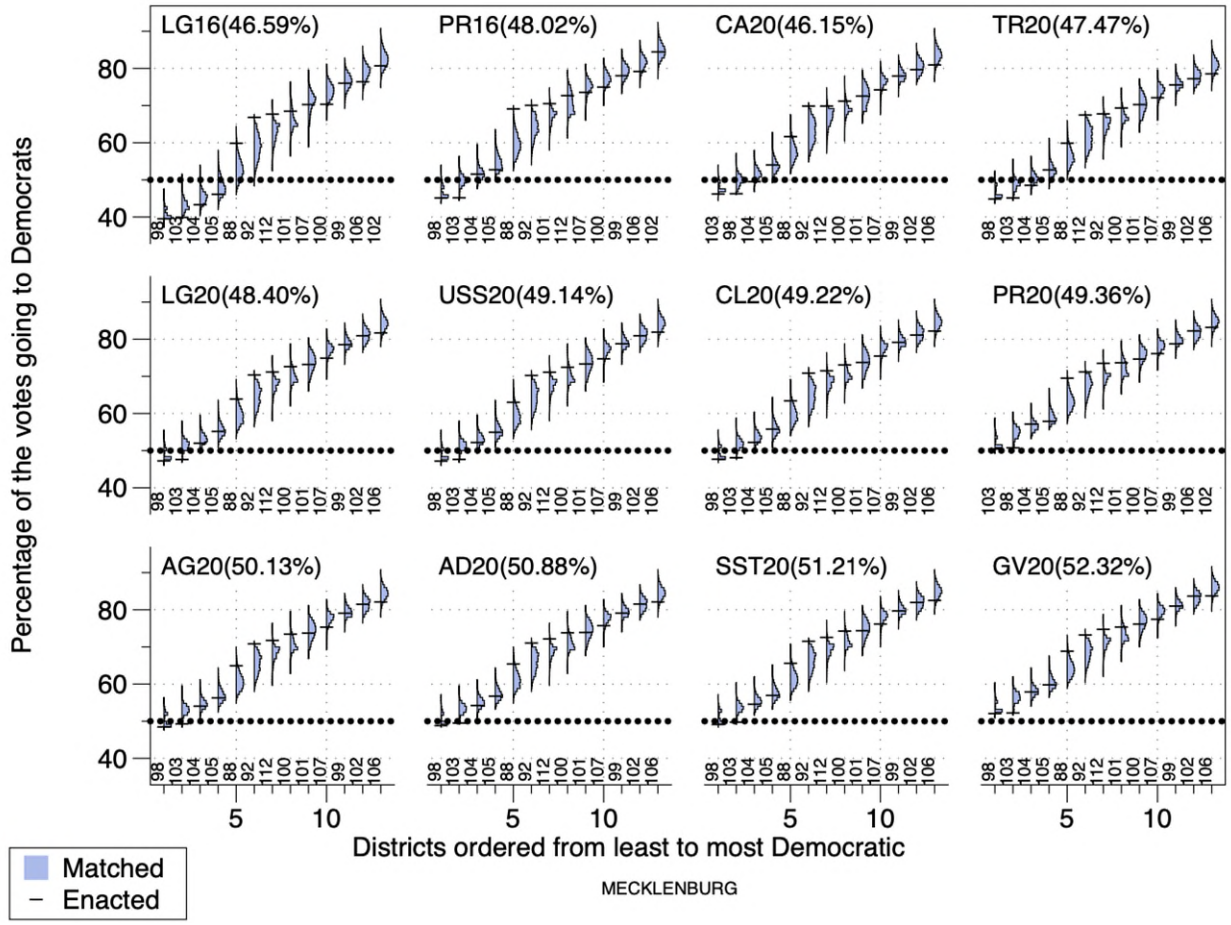


Cooper Map 30

283. The district boundaries in this grouping place no Republican-leaning VTDs in House Districts 92, 99, 100, 101, 102, 106, 107, and 112, leaving every Republican-leaning VTD in House Districts 88, 103, 104, and 105. House District 98, in the north, and House District 103, in the south, are carved out of the pockets of Republican-leaning VTDs in the north and southeast portions of Mecklenburg County so as to be particularly favorable to Republican candidates. Cooper Rep. 68.

284. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Mecklenburg county grouping is an extreme partisan gerrymander.

285. Figure 6.1.1 shows Dr. Mattingly's analysis of this grouping.



286. Dr. Mattingly's analysis shows that Democrats were again cracked out of the two least Democratic (i.e., most-Republican) districts in this grouping (Districts 98 and 103), and packed into heavily Democratic districts (Districts 100, 112, 92, and 88). Mattingly Rep. 29; Figure 6.1.1. The effect is to make those districts competitive, or to turn them into Republican seats, when in the majority of the nonpartisan plans those two seats safely elect Democrats. Mattingly Rep. 29. An example is the Attorney General 2020 election. Dr. Mattingly quantified

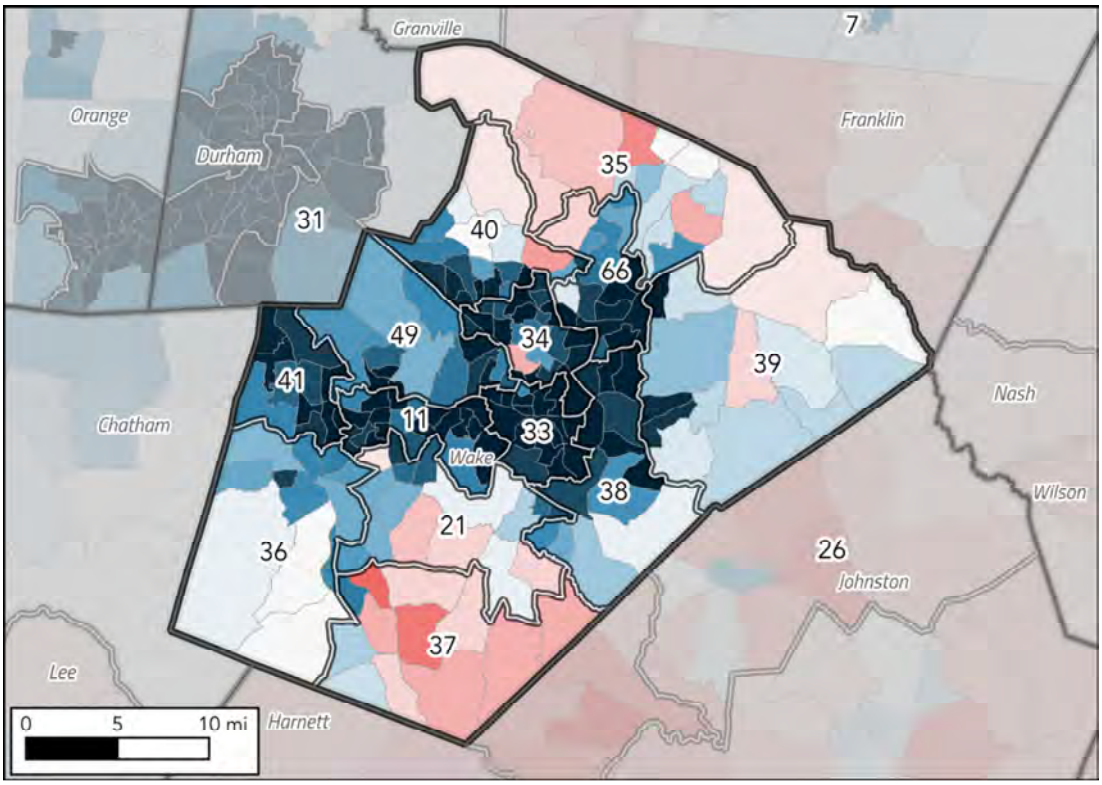
the extreme and unusual cracking and packing of Democrats in the Mecklenburg cluster. Across every election he considered, the number of maps in the ensemble which have more Democrats packed into the most Democratic districts than the enacted plan is always less than 0.11%. Mattingly Rep. 29. The Court credits Dr. Mattingly's conclusion that the Mecklenburg cluster is an extreme pro-Republican gerrymander.

287. Dr. Pegden found that the Mecklenburg House county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 98.3% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 95.0% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 20. The Court credits Dr. Pegden's analysis and conclusions.

288. In the Mecklenburg House cluster, under 4 of the 11 elections that Legislative Defendants' expert Dr. Barber considered, Republicans outperform the majority of Dr. Barber's simulations, but Democrats never outperform a majority of the simulations. Under the 2020 Attorney General election, Democrats win 11 seats under the enacted map, even though Democrats would have won 12 seats under 91% of Dr. Barber's simulations. Barber Rep. 168.

(iii) Wake

289. The Wake county grouping contains House Districts 11, 21, 33, 34, 35, 36, 37, 38, 39, 40, 41, 49, and 66. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.

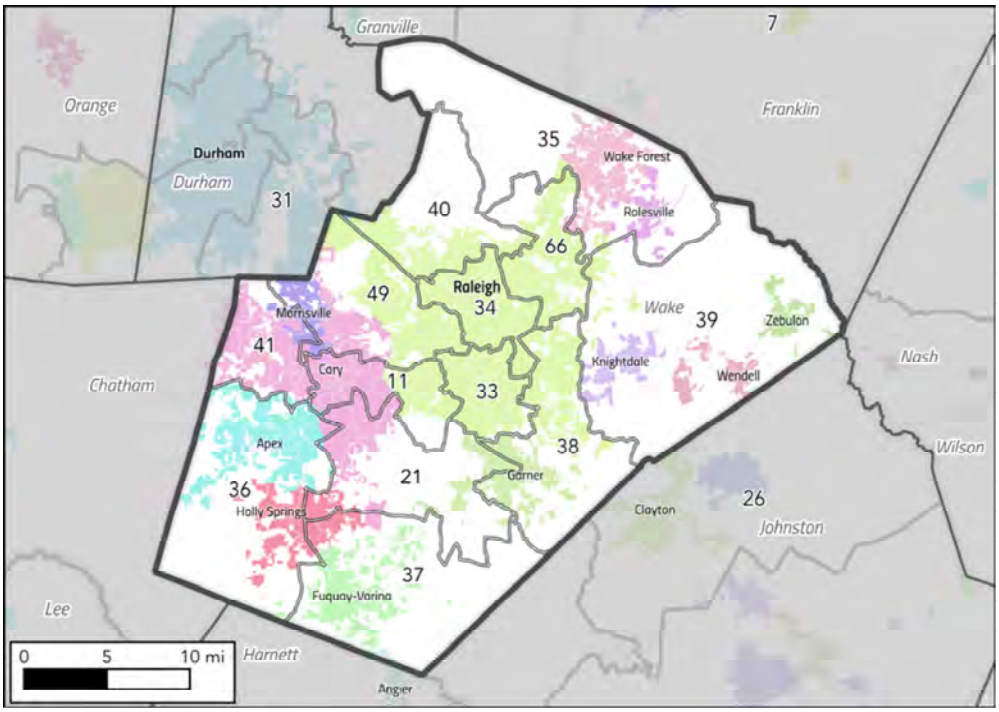


Cooper Map 31

290. The district boundaries in this grouping pack Democrats into as few districts as possible, leaving House Districts 11, 33, 36, 38, 41, and 49 without any Republican-leaning VTDs, House Districts 34 and 66 with only one Republican-leaning VTD, and House District 40 with only two Republican-leaning VTDs. Packing the majority of Democratic voters within these districts allows House Districts 35, to the north, and 37, to the southeast, to favor Republican candidates.

291. House District 66 includes a "spike" that juts north to include a Democratic-leaning VTD on its boundary, effectively keeping the Democratic voters in that VTD "fenced off" from the House District 35, where they would otherwise make the election more favorable for a Democratic candidate. Cooper Rep. 70.

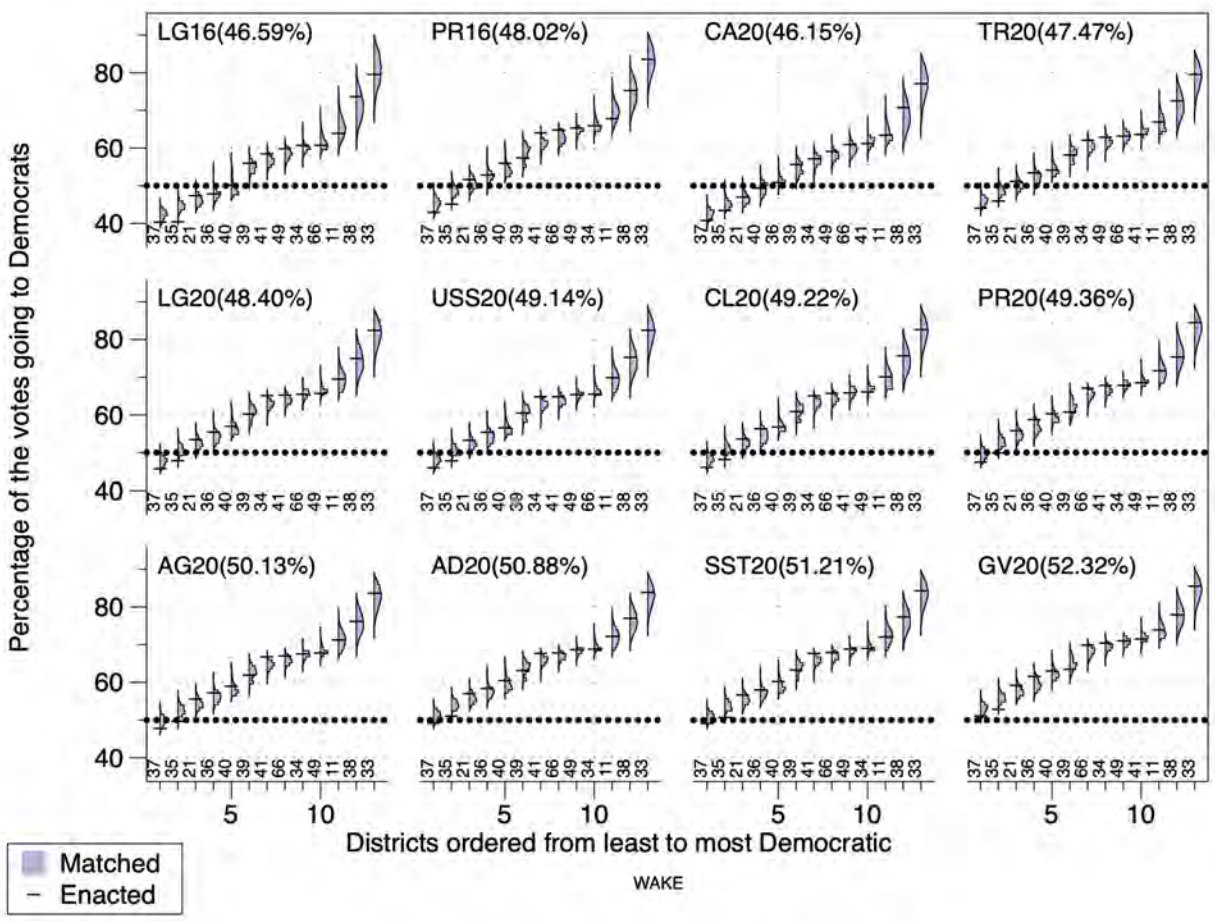
292. To the extent that Legislative Defendants' argue that preserving municipal boundaries was a governing criterion, the district lines in this cluster split a number of cities, including Raleigh (split across 10 of the 12 districts), Cary, Garner, Fuquay-Varina, Apex, Holly Springs, and Morrisville. PX37.



Cooper Map 32

293. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Wake county grouping is an extreme partisan gerrymander.

294. Figure 6.1.4 shows Dr. Mattingly's analysis of this grouping.



295. Dr. Mattingly's analysis shows that Democrats were cracked out of the two least Democratic (i.e., most-Republican) districts in this grouping (Districts 37 and 35), and packed into heavily Democratic districts. Mattingly Rep. 32; Figure 6.1.4. The effect is to swing the two most Republican districts into play in elections where they would not be under the ensemble. For example, in the Attorney General 2020 election, Republicans win two districts under the enacted plan and Democrats win 11 even though Democrats would always win 12 under the ensemble and often win all 13. Dr. Mattingly quantified the extreme and unusual cracking of Democrats out of those two most Republican districts: Across every election he considered, the number of maps in the ensemble which have a lower Democratic vote fraction in the two most Republican districts than they do in the enacted plan is less than 0.42%, except for the

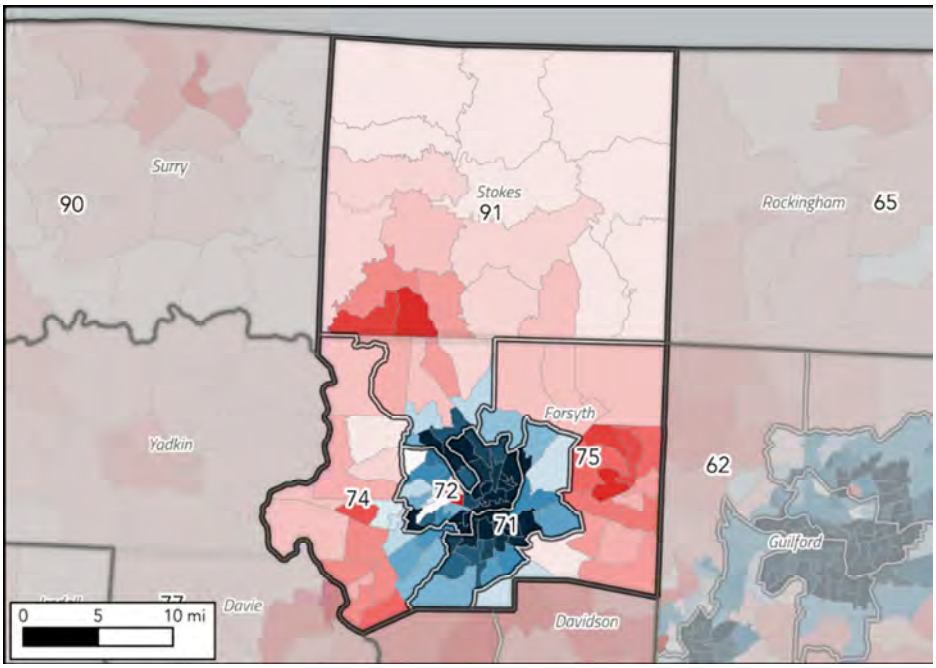
Commissioner of Agriculture 2020 election, where it is 1.2%. That is, the enacted plan is in the most extreme 0.42% percent of plans in terms of cracking of Democrats. Mattingly Rep. 32. The Court credits Dr. Mattingly's conclusion that the Wake cluster is an extreme pro-Republican gerrymander.

296. Dr. Pegden found that the Wake county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 99.27% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 97.8% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 22. The Court credits Dr. Pegden's analysis and conclusions.

297. In the Wake House cluster, the enacted map is a partisan outlier under 4 of the 5 elections that Legislative Defendants' expert Dr. Barber considered from 2020. Under 3 of those 5 elections, the enacted map produces fewer Democratic districts than 90-98% of Dr. Barber's simulations. Barber Rep. 173.

(iv) Forsyth-Stokes

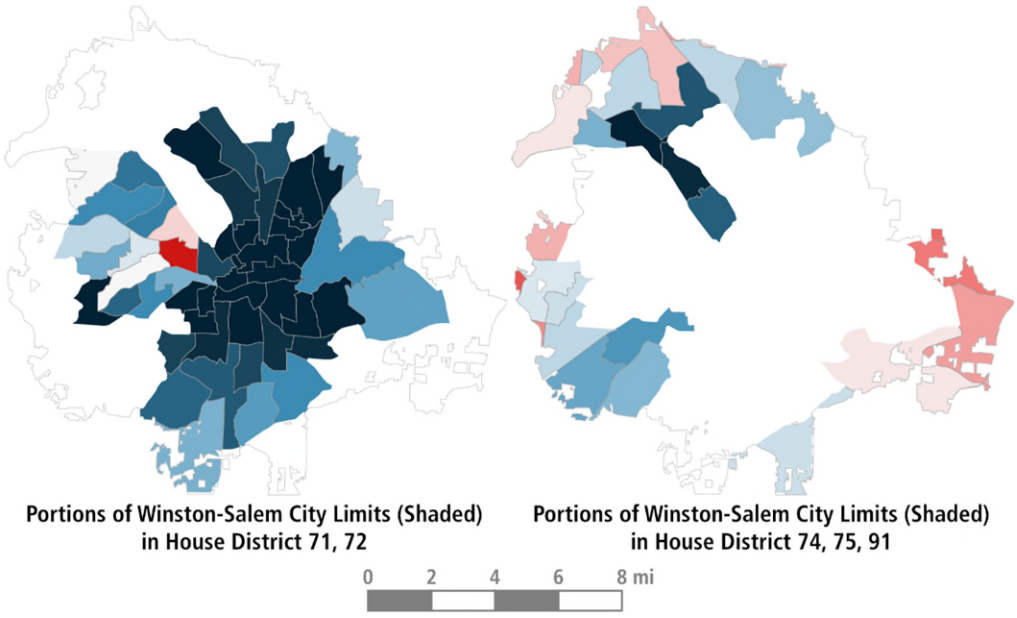
298. The Forsyth-Stokes county grouping contains House Districts 71, 72, 74, 75, and 91. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.



Cooper Map 33

299. As Dr. Cooper testified and is evident from his map, Legislative Defendants created Republican-leaning districts in House Districts 74, 75, and 91 by packing the Democratic-voters in and around Winston-Salem into House Districts 71 and 72. Cooper Rep. 73.

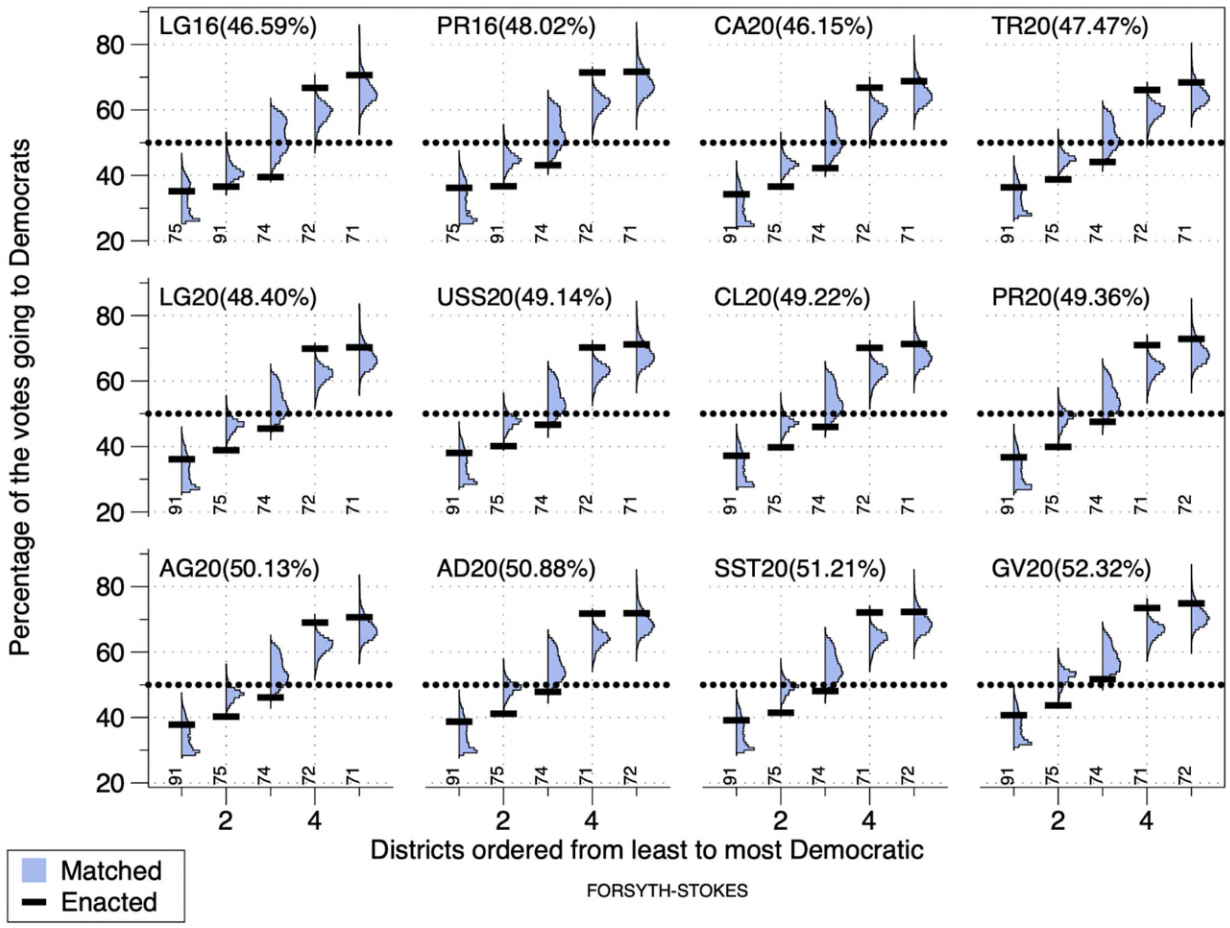
300. While the district boundaries in this grouping split Winston-Salem across all five districts, the district boundaries pack most Democratic voters in Winston-Salem into House Districts 71 and 72. Cooper Rep. 73.



Cooper Map 34

301. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Forsyth-Stokes county grouping is an extreme partisan gerrymander.

302. Figure 6.1.7 shows Dr. Mattingly's analysis of this grouping.



303. Dr. Mattingly's analysis shows that Democrats were again cracked out of the three least Democratic (i.e., most-Republican) districts in this grouping and packed into heavily Democratic districts (Districts 72 and 71). Mattingly Rep. 34; Figure 6.1.7. The effect is that the Republicans regularly win three out of five seats in this cluster even in situations where the Democrats would win three in the vast majority of plans in the nonpartisan ensemble. This is seen in the Senate 2020, President 2020, President 2016, and Attorney General 2020 races, among others. Mattingly Rep. 34. Dr. Mattingly quantified the extreme and unusual cracking and packing of Democrats in the Forsyth-Stokes cluster. Across every election he considered, less than 0.02% of the plans in the ensemble have a lower Democratic fraction in the three most Republican districts than the enacted plan, signaling extreme cracking. Mattingly Rep. 34. The

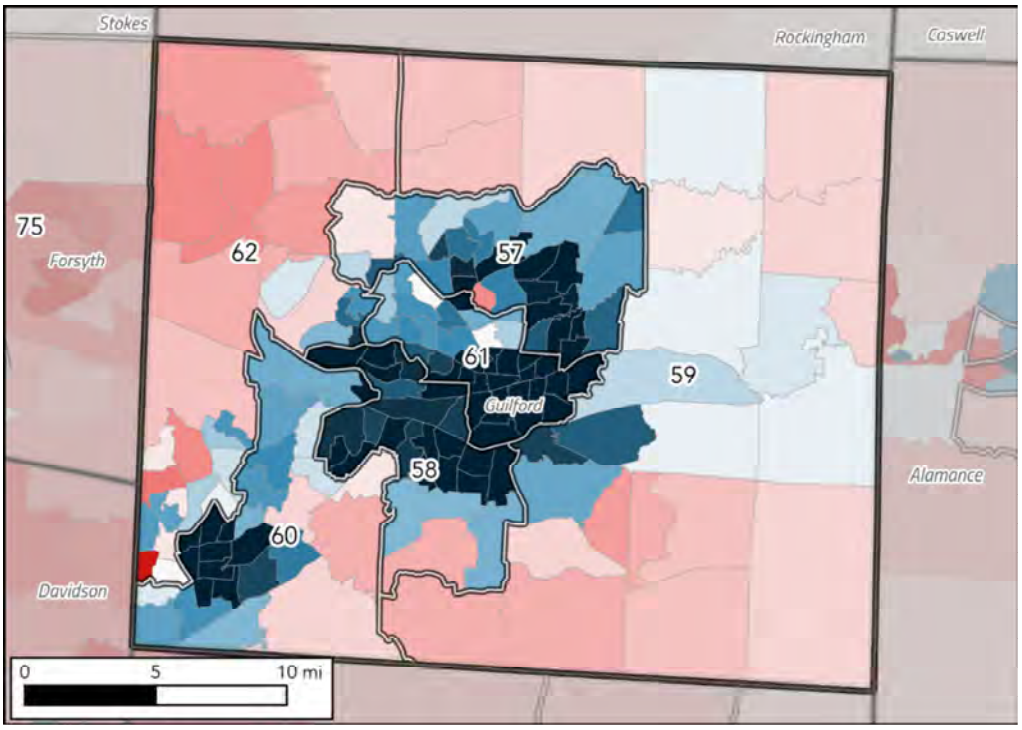
Court credits Dr. Mattingly's conclusion that the Forsyth-Stokes cluster is an extreme pro-Republican gerrymander.

304. Dr. Pegden found that the Forsyth-Stokes county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 99.912% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.73% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 18. The Court credits Dr. Pegden's analysis and conclusions.

305. In the Forsyth-Stokes House cluster, the enacted map is a partisan outlier under three of the elections that Legislative Defendants' Dr. Barber considered. Under the 2020 President election, Democrats win only 2 seats, even though they would have won 3 seats under 50% of Dr. Barber's simulations and 4 seats under 35% of the simulations—a 2-seat shift. Under 8 of the 11 elections, the enacted map produces fewer Democratic seats that a majority of Dr. Barber's simulations—a metric Dr. Barber himself has relied upon. Barber Rep. 142.

(v) Guilford

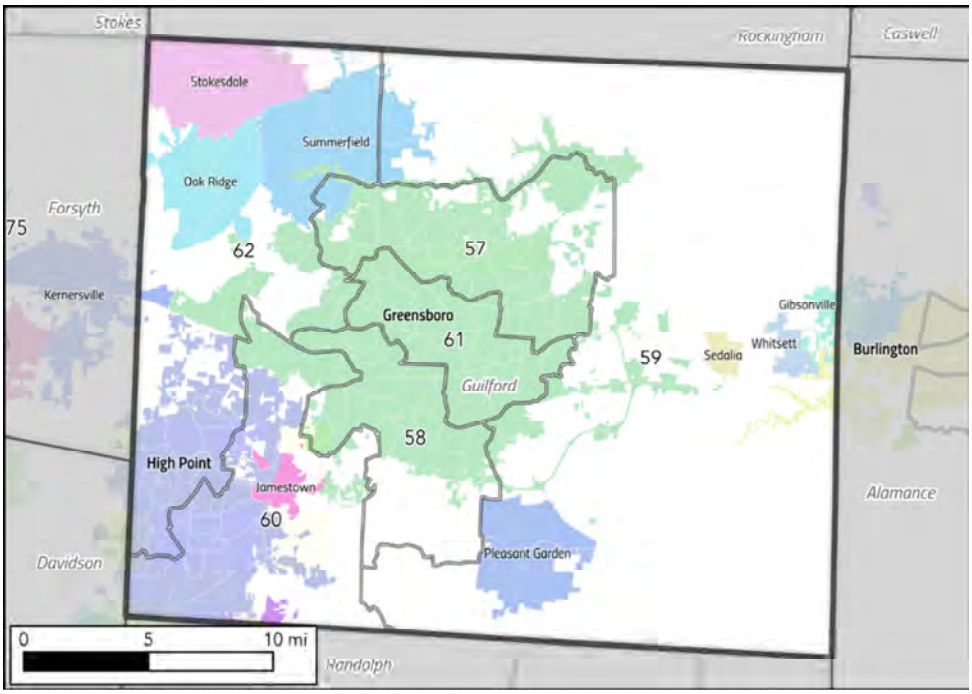
306. The Guilford county grouping contains House Districts 57, 58, 59, 60, 61, and 62. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.



Cooper Map 35

307. Dr. Cooper testified that Legislative Defendants packed Democratic-leaning VTDs into House Districts 57, 58, 60, and 61, allowing House Districts 59 and 62 to be artificially favorable to Republican candidates. Cooper Rep. 76.

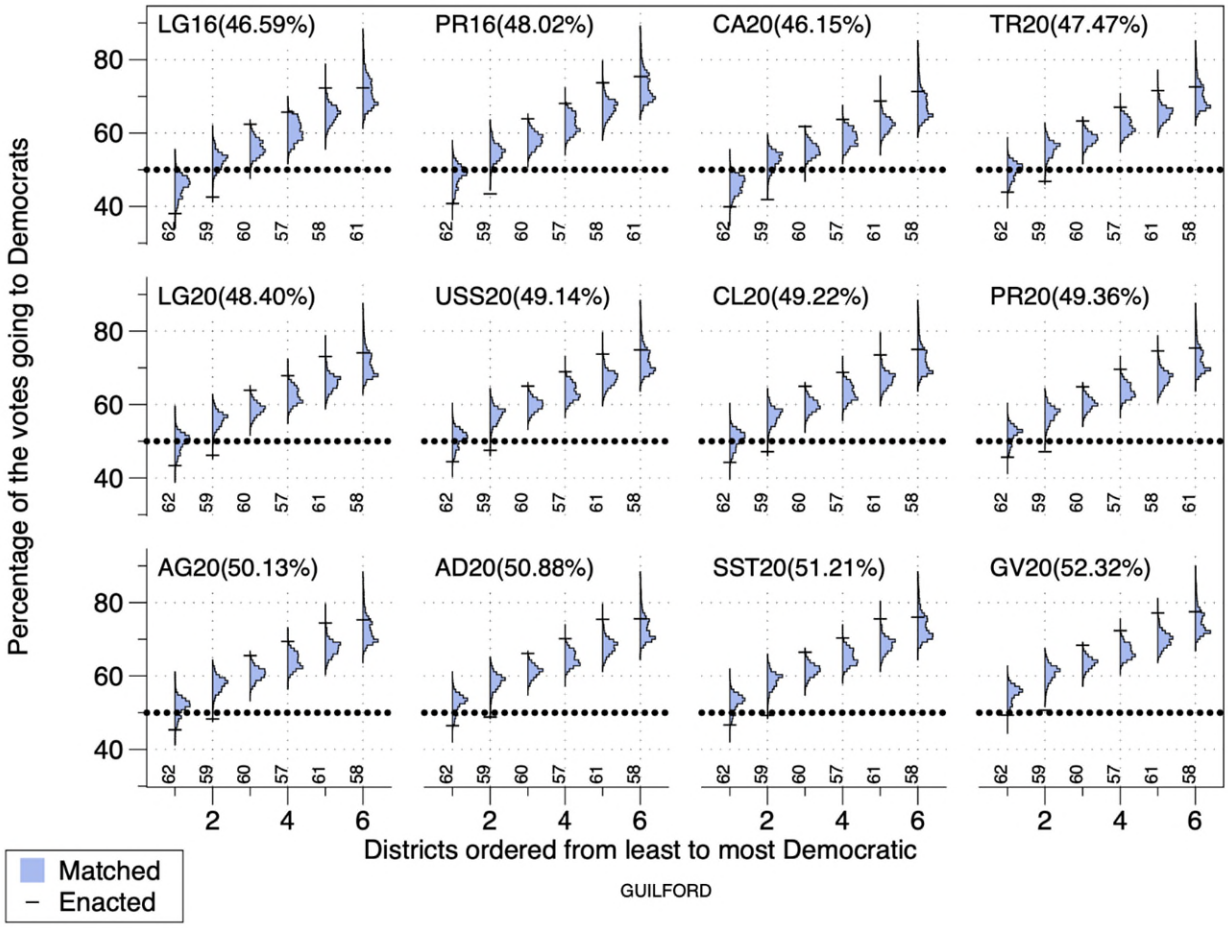
308. A comparison of Dr. Cooper's red-blue map (Cooper Map 35) and his map showing the municipal boundaries within this cluster (Cooper Map 36) illustrates how the district boundaries split Greensboro and High Point in a way that ensures the most Democratic-leaning VTDs in those municipalities are kept out of House Districts 59 and 62. Cooper Rep. 76.



Cooper Map 36

309. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Guilford county grouping is an extreme partisan gerrymander.

310. Figure 6.1.10 shows Dr. Mattingly's analysis of this grouping.



311. Dr. Mattingly's analysis shows that Democrats were again cracked out of the two least Democratic (i.e., most-Republican) districts in this grouping (Districts 59 and 62) and packed into heavily Democratic districts (Districts 57, 58, 60, and 61). Mattingly Rep. 36; Figure 6.1.10. The effect is that the Republicans regularly win two out of six seats in this cluster even in situations where the Democrats would win all six in the majority or vast majority of plans in the nonpartisan ensemble. This is seen in the Senate 2020, President 2020, and Attorney General 2020 races, among others. Figure 6.1.10. Dr. Mattingly quantified the extreme and unusual cracking and packing of Democrats in the Guilford cluster. Over all of the elections considered and all of the around 80,000 plans in the ensemble, none of the plans have a higher Democratic fraction in the four most Democratic districts or a lower Democratic fraction in the

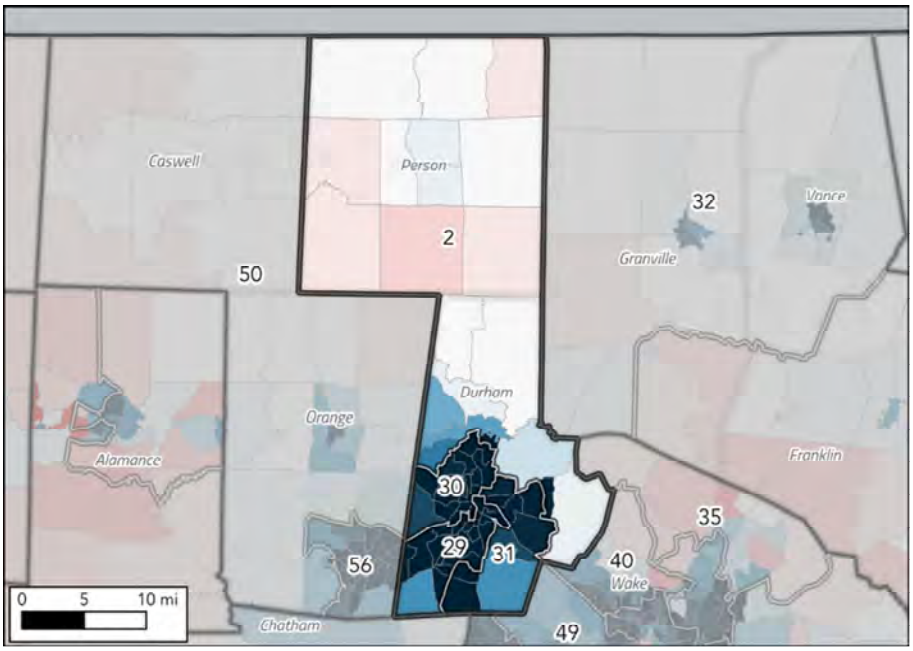
two most Republican districts, in comparison to the enacted plan. Mattingly Rep. 36. In other words, this cluster shows more cracking and packing of Democrats than every single plan in the nonpartisan ensemble. *Id.* The Court credits Dr. Mattingly's conclusion that the Guilford cluster is an extreme pro-Republican gerrymander.

312. Dr. Pegden found that the Guilford county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 99.99997% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.99991% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 19. The Court credits Dr. Pegden's analysis and conclusions.

313. In the Guilford House cluster—which Legislative Defendants' Dr. Barber himself labeled a "partisan outlier," *see* Barber Rep. 5 ("the Guilford County grouping in the House of Representative ... is a partisan outlier")—the enacted map is a partisan outlier under each of the 11 elections he considered. Under 9 of those 11 elections, the enacted map produces fewer Democratic districts that 93-100% of his simulations. *Id.* at 158.

(vi) Durham-Person

314. The Durham-Person county grouping contains House Districts 2, 29, 30, and 31. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.

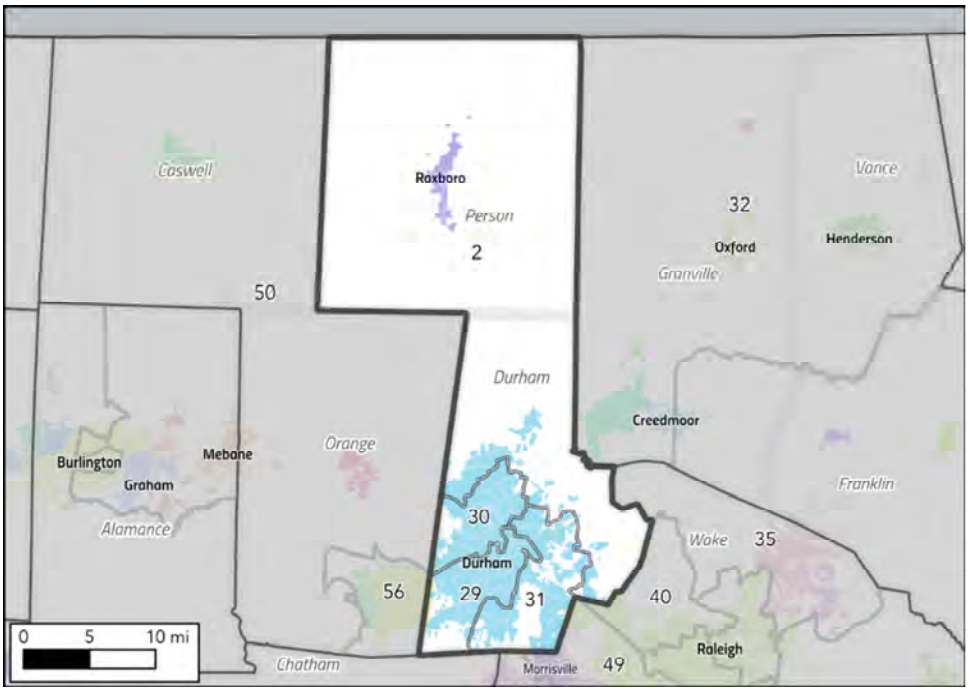


Cooper Map 40

315. Dr. Cooper testified that Durham County is the most Democratic county in North Carolina, having given 81.6% of its two-party vote share to President Biden in the 2020 election and having "voted overwhelmingly Democratic candidates in every 2020 county-wide election." Cooper Rep. 84.

316. But the enacted district lines create an artificially competitive district in this cluster, House District 2, by joining the more competitive VTDs in eastern and northern Durham County in a "claw shaped appendage" that is attached to Person County, to the north. Cooper Rep. 84.

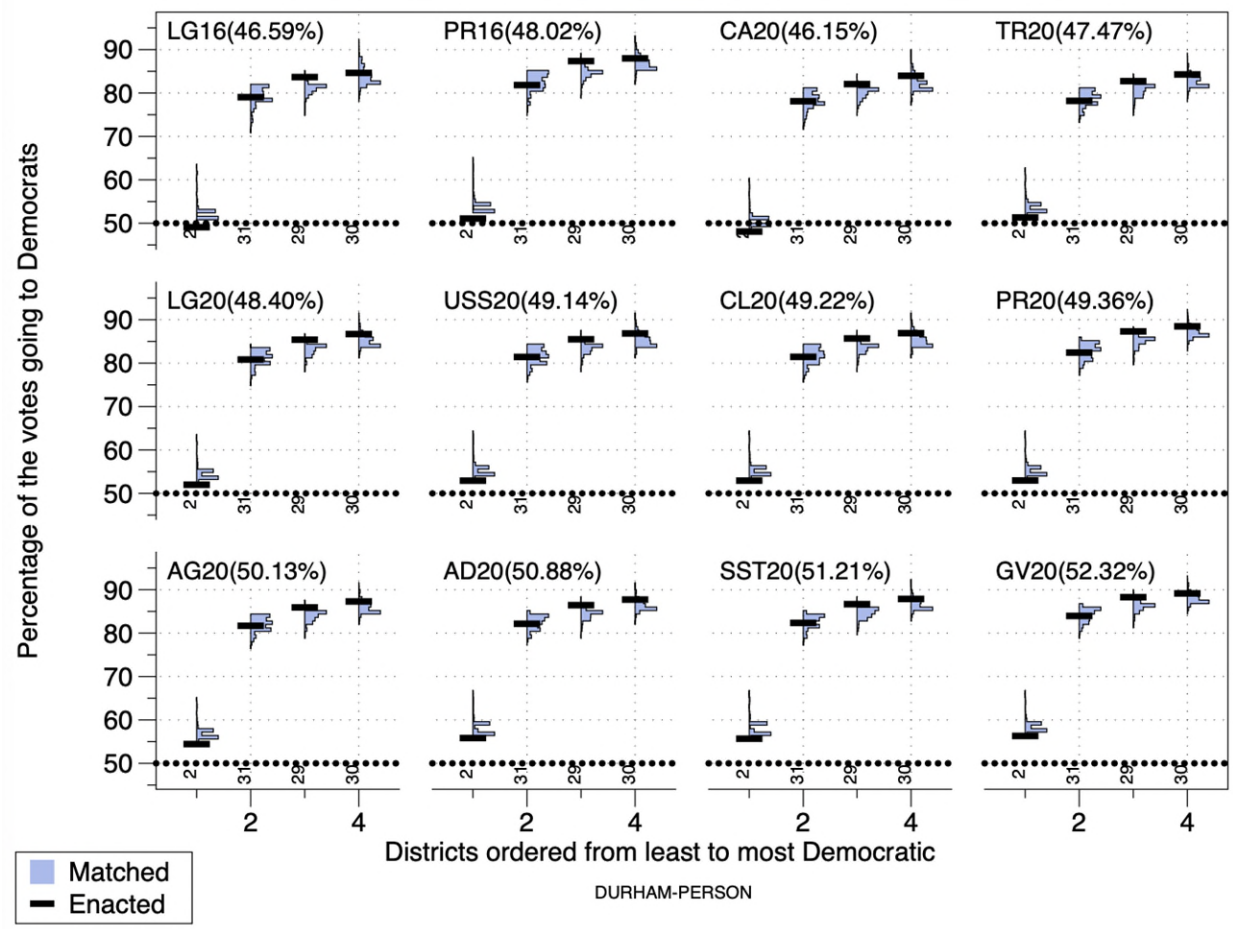
317. Although the City of Durham is split across all four house districts in this cluster, a comparison of Dr. Cooper's red-blue map (Cooper Map 40), and his map showing the municipal boundaries within this cluster (Cooper Map 41) indicates that Legislative Defendants packed the most Democratic portions of the City of Durham into House Districts 29, 30, and 31.



Cooper Map 41

318. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Durham-Person county grouping is an extreme partisan gerrymander.

319. Figure 6.1.22 shows Dr. Mattingly's analysis of this grouping.



320. Dr. Mattingly's analysis shows that Democrats were again cracked out of the most Republican district in the Durham-Person cluster. Mattingly Rep. 44; Figure 6.1.22. The nonpartisan ensemble shows that there are typically three highly Democratic districts and one more moderately Democratic district. *Id.* But in the enacted plan, the Democrats are cracked out of the moderately Democratic district, such that in Republican wave elections, the Republicans gain that seat even though they rarely would under the nonpartisan ensemble. In particular, in the Lieutenant Governor 2016 and Commissioner of Agriculture 2020 elections, where the Democrats only get around 46% of the statewide vote fraction, this extreme cracking would be enough to deny a seat to the Democrats even though they would win the seat in a nonpartisan map. Not a *single map* in the non-partisan ensemble across any of the elections Dr. Mattingly

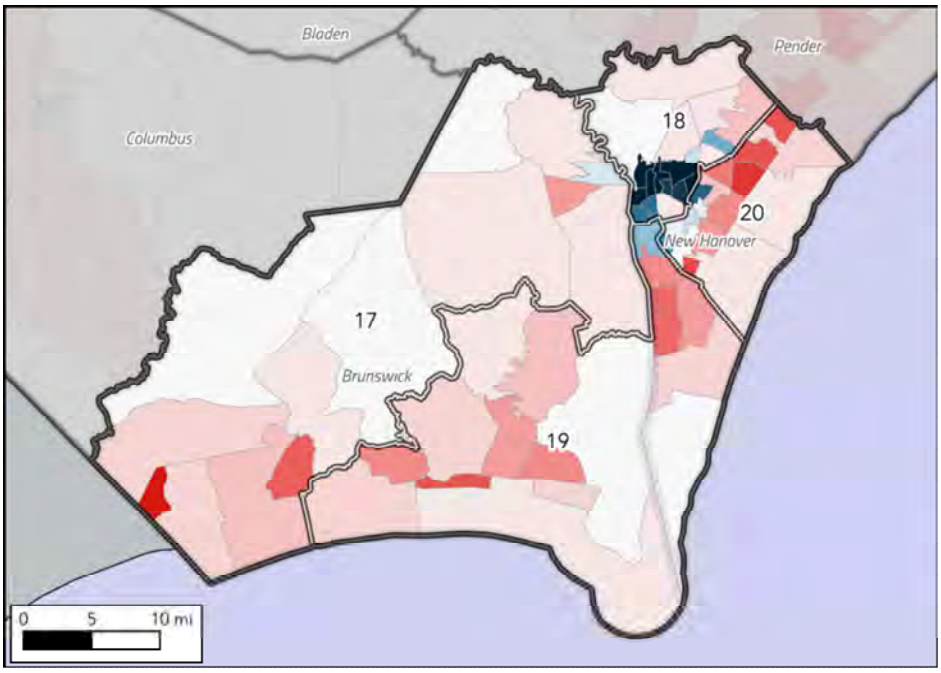
considered showed a smaller fraction of Democrats in the most Republican district than the enacted plan. Mattingly Rep. 44. In other words, this cluster shows more cracking of Democrats than every single plan in the nonpartisan ensemble. *Id.* The Court credits Dr. Mattingly's conclusion that the Durham-Person cluster is an extreme pro-Republican gerrymander.

321. Dr. Pegden found that the Durham-Person county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 99.932% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.79% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 25. The Court credits Dr. Pegden's analysis and conclusions.

322. In the Durham-Person House cluster, under each of the 11 elections that Legislative Defendants' expert Dr. Barber considered, Democrats win 4 seats under 100% of Dr. Barber's simulations, but under two of those elections (2016 Senate and 2016 Lt. Governor), Democrats win only 3 seats under the enacted map—an outcome never once encountered in the 37,800 simulations for this cluster generated by Dr. Barber's algorithm. Barber Rep. 131.

(vii) Brunswick-New Hanover

323. The Brunswick-New Hanover county grouping contains House Districts 17, 18, 19, and 20. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.

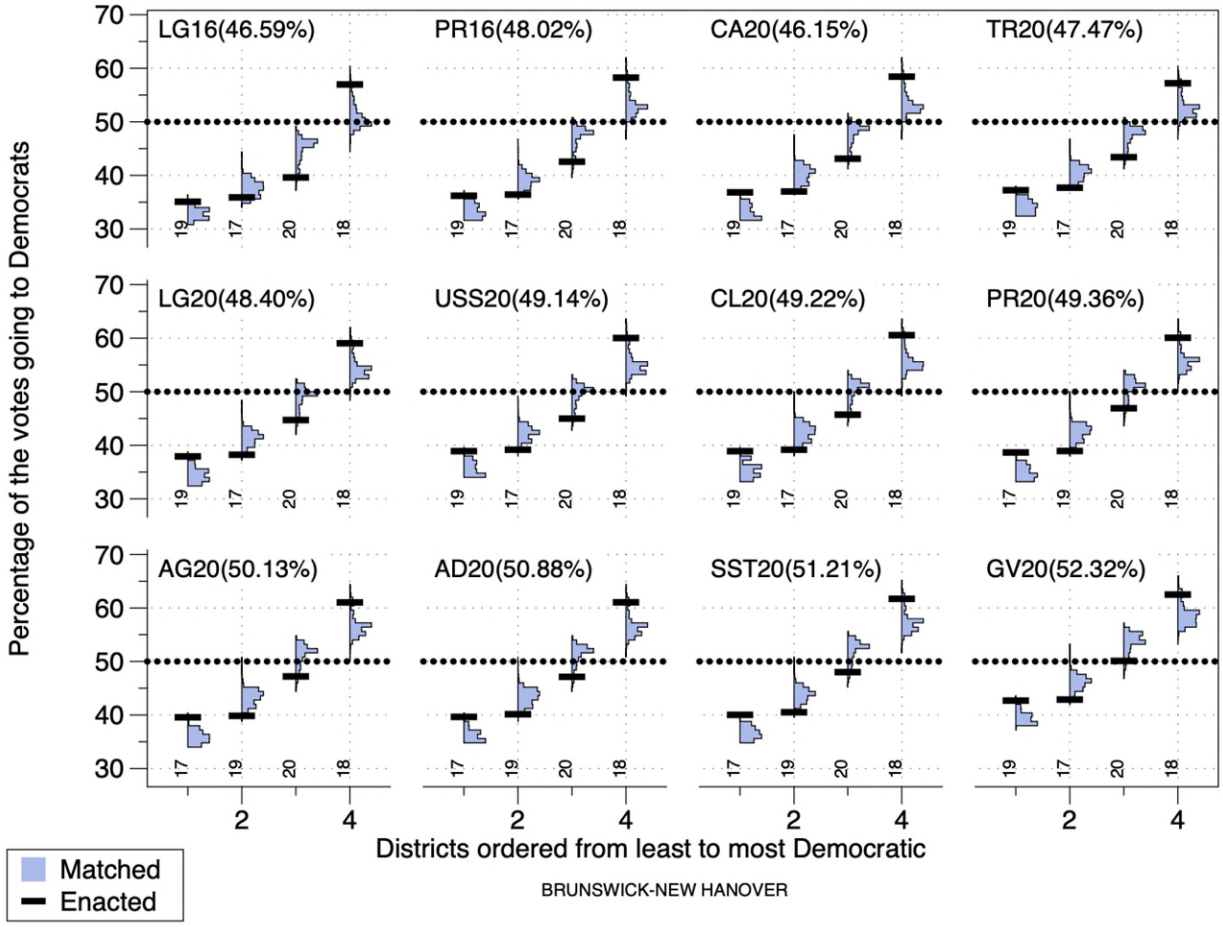


Cooper Map 46

324. This cluster is located in the southeastern corner of the state and includes the heavily Democratic City of Wilmington. Dr. Cooper testified that the district lines pack Democratic voters in and around Wilmington into House District 18, allowing the other three districts, particularly House District 20, to lean more heavily towards the Republican candidate. Dr. Cooper's testimony and his map also indicates that House District 19 "ensnares" a Democratic-leaning VTD south of Wilmington, which has the effect of keeping those Democratic voters out of House District 20, keeping that district safer for the Republican candidate. Cooper Rep. 95.

325. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Brunswick-New Hanover county grouping is an extreme partisan gerrymander.

326. Figure 6.1.34 shows Dr. Mattingly's analysis of this grouping.



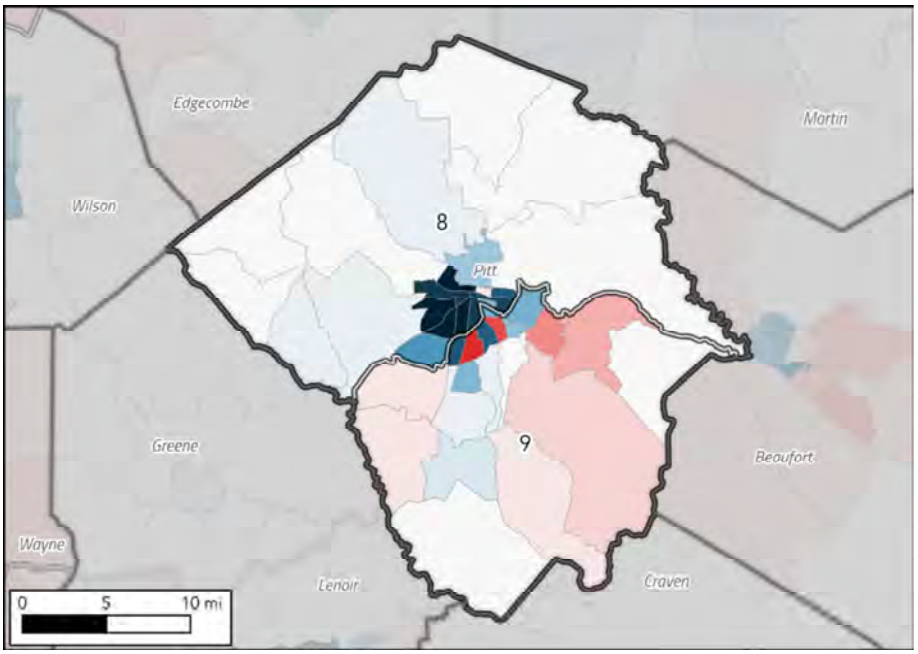
327. Dr. Mattingly's analysis shows that Democrats were again packed and cracked in the Brunswick-New Hanover cluster. Mattingly Rep. 52; Figure 6.1.34. In particular, they are packed into the most Democratic district (District 18), and cracked out of the middle-most Republican districts. This enables Republicans to safely win three out of four districts, even in situations where Democrats would almost always win two seats under the nonpartisan ensemble. Mattingly Rep. 42. Examples of this are in the Attorney General 2020, State Auditor 2020, and Secretary of State 2020 elections. Over each of the elections considered, the fraction of plans in the nonpartisan ensemble where there are fewer Democratic votes in the second and third most Republican districts than in the enacted plan is always less than 0.5% and often much smaller. Mattingly Rep. 52. In other words, the enacted plan cracks more Democrats in those districts

than all but 0.5% of plans in the nonpartisan ensemble. The Court credits Dr. Mattingly's conclusion that the Brunswick-New Hanover cluster is an extreme pro-Republican gerrymander.

328. Dr. Pegden's first-level analysis determined that the enacted plan's version of the Brunswick-New Hanover county grouping is more favorable to Republicans than 89.4% of maps that his algorithm encountered by making small changes to the district boundaries. PX523 at 24. This result was not an unusual enough result to enable a statistically significant second-level analysis. *Id.* But Dr. Pegden's "wave threshold" analysis found this county grouping to be an extreme partisan outlier. *Id.* at 34. Dr. Pegden concluded that the enacted plan's version of the Brunswick-New Hanover county grouping had a wave threshold more favorable to Republicans than 99.72% of maps that his algorithm encountered by making small changes to the district boundaries. *Id.* In particular, for the enacted map, Democratic performance could increase by 10.1 percentage points in every districts, and Democrats still would capture only two of the four seats. *Id.* The Court credits Dr. Pegden's analysis and conclusions.

(viii) Pitt

329. The Pitt county grouping contains House Districts 8 and 9. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is a pro-Republican partisan gerrymander.

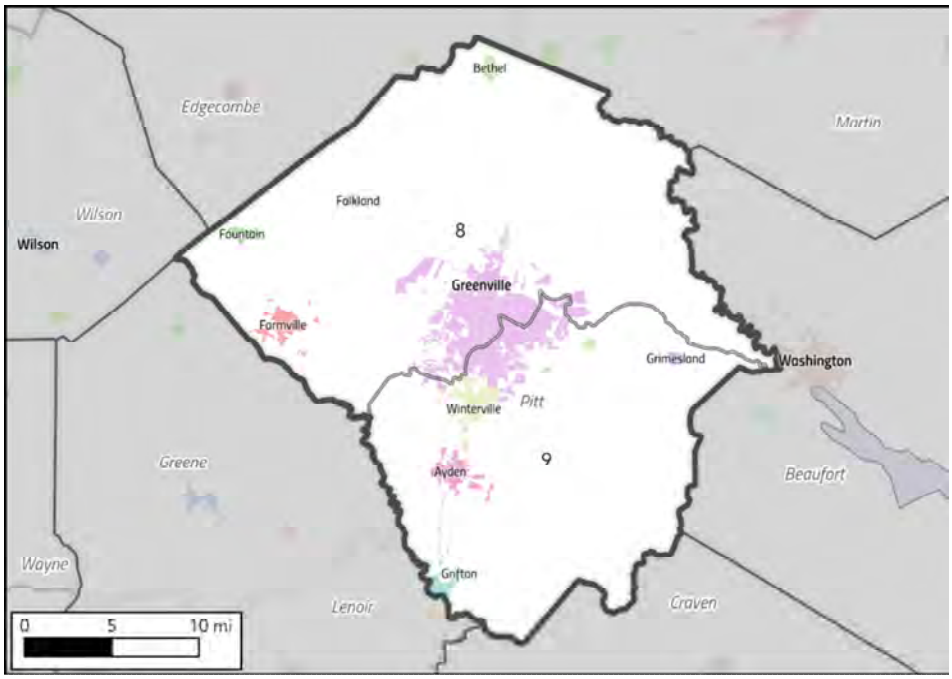


Cooper Map 38

330. As Dr. Cooper testified, the two house districts that include most of Pitt County are both currently represented by Democrats and Pitt County gave 55% of its vote share to President Joe Biden in the 2020 election, making it the 19th most Democratic county in the state according to that metric. Cooper Rep. 81.

331. But by "splitting Greenville in a particularly consequential location," the Legislative Defendants packed the most heavily Democratic VTDs together in House District 8, allowing for House District 9 to lean towards the Republican candidate. Cooper Rep. 81.

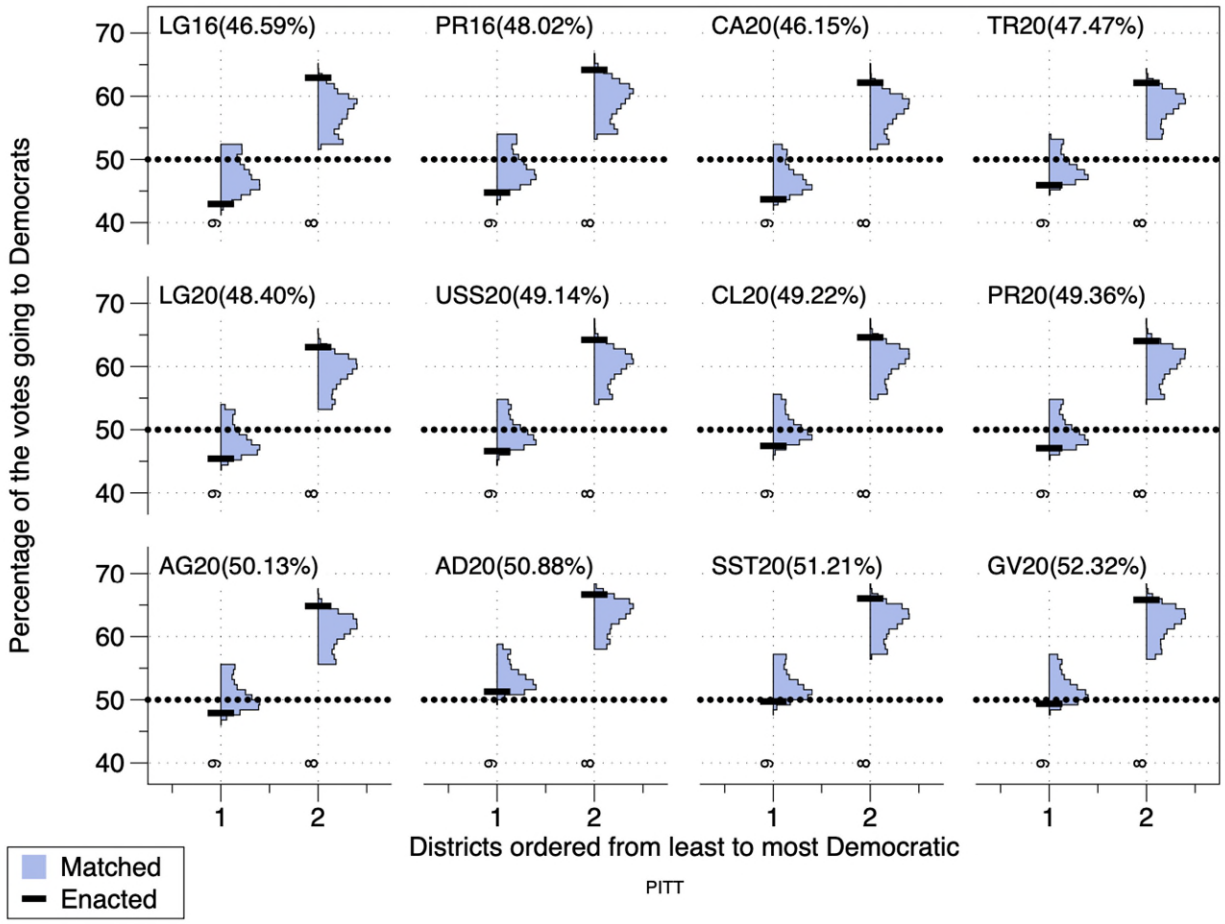
332. As Dr. Cooper testified, the split of Greenville, Cooper Map 39, cannot be explained with reference to communities of interest or natural geography. Dr. Cooper observed that some students at East Carolina University will take classes in House District 9, while living in residence halls that are located in House District 8. Cooper Rep. 81.



Cooper Map 39

333. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Pitt county grouping is a partisan gerrymander.

334. Figure 6.1.16 shows Dr. Mattingly's analysis of this grouping.

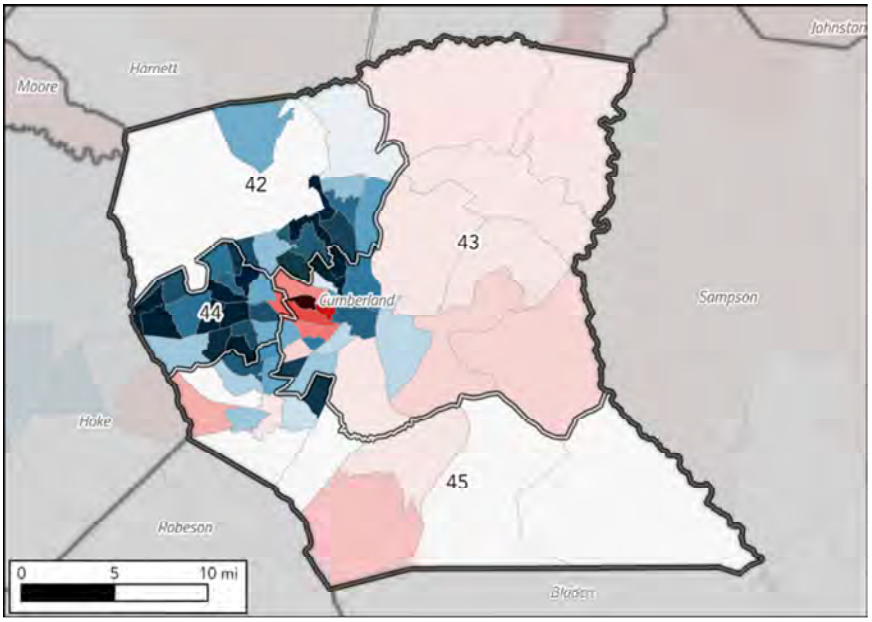


335. Dr. Mattingly's analysis shows that Democrats were packed into the most Democratic district in Pitt County (District 8) and cracked out of the most Republican district (District 9). Mattingly Rep. 40; Figure 6.1.16. The effect is that the Republicans regularly win one of the two seats in situations where many of the nonpartisan ensemble plans would not, including in the Attorney General 2020, Governor 2020, and Secretary of State 2020 elections. Dr. Mattingly quantified the unusual cracking and packing of Democrats in Pitt County. Over all of the elections considered, the percentage of plans in the non-partisan ensemble that have more Democrats in District 8 than the enacted plan fluctuates between 1.1% and 5.3%. Mattingly Rep. 40. The Court credits Dr. Mattingly's conclusion that the Pitt cluster is a pro-Republican gerrymander.

336. Dr. Pegden found that the Pitt county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 96.3% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 89.1% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 21. The Court credits Dr. Pegden's analysis and conclusions.

(ix) Cumberland

337. The Cumberland county grouping contains House Districts 42, 43, 44, and 45. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.



Cooper Map 43

338. Dr. Cooper's testimony indicates that Cumberland County is a "heavily Democratic county" that provided 58% of its two-party vote share to Donald Trump in 2020 and that has not provided a plurality of votes to a Republican Presidential candidate since 2004.

Cooper Rep. 89.

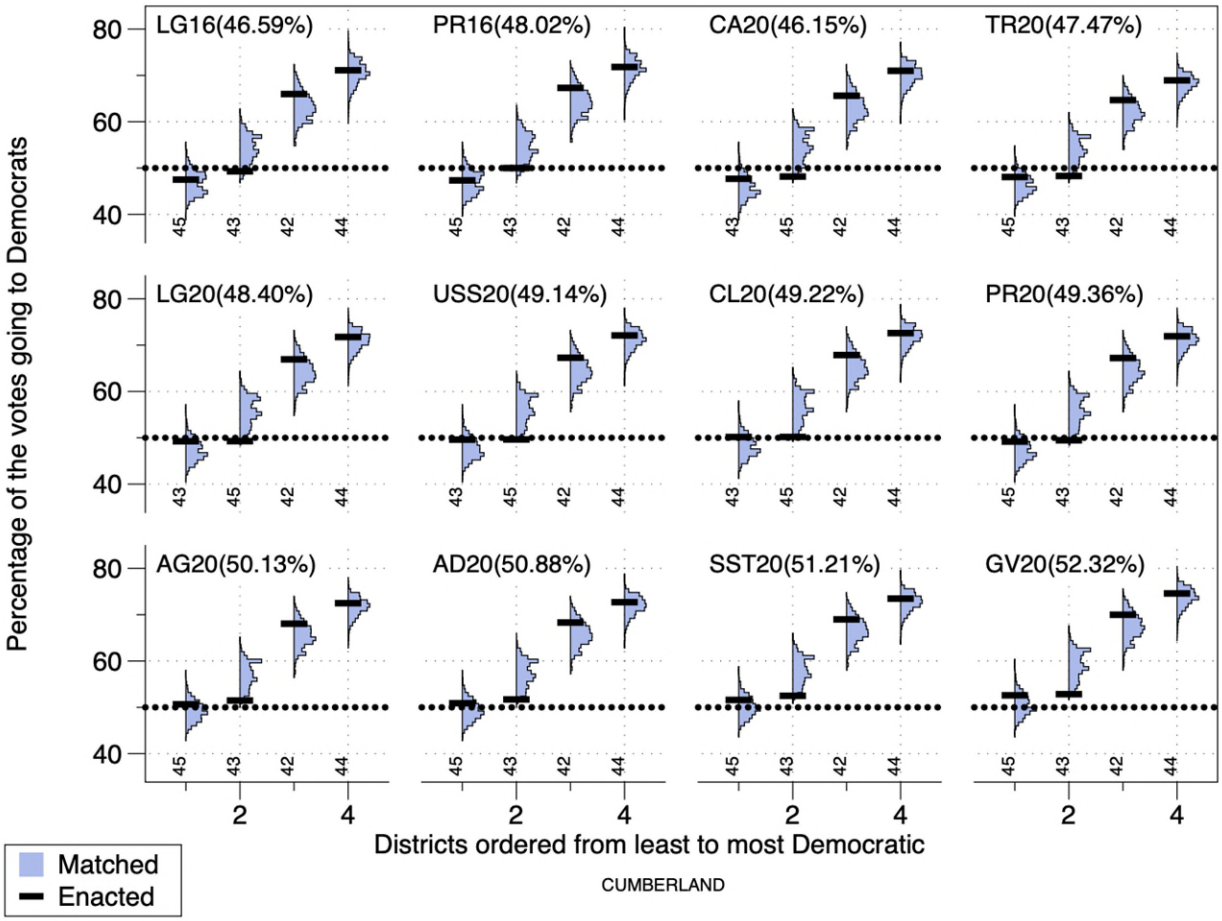
339. Dr. Cooper testified that despite Cumberland County's strong Democratic tilt, Legislative Defendants drew district lines that created two competitive districts, House District 43 in the east and House District 45 in the south, by packing the most heavily Democratic VTDs in Fayetteville into House Districts 42 and 44. Cooper Rep. 89.

340. Fayetteville is split among all four districts in this county cluster. As Dr. Cooper's testimony and map indicate, House District 43 includes almost all of the few Republican-leaning VTDs within Fayetteville, while House District 45 includes Republican-leaning and more competitive VTDs in the south of the city. Cooper Rep. 89.

341. Dr. Cooper also testified that these gerrymandered district lines allowed House District 43 to be more favorable than it other would for the first-term incumbent Republican candidate in that district. Cooper Rep. 89.

342. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Cumberland county grouping is an extreme partisan gerrymander.

343. Figure 6.1.28 shows Dr. Mattingly's analysis of this grouping.



344. Dr. Mattingly's analysis shows that Cumberland County is a strong partisan outlier. Democrats have been cracked out of the second most Republican district (District 43), which normally is comfortably Democratic, but under the enacted plan frequently produces a Republican seat. For each of the elections considered, the number of plans in the ensemble with smaller fraction of Democrats in the second most Republican district is typically around 1% with, for a few elections, the percentage reaching as high as 7% or as low as 0.4%. The Court credits Dr. Mattingly's conclusion that the Cumberland cluster is an extreme outlier.

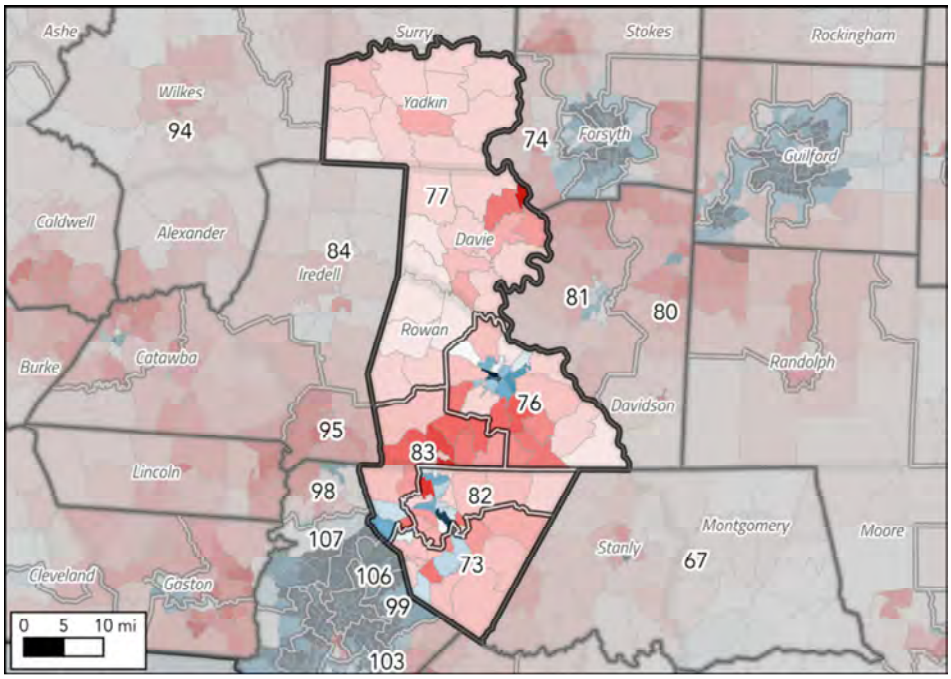
345. Dr. Pegden's first-level analysis determined that the enacted plan's version of the Cumberland county grouping is more favorable to Republicans than 83.5% of maps that his

algorithm encountered by making small changes to the district boundaries. PX523 at 27. This result was not an unusual enough result to enable a statistically significant second-level analysis. But Dr. Pegden's "wave threshold" analysis found the Cumberland county grouping to be an extreme partisan outlier. *Id.* at 36. As explained, the wave threshold metric captures, for a given map, the smallest uniform swing in election results that would be required to give the Democrats an additional seat. Using this alternative analysis allowed Dr. Pegden to assess whether this grouping may have been drawn to achieve "other conceivable partisan goals" besides merely maximizing Republican seat count, "such as facilitating the re-election of particular representatives in particular districts." *Id.* at 33. Dr. Pegden concluded that the enacted plan's version of this county grouping had a wave threshold more favorable to Republicans than 99.59% of maps that his algorithm encountered by making small changes to the district boundaries. *Id.* at 36. The Court credits Dr. Pegden's analysis and conclusions.

346. In the Cumberland House cluster, under 6 of the individual elections Dr. Barber considered, Democrats win 2 seats under the enacted map, even though they would have won more than 2 seats in 100% of Dr. Barber's simulations. Barber Rep. 116.

(x) Cabarrus-Davie-Rowan-Yadkin

347. The Cabarrus-Davie-Rowan-Yadkin county grouping contains House Districts 73, 76, 77, 82, and 83. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is a pro-Republican partisan gerrymander.

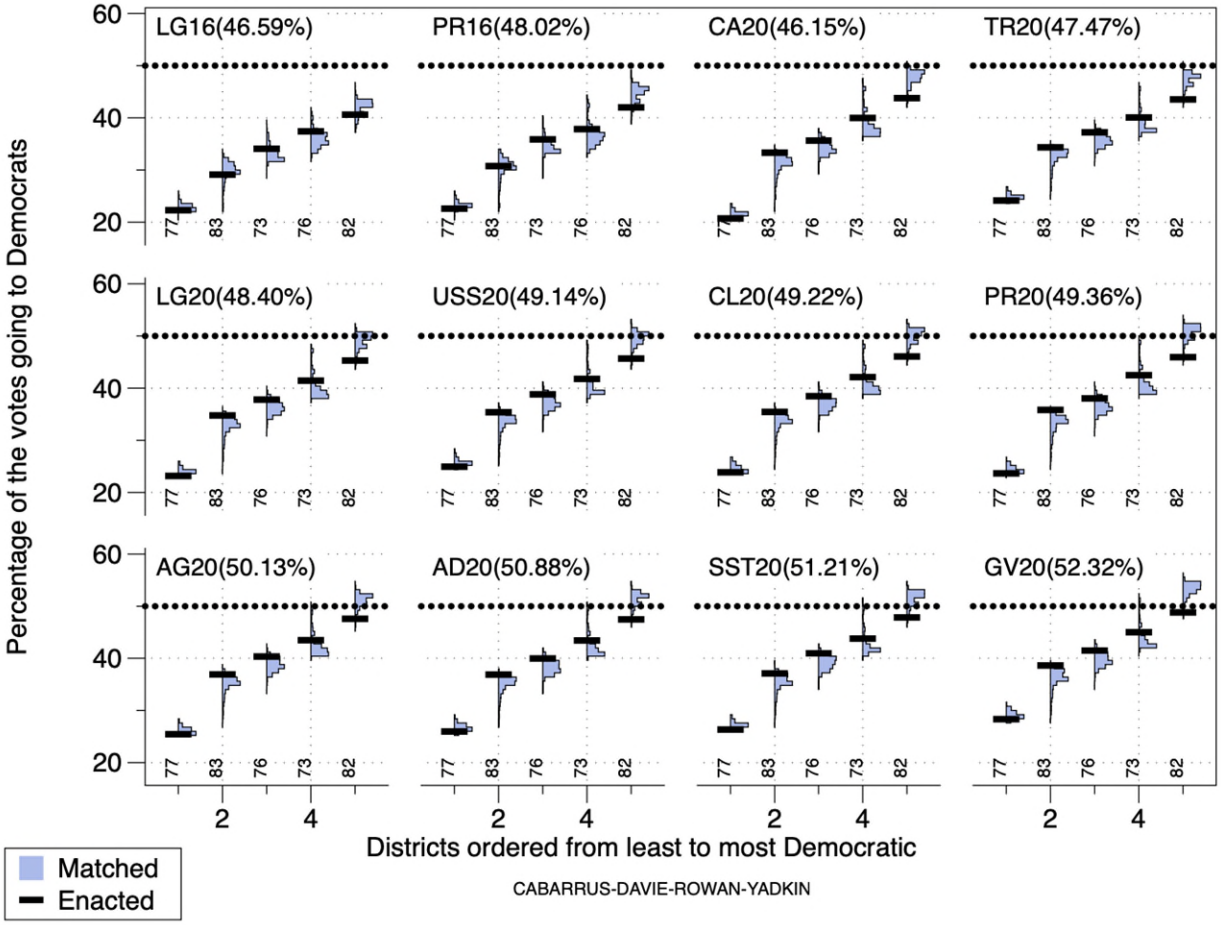


Cooper Map 45

348. Dr. Cooper testified while Republican candidates are likely to have an advantage in at least some of the house districts in this cluster, the district lines enacted by Legislative Defendants create five safe Republican districts to create an artificial Republican advantage. Cooper Rep. 93.

349. The most competitive district in this cluster is House District 62, which is located in Cabarrus County and includes Concord and Kannapolis. As Dr. Cooper's testimony and his map indicate, House District 62 has boundaries that "conspicuously exclude" the Democratic-leaning VTDs near the border with Mecklenburg County. Instead, Legislative Defendants split those Democratic-leaning VTDs in southwestern Cabarrus County between House Districts 73 and 83, where they are heavily outweighed by Republican-leaning VTDs elsewhere in those districts. Cooper Rep. 93.

350. Dr. Mattingly's simulations confirm Dr. Cooper's analysis and independently establish that the Cabarrus-Davie-Rowan-Yadkin county grouping is a partisan gerrymander. Figure 6.1.31 shows Dr. Mattingly's analysis of this grouping.



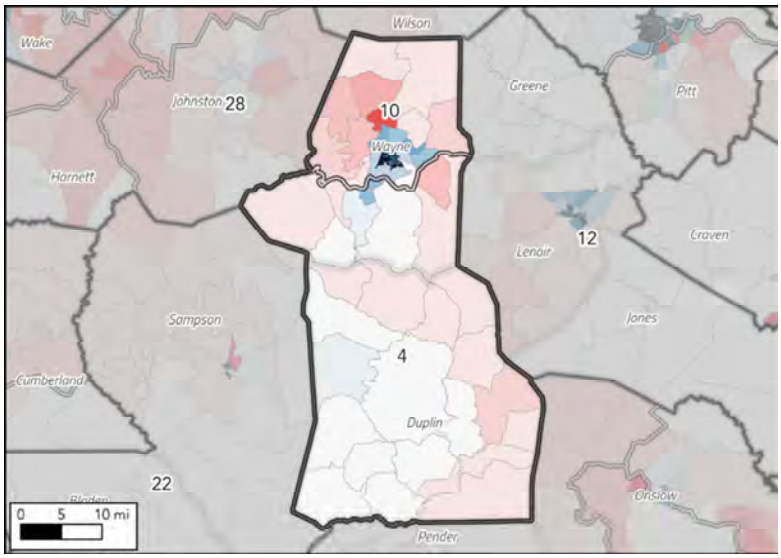
351. Dr. Mattingly's analysis shows that Democrats are packed into the three middle districts (all safe Republican districts) and cracked out of the most Democratic district, which has the effect of making the most Democratic district a reliable Republican seat that the Republicans always win, even though the Democrats would often win it in the nonpartisan ensemble, and it would regularly be a close contest. Figure 6.1.31; Mattingly Rep. 50. Examples are the Attorney General 2020, Governor 2020, and Secretary of State 2020 elections. The Court credits

Dr. Mattingly's conclusion that the Cabarrus-Davie-Rowan-Yadkin cluster is a pro-Republican gerrymander.[1]

352. In the Cabarrus-Davie-Rowan-Yadkin House cluster, under 3 of the 5 elections Dr. Barber considered from 2020 (President, Governor, and Attorney General), Democrats win zero seats under the enacted map, even though Democrats would have won 1 district under 90% or more of Dr. Barber's simulations. Barber Rep. 147.

(xi) Duplin-Wayne

353. The Duplin-Wayne county grouping contains House Districts 4 and 10.

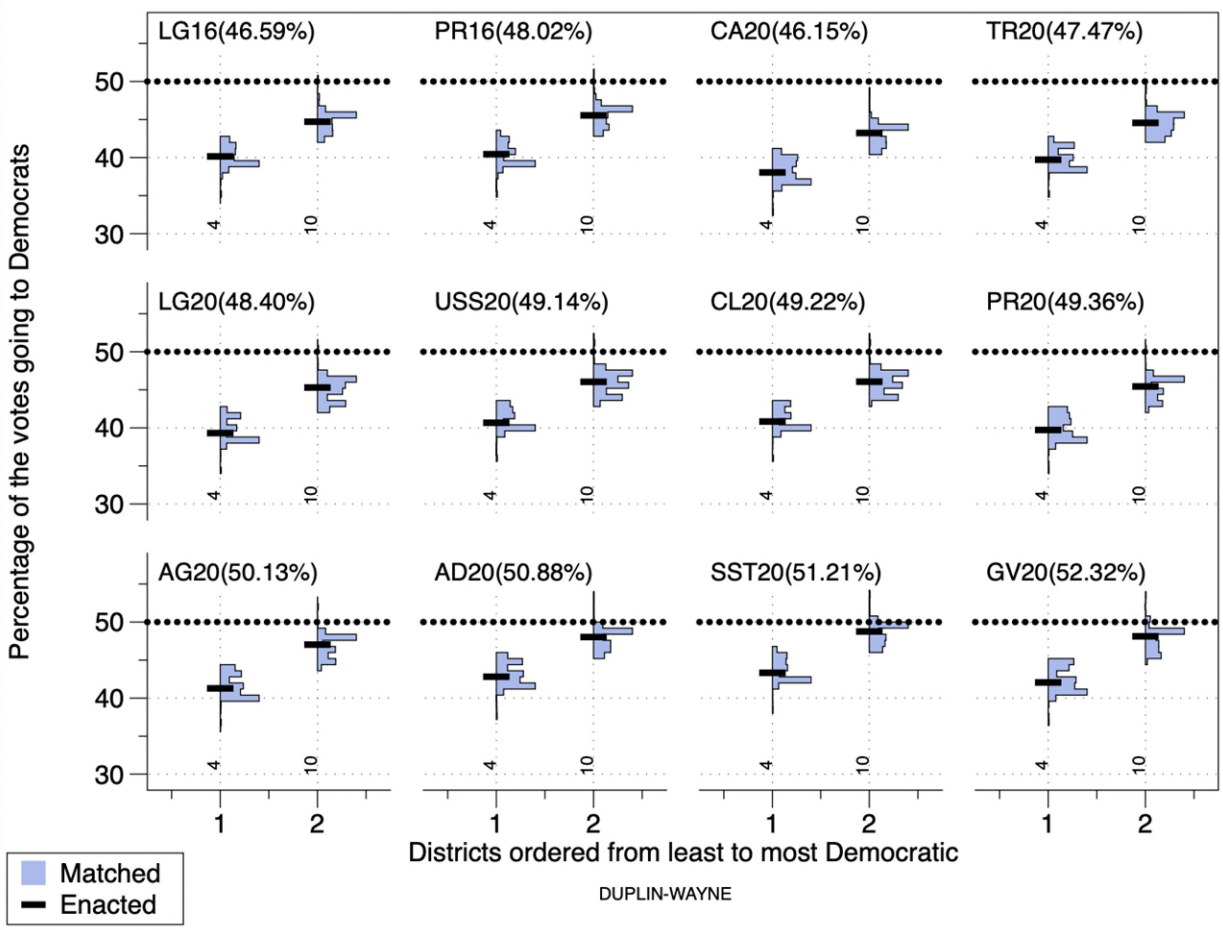


Cooper Map 42

[1] Dr. Pegden's first-level analysis determined that the enacted plan's version of the Cabarrus-Davie-Rowan-Yadkin county grouping is more favorable to Republicans than 87.7% of maps that his algorithm encountered by making small changes to the district boundaries. PX523 at 26. This result was not an unusual enough result to enable a statistically significant second-level analysis. *Id.* But as Dr. Pegden explained, his conservative approach to implementing the districting criteria means that when the enacted map is not a significant outlier relative to maps generated by his algorithm, it does not suggest that the enacted version of the cluster is *not* gerrymandered. *Id.* at 7, 11.

354. Dr. Cooper testified that the district boundary that runs through Wayne County ensures that this cluster will contain two safely-Republican districts. Cooper Rep. 87.

355. Figure 6.1.19 shows Dr. Mattingly's analysis of this grouping.

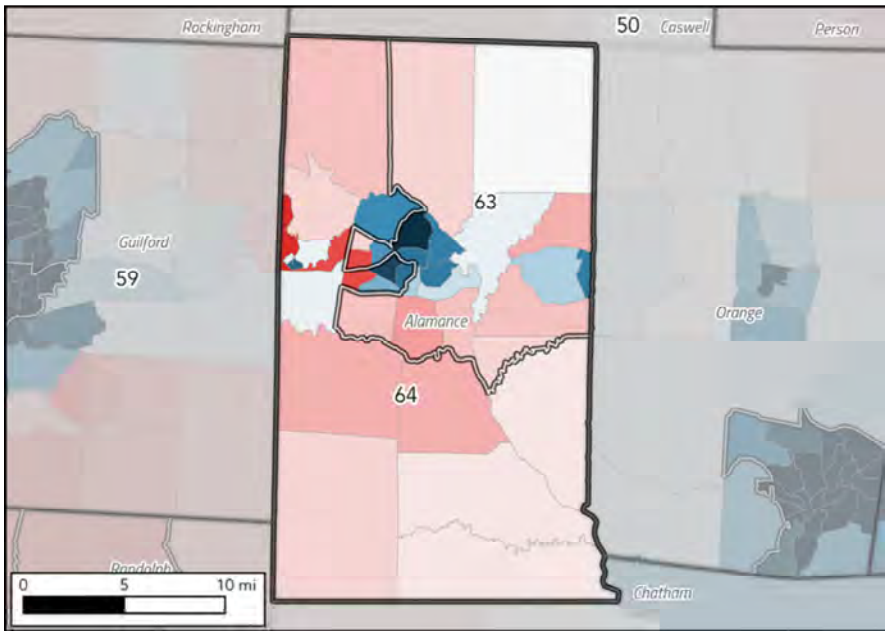


356. Dr. Mattingly's analysis did not find that Duplin-Wayne was an outlier, because the black bars representing the enacted plan fall within the middle of the blue histograms representing the nonpartisan ensemble. Mattingly Rep. 42.[2]

[2] Dr. Pegden was unable to generate any comparison districtings of this House county grouping due do his conservative methodology. PX523 at 17; *see id.* at 11. As Dr. Pegden explained, however, the fact that his algorithm cannot generate comparison maps does not say one way or the other whether the enacted map of this grouping is gerrymandered. *Id.* at 11.

(xii) Alamance

357. The Alamance county grouping contains House Districts 63 and 64.



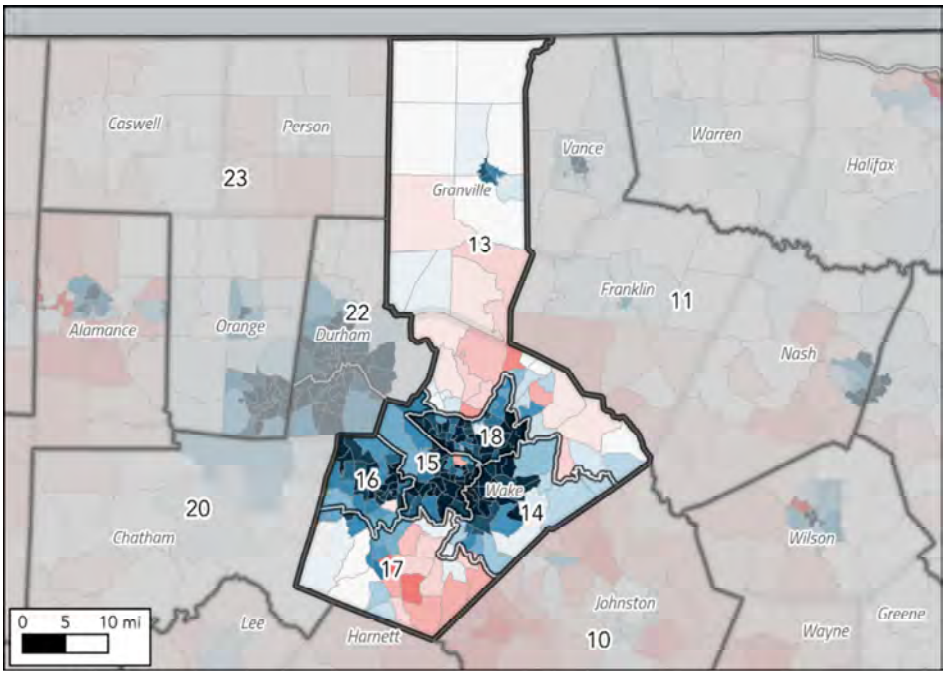
Cooper Map 44

358. Plaintiffs' experts did not find that this cluster was an outlier.

b. Senate Groupings

(i) Granville-Wake

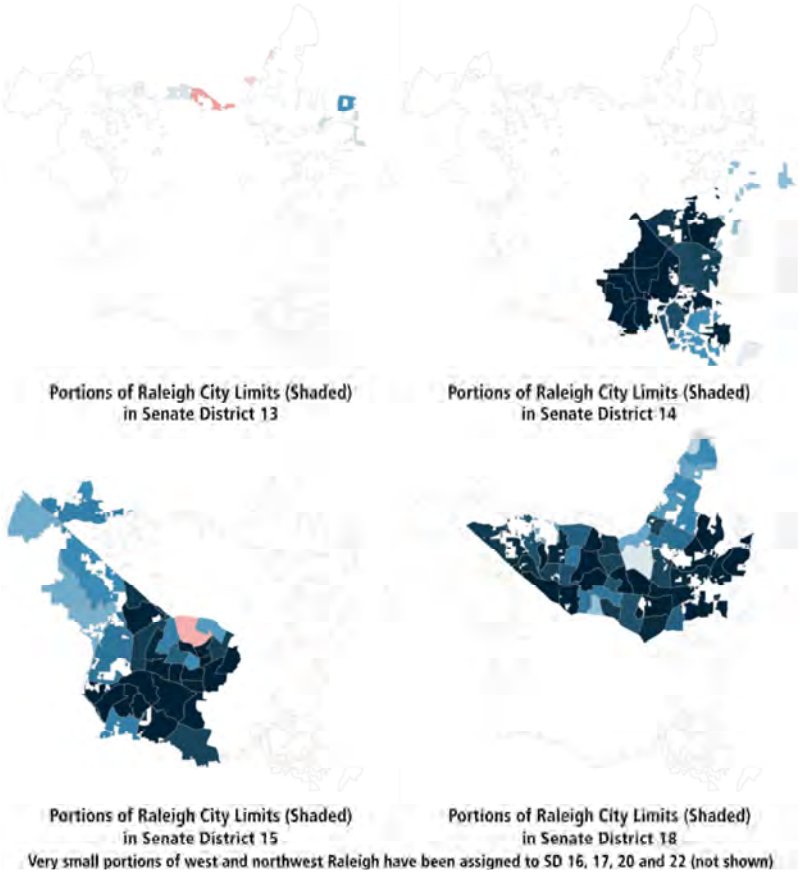
359. The Granville-Wake county grouping contains Senate Districts 13, 14, 15, 16, 17, and 18. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.



Cooper Map 19

360. Dr. Cooper testified that the district lines in this cluster pack Democratic-leaning VTDs into Senate Districts 14, 15, 16, 17, and 18, in order to make Senate District 13, in the north, and Senate District 17, in the south, as competitive as possible for Republican candidates. Senate District 13 pairs all of "purple" Granville County with the Republican-leaning VTDs on the northern and northeastern portions of Wake County, avoiding the Democratic-leaning VTDs in North Raleigh. Some of the Democratic-leaning VTDs in North Raleigh are packed into Senate District 18, leading to a "horn-shaped section" of that district that borders Senate District 13. Cooper Rep. 50.

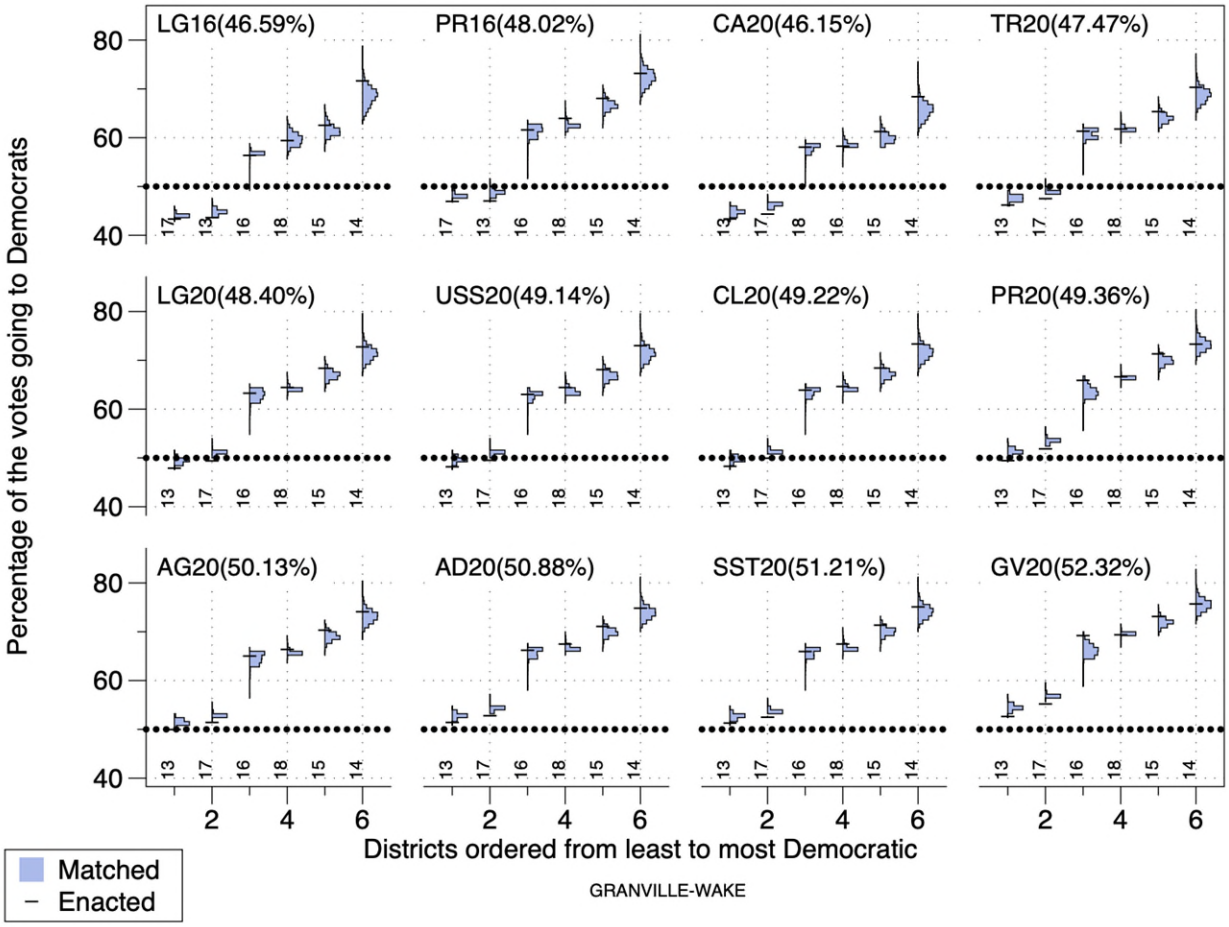
361. As Dr. Cooper testified and his maps indicate, Raleigh is divided into all of the districts in this cluster, with most of Raleigh's few Republican-leaning VTDs included in Senate District 13, in the north. Cooper Rep. 50; Cooper Map 20.



Cooper Map 20

362. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Granville-Wake county grouping is an extreme partisan gerrymander.

363. Figure 6.2.4 shows Dr. Mattingly's analysis of this grouping.



364. Dr. Mattingly's analysis shows that Democrats were cracked out of the two most Republican districts (District 17 and 13), and packed into the most Democratic districts (Districts 14, 15, 16, and 18). Mattingly Rep. 57; Figure 6.2.4.[3] The effect is that the Republicans win two out of six districts under the enacted plan in several elections where they never would under the nonpartisan ensemble, such as the Lieutenant Governor 2020 or Senate 2020 election. Mattingly Rep. 57; Figure 6.2.4. Dr. Mattingly quantified the extreme and unusual cracking of Democrats: Across every election he considered, *none* of the approximately 40,000 plans in his ensemble had

[3] Page 57 of Dr. Mattingly's report concerning Granville-Wake contains a typo that he identified at his deposition: he states that Districts 17 and 18 are cracked, when he meant (and the Figure shows) that districts 17 and 13 are packed. He correctly states that "districts 14, 15, 16, and 18" are in fact packed.

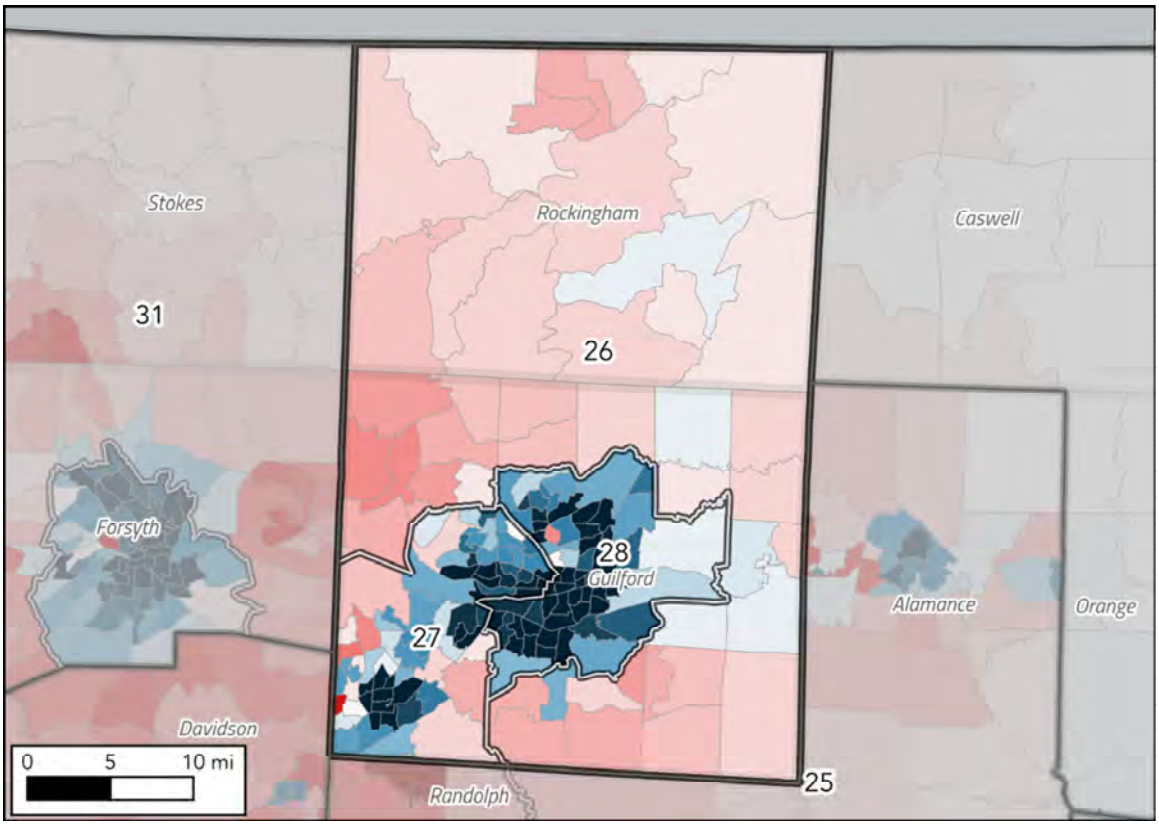
as low a fraction of Democrats in the two most Republican districts in the Granville-Wake cluster as in the enacted plan. The Court credits Dr. Mattingly's conclusion that the Granville-Wake cluster is an extreme pro-Republican gerrymander.

365. Dr. Pegden found that the Granville-Wake county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 99.999989% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.999969% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 30. The Court credits Dr. Pegden's analysis and conclusions.

366. In the Granville-Wake Senate cluster, which Legislative Defendants' expert Dr. Barber found to be a partisan outlier, *see* Barber Rep. 221, the enacted map is a partisan outlier under 10 of the 11 elections Dr. Barber analyzed. Under 7 of those 11 elections, Democrats win fewer seats under the enacted map that they would under 96-100% of his simulations. *Id.* at 228.

(ii) Guilford-Rockingham

367. The Guilford-Rockingham county grouping contains Senate Districts 26, 27, and 28. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.

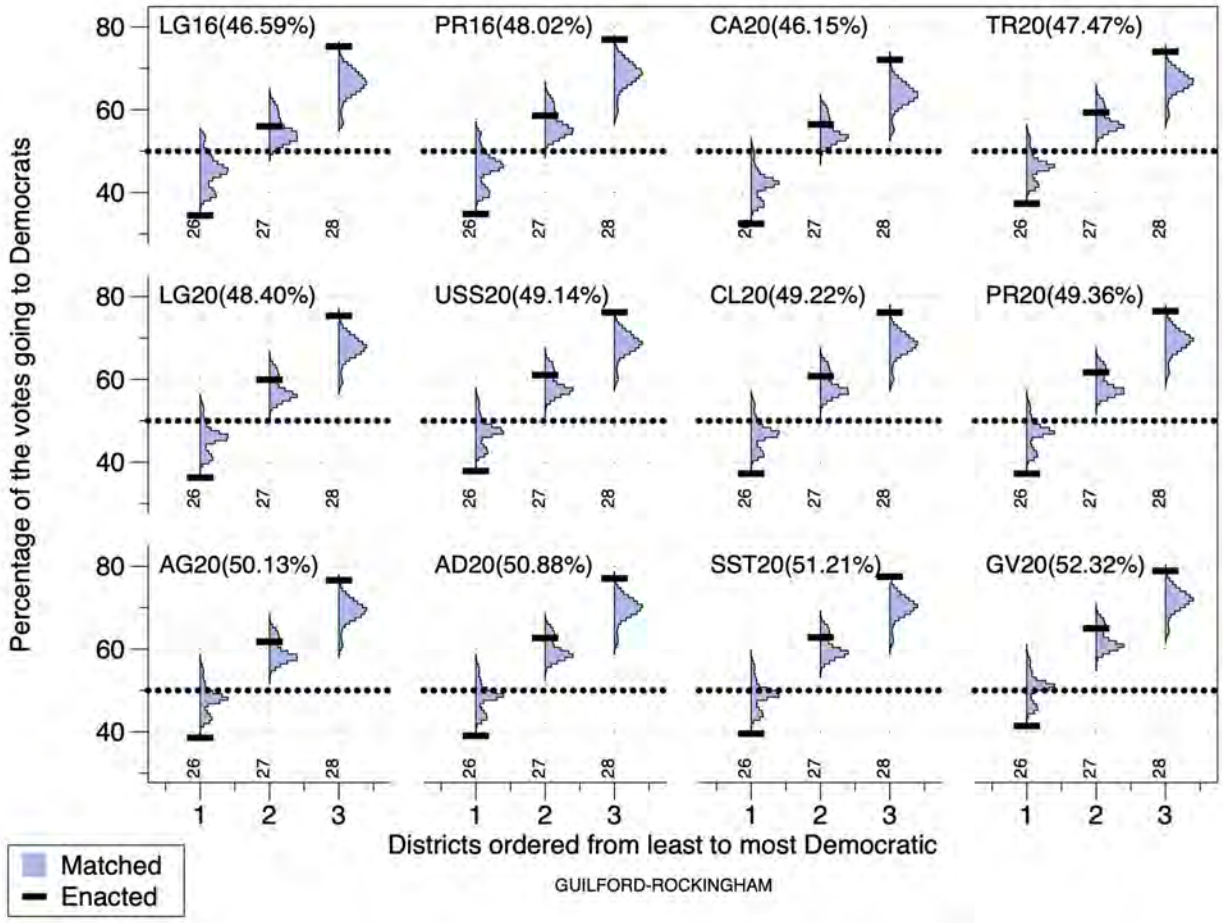


Cooper Map 21

368. As Dr. Cooper testified, Guilford, which includes Greensboro and High Point, is "among the most Democratic counties in North Carolina," while Rockingham leans toward the Republicans. The district lines pack Democratic voters into Senate Districts 27 and 28, allowing for a "safe Republican" Senate District 26 to wrap around those other districts in a "C-shape" that connects the northern and southern boundaries of this cluster. Dr. Cooper's map illustrates how House District 26 extends from Rockingham County into the Republican-leaning VTDs in western Guilford County on one side, and into southern Guilford County on the other, avoiding the most Democratic-leaning VTDs on the district's inner borders. Cooper Rep. 53.

369. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Guilford-Rockingham county grouping is an extreme partisan gerrymander.

370. Figure 6.2.13 shows Dr. Mattingly's analysis of this grouping.



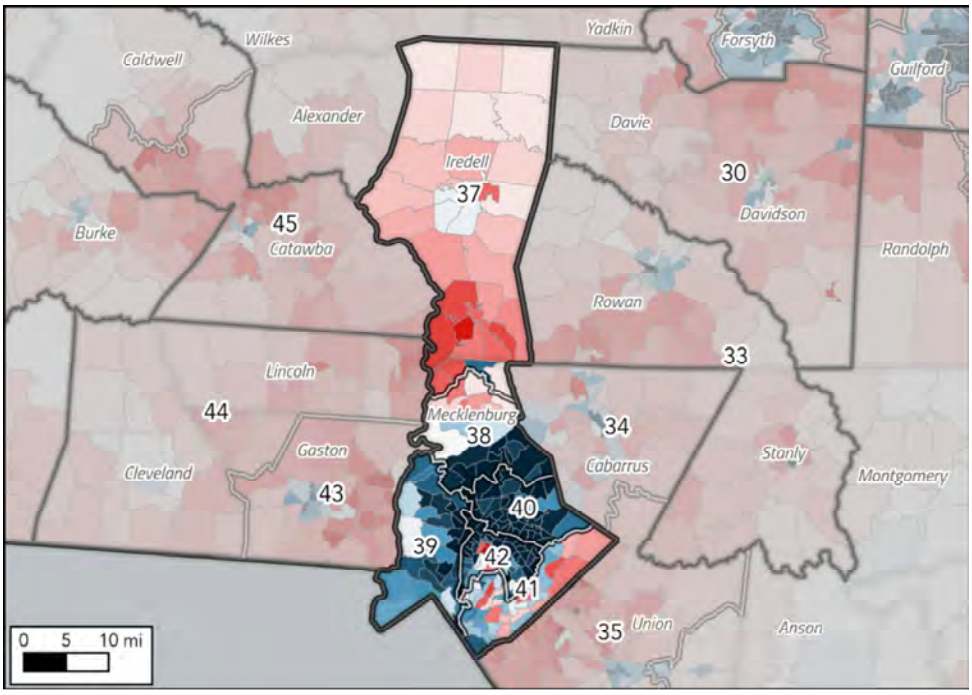
371. Dr. Mattingly's analysis shows the three districts in the Guilford-Rockingham cluster are constructed to pack an exceptional number of Democrats in the most Democratic district (District 28) to crack Democrats out of the most Republican district (District 26). The effect is to ensure a Republican victory in the district 26, when in some elections in the nonpartisan ensemble that district would go to the Democratic Party. Mattingly Rep. 63. Dr. Mattingly quantified the extreme cracking and packing in this district and found that none of the plans in his nonpartisan ensemble had fewer Democrats in the most Republican district than the enacted plan – in other words, zero of the plans in his nonpartisan ensemble cracked Democrats

as substantially as the enacted plan. The Court credits Dr. Mattingly's conclusion that the Guilford-Rockingham cluster is an extreme pro-Republican gerrymander.

372. Dr. Pegden found that the Guilford-Rockingham county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 99.999957% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.99987% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 31. The Court credits Dr. Pegden's analysis and conclusions.

(iii) Iredell-Mecklenburg

373. The Iredell-Mecklenburg county grouping contains Senate Districts 37, 38, 39, 40, 41, and 42. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.



Cooper Map 22

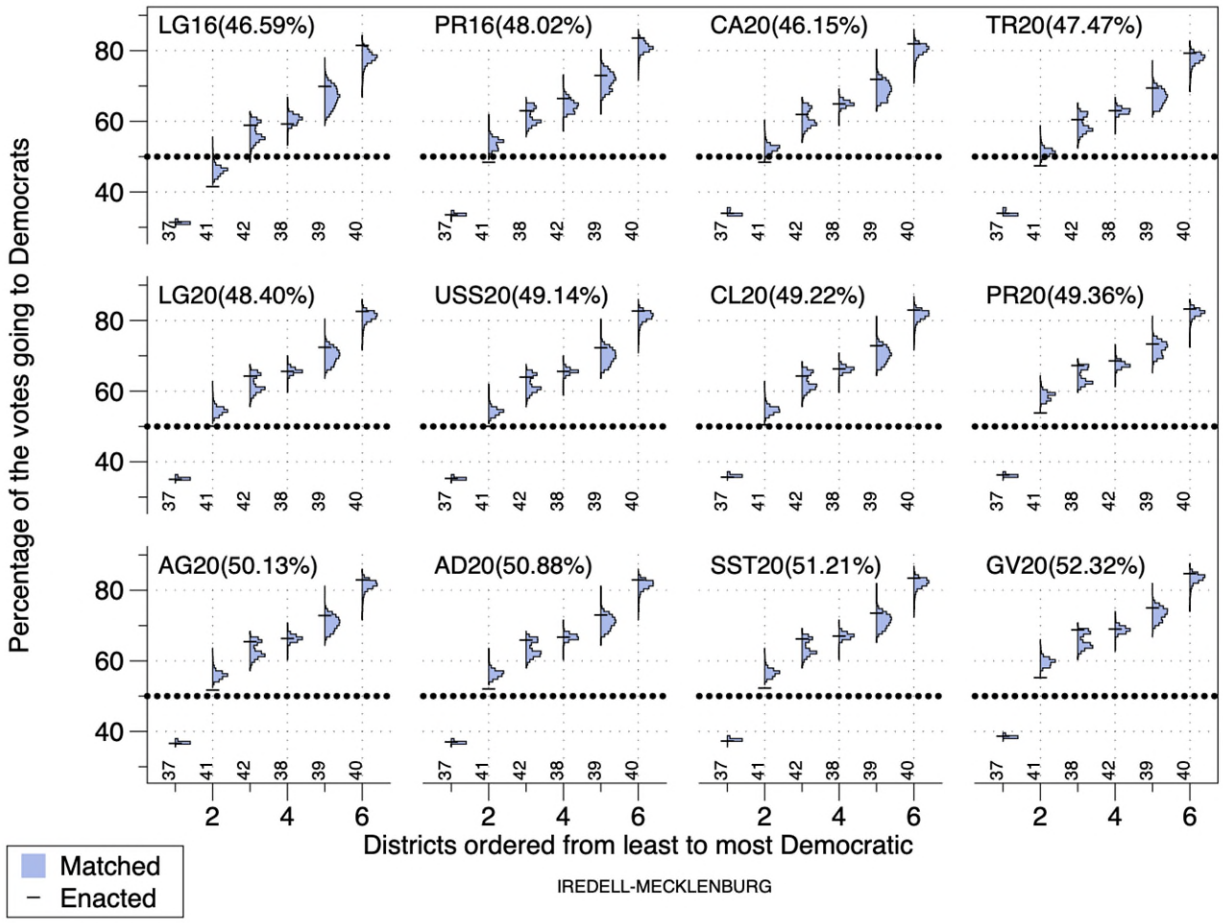
374. Mecklenburg County is the second most populous county in North Carolina and a "Democratic stronghold." Every member of the current state legislative delegation from Mecklenburg County is a Democrat, as are all nine of its county commissioners. Democratic candidates also received the plurality of votes in every 2020 county-wide contest in Mecklenburg County. Yet Legislative Defendants drew district lines to create four "safe Democratic" seats, one "safe Republican" seat, and a "toss-up" seat. Cooper Rep. 55.

375. As Dr. Cooper testified, the district lines pack Democratic voters into Senate Districts 38, 39, 40, and 42, allowing for Senate Districts 37 and 41 to be artificially favorable to Republican candidates. Senate Districts 39 and 40 do not include a single Republican-leaning VTD and almost all Republican-leaning VTDs in Mecklenburg County are included in either Senate District 37, a "safely Republican" seat, or Senate District 41, a "toss-up" seat. Cooper Rep. 55.

376. Senate District 37 includes the residence an incumbent Democrat and incumbent Republican in the same district, effectively eliminating the incumbent Democrat. As Dr. Cooper testified, the Democratic incumbent whose residence Legislative Defendants included in the safely Republican Senate District 37 lives approximately one mile from the Democratic-leaning district to the south, Senate District 38. Cooper Rep. 55.

377. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Iredell-Mecklenburg county grouping is an extreme partisan gerrymander.

378. Figure 6.2.1 shows Dr. Mattingly's analysis of this grouping.



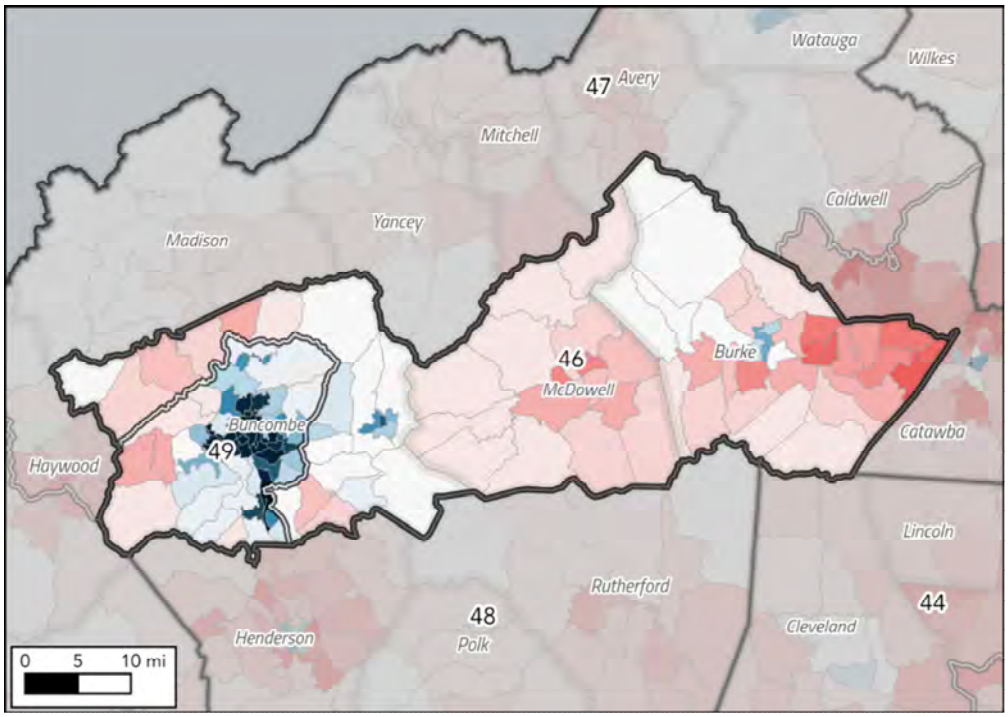
379. Dr. Mattingly's analysis shows that Democrats were cracked out of the second most Republican district (District 41), and packed into the most Democratic districts (Districts 39 and 40). Mattingly Rep. 55; Figure 6.2.1. The effect is that the Republicans win two out of six districts under the enacted plan in many elections where the majority or vast majority of plans in the ensemble would elect only one Republican. Mattingly Rep. 55. One example is the President 2016 election. Dr. Mattingly quantified the extreme and unusual cracking of Democrats: Across every election he considered, *none* of the approximately 80,000 plans in his ensemble had as low a fraction of Democrats in the two most Republican districts as in the enacted plan. The Court credits Dr. Mattingly's conclusion that the Iredell-Mecklenburg cluster is an extreme pro-Republican gerrymander.

380. Dr. Pegden found that the Iredell-Mecklenburg county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 99.998% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.9943% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 32. The Court credits Dr. Pegden's analysis and conclusions.

381. In the Iredell-Mecklenburg Senate cluster, which Legislative Defendants' expert Dr. Barber found to be a partisan outlier, *see* Barber Rep. 229, under 2 of the 11 elections Dr. Barber considered, Democrats win 4 seats under the enacted map, even though Democrats would have won 5 seats under 93% and 95% of Dr. Barber's simulations, respectively. *Id.* at 234.

(iv) Buncombe-Burke-McDowell

382. The Buncombe-Burke-McDowell county grouping contains Senate Districts 46 and 49. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.



Cooper Map 23

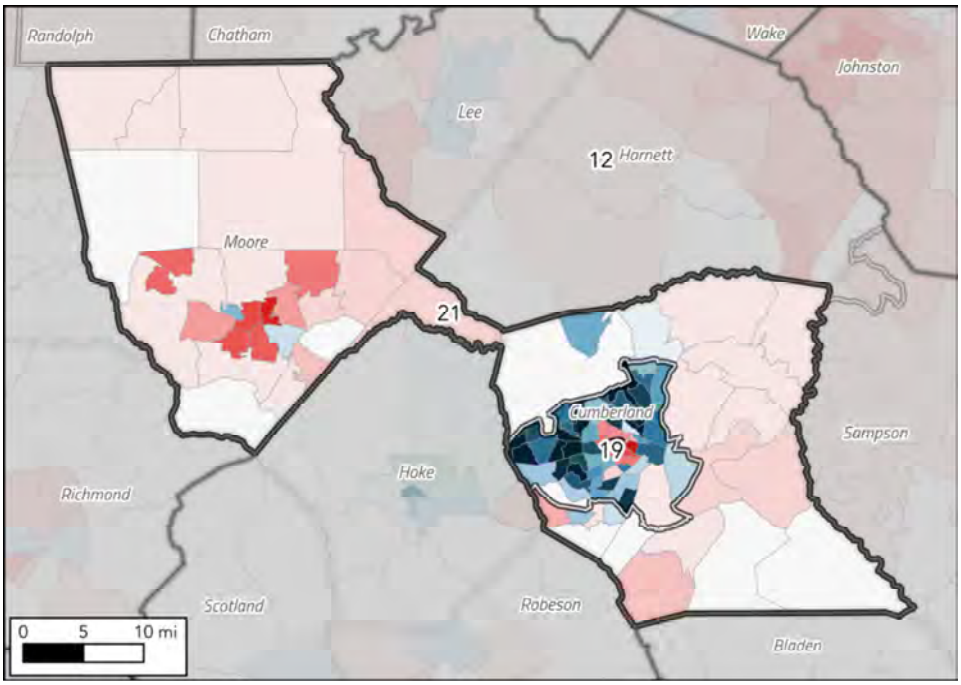
383. Dr. Cooper testified that Legislative Defendants had discretion as to the counties included in this cluster and the adjacent cluster to the south. Rather than pair Buncombe County with Henderson County, which has become a "bedroom community" of Asheville, Legislative Defendants grouped Buncombe County with Burke and McDowell counties, to the east. As Dr. Cooper's map indicates, Burke and McDowell counties include a greater number of heavily-Republican VTDs than does Henderson County, allowing for Legislative Defendants to neutralize the Democratic stronghold in and around Asheville to a greater extent than under the alternate potential grouping. Dr. Cooper testified that the Legislative Defendants' chosen county grouping allowed them to draw a map that packed Democratic voters in Senate District 49, "leaving the geographically expansive [Senate District 46] to favor the Republican Party." Cooper Rep. 57.

384. Dr. Cooper also testified that grouping Henderson County with Polk and Rutherford counties in the bordering cluster to the south also allowed for Legislative Defendants to create a single-district cluster there that heavily favors the Republican candidate. Cooper Rep. 57.

385. Drs. Mattingly and Pegden did not analyze this grouping.

(v) Cumberland-Moore

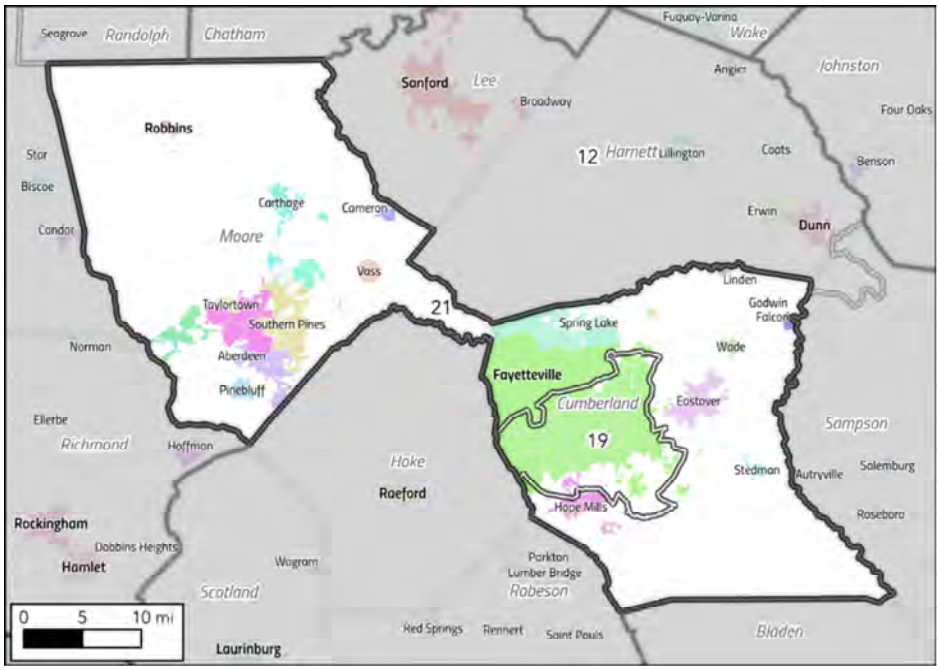
386. The Cumberland-Moore county grouping contains Senate Districts 19 and 21. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.



Cooper Map 24

387. Dr. Cooper testified that the district lines pack Democratic voters in and around Fayetteville into Senate District 19, leaving Senate District 21 as a Republican-leaning district. Cooper Rep. 59

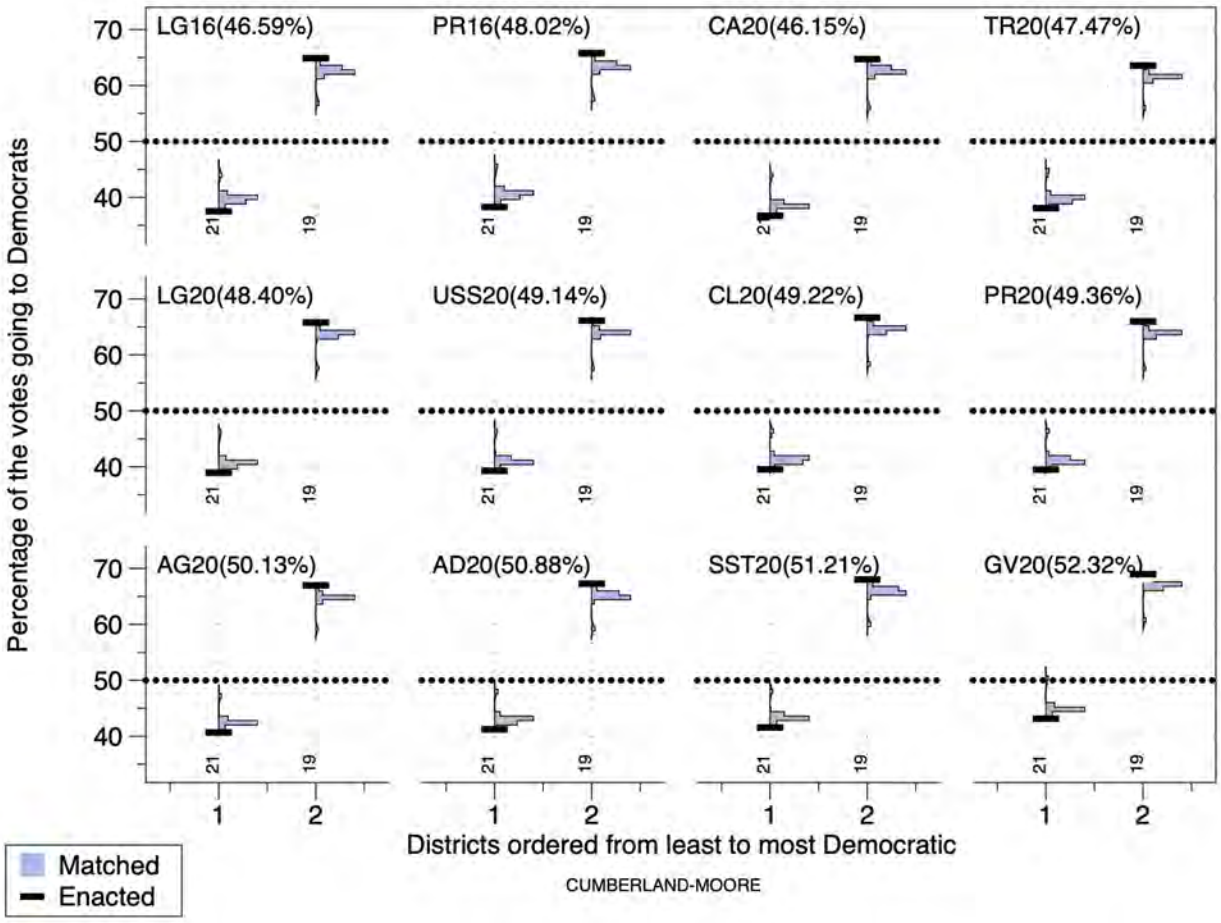
388. As Dr. Cooper's testimony and maps indicate, the district lines split the cities of Fayetteville and Hope Mills across both districts in the cluster, Cooper Map 25, but the most Democratic-leaning VTDs in those cities are packed into Senate District 19. Cooper Rep. 59; Cooper Map 24.



Cooper Map 25

389. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Cumberland-Moore county grouping is an extreme partisan gerrymander.

390. Figure 6.2.10 shows Dr. Mattingly's analysis of this grouping.



391. Dr. Mattingly's analysis shows that Democrats were cracked out of the most Republican district and packed into the most Democratic district to make the map maximally nonresponsive. Mattingly Rep. 61; Figure 6.2.10. The Court credits Dr. Mattingly's conclusion that the map is an extreme outlier in this respect, although it does not affect the number of seats won in the particular 12 elections that Dr. Mattingly considered.

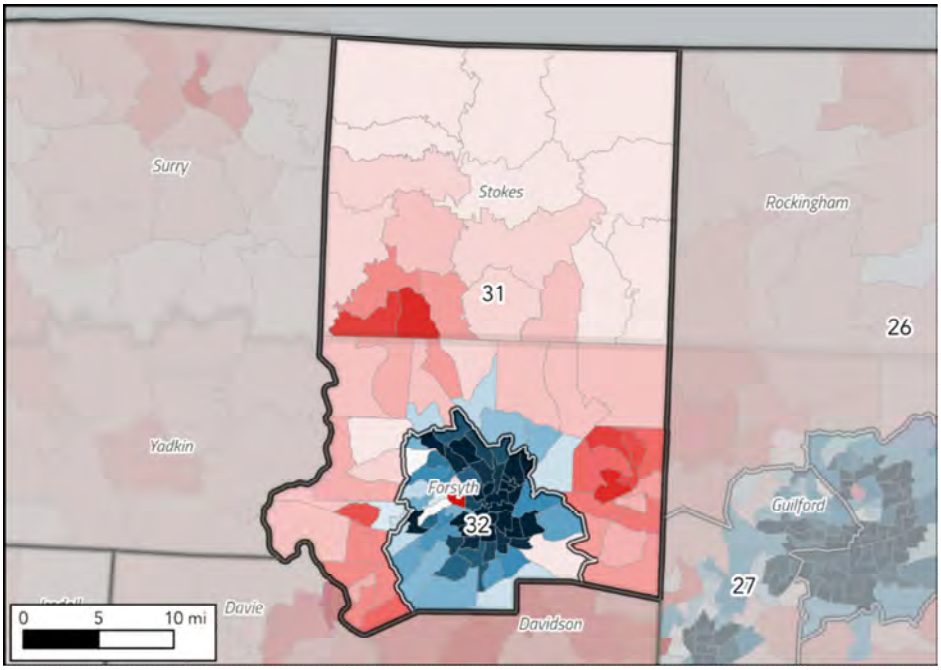
392. Dr. Pegden found that the Cumberland-Moore county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 99.9999949% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis, Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than

at least 99.999984% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 28. The Court credits Dr. Pegden's analysis and conclusions.

393. In the Cumberland-Moore Senate cluster, under each of the 11 elections that Legislative Defendants' expert Dr. Barber considered, Democrats win 1 seat under the enacted map, even though, under one election, Democrats would have won 3 seats under 93% of Dr. Barber's simulations. *Id.* at 188.

(vi) Forsyth-Stokes

394. The Forsyth-Stokes county grouping contains Senate Districts 31 and 32. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that this county grouping is an extreme partisan gerrymander.



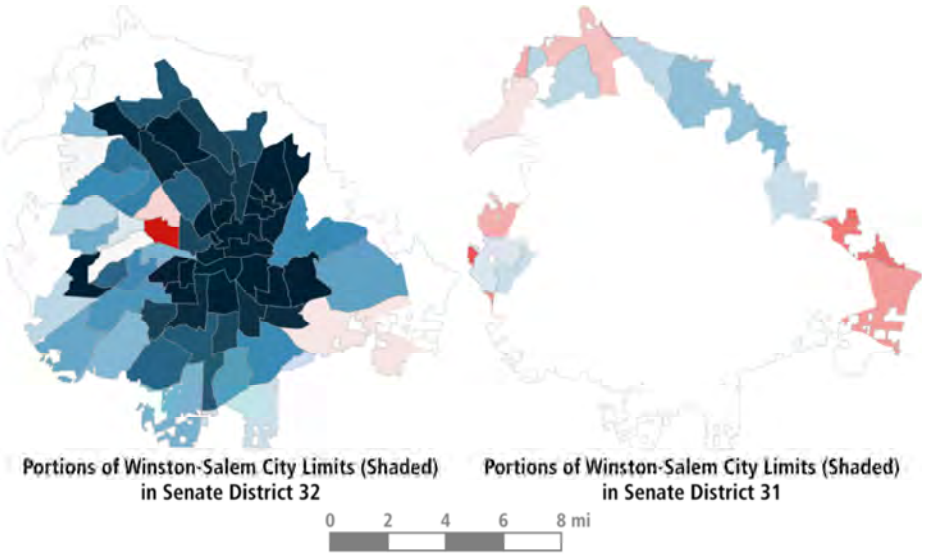
Cooper Map 26

395. As Dr. Cooper testified, Legislative Defendants decided to pair Forsyth County with Stokes County in this cluster, rather than pairing Forsyth County with Yadkin County, to the west. Since Yadkin County has a lower Republican vote advantage than Stokes County

according to Dr. Cooper's analysis, Legislative Defendants' choice of pairing provided them with a better counter-weight to the heavily-Democratic VTDs in Winston-Salem. Cooper Rep. 62.

396. Within the chosen cluster, Legislative Defendants packed the Democratic VTDs in Winston-Salem into Senate District 32, leaving Senate District 31 to wrap around three sides of the city and remain safely Republican. Cooper Rep. 62.

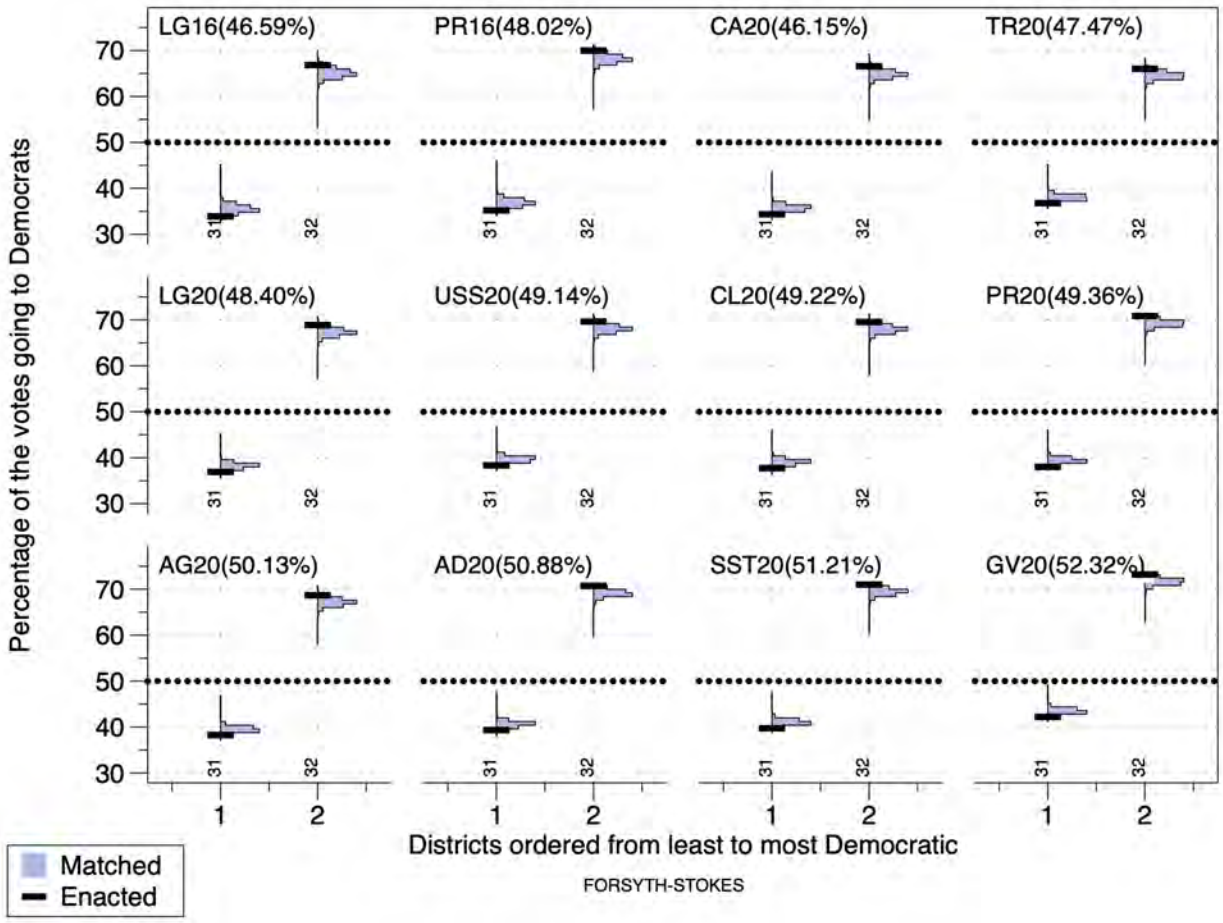
397. While Winston-Salem is split between both districts, a comparison of Dr. Cooper's red-blue map (Cooper Map 26) and his map showing the municipal boundaries within this cluster (Cooper Map 27) illustrates how Senate District 31 captures the more Republican VTDs on the city's edges. Cooper Rep. 62.



Cooper Map 27

398. The simulations of Drs. Mattingly and Pegden confirm Dr. Cooper's analysis and independently establish that the Forsyth-Stokes county grouping is an extreme partisan gerrymander.

399. Figure 6.2.7 shows Dr. Mattingly's analysis of this grouping.



400. Dr. Mattingly's analysis shows that the two districts in Forsyth-Stokes maximize the number of Democrats in the most Democratic district and the number of Republicans in the most Republican district in a way that is almost never seen in the enacted map. Mattingly Rep. 59; Figure 6.2.7. The Court credits Dr. Mattingly's conclusion that the map is an extreme outlier in this respect, although it does not affect the number of seats won in the particular elections that Dr. Mattingly considered.

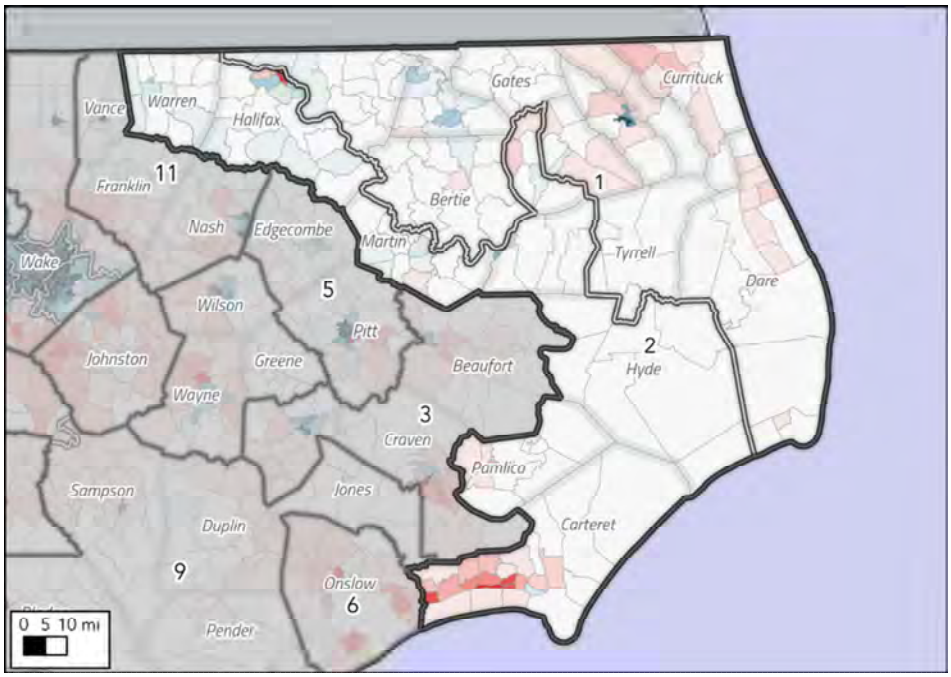
401. Dr. Pegden found that the Forsyth-Stokes county grouping is an extreme partisan gerrymander. In his first-level analysis, Dr. Pegden found that the enacted plan's version of this grouping is more favorable to Republicans than 99.9983% of the maps that his algorithm encountered by making small changes to the district boundaries. In his second-level analysis,

Dr. Pegden found that this grouping is more carefully crafted to favor Republicans than at least 99.9947% of all possible districtings of this county grouping that satisfy the criteria Dr. Pegden used. PX523 at 29. The Court credits Dr. Pegden's analysis and conclusions.

402. In the Forsyth-Stokes Senate cluster, under each of the 11 elections that Legislative Defendants' expert Dr. Barber considered, Democrats win 1 seat under the enacted map, even though, under 2 of those elections, Democrats would have won 2 seats under 94% and 98% of Dr. Barber's simulations, respectively. *Id.* at 248.

(vii) Northeastern County Clusters

403. The Northeastern clusters contain Senate District 1, containing Bertie, Camden, Currituck, Dare, Gates, Hertford, Northampton, Pasquotank, Perquimans, and Tyrrell counties, and Senate District 2, containing Carteret, Chowan, Halifax, Hyde, Martin, Pamlico, Warren, and Washington counties. The Court credits the analysis of *Harper* Plaintiffs' experts and concludes that the choice of these county groupings constitutes a partisan gerrymander.

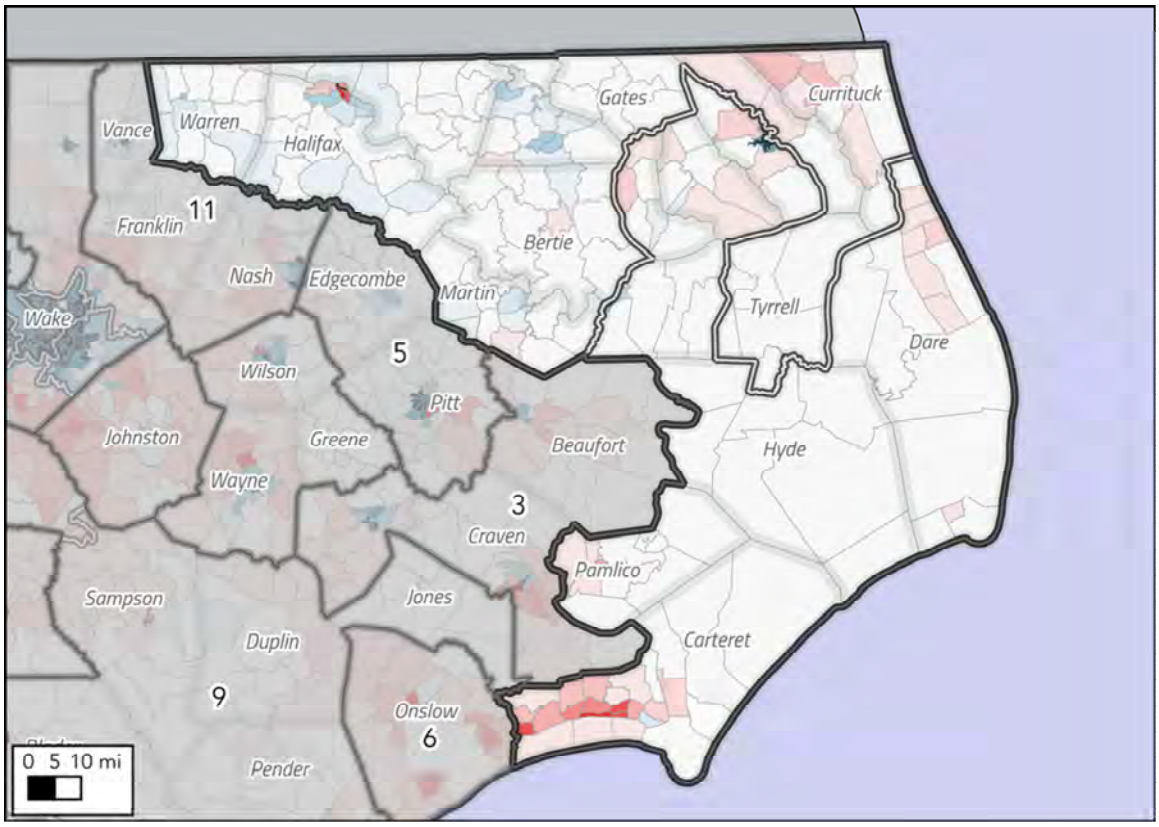


Cooper Map 28

404. Legislative Defendants had two potential county cluster options to choose from when drawing the 2021 Senate Plan. The size of the counties in each potential cluster is such that each cluster option is large enough for one Senate district. Cooper Rep. 65.

405. Dr. Cooper testified that Legislative Defendants' choice of clusters paired more Republican-leaning VTDs together in an arrangement that resulted in two Republican-leaning districts. Cooper Rep. 65.

406. The alternative county cluster groupings, which Legislative Defendants chose against, would have included Carteret, Chowan, Dare, Hyde, Pamlico, Pasquotank, Perquimans, and Washington counties in one district and Bertie, Camden, Currituck, Gates, Halifax, Hertford, Martin, Northampton, Tyrrell, and Warren counties in a second district. Cooper Rep. 65; Cooper Map 29.



Cooper Map 29

407. As Dr. Cooper testified, the alternative county cluster groupings that Legislative Defendants chose against would have created one district on the northern state border that included many of the more racially diverse counties in the state and that would favor the Democrats, and another district to the south that would favor Republicans. Such an arrangement would have been more representative of the counties included in these clusters, most of which include a large number of competitive VTDs (shown in light, non-colored shading in Dr. Cooper's maps). Cooper Rep. 65.

408. Dr. Mattingly also analyzed the General Assembly's decision between two potential Senate clustering choices, encompassing two seats, in the northeastern corner of North Carolina. Mattingly Rep. 65. Dr. Mattingly concluded that their choice significantly advantaged the Republican Party. *Id.* In the alternative cluster choice that the General Assembly rejected, Democrats would have won one seat under the results in every single 2016 and 2020 statewide election. In the cluster choice that the General Assembly rejected, the Republicans win both seats under the results in every single 2016 and 2020 statewide election. *Id.*

E. The 2021 Plans Harm Plaintiffs and Other Democratic Voters

409. Plaintiffs are 25 individual North Carolina voters who prefer Democratic candidates and have consistently voted for Democratic candidates running for Congress and the North Carolina General Assembly. See PX400-424.

410. The evidence demonstrates that the 2021 Plans disadvantage Plaintiffs and other Democratic voters across North Carolina. Plaintiffs testified through affidavits which establish that each of these Plaintiffs (i) is a registered Democrat and has consistently voted for Democratic candidates for the U.S. House of Representatives, North Carolina Senate, and North Carolina House of Representatives, (ii) has a preference for electing Democratic legislators and a majority-Democratic General Assembly, and (iii) believes that if the Democratic Party made up a

majority of the members in the General Assembly, the policies proposed and enacted would more closely represent the plaintiff's personal and political views. PX400-424.

411. Plaintiffs' expert Dr. Chen quantified the effects of the gerrymander on the partisan composition of the congressional districts in which each Plaintiff resides. For each of his 1,000 simulated plans, Dr. Chen determined the congressional district in which each Plaintiff would live based on that Plaintiff's residential address. Chen Rep. 65-69. Dr. Chen then compared the Republican vote share of the districts in which a particular Plaintiff would live under his simulations to the Republican vote share of the Plaintiff's districts under the enacted plans. *Id.*

412. Figures 17a & 17b in Dr. Chen's report show the results of Dr. Chen's analysis for each Plaintiff. Chen Rep. 65, 67. Dr. Chen found that seven Plaintiffs residing in Republican-leaning districts under the Enacted Plan would be placed in a more Democratic-leaning district in over 95% of the computer-simulated plans: Donald M. MacKinnon (CD-10), Joshua Perry Brown (CD-10), Ronald Gray Osborne (CD-7), Barbara Proffitt (CD-8), Mary Elizabeth Voss (CD-13), David Brown (CD-11) and Lily Nicole Quick (CD-7). Dr. Chen further found that six Plaintiffs residing in Democratic-leaning districts under the Enacted Plan would be placed in a more Republican-leaning district in over 95% of the computer-simulated plans: Bobby Jones (CD-2), Kristiann Herring (CD-2), Sondra Stein (CD-6), Virginia Brien (CD-9), Jackson Dunn (CD-9), and Rebecca Harper (CD-6). Additionally, six Plaintiffs would be placed in a more Republican district in 99.9% or more of the simulated plans relative to their districts under the Enacted Plan: Ann Butzner (CD-14), Virginia Brien (CD-9), Jackson Dunn (CD-9), Mark Peters (CD-14), Kathleen Barnes (CD-14), Richard R. Crews (CD-14), and Rebecca Harper (CD-6).

413. The 2021 Senate and House Plans likewise harm Plaintiffs by placing them into packed and cracked Senate and House county groupings. At least one plaintiff resides in every county grouping that *Harper* Plaintiffs challenge in the Senate[4] and House.[5] Moreover, because the statewide gerrymanders in the Senate and House prevent Democrats from winning majorities and supermajorities where they otherwise would under a nonpartisan plan, the overall enacted Senate and House plans harm all Plaintiffs regardless of their specific district or county grouping, because all Plaintiffs prefer Democratic control of the legislature.

F. The 2021 Plans Will Lead to a "Gap in Representation" for North Carolina's Democratic Voters

414. Dr. Cooper testified regarding his analysis of the North Carolina General Assembly's partisan gerrymandering since 2011 and the implications of that gerrymandering for the representation of North Carolina voters.

---

[4] The county groupings where Plaintiffs reside are Edgecombe-Pitt (Amy Clare Oseroff, Donald Rumph), Granville-Wake (Rebecca Harper, John Anthony Balla), Alleghany-Ashe-Avery-Caldwell-Catawba-Cherokee-Clay-Graham-Haywood-Jackson-Macon-Madison-Mitchell-Swain-Transylvania-Watauga-Yancey (Richard R. Crews, Kathleen Barnes), Guilford-Rockingham (Lily Nicole Quick, David Dwight Brown, Joshua Perry Brown, Donald M. MacKinnon), Johnston (Gettys Cohen Jr.), Rowan-Stanly (Shawn Rush), Buncombe-McDowell-Burke (Mark. S. Peters, Ann Butzner), Iredell-Mecklenburg (Virginia Walters Brien, Barbara Profitt, Mary Elizabeth Voss), Forsyth-Stokes (Chenita Barber Johnson), Cumberland-Moore (Sarah Taber), Bertie-Camden-Currituck-Dare-Gates-Hertford-Northampton-Pasquotank-Perquimans-Tyrrel (Lauren Flood), Alamance-Anson-Cabarrus-Montgomery-Randolph-Richmond-Union (Ronald Gray Osborne, Jr.), Chatham-Durham (Sondra Stein), and Wayne-Wilson-Greene (Bobby Jones, Kristiann Herring)

[5] The county groupings where Plaintiffs reside are Pitt (Amy Clare Oseroff, Donald Rumph), Wake (Rebecca Harper, John Anthony Balla), Avery-Cleveland-Gaston-Henderson-McDowell-Mitchell-Polk-Rutherford-Yancey (Richard R. Crews), Guilford (Lily Nicole Quick, Dwight David Brown, Joshua Perry Brown, Donald M. MacKinnon), Harnett Johnston (Gettys Cohen Jr.), Cabarrus-Rowan-Davie (Shawn Rush), Buncombe (Mark. S. Peters, Ann Butzner), Jackson-Swain-Transylvania (Kathleen Barnes), Mecklenburg (Virginia Walters Brien, Barbara Profitt, Mary Elizabeth Voss), Forsythe-Stokes (Chenita Barber Johnson), Cumberland (Sarah Taber), Halifax-Northampton-Warren (Laureen Flood), Alamance (Ronald Gray Osborne), Durham-Person (Sondra Stein), Duplin-Wayne (Bobby Jones, Kristiann Herring)

415. Dr. Cooper testified that North Carolina is "defined by competitive two-party politics in terms of its citizens and its elections for statewide elective offices," but that there has been a "large and sustained" "gap in representation" in North Carolina's congressional and state legislative delegations "due to partisan gerrymandering." Cooper Rep. 2.

416. As Dr. Cooper explained, North Carolina is a "purple" and "competitive" state that, on the whole, is "politically moderate." Cooper Report, pp. 6, 14. In statewide elections that are not susceptible to the General Assembly's gerrymandering, Democratic candidates have performed as well as Republican candidates. Cooper Report, pp. 5-8. Specifically, Dr. Cooper's analysis demonstrated that North Carolina is a "two-party" state where Democrats can compete and succeed with respect to the U.S. Presidential election, Cooper Rep. 5-6 (Figures 1 and 2), and elections for North Carolina's Council of State, Cooper Report, pp. 7-8 (Figure 3).

Figure 2. Two-Party Vote Share in the 2020 Presidential Election

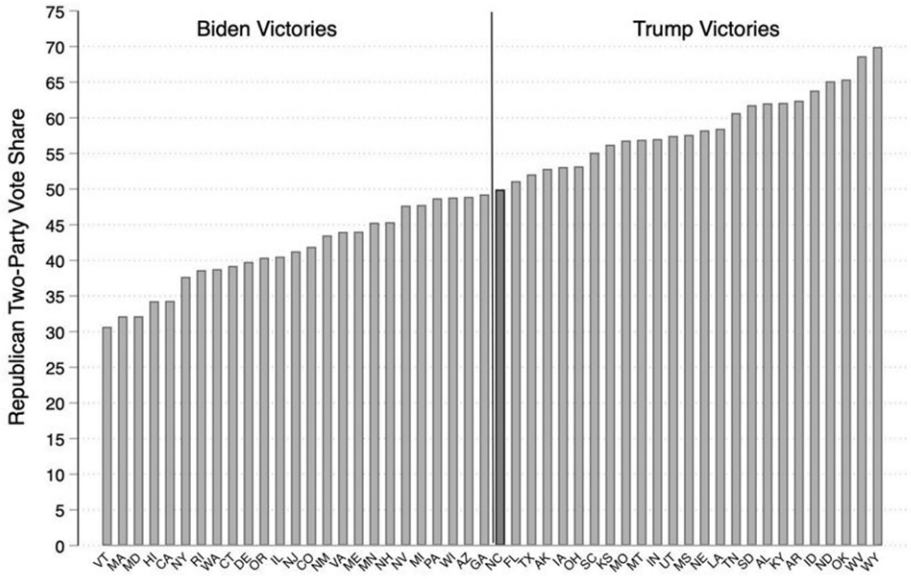
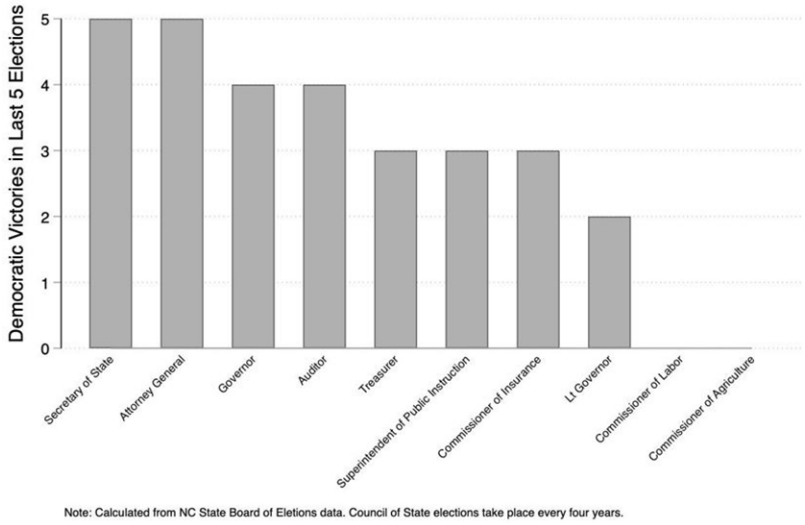


Figure 3. Results of The Last Five Council of State Elections



Note: Calculated from NC State Board of Eletions data. Council of State elections take place every four years.

417. Dr. Cooper also analyzed the aggregate vote share of Democratic and Republican candidates in North Carolina congressional and General Assembly elections since 2012, finding that while North Carolinian voters "consistently" have given about half of their two-party vote share to Democratic candidates, the Republicans "dominate" in terms of the seats they have held in North Carolina's congressional delegation, and in the North Carolina Senate and House. Cooper Report, pp. 9-12; Figures 5, 6, 7.

Figure 5. Comparing Votes and Seats in North Carolina's Congressional Delegation, 2012-2020

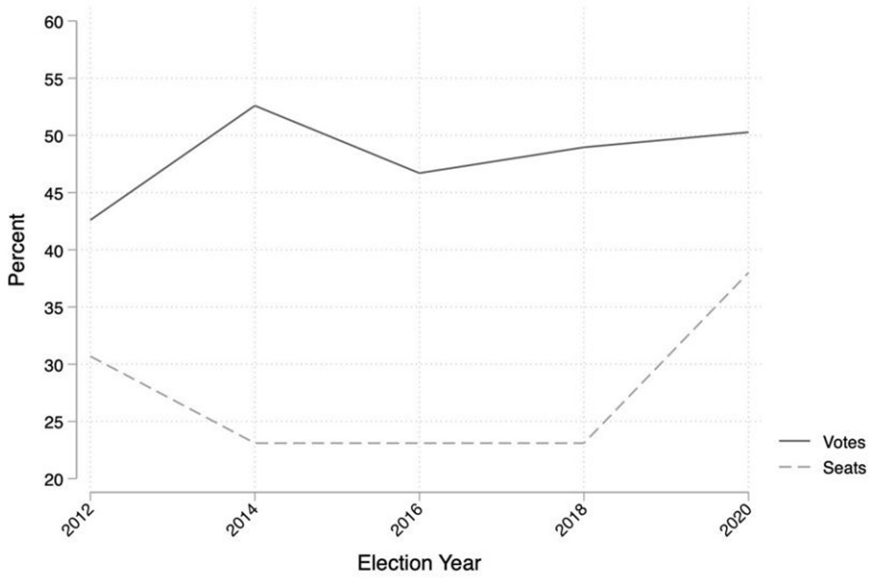


Figure 6. Comparing Votes and Seats in the North Carolina Senate, 2012-2020

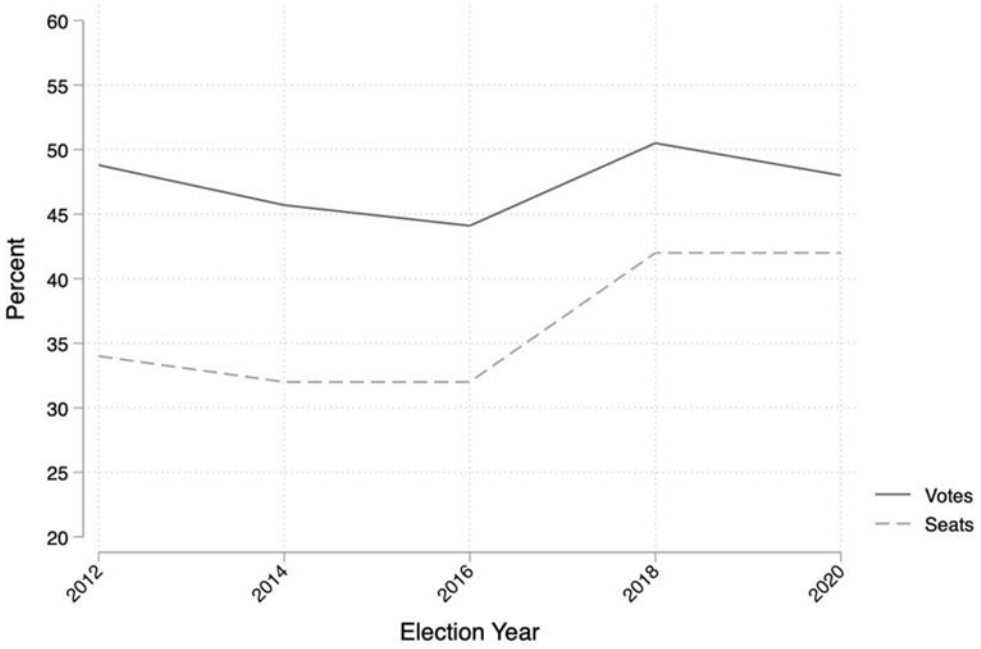
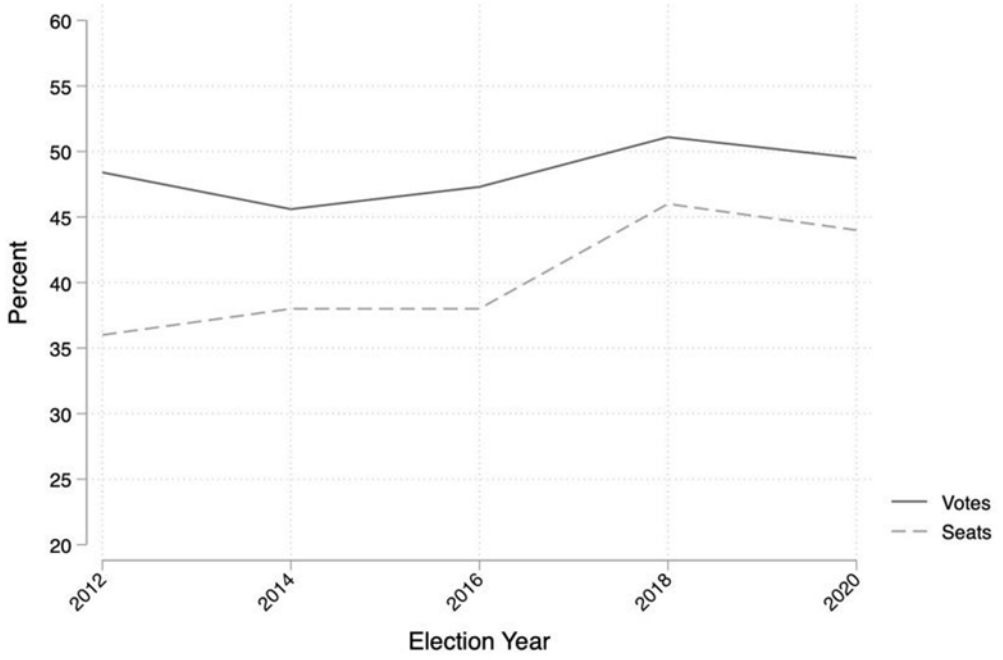


Figure 7. Comparing Votes and Seats in the North Carolina House, 2012-2020



418. As Dr. Cooper testified, the composition of North Carolina's congressional delegation and General Assembly since 2012 has "run counter" to the "partisanship and expressed policy preferences" of its voters, Cooper Rep. 14.

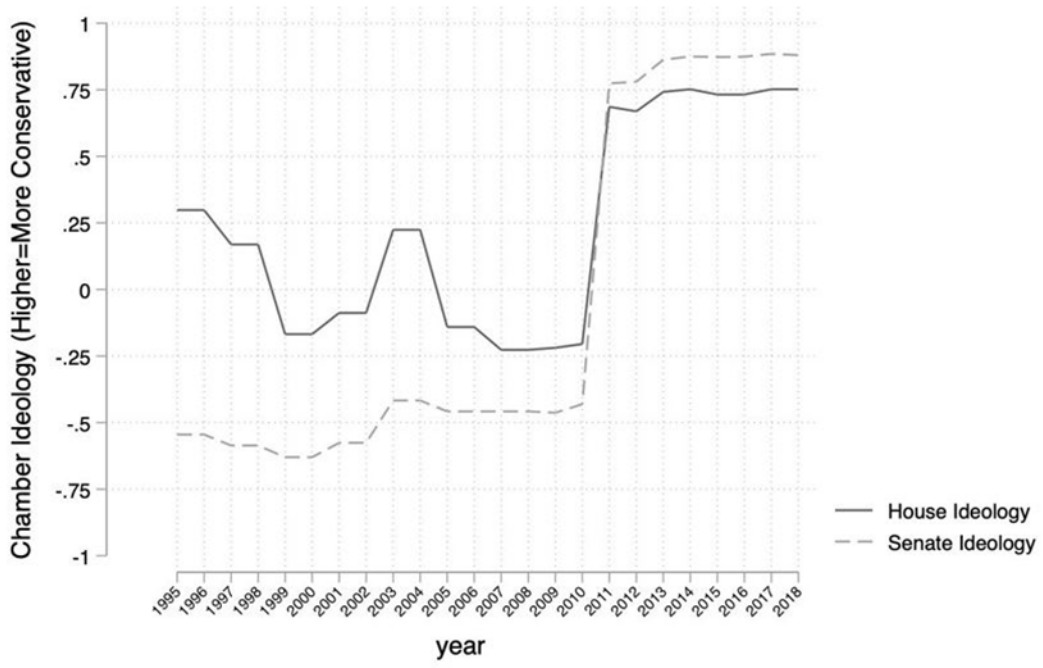
419. Moreover, "the policy behavior and ideology of state legislators and members of Congress in North Carolina are at odds with statewide measures of two-party competition and ideological moderation," Cooper Rep. 12, indicating that the "representational linkage between voters and North Carolina's legislative representatives is weaker than between the voters and various other elected officials." Cooper Rep. 9.

420. Statewide measures of North Carolina public opinion find that North Carolina "falls near the middle of the distribution of state-level political ideology," with two widely-accepted measures ranking North Carolina as the 24th or 25th most liberal state in the county. Cooper Rep. 9. North Carolina's pattern of two-party competition in voter registration is

consistent with these measures of voters' partisan and ideological preferences. Cooper Rep. 8; Figure 4.

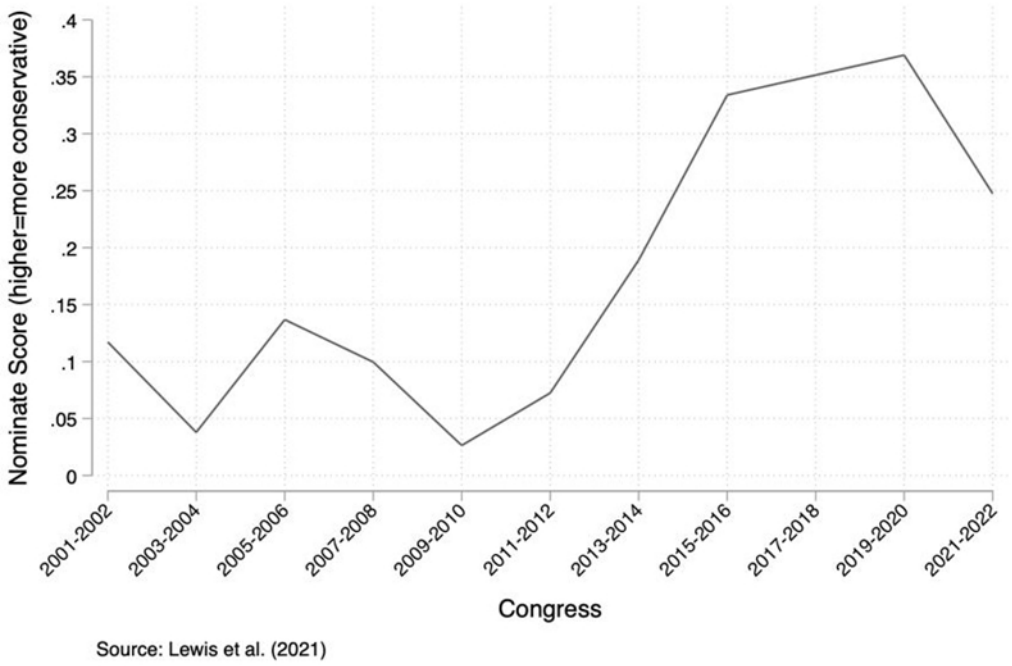
421. Yet estimates of the ideology of North Carolina's congressional delegation and the General Assembly based on legislative voting patterns indicate that these legislative delegations have "moved in an increasingly conservative direction" since 2010. Cooper Rep. 12; Figures 8 and 9.

Figure 8. Chamber Estimates of North Carolina General Assembly Ideology, 1995-2018



Source: American Legislatures Project (Schor and McCarty 2020)

Figure 9. Nominate scores of North Carolina's congressional delegation, 2001-2002 Congress through 2021-2022 Congress



Source: Lewis et al. (2021)

422. The Court finds Dr. Cooper's analysis to be compelling evidence that from 2011 through 2020, the composition of North Carolina's congressional delegation and General Assembly have not reflected the partisan and ideological composition of the State and its citizenry. While elections for statewide offices in North Carolina have been relatively balanced since 2011, Republicans have dominated elections in congress and the General Assembly in this period. And while North Carolina's citizens are, on average, ideologically moderate, North Carolina's congressional delegation and General Assembly have become increasingly conservative from 2011 through 2020 in a way that does not represent the views of voters across the State.

423. Dr. Cooper's analysis is strong evidence that historically, partisan gerrymandering of the congressional district map, as well as of the state House and state Senate maps, has significantly affected policy outcomes in congress and the General Assembly.

424. Dr. Cooper's analysis also provides strong evidence that under gerrymandered maps like the 2021 Plans, North Carolina's congressional and General Assembly legislative delegations will be less responsive to the policy views of *Harper* Plaintiffs and other Democratic voters, and to the views of the North Carolina electorate as a whole.

G. Legislative Defendants' Experts Support Plaintiffs' Claims Or Failed to Rebut Them

1. Dr. Michael Barber

425. Legislative Defendants' expert, Dr. Michael Barber, is an Associate Professor in the Department of Political Science at Brigham Young University.

426. Dr. Barber submitted an opening report analyzing the 2021 House and Senate maps in the context of Plaintiffs' partisan gerrymandering claims. He also submitted a rebuttal report responding to the analyses and opinions of several of *Harper* Plaintiffs' experts—Drs. Mattingly, Pegden, and Cooper—regarding the House and Senate maps.

427. Dr. Barber did not conduct any analysis or offer any opinions regarding the 2021 congressional map.

428. Dr. Barber agreed that, based on his analysis, the enacted House and Senate maps are pro-Republican partisan outliers, and that the enacted Senate map is a partisan outlier that gives Republicans a veto-proof supermajority that they would not have under the majority of his simulations. *See* Barber (Rough) Depo. 29-35. On those points, Dr. Barber's analysis agrees with the analyses and opinions of *Harper* Plaintiffs' experts. On other points, including his opinions regarding North Carolina's political geography and his criticisms of *Harper* Plaintiffs' experts, Dr. Barber's analysis and opinions were unpersuasive and his testimony should be afforded no weight.

a. Simulated Districting Analysis

429. In his opening report, Dr. Barber conducted a simulated districting analysis, in which he used a publicly available computer simulation algorithm to generate tens of thousands of simulated district maps for the House and Senate county groupings that have more than one district. Dr. Barber's model did not include any partisan inputs or partisan considerations. Dr. Barber testified that his simulations reflect a representative sample of non-partisan maps that follow the redistricting criteria he assigned, which included restrictions on county and municipality splits as well as compactness. He then used the simulated maps generated by the algorithm as a comparison set against the enacted House and Senate maps. (Dr. Barber also compared his simulated maps to *NCLCV* Plaintiffs' "optimized maps." *Harper* Plaintiffs are not advancing those maps and accordingly do not address Dr. Barber's analysis or opinions regarding the optimized maps.)

430. At the outset, before his work in this case starting in December 2021, Dr. Barber had never conducted a simulated redistricting analysis. He had never used an algorithm to generate simulated district maps, either in his prior work as an expert in redistricting cases or in his academic work. None of his published academic works involve simulated districting analysis. He has never taught or spoken publicly about simulated districting analysis. His CV makes no mention of any simulated-districting-related work. Dr. Barber agreed that simulated districting analysis has not been a part of his academic or prior expert work.

431. The thrust of Dr. Barber's analysis was to assess whether the enacted House and/or Senate map is a "partisan outlier," meaning an outlier with respect to its partisan lean, in comparison to his non-partisan simulations. As Dr. Barber explained in his testimony, this overall process, while different in its details, is similar to the methodology employed by Drs. Mattingly and Chen. (As explained further below, Dr. Barber testified that his overall process is

also similar to the methodology employed by Dr. Pegden, but this is incorrect, as Dr. Pegden's approach does attempt to create a representative set of non-partisan maps against which to compare the enacted map.)

432. Dr. Barber testified that a simulated districting analysis like the one he performed in this case can help detect gerrymandering. He explained that, while North Carolina's political geography in his view gives Republicans a natural advantage, the type of simulation analysis he conducted overcomes this hurdle because both enacted map and the simulations share the same political geography, allowing an apples-to-apples comparison with respect to partisan lean. In particular, Dr. Barber explained, if the enacted map performs differently than the simulated maps with respect to partisan lean of its districts, that difference cannot be explained by political geography, and instead could be the result of the mapmaker's intentional efforts to draw districts that advantage one party over the other.

433. To measure the partisan lean of districts, Dr. Barber used a "partisan index," which is a composite of 11 statewide elections—5 elections from 2020, 5 from 2016, and one from 2014. In his cluster-by-cluster analysis, Dr. Barber also reported the partisan lean of the enacted map and his simulations under each of those 11 elections individually. Dr. Barber explained that, for several key reasons, it is important to use statewide elections, rather than elections run in districts, to measure the partisan lean of the enacted and simulated maps.

434. Using his partisan index, Dr. Barber counted the number of districts that "lean Democratic," meaning any Democratic performance over 50%, for every cluster with more than one district in both the enacted maps and his simulations. That was the partisan scoring metric Dr. Barber used in his analysis, the number of "Democratic districts" under his partisan index.

435. To determine whether an enacted map is a "partisan outlier," Dr. Barber looked at the "middle-50% range" of outcomes in his simulated maps in terms of number of Democratic seats under his partisan index. Under a distribution of all of the simulations for a given cluster, ordered from fewest Democratic seats to most Democratic seats, the "middle-50% range" refers to all of the simulations between 25th percentile and 75th percentile in the distribution. Dr. Barber reported the results of this analysis in his Table 2 (House) and Table 32 (Senate).

436. Critically, Dr. Barber agreed that the results of his simulation analysis show that the enacted House and Senate maps are both pro-Republican "partisan outliers." *See* Barber (Rough) Depo. 29 ("Q. So just based on the numbers in your Table 2, do you agree that the enacted House map is a partisan outlier, as you use that term consistently throughout your report? A. Yes."); *id.* ("Q. And do you agree that the enacted House map is, in fact, a pro-Republican partisan outlier, as you use that term throughout your report? A. Yes."); *id.* at 32-33 ("Q. So you would agree with me that based on the numbers here in your Table 32, the enacted map a partisan outlier, as you use that term consistently throughout your report, because the number of Democratic seats in the enacted map is outside the middle 50 percent range for your simulations? MR. BRANCH: Objection. You can answer. A. Yes."); *id.* at 33 ("Q. Similar to the House map, the Senate, the enacted Senate map is a pro-Republican partisan outlier, according to your definition, because the 16 Democratic seats in the enacted map is beneath the low end of the middle 50 percent range in your simulations, right? MR. BRANCH: Objection. You can answer. A. That's correct.").

437. In particular, Dr. Barber agreed that, across all of the county clusters he analyzed in the aggregate, both the enacted House map and the enacted Senate map fall outside the "middle-50% range" for his simulations in terms of the number of Democratic seats using his

partisan index. Under Dr. Barber's partisan scoring metric (number of Democratic seats) using his partisan index (the composite of election 11 elections), the enacted House map has 49 Democratic districts, whereas Dr. Barber reported that the "middle-50% range" for his simulations is 50-55 Democratic seats. Under his partisan scoring metric using his partisan index, the enacted Senate map has 20 Democratic districts, and he reported that the entire "middle-50% range" for his simulations is 23 Democratic seats—a 3-seat difference.

438. Dr. Barber further testified that, based on his analysis, the enacted Senate map is not only a "partisan outlier," but a partisan outlier that gives Republicans a veto-proof supermajority in the Senate, even though they would have only a regular majority under the entire "middle-50% range" for his simulations. *See* Barber (Rough) Depo. 34-36 ("Q. So what you've show here is Table 32 is that the enacted Senate map is not only a partisan outlier, as you use that term, it is a partisan outlier that represents the difference between Republicans having a veto-proof supermajority in the Senate versus just having a regular majority, right? MR. BRANCH: Objection. You can answer. A. Yes."). Dr. Barber agreed that "having a veto-proof supermajority in the legislative chamber is significant politically," especially when the Governor is a Democrat. *Id.* at 37; *see also id.* at 37-38 ("Q. Would you agree that it's especially important to have a veto-proof supermajority in the legislative chamber where in a state where the governor belongs to the other party, where the governor is a Democrat, right? A. Yes. Q. And that's what you've shown here, that the enacted map, completely outside the middle 50 percent range for your simulations, produces a pro-Republican partisan outlier that gives Republicans a veto-proof supermajority in a state with a Democratic governor? MR. BRANCH: Objection to form. You can answer. A.Using the numbers that I have produced here, that is correct.").

439. As both Dr. Pegden and Dr. Mattingly demonstrated in their rebuttal reports, Dr. Barber's analysis shows the enacted House and Senate maps to be even more extreme partisan outliers than Dr. Barber initially reported. Using the numerical results that appear on the face of Dr. Barber's report, Dr. Pegden and Dr. Mattingly each calculated the statewide distribution of Democratic seats in Dr. Barber's simulations on a statewide basis. For the House map, Dr. Pegden and Dr. Mattingly found that, based on Dr. Barber's analysis, the enacted map "exhibits more Republican bias than 99.82% of maps composed of Barber's simulations, over the clusters Barber analyzes." Pegden Rebuttal Rep. 4; *see also* Mattingly Rebuttal Rep. 5 ("We find that only 0.177% of all of the plans in his ensemble would elect the same or more Republicans."). The following histogram from Dr. Mattingly's rebuttal report show this result:

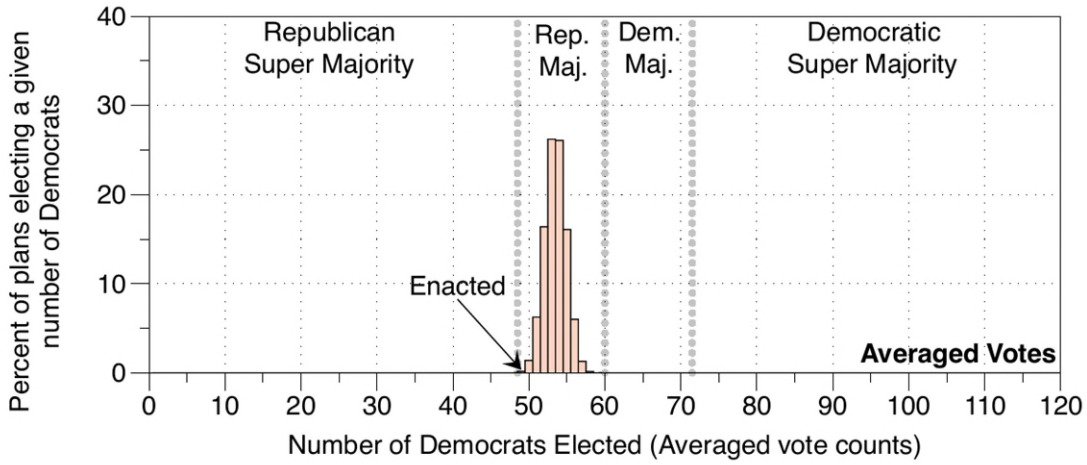


Figure 1: We compare Dr. Barber's statewide ensemble with the enacted plan under the Averaged election results used in his report. We find that only 0.177% of all of the plans in his ensemble would elect the same or more Republicans.

Mattingly Rebuttal Rep. 5; *see* Pegden Rebuttal Rep. 4 (similar Figure 1).

440. For the Senate map, Dr. Pegden and Dr. Mattingly found that, based on Dr. Barber's analysis, the enacted map "exhibits more Republican bias than 99.61% of [Dr. Barber's simulated] maps over the clusters Barber analyzes." Pegden Rebuttal Rep. 5; *see also* Mattingly Rebuttal Rep. 7 ("We find that only 0.00385% of all of the plans in his ensemble would elect the

same or more Republicans than the enacted plan."). The following histogram from Dr. Mattingly's rebuttal report show this result:

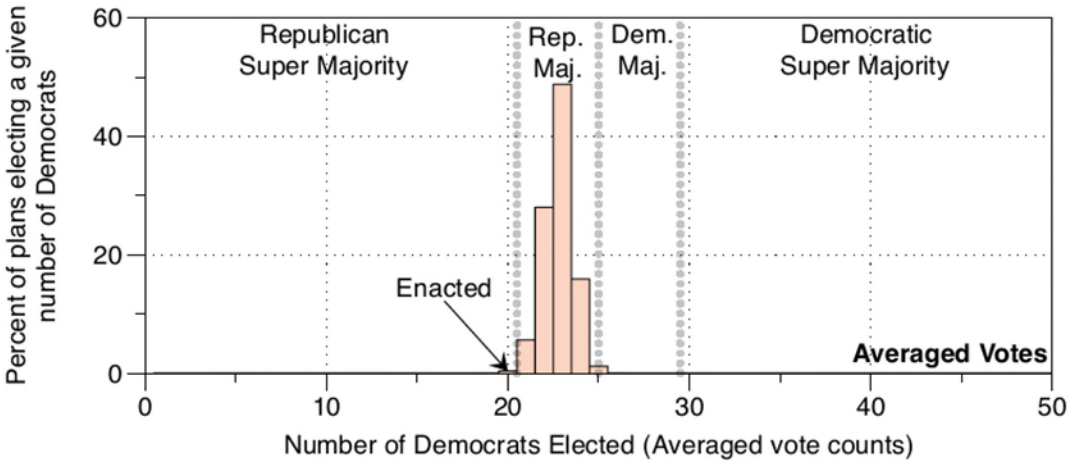


Figure 3: We compare Dr. Barber's statewide ensemble with the enacted plan under the Averaged election results used in his report. We find that only 0.00385% of all of the plans in his ensemble would elect the same or more Republicans than the enacted plan.

Mattingly Rebuttal Rep. 7.

441. Dr. Barber's analysis considered only the total Democratic seat count in the enacted map and his simulations, and not the margins of victory in any of the enacted or simulated districts. As Dr. Pegden explained, this approach reduces the ability to detect gerrymandering. *See* Pegden Rebuttal Rep. 1. Dr. Mattingly's analysis demonstrated that by looking only at total Democratic seats using a single partisan index, Dr. Barber failed to recognize that many of the clusters he analyzed significantly advantage Republicans in comparison to his simulations even in instances where the enacted maps do not necessarily flip a seat using Dr. Barber's partisan index. *See* Mattingly Rebuttal Rep. 10-17.

442. Beyond agreeing that the enacted House and Senate maps are partisan outliers on a statewide basis, Dr. Barber's results show that many of the individual county clusters in each enacted map are also highly anomalous, consistently to the advantage of Republicans. *See supra* FOF § G. These anomalous results—which always favor Republicans, often in the extreme,

across a wide range of election environments—are exceedingly unlikely to have occurred absent intentional efforts by the mapmaker to draw districts that advantage Republicans.

443. Dr. Barber's results also show that Republicans consistently win more districts under the enacted maps than they would under a majority of his simulations, whereas the same is virtually never true for Democrats. Under the enacted House map, Republicans outperform a majority of Dr. Barber's simulations 49 times under the elections and county clusters he analyzes, compared to only one time for Democrats. Under the enacted Senate map, Republicans outperform a majority of Dr. Barber's simulations 18 times under the elections and county clusters he analyzes, whereas Democrats never once outperform a majority of Dr. Barber's simulation. Dr. Barber acknowledged that these discrepancies could result from the mapmaker's intentional efforts to draw districts that advantage Republicans.

444. Dr. Barber's approach to minimizing municipality splits in his simulation analysis was flawed. To begin with, while Dr. Barber instructed the model to avoid splitting municipalities, he did not always use the real North Carolina municipality boundaries, which he found "difficult" to do because "municipalities and VTDs do not always perfectly overlap." Barber Rep. 23. Instead, if only part of a VTD is in a municipality, Dr. Barber assigned the entire VTD to that municipality, even though part of that VTD is not actually in that municipality. And if a VTD overlaps with multiple municipalities, he assigned the VTD to the municipality that contains the most area of the VTD. Under this approach, Dr. Barber explained, if a VTD covers parts of City A and City B, but more area of City A, he assigned entire VTD to City A, which means that he assigned part of City B to City A.

445. Dr. Barber did not calculate the number of municipality splits in his simulated maps. He did not discard any of the simulated maps initially generated by the algorithm based

on the number of municipality splits, as he did with county splits. Dr. Barber also testified that he does not know how his simulated maps compare to the enacted House and Senate maps in terms of the number of municipality splits. Dr. Barber's model, moreover, made no attempt to split the same municipalities and the enacted maps.

b. North Carolina's Political Geography

446. Dr. Barber's analysis and opinions regarding North Carolina's political geography are not credible or persuasive.

447. For starters, Dr. Barber testified at trial in the 2019 *Common Cause v. Lewis* case that he was not an expert in North Carolina's political geography. *See* Barber (Rough) Depo. 9. Dr. Barber testified in this case that his only exposure to North Carolina's political geography is through his work as an expert in litigation. *Id.* at 9-10. Dr. Barber has not done any academic work related to North Carolina's political geography. *Id.* at 10.

448. Furthermore, as described above, to the extent North Carolina's political geography gives Republicans some natural advantage in redistricting as Dr. Barber opined, he explained that the simulation analysis he conducted overcomes this hurdle by assessing whether the enacted maps are partisan outliers in comparison to simulated maps that share the exact same political geography. The same is true of the simulation analyses conducted by *Harper* Plaintiffs' experts. Political geography cannot explain the extreme differences in partisan performance between the enacted maps and a large number of simulated maps generated by the experts.

449. Dr. Barber offered similar opinions regarding North Carolina's political geography in the 2019 *Common Cause* case, where he likewise served as an expert for Legislative Defendants, and the three-judge panel there rejected his opinions. *See Common Cause v. Lewis*, No. 18 CVS 014001, 2019 WL 4569584 (N.C. Super. Ct. Sep. 3, 2019) ("In

light of the above shortcomings in Dr. Barber's analysis, the Court gives little weight to his testimony.").

c. Dr. Barber's Rebuttal Report

450. In his rebuttal report, Dr. Barber asserted that there is occasionally "disagreement" among *Harper* Plaintiffs' experts regarding whether certain challenged House and Senate county clusters are extreme partisan outliers. But in fact, Dr. Barber largely finds agreement among *Harper* Plaintiffs' experts. What's more, Dr. Barber's own simulation analysis frequently aligns with the findings of *Harper* Plaintiffs' experts, showing that the enacted House and Senate maps are anomalous in giving Republicans more seats that they would win under the majority of his simulations across a wide range of election environments.

451. For several clusters, the text of Dr. Barber's report indicates that he was opining about the mapmaker's or General Assembly's intent in drawing certain districts boundaries in a particular way. But Dr. Barber testified that he is offering no such opinions regarding the intent behind any districts in the enacted maps. Instead, Dr. Barber testified, he was simply describing how he thinks the districts appear from looking at the map. Dr. Barber acknowledged that he has no knowledge of why any districts in either of the enacted maps were drawn the way they were. Dr. Barber never communicated with any member of the General Assembly, any legislative staff, or anyone else who was involved in the redistricting process in North Carolina in 2021.

452. For example, with respect to the Buncombe House cluster, Dr. Barber's report states: "The 'C' shape in District HD-116, as noted by Dr. Cooper, is the result of a decision to minimize the division of the city of Asheville." Barber Rep. 21. But Dr. Barber testified that he meant only that "the C shape is a result of the district avoiding the boundaries of the City of Asheville, just by definition, by going around the city, the district has a C shape." Barber (Rough) Depo. 98. He agreed that when his report said that the shape of this district was "the

result of a decision," he did not "really mean a decision by anyone," but rather was "just making a true-ist statement that if you draw around a particular thing there the shape of a C, it will look like a C." *Id.* at 99; *see also id.* ("Q. You are not saying that that was anyone's intention, to minimize the division of the City of Asheville, right? A. No. As I've said, I don't know the intention of the mapmaker.").

453. In general, with respect to any statements in his rebuttal report about why the districts appear the way they do in the enacted maps, Dr. Barber testified that he does not know the intentions of the mapmaker or the General Assembly "in any individual decision that they made." Barber (Rough) Depo. 100.

2. Dr. Andrew Taylor

454. Andrew Taylor, Ph.D., is a professor of political science at North Carolina State University. His testimony in this case fails to offer scientific, technical, or other specialized knowledge that can assist the Court to understand the evidence or to determine a fact in issue.

455. Much of Dr. Taylor's Report purports to offer legal analysis and conclusions. Taylor Rep. 4, 14-19, 23. Dr. Taylor, however, lacks expertise in legal analysis. He has no formal legal training; his work has not been published in a law review or other legal publication; and his academic publications have not addressed redistricting or constitutional interpretation, which are the subjects of his report. Taylor CV.

456. Further, Dr. Taylor failed to explain the methodology of his legal research and analysis. Dr. Taylor cites judicial precedent sparingly and inconsistently, and regularly ignores landmark decisions on the subjects he addresses.

457. For example, Dr. Taylor opines that the court in *Common Cause v. Lewis*, 2019 WL 4569584, at *110, misapplied the historical interpretation of the constitutional clauses at issue because, in his opinion, the drafters of those clauses would not have anticipated their

application to partisan gerrymandering claims. Taylor Rep. 17-19. But Dr. Taylor neglects to provide any support for the view that legal texts should be interpreted according to the drafters' expectations, and he altogether ignores the U.S. Supreme Court's 2020 decision in *Bostock v. Clayton County*, 140 S. Ct. 1731 (2020), rejecting precisely that approach.

458. As another example, Dr. Taylor attempts to distinguish equal protection claims based on partisan vote dilution from equal protection claims based on racial discrimination on the basis that, in Dr. Taylor's view, partisanship "is not innate, immutable, or central to a person's being." Taylor Rep. 16. But Dr. Taylor does not address landmark cases that apply the federal Equal Protection Clause to vote dilution claims, such as *Reynolds v. Sims*, 377 U.S. 533 (1964), where the violation did not turn on any innate or immutable characteristics.

459. Despite repeatedly offering legal argument, Dr. Taylor explicitly disclaims doing so. *E.g.*, Taylor Rep. 15 ("My opinion is not legal"). To the extent Dr. Taylor's analysis of case law and interpretation of constitutional terms is not legally grounded, it provides no utility for the Court's task.

460. For example, Dr. Taylor suggests that partisan gerrymandering does not implicate whether elections are free, as those terms are used in Article I, section 10 of North Carolina's Constitution, because an annual report published by the non-governmental organization Freedom House that evaluates political freedom in countries around the world nests the consideration of gerrymandering under a subheading about fairness. Taylor Rep. 20-21. This argument fails on its own terms: Freedom House considers partisan gerrymandering specifically to determine whether a country is politically free. But more to the point, the scope of North Carolina's constitutional protections does not turn on the structure or vocabulary of an international nonprofit's report. Likewise, the considerations that political scientists attach to concepts such

as “freedom of speech” and “freedom of association” is not helpful where those terms have legal meanings that must be applied in the case at hand. Taylor Rep. 24-25.

461. Because Dr. Taylor lacks the expertise to provide legal argument, his opinions on legal precedent and interpretation are not credible. And because the Court must apply the legal meaning of the constitutional provisions at issue, Dr. Taylor’s efforts to apply meanings from other disciplines is improper.

462. Where Dr. Taylor opines on topics that are properly within the field of political science, his analysis is unhelpful, and his opinions are unpersuasive.

463. For example, Dr. Taylor opines that the legislative redistricting process was transparent and inclusive because the General Assembly published journals containing information about bills, amendments, and votes; certain proceedings were streamed on the General Assembly’s website; the General Assembly permitted public comment and map submissions; and members of the General Assembly had an opportunity to debate and vote on the redistricting plans. Taylor Rep. 10-12. But none of Dr. Taylor’s analysis addresses the problems that public input was ignored and the concepts for the enacted maps were developed in secret and inconsistently with the official redistricting criteria.

464. Dr. Taylor also opines that partisan gerrymandering is an abstract and potentially inconsistent concept because there can be a tradeoff between drawing districts that proportionately reflect the partisan distribution of a state’s voters and drawing districts that are expected to be competitive between the major parties. Taylor Rep. 25-30. But Dr. Taylor completely fails to address the problem that particularly insidious partisan gerrymanders—such as those challenged in this litigation—effectively minimize this tradeoff by drawing as many “mid-range” districts as possible that the advantaged party can expect to win by margins between

3% and 12%. *See* Chen Rep. 29-30. The creation of these districts enables the advantaged party to win a disproportionate share of seats by margins that tend to be safe enough for the incumbents to retain even in unfavorable political environments.

465. Dr. Taylor criticizes three quantitative measures—the "efficiency gap," "mean-median difference," and "lopsided margins" tests—used to identify partisan gerrymanders on the basis that each measure, standing alone, may have certain limitations. Taylor Rep. 30-31. But he fails to discuss the insights these and other measures may provide when used *in combination* with one another. Where each of these measures identifies a likely partisan gerrymander, that evidence is probative. Any contrary opinion by Dr. Taylor is not credible.

466. In response to questions about how to properly identify a partisan gerrymander in states that explicitly proscribe the practice, Dr. Taylor testified that courts should try to deduce the intent of the legislature by examining whether the map was passed on a party-line vote and whether specific district lines were drawn in a way that would advantage individual members; courts should review the results of various tests employed by political scientists, including the efficiency gap, mean-median difference, and lopsided-margins tests; and the court should seek to compare the partisanship of the map as a whole and of individual districts to some "neutral" baseline.

467. Dr. Taylor suggests that the partisan skew of the enacted maps may be due to a "natural gerrymander" that merely reflects geographic clustering of Democrats and Republicans in North Carolina. Taylor Rep. 33-34. But Dr. Taylor did not provide any analysis of whether or how the enacted maps reflects the natural partisan distribution of North Carolina's voters. He did not opine on whether a North Carolina congressional map would naturally split each of the Democratic strongholds of Mecklenburg, Guilford, and Wake counties into three districts. [*See*

Cooper Rep. 15-18. And he did not review whether any possible alternative redistricting maps drawn according to North Carolina's redistricting criteria would commonly result in a similar partisan skew. *See* Chen Rep. 50-64. Accordingly, Dr. Taylor's opinion that the enacted maps could reflect a natural gerrymander is not credible.

468. Dr. Taylor suggests that the partisan performance of enacted districts may be difficult to project because statewide elections can produce different outcomes. Taylor Rep. 35-38. But again, Dr. Taylor failed to apply the high-level observation that different statewide elections have different results to any analysis of the enacted maps at issue. For example, he notes that in 2020 the Democratic candidate for governor in North Carolina won by 4.5 percentage points while the Republican candidate for president won North Carolina by 1.3 percentage points. *Id.* at 35.] Dr. Taylor does not, however, dispute that the enacted maps could be expected to produce outlier results under the partisan distribution from *both* the 2020 gubernatorial election and the 2020 presidential election in North Carolina. *See* Chen Rep. 82, 84. And Dr. Taylor does not cast any doubt on the use of a composite of recent North Carolina election results to model the average partisan distribution of North Carolina voters. Accordingly, Dr. Taylor's opinion that election data cannot be used to review the partisanship of the enacted maps is not credible.

469. Dr. Taylor opines that political parties' competitiveness in North Carolina can be expected to change over time based on decisions by party leaders, which he illustrates by comparing North Carolina's political geography in 1992 and 2020. Taylor Rep. 38-40. But as he notes, much of this evolution "is a function of slow social and economic forces that only reveal themselves over several decades or redistricting cycles." *Id.* at 40. Any suggestion, then,

that Democrats can count on political realignment in the next few months or years to defeat a Republican gerrymander is not credible.

470. Finally, Dr. Taylor recommends that parties disadvantaged by a gerrymander should change their positions to compete in skewed districts, and "[t]hose who want different redistricting outcomes should work through the political process to obtain them." Taylor Rep. 43, 44. This analysis entirely misunderstands why partisan gerrymanders are so pernicious. The remedy for targets of viewpoint discrimination is not for the targets simply to change their viewpoints. And a defining feature of successful gerrymanders is that disadvantaged groups are prevented from affecting change through the political process.

471. Given these significant errors and shortcomings, Dr. Taylor's opinions and conclusions are neither credible nor persuasive.

PROPOSED CONCLUSIONS OF LAW

I. All *Harper* Plaintiffs Have Standing

1. The Court holds that all twenty-five *Harper* Plaintiffs have standing to sue in this case, including to challenge the entire congressional map, the entire House and Senate map, and the specific clusters that Plaintiffs' experts (and Defendants' expert Dr. Barber) have identified as gerrymandered.

2. "[B]ecause North Carolina courts are not constrained by the 'case or controversy' requirement of Article III of the United States Constitution, our State's standing jurisprudence is broader than federal law." *Davis v. New Zion Baptist Church*, 811 S.E.2d 725, 727 (N.C. Ct. App. 2018) (internal quotation marks omitted); *accord Goldston v. State*, 361 N.C. 26, 35, 637 S.E.2d 876, 882 (2006) ("While federal standing doctrine can be instructive as to general principles ... , the nuts and bolts of North Carolina standing doctrine are not coincident with federal standing doctrine."). "At a minimum, a plaintiff in a North Carolina court has standing to

sue when it would have standing to sue in federal court." *Common Cause*, 2019 WL 4569584, at *105.

3. Here, Plaintiffs would have standing to sue even under the stricter federal standard for standing identified in *Gill v. Whitford*, 138 S. Ct. 1916, 1930-31 (2018). *Gill* held that any plaintiff who "lives in a cracked or packed district" has standing to challenge that district and all districts necessary to reshape their district to free it of partisan influence. *Id.* at 1931-32.

4. As to Congressional districts, Plaintiffs experts have proved that every district in the Congressional map is packed and cracked to favor Republicans and disadvantage Democrats. Dr. Mattingly's Figure 9.02 consistently shows that the Democratic vote percentage in the enacted plan (represented by yellow dots) falls way outside the Democratic vote percentage expected in the nonpartisan ensemble of maps (represented by orange boxes). Dr. Chen's Figure 4 shows the same thing: the actual districts (represented by the red stars) fall way to the left (more Democratic) or way to the right (more Republican) in comparison to the gray dots representing the distribution of nonpartisan maps, signaling packing of Democrats into the most Democratic districts and to the safely Republican districts where their votes are wasted, and cracking Democrats out of the middle districts. Because there are Plaintiffs in every congressional district, Plaintiffs have standing to challenge the entire plan even under *Gill*, which explained that the injury created by gerrymandering is vote dilution, i.e., living in a packed or cracked district.

5. Moreover, although not necessary to find standing under federal law, Dr. Chen conducted a district-specific plaintiff-by-plaintiff analysis, based on his nonpartisan computer simulations of North Carolina's congressional districts. Using these simulations, Dr. Chen has

identified the extent to which each Plaintiff here lives in a congressional district that is a partisan outlier relative to the district in which he or she would live under neutral maps. *Id.* at 67-68. Dr. Chen finds that 19 of the Plaintiffs reside in districts that have a more extreme partisan distribution than was observed in at least 95% of the simulated maps where those plaintiffs would otherwise live, either because of packing or cracking. Chep Rep. Figures 17a & 17b. Those Plaintiffs represent districts 2, 6, 7, 8, 9, 10, 11, 13, and 14. Redrawing those districts requires redrawing the entire map because the boundaries are interlocking. *See also Erfer v. Commonwealth*, 794 A.2d 325, 330 (Pa. 2002), *abrogated on other grounds by League of Women Voters v. Commonwealth*, 178 A.3d 737 (Pa. 2018) (holding that individual voters have standing to challenge entire congressional plan, because a congressional plan "acts as an interlocking jigsaw puzzle, each piece reliant upon its neighbors to establish a picture of the whole").

6. *Harper* Plaintiffs also reside in every legislative cluster that *Harper* Plaintiffs are challenging and that their experts have concluded are gerrymandered in this case, including specifically in districts within those clusters that are packed or cracked. In the House, that includes plaintiffs in districts 101, 102, and 103 in Mecklenburg, which Dr. Mattingly finds to be cracked and packed, Figure 6.1.1; districts 21 and 40 in Wake, which Dr. Mattingly finds to be packed, Figure 6.1.4; district 72 in Forsyth-Stokes, which Dr. Mattingly finds to be packed, Figure 6.1.7; districts, 58, 59, 60, and 62 in Guilford, which Dr. Mattingly finds to be cracked and packed, Figure 6.1.10; district 115 in Buncombe, part of a cluster Dr. Mattingly finds to be cracked and packed, Figure 6.1.13; districts 8 and 9 in Pitt, which Dr. Mattingly finds to be packed and cracked, Figure 6.1.16; district 2 in Durham-Person, which Dr. Mattingly finds to be cracked, Figure 6.1.22; district 43 in Cumberland, which Dr. Mattingly finds to be cracked,

Figure 6.1.28; district 76 in Cabarrus-Davie-Rowan-Yadkin, which Dr. Mattingly finds to be packed, Figure 6.1.31; and district 18 in Brunswick-New Hanover, which Dr. Mattingly finds to be packed, Figure 6.1.34. In the Senate, that includes plaintiffs in districts 38, 40, and 41 in Iredell-Mecklenburg, which Dr. Mattingly finds to be packed and cracked, Figure 6.2.1; districts 17 ad 18 in Granville-wake, which Dr. Mattingly finds to be packed and cracked, Figure 6.2.4[6]; district 32 in Forsyth-Stokes, which Dr. Mattingly finds to be packed, Figure 6.2.7; district 19 in Cumberland-Moore, which Dr. Mattingly finds to be packed, Figure 6.2.10; district 28 in Guilford-Rockingham, which Dr. Mattingly finds to be packed, Figure 6.2.13; and in Woodland, in Northhampton County, in Bertie-Camden-Currituck-Dare-Gates-Hertford-Northampton-Pasquotank-Perquimans-Tyrrel cluster in the Northeast, which is a Republican district even though the alternative clustering choice containing Northhampton County would elect a Democrat, Mattingly Table 3.

7. This Court agrees with the *Common Cause* court that any plaintiff with standing to challenge his or her particular district also has standing to challenge the entire grouping, "because the manner in which one district is drawn in a county grouping necessarily is tied to the drawing of some, and possibly all, of the other districts within that grouping." *Common Cause*, 2019 WL 4569584, at *108.

8. Although plaintiffs would have standing to challenge the congressional map and all the gerrymandered county clusters even under the federal law standard articulated in *Gill*, in fact standing law in North Carolina is broader than standing under federal law. "The North

[6] As noted *supra*, page 57 of Dr. Mattingly's report concerning Granville-Wake contains a typo that he identified at his deposition: he states that Districts 17 and 18 are cracked, when he meant (and the Figure shows) that districts 17 and *13* are packed. He correctly states that "districts 14, 15, 16, and 18" are in fact packed.

Carolina Supreme Court has broadly interpreted Article I, § 18 to mean that '[a]s a general matter, the North Carolina Constitution confers standing on those who suffer harm.'" *Id.* at *106 (quoting *Mangum v. Raleigh Bd. of Adjustment*, 362 N.C. 640, 642, 669 S.E.2d 279, 281 (2008)). The "gist" of standing under North Carolina law involves "whether the party seeking relief has alleged such a personal stake in the outcome of the controversy as to assure that concrete adverseness which sharpens the presentation of issues upon which the court so largely depends for illumination of difficult constitutional questions." *Goldston*, 361 N.C. at 30, 637 S.E.2d at 879 (quotation marks omitted). Although the North Carolina Supreme Court "has declined to set out specific criteria necessary to show standing in every case, the Supreme Court has emphasized two factors in its cases examining standing: (1) the presence of a legally cognizable injury; and (2) a means by which the courts can remedy that injury." *Davis*, 811 S.E.2d at727-28. Moreover, to obtain a preliminary injunction, a plaintiff need only show "a likelihood that plaintiff has standing." *Action NC v. Strach*, 216 F. Supp. 3d 597, 630 (M.D.N.C. 2016) (internal quotation marks omitted).

9. Here, the individual plaintiffs--all of whom attest in their affidavits that they would prefer Democrat control in the state House and state Senate--each have standing under North Carolina law to challenge the entire House and Senate maps regardless of where in the state they live. The harm created by the overall gerrymander in the State House and State Senate maps, which is the result of a series of choices to gerrymander particular clusters, includes the fact that those plans create what Dr. Mattingly called "firewalls" preventing Democrats from breaking the Republican majority or supermajority even in electoral environments when they would do so in the overwhelming majority of nonpartisan maps. Because of the significance of legislative control to the laws and policies in this State, every

North Carolinian has a personal stake sufficient under North Carolina law to challenge a map on the ground that it creates a gerrymander guaranteeing one-party control of the legislature.

10. Therefore, all twenty-five Plaintiffs have standing to challenge both 2021 state legislative plans, and plaintiffs also have standing to challenge the congressional plan because they reside in each district in that plan.

II. The 2021 Plans Violate the North Carolina Constitution's Free Elections Clause

11. The Free Elections Clause of the North Carolina Constitution declares that "[a]ll elections shall be free." N.C. Const., art. I, § 10. The Free Elections Clause, which has no parallel in the U.S. Constitution, reflects that "[o]ur government is founded on the will of the people. Their will is expressed by the ballot." *People ex rel. Van Bokkelen v. Canaday*, 73 N.C. 198, 220 (1875). It traces back to a similar provision of the 1689 English Bill of Rights, which sought to prevent the King from manipulating the electorate to achieve "electoral advantage" in parliamentary elections. J.R. Jones, The Revolution of 1688 in England 148 (1972). But North Carolina's version is stronger than its historical analogue. After initially providing that elections "ought to be free," the state in 1968 amended the Clause to direct that all elections "*shall*" be free, "mak[ing] clear" that the right to free elections, like the other rights secured to the people by the Declaration of Rights, "are commands and not mere admonitions." *N.C. State Bar v. DuMont*, 304 N.C. 627, 635, 639, 286 S.E.2d 89, 97 (1982) (internal quotations omitted).

12. North Carolina courts have thus interpreted the Free Elections Clause to require "that elections must be conducted freely and honestly to ascertain, fairly and truthfully, the will of the people." *Common Cause*, 2019 WL 4569584, at *110. And in interpreting the state constitution, the North Carolina Supreme Court has directed that courts "should keep in mind that this is a government of the people, in which the will of the people—the majority—legally

expressed, must govern." *State ex rel. Quinn v. Lattimore*, 120 N.C. 426, 428, 26 S.E. 638, 638 (1897).

13. "[P]artisan gerrymandering … strikes at the heart of" these principles. *Common Cause*, 2019 WL 4569584, at *112. Extreme partisan gerrymanders—i.e., "redistricting plans that entrench politicians in power, that evince a fundamental distrust of voters by serving the self-interest of political parties over the public good, and that dilute and devalue votes of some citizens compared to others"—are "contrary to the fundamental right of North Carolina citizens to have elections conducted freely and honestly to ascertain, fairly and truthfully, the will of the people." *Harper I*, slip op. at 7. The *Harper I* court applied these principles to hold that Plaintiffs were likely to succeed on the merits of their claim that the 2016 Plan—which was designed to ensure 10 safe Republican seats and 3 safe Democratic seats—was an extreme partisan gerrymander that prevented congressional elections from reflecting the popular will. *Id.* at 7, 12-13.

14. The *Common Cause* court held the same as to the 2017 House and Senate Plans, which it held to "individually and collectively[] deprive North Carolina citizens of the right to vote for General Assembly members in elections that are conducted freely and honestly to ascertain, fairly and truthfully, the will of the people." 2019 WL 4569584, at 112. The court explained that, "[u]sing their control of the General Assembly, Legislative Defendants manipulated district boundaries, to the greatest extent possible, to control the outcomes of individual races so as to best ensure their continued control of the legislature. *Id.* at 112. It found that "Plaintiffs' experts [had] demonstrated that the 2017 Plans were designed, specifically and systematically, to maintain Republican majorities in the state House and Senate," and "to predetermine election outcomes in specific districts and county groupings." *Id.*

15. The 2021 Plans, too, violate the Free Elections Clause. North Carolina is one of the most closely divided states in the country. Yet the 2021 Plans guarantee lopsided Republican majorities in North Carolina's congressional delegation, and in the state House and Senate, no matter how the people vote.

16. The Congressional Plan is expected to produce 3 Democratic wins, 10 Republican wins, and 1 competitive seat. FOF § C; *see also* Princeton Gerrymandering Project, North Carolina 2021 CST-13 Final Congressional Map (similar, and giving the 2021 Plan an overall grade of "F" for Partisan Fairness).[7] The margin in this new congressional plan is virtually identical to the 2016 Plan that was preliminarily enjoined in *Harper I*, which was designed to produce 3 Democratic seats and 10 Republican seats. *Harper I*, slip op. at 12-13. And critically, as Dr. Chen and Dr. Mattingly concluded, the 2021 Plan is designed to guarantee a Republican majority even if there are major shifts in the political wind. FOF §§ C.1.1-2. Entrenchment of that magnitude violates "the fundamental right of North Carolina citizens to have elections conducted freely and honestly to ascertain, fairly and truthfully, the will of the people." *Harper I*, slip op. at 7.

17. This partisan entrenchment is similar in the House and Senate plans. As Dr. Mattingly concluded, the enacted legislative plans were designed not just to maximize overall Republican seat counts, but specifically to protect Republican majorities and supermajorities even in electoral environments that highly favor Democrats. FOF § D.1.a.

18. This extreme partisan advantage is the result of deliberate packing and cracking of Democratic voters throughout the state. The congressional plan, for example, dilutes Democratic voting power principally by splitting each of the three largest counties in North Carolina—which

[7] *Available at* https://gerrymander.princeton.edu/reforms/NC.

are also the three most heavily Democratic areas in the state—across three districts, despite the fact that there is no population-based reason to split them this many times. PX425 at 3 (Cooper Report); *see* FOF § C.1. The extreme packing and cracking in the 2021 Plans is not limited to these three Democratic strongholds, or to the Congressional Plan. FOF §§ C, D. Rather, as discussed, the lines of *every district* in the Congressional Plan, and a host of clusters in the House and Senate Plans, are carefully manipulated to ensure that Republican voters are efficiently distributed throughout the state while Democratic voters are distributed in a manner that largely wastes their votes. FOF §§ C.4, D.2.

19. The same holds true for the Senate and House. FOF §§ D.1.c, D.2. In fact, for the enacted House plan there is *direct* evidentiary support for the mapmakers' use of partisan data. FOF § B.2. As explained, Representative Hall testified that in drawing the enacted House map he relied on "concept maps" drawn by his staff outside the public map-making chamber for, at minimum, several key county clusters in the enacted House map. These concept maps have since been destroyed, and Legislative Defendants refused to produce any other related files that might shed light on what these concept maps contained or what data went into their creation. As explained above, applying the North Carolina doctrine of spoliation, the Court has drawn an inference that the content of the destroyed files would be inculpatory—and in particular that they would reflect reliance on partisan data in the creation of the concept maps, which then served as the bases for several key House county clusters. And particularly given the evidence of close collaboration between the House and Senate redistricting chairs in establishing the redistricting process and criteria and drawing the three Plans, Representative Hall's reliance on draft maps that incorporated partisan data for the House also supports a finding that the congressional and state Senate plans were drawn with partisan intent.

20. Like in *Harper I*, Legislative Defendants enabled this outcome by engineering a redistricting process at the committee level to guarantee that the General Assembly would enact a partisan gerrymander. The *Harper I* court observed that Legislative Defendants adopted criteria requiring map-drawers to "use . . . political data to draw a map that would maintain the existing partisan makeup of the state's congressional delegation" of "10 Republicans and 3 Democrats." *Harper I*, slip op. at 13. And it found persuasive that "the redistricting committee, and ultimately the General Assembly as a whole, approved the 2016 congressional districts by party-line vote." *Id.*

21. Legislative Defendants knew this time that they could not adopt redistricting criteria explicitly stating, for example, that "[t]he partisan makeup of the congressional delegation under the enacted plan is 10 Republicans and 3 Democrats," *id.* (quoting *Rucho*, 318 F. Supp. 3d at 805), and could not openly load partisan data into public terminals. *See also id.* at 13 (Chair of the House Redistricting Committee admitting that he "propose[d] that [the Committee] draw the maps to give a partisan advantage to 10 Republicans and 3 Democrats because [he] d[id] not believe it [would be] possible to draw a map with 11 Republicans and 2 Democrats."). So they devised a workaround. *See Griffin v. Cty. Sch. Bd. of Prince Edward Cty.*, 377 U.S. 218, 223 (1964). Although political data was not loaded onto the computer terminals at which legislators drew and submitted maps, Legislative Defendants allowed legislators to sit down at those terminals and simply copy maps drawn by outside political consultants using prohibited political data. *See* FOF § B.1.

22. In addition to rendering the criterion against the use of political data meaningless, Legislative Defendants also enacted new criteria designed to facilitate a partisan gerrymander. While the adopted criteria for the 2016 Plan prevented lawmakers from "divid[ing] a county into

more than two districts," 2016 Adopted Criteria at 2, Legislative Defendants removed this requirement for 2021. *See* PX Taking advantage of this newfound freedom, Legislative Defendants in the congressional plan proceeded to trisect three heavily Democratic counties (Mecklenburg, Wake, and Guilford), profoundly diluting the voting power of these counties' Democratic residents. Cooper Rep. at 3. No other county is split three times under the 2021 congressional Plan. Chen Rep. at 11. And just like the plans enjoined in *Harper I* and *Common Cause*, the gerrymandered nature of the 2021 congressional, House, and Senate plans is reflected in the fact that they were approved on strict party-line votes.

23. The conclusion that the mapmakers acted with partisan intent is reinforced by the expert analyses of Plaintiffs' three quantitative experts: Dr. Jowei Chen, Dr. Jonathan Mattingly, and Dr. Wes Pegden. Each of these experts, using their own statistical analyses, independently established that the enacted congressional plan is an extreme outlier in terms of the advantage it gives Republicans statewide and in each district. FOF §§ C.1-3.

24. The 2021 House and Senate Plans also unlawfully predetermine election outcomes across districts and county groupings.[8] Drs. Chen and Mattingly each found numerous districts that result in safe or relatively safe Republican seats under the enacted congressional Plan but would be far more competitive or even Democratic-leaning under a nonpartisan plan. FOF § C.1-2. In the House and Senate, Dr. Mattingly made similar findings as to numerous

[8] The Court rejects Legislative Defendants' contention that *Harper* plaintiffs may only challenge clusters discussed specifically in the Amended Complaint. North Carolina requires only notice pleading, and *Harper* Plaintiffs' Amended Complaint here plainly satisfies that standard as to the entire House and Senate maps, which it alleged were extreme partisan gerrymanders. The Amended Complaint makes clear that the specific county groupings Plaintiffs identified were mere "examples" of extreme partisan gerrymandering across the 2021 House and Senate Plans. Am. Compl. ¶ 148. In any event, the overwhelming majority of these clusters were discussed in the Amended Complaint.

districts and county groupings that in nonpartisan plans would be significantly more competitive and responsive to election results. FOF § D.2.a(i) (Buncombe), (ii) (Mecklenburg), (iii) (Wake), (iv) Forsyth-Stokes, (v) (Guilford), (vi) (Durham-Person), (vii) (Brunswick-New Hanover), (viii) (Pitt), (ix) (Cumberland), (x) Cabarrus-Davie-Rowan-Yadkin); FOF § D.2.b(i) (Granville-Wake), (ii) (Guilford-Rockingham), (iii) (Iredell-Mecklenburg), (iv) (Cumberland-Moore), (v) (Forsyth-Stokes), (vi) (Northeastern County Clusters). Likewise, even using his conservative methodology that tethers comparison maps to the enacted map's version of particular county clusters, Dr. Pegden concluded that many specific county groupings in the House and Senate are extreme partisan outliers, with the enacted lines explicable only by predominant partisan intent. FOF § D.2.a(i) (Buncombe), (ii) (Mecklenburg), (iii) (Wake) (iv) (Forsyth-Stokes), (v) (Guilford), (viii) (Pitt), (vi) (Durham-Person); FOF § D.2.b (Cumberland-Moore) (i) (Granville-Wake), (ii) (Guilford-Rockingham), (iii) (Iredell-Mecklenburg), (v) (Cumberland Moore), (vi) (Forsyth-Stokes).

25. The harm caused by this manipulation of election outcomes subverts another key purpose of the Free Elections Clause, which, in conjunction with Article I, § 9, is to facilitate the ability of North Carolina citizens to seek a "redress of grievances and for amending and strengthening the law." Orth & Newby, *supra*, at 56. Democratic voters in North Carolina cannot meaningfully seek to redress their grievances or amend the laws consistent with their policy preferences when they cannot obtain a majority of the General Assembly

26. The redistricting process and the plans that resulted make clear that the 2021 Plans are extreme partisan gerrymanders. Similar to the 2016 Plan that was enjoined in *Harper I*, the 2021 Congressional plan is designed to produce 10 to 11 Republican seats no matter how the people vote. The House and Senate plans are likewise designed to assure durable Republican

majorities, and even supermajorities, across realistic election landscapes. These sorts of gerrymanders "entrench politicians in power" and ensures that congressional elections will not "be conducted freely and honestly to ascertain, fairly and truthfully, the will of the people." *Harper I*, slip op. at 7. And as such Plaintiffs have established that the 2021 Plans violate the Free Elections Clause.

III. The 2021 Plans Violate the North Carolina Constitution's Equal Protection Clause

27. The North Carolina Constitution's Equal Protection Clause declares that "[n]o person shall be denied the equal protection of the laws." N.C. Const., art. I, § 19. This clause provides greater protection for voting rights than its federal counterpart. *Harper I*, slip op. at 7. Specifically, North Carolina's Equal Protection Clause protects "the fundamental right of each North Carolinian to *substantially equal voting power*." *Id.* (citing *Stephenson v. Bartlett*, 355 N.C. 354, 3379, 562 S.E.2d 377, 394 (2002) (emphasis in original)). "It is well settled in this State that 'the right to vote on equal terms is a fundamental right.'" *Common Cause*, 2019 WL 4569584, at *113 (citing *Stephenson*, 355 N.C. at 378, 562 S.E.2d at 393 (quoting *Northampton Cnty.*, 326 N.C. at 747, 392 S.E.2d at 356)). "These principles apply with full force in the redistricting context." *Id.* As *Harper I* explained, "partisan gerrymandering runs afoul of the State's obligation to provide all persons with equal protection of law because, by seeking to diminish the electoral power of supporters of a disfavored party, a partisan gerrymander treats individuals who support candidates of one political party less favorably than individuals who support candidates of another party." *Harper I*, slip op. at 8. In *Common Cause*, the court held that extreme partisan gerrymandering infringes upon a "fundamental right," because "the classification of voters based on partisanship in order to pack and crack them into districts is an impermissible distinction among similarly situated citizens aimed at denying equal voting power." *Common Cause*, 2019 WL 4569584, at *113 (internal quotation marks omitted).

28. In evaluating whether an alleged partisan gerrymander violates North Carolina's Equal Protection Clause, this Court applies a three-part test. *Harper I*, slip op. at 8. First, plaintiffs challenging a districting plan must prove that state officials' predominant purpose in drawing district lines was to entrench their party in power by diluting the votes of citizens favoring their rival. *Id.* (citing *Ariz. State Legis. v. Ariz. Indep. Redistricting Comm'n*, 135 S. Ct. 2652, 2658 (2015)). Second, plaintiffs must establish that the lines drawn in fact have the intended effect by "substantially" diluting their votes. *Id.* (citing *Common Cause v. Rucho*, 318 F. Supp. 3d 777, 861 (M.D.N.C. 2018)). Finally, if the plaintiffs make those showings, "the State must provide a legitimate, non-partisan justification (*i.e.*, that the impermissible intent did not cause the effect) to preserve its map." *Id.* (citing *Rucho v. Common Cause*, 139 S. Ct. 2484, 2516 (2019) (Kagan, J., dissenting)). The 2021 Plan fails at every step.

29. *First*, as discussed above, the General Assembly intentionally entrenched Republicans in power through the 2021 Plans. To determine whether discriminatory intent is at play, "a court must undertake a sensitive inquiry into such circumstantial and direct evidence of intent as may be available." *Holmes v. Moore*, 270 N.C. App. 7, 16–17, 840 S.E.2d 244, 254–55 (2020) (citing *Arlington Heights v. Metropolitan Housing Corp.*, 429 U.S. 252, 266 (1977)). Discriminatory purpose need not be "the sole or even a primary motive," but rather just "a motivating factor." *Id.* (internal quotation marks and citation omitted). And discriminatory purpose can be inferred from the totality of the relevant facts. *Id.* In determining intent in other contexts, North Carolina courts have looked to the *Arlington Heights* factors. *Id.* These include: "[t]he historical background of the [challenged] decision"; "[t]he specific sequence of events leading up to the challenged decision"; "[d]epartures from normal procedural sequence"; the

legislative history of the decision; and of course, the disproportionate "impact of the official action." *Id.* (citing *Arlington Heights*, 429 U.S. at 266-67).

30. As to the historical background of redistricting in North Carolina, there can be no dispute that the General Assembly has repeatedly and intentionally discriminated against both Black North Carolinians and Democratic voters in redistricting. Additionally, the process of enacting the 2021 Plans is replete with evidence demonstrating intentional discrimination. In violation of its own guidelines, and *Harper I*'s clear instruction that legislators should not "seek[] to diminish the electoral power of supporters of a disfavored party," *Harper I*, slip op. at 8, the Committees' process flagrantly allowed map drawers to consider partisan data and draw a plan that favors Republicans. As discussed, there is evidence that. Not only did legislators turn a blind eye towards map drawers submitting maps that had been drawn using partisan data, FOF § B.1, but in fact there is direct evidence that, in at least the enacted House plan, mapdrawers relied on maps drawn outside the public map-making room, using unknown computers and unknown software, and in open violation of purported restrictions the House committee had placed on its own map-drawing process, FOF § B.2. Moreover, the Committee constructed its guidelines to enable the packing and cracking of voters in all the State's largest and most Democratic counties and went on to do just this, trifurcating Mecklenburg, Wake, and Guilford Counties. *See* 2021 Adopted Criteria (eliminating the criterion from the 2016 Adopted Criteria that "reasonable efforts shall be made not to divide a county into more than two districts"); 2016 Adopted Criteria. And Legislators excluded Democratic communities from public hearings and ignored the limited input they allowed these communities to offer. FOF § B.3. Finally, like its predecessor, the plan passed through committees and the full General Assembly on strict party-line votes. FOF § B.4; *see Harper I*, slip op. at 13.

31. Expert evidence also confirms that the 2021 Plans were intended to entrench the Republican party in power, both statewide and in particular districts and county clusters. FOF §§ C, D. Dr. Pegden, for example, concluded that the Congressional Plan is more favorable to Republicans, and more carefully crafted to ensure Republican advantage, than 99.9999% of plans generated by making small changes to district boundaries. FOF § C.3. For the House and Senate Plans, that was true 99.9999% of the time; for the Senate plan, 99.9%. FOF § D.1.b. Dr. Mattingly made similar conclusions as to the extreme outlier status of the three enacted maps, FOF §§ C.2, D.1.a, and Dr. Chen found the same for the congressional plan, FOF § C.1. As these experts explained, the likelihood of that happening by chance, as opposed to by intent, is infinitesimal.

32. *Second*, the 2021 Plan has had its "intended effect" of diluting the votes of Plaintiffs and other Democratic voters, depriving them of substantially equal voting power and the right to vote on equal terms. As detailed above, Plaintiffs' experts analyses confirm that Legislative Defendants succeeded in their goal of creating 10-11 Republican seats for North Carolina's congressional delegation, and protecting Republican majorities and even super majorities in the House and Senate. FOF §§ C, D. The 2021 Plan achieves this result by "packing and cracking Democratic voters" across the maps' districts, just like the 2016 Plan enjoined in *Harper I* and the 2017 state legislative plans struck down under the Equal Protection Clause in *Common Cause*. *Harper I*, slip op. at 18; *Common Cause*, 2019 WL 4569584, at *116. As under those plans, the margins of victory under the 2021 Plans—and not just the seat counts—confirm the vote dilution. "This packing and cracking diminishes the 'voting power' of Democratic voters" across all districts, both for those whose votes are wasted and those whose votes have no meaningful chance. *Common Cause*, 2019 WL 4569584, at *116. Thus,

Democratic voters in the three packed districts "are substantially less likely to ultimately matter in deciding the election results" when compared to Republican voters in the remaining districts. *Id.*

33. The 2021 Plan "not only deprive[s] Democratic voters of equal voting power in terms of electoral outcomes, but also deprive[s] them of substantially equal representation." *Id.* at *116. "When a district is created solely to effectuate the interests of one group"—as the process and the experts' analyses make clear—"the elected official from that district is more likely to believe that their primary obligation is to represent only the members of that group, rather than their constituency as a whole." *Common Cause*, 2019 WL 4569584, at *116 (internal quotation marks omitted).

34. *Finally*, there is no legitimate, nonpartisan justification for the 2021 Plans' extreme partisan bias. Legislative Defendants cannot conceivably show that the 2021 Plans are narrowly tailored to achieve a compelling government interest. Indeed, Legislative Defendants designed the 2021 Adopted Criteria to allow them to crack the State's three Democratic strongholds for partisan gain in the congressional plan, and for all three plans failed to follow other of their own criteria for partisan ends.

35. In short, in drawing the 2021 Plans, Legislative Defendants engaged in the "intentional 'classification of voters' based on partisanship in order to pack and crack them into districts" and to "deprive [them] of the right to vote on equal terms." *Common Cause*, 2019 WL 4569584, at *117. Plaintiffs have established that the 2021 Plans violate the Equal Protection Clause.

IV. The 2021 Plans Violate the North Carolina Constitution's Freedom of Speech and Freedom of Assembly Clauses

36. The 2021 Plans burden protected expression and association by making Democratic votes less effective and by preventing Democratic voters from associating with one other to elect and instruct representatives. Because Legislative Defendants cannot establish that the 2021 Plans were narrowly tailored to achieve a compelling government interest, they fail strict scrutiny.

37. The 2021 Plans unconstitutionally discriminate against protected expression and association.

38. The North Carolina Constitution's Freedom of Speech Clause provides that "[f]reedom of speech and of the press are two of the great bulwarks of liberty and therefore shall never be restrained." N.C. Const., art. I, § 14. The Freedom of Assembly Clause provides in relevant part that "[t]he people have a right to assemble together for their common good, to instruct their representatives, and to apply to the General Assembly for redress of grievances." *Id.* § 12. These clauses provide greater protection for speech and association than their federal counterparts. *Common Cause*, 2019 WL 4569584, at *118-19.

39. *Common Cause* held that "[v]oting for the candidate of one's choice and associating with the political party of one's choice are core means of political expression protected by" these clauses. *Id*. "Voting provides citizens a direct means of expressing support for a candidate and his views," and "is no less protected 'merely because it involved the act' of casting a ballot." *Id.* at *119 (quoting *State v. Bishop*, 368 N.C. 869, 874, 787 S.E.2d 814, 818 (2016)). Similarly, "[c]itizens form parties to express their political beliefs and to assist others in casting votes in alignment with those beliefs." *Id.* at *120 (quoting *Libertarian Party of N.C. v. State*, 365 N.C. 41, 49, 707 S.E.2d 199, 204-05 (2011)). "[B]anding together with likeminded

citizens in a political party" thus "is a form of protected association." *Id.* As the *Harper I* Court recognized, those holdings apply in the context of congressional elections just as they did in the context of state legislative elections in *Common Cause*. *See Harper I*, slip op. at 10-11.

40. A districting plan is subject to strict scrutiny where it burdens protected expression based on viewpoint by discriminatorily making the votes cast for one party's candidates less effective. "The guarantee of free expression 'stands against attempts to disfavor certain subjects or viewpoints.'" *Id.* at 9 (quoting *Citizens United v. FEC*, 558 U.S. 310, 340 (2010)). Notably, a plan "need not explicitly mention any particular viewpoint to be impermissibly discriminatory." *Common Cause*, 2019 WL 4569584, at *121. And "[v]iewpoint discrimination is *most* insidious where the targeted speech is political." *Harper I*, slip op. at 9. "When a legislature engages in extreme partisan gerrymandering, it identifies certain preferred speakers (e.g. Republican voters) while targeting certain disfavored speakers (e.g. Democratic voters) because of disagreement with the views they express when they vote." *Id.* at 10.

41. The 2021 Plans replicate features that led the *Common Cause* Court to conclude that the 2017 state legislative plans violated the Freedom of Speech Clause. Here too, the Legislative Defendants "singled out [Democratic voters] for disfavored treatment by packing and cracking them into districts with the aim of diluting their votes and, in the case of cracked districts, ensuring that these voters are significantly less likely, in comparison to Republican voters, to be able to elect a candidate who shares their views." *Common Cause*, 2019 WL 4569584, at *120.

42. As in *Common Cause*, it "changes nothing" that "Democratic voters can still cast ballots under gerrymandered maps." *Id.* at 121. "The government unconstitutionally burdens speech where it renders disfavored speech *less effective*, even if it does not ban such speech

outright." *Id.* Like the invalidated 2017 state legislative plans, the 2021 Plan's "sorting of Plaintiffs and other Democratic voters based on disfavor for their political views has burdened their speech by making their votes less effective." *Id.* "Plaintiffs and other Democratic voters live in districts where their votes are guaranteed to be less effective—either because the districts are packed such that Democratic candidates will win by astronomical margins or because the Democratic voters are cracked into seats that are safely Republican." *Id.*

43. The 2021 Plans independently violate Article I, § 12 by burdening the ability of Democratic voters to associate effectively. As *Harper I* explained, "a legislature that engages in extreme partisan gerrymandering burdens the associational rights of disfavored voters." *Harper I*, slip op. at 10. The *Common Cause* court held that a districting plan is subject to strict scrutiny where it burdens disfavored association by restricting "the ability of like-minded people across the State to affiliate in a political party and carry out [their] activities and objects." *Common Cause*, 2019 WL 4569584, at *122 (internal quotation marks omitted); *see also Harper I*, slip op. at 8-11. The *Common Cause* court concluded that under the 2017 state legislative plans, "Democratic voters who live in cracked districts have little to no ability to instruct their representatives or obtain redress from their representatives on issues important to those voters." *Id.* The same is true under the 2021 Plans. The Democratic voters in each of the plans' many cracked districts have virtually no chance of successfully banding together to elect candidates of their choice, and their Republican representatives have little incentive to consider the views of Democratic constituents.

44. c. The 2021 Plans fail strict scrutiny—and indeed any scrutiny. "Discriminating against citizens based on their political beliefs does not serve any legitimate government interest." *Common Cause*, 2019 WL 4569584, at *123. "Blatant examples of

partisanship driving districting decisions are unrelated to any legitimate legislative objective." *Id.* at *115 (internal quotation marks omitted). "[P]artisan gerrymanders are incompatible with democratic principles" and are "contrary to the compelling governmental interests established by the North Carolina Constitution 'in having fair, honest elections,' where the 'will of the people' is ascertained 'fairly and truthfully.'" *Id.* at *115-16 (quoting *Petersilie*, 334 N.C. at 182, 432 S.E.2d at 840, and *Skinner*, 169 N.C. at 415, 86 S.E.2d at 356)).

45. The 2021 Plans independently violate the Freedom of Speech and Assembly Clauses by retaliating against voters based on their protected speech and association. "In addition to forbidding discrimination," North Carolina's Freedom of Speech and Assembly Clauses "also bar *retaliation* based on protected speech" or conduct. *Id.* at *123. "Courts carefully guard against retaliation by the party in power." *Harper I*, slip op. at 10. To prevail on a retaliation theory, a plaintiff must show that "(1) the [challenged plan] take[s] adverse action against them, (2) the [plan] w[as] created with an intent to retaliate against their protected speech or conduct, and (3) the [plan] would not have taken the adverse action but for that retaliatory intent." *Common Cause*, 2019 WL 4569584, at *123.

46. Like the 2017 state legislative plans invalidated in *Common Cause*, the 2021 Plans satisfy all three of these requirements. As to adverse action, "[i]n *relative* terms, Democratic voters under the [2021 Plans] are far less able to succeed in electing candidates of their choice than they would be under plans that were not so carefully crafted to dilute their votes. And in *absolute* terms, Plaintiffs are significantly foreclosed from succeeding in electing preferred candidates." *Id*. As to intent, highly probative evidence, both direct and circumstantial, confirms that the 2021 Plans "intentionally targeted Democratic voters based on their voting histories." *Id.* at *124; *see* FOF §§ B, C, D. And as to causation, "[t]he adverse effects described

above would not have occurred if Legislative Defendants had not cracked and packed Democratic voters and thereby diluted their votes." *Common Cause*, 2019 WL 4569584, at *124.

V. Partisan Gerrymandering Claims Are Justiciable Under the North Carolina Constitution

47. In all but the most exceptional circumstances, North Carolina courts are duty-bound to say what the law of this State is and to adjudicate cases on the merits.

48. In cases brought under the North Carolina Constitution, "[i]t has long been understood that it is the duty of the courts to determine the meaning of the requirements of our Constitution." *Leandro v. State*, 346 N.C. 336, 345, 488 S.E.2d 249, 253 (1997). "When a government action is challenged as unconstitutional, the courts have a duty to determine whether that action exceeds constitutional limits." *Id.* "It is the duty of this Court to ascertain and declare the intent of the framers of the Constitution and to reject any act in conflict therewith." *Maready v. City of Winston-Salem*, 342 N.C. 708, 716, 467 S.E.2d 615, 620 (1996).

49. State courts' duty to decide constitutional cases applies with full force in the redistricting context. Although the North Carolina Constitution directs the General Assembly to revise and reapportion districts after each census, "[t]he people of North Carolina chose to place several explicit limitations upon the General Assembly's execution of the legislative reapportionment process," which state courts have not hesitated to enforce. *Stephenson*, 355 N.C. at 370, 562 S.E.2d at 389. North Carolina courts have adjudicated claims that redistricting plans violated the Whole County Provision, the mid-decade redistricting bar, the Equal Protection Clause, and other provisions of the North Carolina Constitution. *See Stephenson*, 355 N.C. at 376, 380-81, 562 S.E.2d at 392, 395; *State ex rel. Martin v. Preston*, 325 N.C. 438, 385 S.E.2d 473 (1989); *NAACP*, 18 CVS 2322 (N.C. Super. Ct. Nov. 2, 2018). "[W]ithin the context of ... redistricting and reapportionment disputes, it is well within the power of the judiciary of

[this] State to require valid reapportionment or to formulate a valid redistricting plan." *Stephenson*, 355 N.C. at 362, 562 S.E.2d at 384 (quotation marks omitted).

50. Courts of other states have decided constitutional challenges to redistricting plans, including partisan gerrymandering claims, on the merits. In adjudicating a recent partisan gerrymandering suit, the Pennsylvania Supreme Court held that "it is the duty of the Court, as a co-equal branch of government, to declare, when appropriate, certain acts unconstitutional." *League of Women Voters of Pa.*, 178 A.3d at 822. The Florida Supreme Court similarly held that "there can hardly be a more compelling interest than the public interest in ensuring that the Legislature does not engage in unconstitutional partisan political gerrymandering." *League of Women Voters of Fla. v. Detzner*, 172 So. 3d 363, 416 (Fla. 2015). And in another constitutional redistricting challenge, the Texas Supreme Court held that "[t]he judiciary ... is both empowered and, when properly called upon, obliged to declare whether an apportionment statute enacted by the Legislature is valid." *Terrazas v. Ramirez*, 829 S.W.2d 712, 717 (Tex. 1991). "A judicial determination that an apportionment statute violates a constitutional provision is no more an encroachment on the prerogative of the Legislature than the same determination with respect to some other statute." *Id.*; *see also, e.g.*, *Johnson v. State*, 366 S.W.3d 11, 23 (Mo. 2012) (similar).

51. Indeed, state courts are particularly well-positioned to adjudicate redistricting disputes, as the public may "more readily accept state court intervention … than … federal intervention in matters of state government." *Brooks v. Hobbie*, 631 So. 2d 883, 890 (Ala. 1993). "The power of the judiciary of a State to require valid reapportionment or to formulate a valid redistricting plan has not only been recognized by th[e U.S. Supreme] Court but … has been specifically encouraged." *Scott v. Germano*, 381 U.S. 407, 409 (1965). In *Rucho*, the U.S. Supreme Court recently made clear that partisan gerrymandering claims are not "condemn[ed]

… to echo in the void," because although the federal courthouse doors may be closed, "state constitutions can provide standards and guidance for state courts to apply." 139 S. Ct. at 2507.

52. Beyond the state judiciary, no other institution is realistically capable of holding partisan gerrymandering in North Carolina in check. In *Rucho*, the U.S. Supreme Court now has held that federal courts are powerless to adjudicate partisan gerrymandering claims. 139 S. Ct. 2484. The Governor lacks authority to veto redistricting legislation. N.C. Const., art. II, § 22(5). The General Assembly has proven itself unable to reform the redistricting process—regardless of which political party holds a majority. North Carolina does not have a statewide initiative or referendum process. And the Court cannot expect the voters themselves to check partisan gerrymandering through their votes in state legislative elections, since the very purpose and effect of an egregious partisan gerrymander is to prevent voters who oppose the current legislative majority from translating their votes into legislative seats.

53. Absent intervention by the state judiciary, legislators elected under one partisan gerrymander will enact new gerrymanders after each decennial census, entrenching themselves in power anew decade after decade. When the North Carolina Supreme Court first recognized the power to declare state statutes unconstitutional, it presciently noted that absent judicial review, members of the General Assembly could "render themselves the Legislators of the State for life, without any further election of the people." *Bayard v. Singleton*, 1 N.C. 5, 7 (1787). Those legislators could even "from thence transmit the dignity and authority of legislation down to their heirs male forever." *Id.* Extreme partisan gerrymandering reflects just such an effort by a legislative majority to permanently entrench themselves in power in perpetuity.

54. In rare instances, North Carolina courts have held that certain exceptional cases are nonjusticiable because they present a "political question." "The political question doctrine

controls, essentially, when a question becomes not justiciable because of the separation of powers provided by the Constitution." *Cooper v. Berger*, 370 N.C. 392, 407, 809 S.E.2d 98, 107 (2018) (quotation marks omitted; cleaned up). "The doctrine excludes from judicial review those controversies which revolve around policy choices and value determinations constitutionally committed for resolution to the legislative or executive branches of government." *Id.* at 408, 809 S.E.2d at 107 (quotation marks omitted; cleaned up). The "dominant considerations" in determining whether the political question doctrine applies are "the appropriateness under our system of government of attributing finality to the actions of the political departments and also the lack of satisfactory criteria for a judicial determination." *Id.* (quotation marks omitted).

55. The Court concludes that partisan gerrymandering claims are justiciable under the North Carolina Constitution. Such claims fall within the broad, default category of constitutional cases the North Carolina courts are empowered and obliged to decide on the merits, and not within the narrow category of exceptional cases covered by the political question doctrine.

56. The Court concludes that partisan gerrymandering does not "involve a textually demonstrable constitutional commitment of the issue to a coordinate political department." *Bacon v. Lee*, 353 N.C. 696, 717, 549 S.E.2d 840, 854 (2001) (quotation marks omitted).

57. Although Article II, §§ 3 and 5, of the North Carolina Constitution direct the General Assembly to revise and reapportion state House and Senate districts after each decennial census, North Carolina courts often decide constitutional challenges to state redistricting plans. These cases conclusively refute any notion that redistricting is "committed to the *sole* discretion of the General Assembly" without judicial review by the courts. *Cooper*, 370 N.C. at 409, 809 S.E.2d at 108 (emphasis added).

58. "[T]he General Assembly's authority pursuant to [Article II, §§ 3 and 5] is necessarily constrained by the limits placed upon that authority by other provisions." *Cooper*, 370 N.C. at 410, 809 S.E.2d at 109. The North Carolina Supreme Court has held that the State Constitution's Equal Protection Clause constrains the General Assembly's exercise of its redistricting authority pursuant to Article II, §§ 3 and 5. *Stephenson*, 355 N.C. at 376-82, 562 S.E.2d at 392-96. The people of North Carolina amended the Free Elections Clause to mandate that "all elections" not only "ought to be" but "*shall* be free." N.C. Const. art. I, § 10 (emphasis added). This change "ma[d]e it clear" that the Free Elections Clause is a "command[] and not merely [an] admonition[] to proper conduct on the part of the government." *DuMont*, 304 N.C. at 635, 639, 286 S.E.2d at 94, 97 (quotation marks omitted). And the North Carolina Supreme Court has held that North Carolinians must have a judicial "remedy for the violation of plaintiff's constitutionally protected right of free speech." *Corum*, 330 N.C. at 784, 413 S.E.2d at 290.

59. In North Carolina, cases presenting "a conflict between ... competing constitutional provisions" involve proper "constitutional interpretation, ... rather than a nonjusticiable political question arising from nothing more than a policy dispute." *Cooper*, 370 N.C. at 412, 809 S.E.2d at 110. The Court held in *Cooper* that a challenge to a statute creating a new State Board of Elections and Ethics Enforcement did not present a political question, because the General Assembly's authority over the functions and powers of administrative agencies was limited by the Governor's constitutional duty to "take care that the laws be faithfully executed." 370 N.C. at 417-18, 809 S.E.2d at 113-14. Similarly, in *News & Observer Publishing Co. v. Easley*, the Court held that a suit seeking public records related to clemency applications was not a political question, because the Governor's power over clemency was limited by the General Assembly's power to enact laws "relative to the manner of applying for

pardons." 182 N.C. App. 14, 15, 641 S.E.2d 698, 700 (2007). So too, partisan gerrymandering claims do not present a political question because the General Assembly's redistricting authority under Article II, §§ 3 and 5 is limited by the Equal Protection Clause, the Free Elections Clause, and the Freedom of Speech and Assembly Clauses. This Court's task is "to identify where the line should be drawn" between these provisions. 182 N.C. App. at 15-16, 641 S.E.2d at 700. "There can be no doubt that we have the power and the responsibility to do so." *Id.*

60. This case bears no resemblance to cases in which North Carolina courts have applied the political question doctrine. In *Bacon v. Lee*, for example, the North Carolina Supreme Court rejected a claim seeking a disinterested arbiter for a clemency application because the North Carolina Constitution "expressly commits the substance of the clemency power to the *sole discretion* of the Governor." 353 N.C. at 698, 717, 549 S.E.2d at 843, 854 (emphasis added). Similarly, in *Hoke County Board of Education v. State*, the Supreme Court rejected a challenge to a statute setting the proper age for children to attend public school because the Constitution placed "the determination of the proper age for school children ... squarely ... in the hands of the General Assembly." 358 N.C. 605, 639, 599 S.E.2d 365, 391 (2004). These cases centered on the appropriate exercise of authority under a single constitutional provision that was committed to the sole discretion of one of the political branches.

61. The Court also concludes that "satisfactory and manageable criteria [and] standards ... exist" for adjudicating partisan gerrymandering claims under the North Carolina Constitution. *Hoke*, 358 N.C. at 639, 599 S.E.2d at 391. Plaintiffs have articulated satisfactory, manageable standards for each of their claims for relief.

62. The standard for Plaintiffs' claim under the Free Elections Clause is based on the venerable, undisputed history of that clause, as well as the commonsense insight that elections preordained by the mapmaker for partisan purposes are not "free." *Supra* COL § II. The Court concludes this standard is satisfactory and manageable.

63. The standard for Plaintiffs' claim under the Equal Protection Clause is based on the fundamental right to "substantially equal voting power" and to "vote on equal terms." *Stephenson*, 355 N.C. at 378-79, 562 S.E.2d at 393-94; *see* COL § III. The North Carolina Supreme Court has previously applied this long-recognized standard, including in redistricting cases. *See id.*; *Blankenship*, 363 N.C. at 522-24, 681 S.E.2d at 762-64; *Northampton Cty.*, 326 N.C. 747, 392 S.E.2d at 356. This standard is not only "manageable"—the North Carolina Supreme Court has already "manage[d]" to apply it to resolve actual cases. The Court concludes that this standard is satisfactory and manageable.

64. The standards for Plaintiffs' claims under the Free Speech and Free Assembly Clauses are based on longstanding doctrine, which recognizes that (1) voting is an expressive and associative act, and (2) government actions that burden or discriminate against protected expression or association, are subject to strict scrutiny. *Supra* COL § IV. Plaintiffs also rely on longstanding retaliation doctrine, which prohibits the government from taking adverse actions based on protected expression or association. *Id.* North Carolina courts routinely apply these standards to numerous government actions and programs in various contexts. The Court concludes that these standards are satisfactory and manageable.

65. Plaintiffs' claims are justiciable notwithstanding that they arise under broad constitutional provisions that require interpretation. Courts routinely interpret broad constitutional text, adopt legal standards to operationalize such text, and then apply those legal

standards to adjudicate the constitutionality of statutes. That is exactly what the North Carolina Supreme Court did in *Stephenson*. There, the Court interpreted a broad constitutional requirement that "[n]o county shall be divided in the formation of [district]," N.C. Const. art. II, §§ 3 and 5, to require a detailed, multi-step procedure for redistricting, 355 N.C. at 383-84, 562 S.E.2d at 396-97. In adopting this standard, the Court explained that it was "not permitted to construe the [Whole County Provision] mandate as now being in some fashion unmanageable." 355 N.C. at 382, 562 S.E.2d at 396. "Any attempt to do so," the Court explained, "would be an abrogation of the Court's duty to follow a reasonable, workable, and effective interpretation that maintains the people's express wishes." *Id.* So too here, it is the Court's responsibility to distill the Equal Protection Clause, Free Elections Clause, and Free Speech and Free Assembly Clauses into a "reasonable, workable, and effective interpretation."

66. In *Stephenson*, the North Carolina Supreme Court also noted that "[p]rogress demands that government should be further refined in order to best respond to changing conditions." 355 N.C. at 382, 562 S.E.2d at 396 (quotation marks omitted). Like the Whole County Provision, the constitutional provisions invoked by Plaintiffs in this case "provide the elasticity which ensures the responsive operation of government." *Id.* (quotation marks omitted). As the North Carolina Supreme Court asked rhetorically more than a century ago: "Is it true that we are living in a popular government, depending upon free and fair elections, and have a constitution that prohibits the legislature from authorizing a judge or a justice of the supreme court to investigate alleged irregularities of the election officers? If this were so, elections would become a farce, and free government a failure. But, fortunately for the people and the government, in our opinion, this is not true, and fair and honest elections are to prevail in this state." *McDonald v. Morrow*, 119 N.C. 666, 26 S.E. 132, 134 (1896).

67. The separation of powers—which is expressly guaranteed by the North Carolina Constitution, art. I, § 6—underscores the Court's obligation to craft manageable judicial standards to adjudicate partisan gerrymandering claims. Each of the constitutional provisions invoked by Plaintiffs in this case appears in the Declaration of Rights in Article I of the North Carolina Constitution. And "[t]he civil rights guaranteed by the Declaration of Rights in Article I of our Constitution are individual and personal rights entitled to protection against state action." *Corum*, 330 N.C. at 782, 413 S.E.2d at 289. "The very purpose of the Declaration of Rights is to ensure that the violation of these rights is never permitted by anyone who might be invested under the Constitution with the powers of the State." 330 N.C. at 783, 413 S.E.2d at 290. And "[i]t is the state judiciary that has the responsibility to protect the state constitutional rights of the citizens." *Id.* Indeed, "this obligation to protect the fundamental rights of individuals is as old as the State." *Id.*

68. The North Carolina Supreme Court's decision in *Dickson v. Rucho*, 367 N.C. 542, 766 S.E.2d 238 (2014)—subsequently vacated by the U.S. Supreme Court, 135 S. Ct. 1843 (2015), and never reinstated—is not to the contrary. The plaintiffs in *Dickson* presented an underdeveloped claim under the Good of the Whole Clause, which provides that "all government of right … is instituted only for the good of the whole." N.C. Const., art. I, § 2. The Court rejected that claim on the ground that "plaintiffs' argument is not based upon a justiciable standard." 367 N.C. at 575, 766 S.E.3d at 260. Notably, the Court did not conclude that challenges under the Good of the Whole Clause are *always* nonjusticiable, just that the plaintiffs had failed to articulate any proper standard. And the broad language of the Good of the Whole Clause, which no court has ever liquidated into a manageable standard in any case or context,

stands in contrast to the specific guarantees of equal protection, free elections, and free speech and assembly invoked here, which North Carolina courts routinely interpret and apply.

69. This Court's decision in *Dickson v. Rucho*, 2013 WL 3376658 (N.C. Super. July 8, 2013)—also subsequently vacated by the U.S. Supreme Court and never reinstated—is similarly inapposite. While the court there stated in prefatory dicta that "those whose power or influence is stripped away by shifting political winds … must find relief from courts of public opinion in future elections" rather than from "courts of law," *id.* at *1, it did so in the context of adjudicating claims of unconstitutional *racial* gerrymandering. While partisan gerrymandering may be a defense to claims of racial gerrymandering, *see id.* at *23, 34, partisan gerrymandering is not a defense to claims of partisan gerrymandering.

70. Nor is this Court bound by dicta from *Stephenson* that "[t]he General Assembly may consider partisan advantage and incumbency protection in the application of its discretionary redistricting decisions." 355 N.C. at 371, 562 S.E.2d at 390. To begin with, the Supreme Court in *Stephenson* stated that any such considerations "must" be "in conformity with the State Constitution." *Id.* In this case, Plaintiffs allege that partisan gerrymandering of the 2017 Plans violates provisions of the State Constitution, and there is an extensive trial record concerning those allegations. By contrast, *Stephenson* did not involve any partisan gerrymandering claim—let alone partisan gerrymandering claims under the constitutional provisions Plaintiffs invoke here—nor was there any record concerning partisan gerrymandering. The statements in *Stephenson* were "mere obiter dictum and [are] not binding on this Court or any other." *Taylor v. J.P. Stevens & Co.*, 300 N.C. 94, 100-01, 265 S.E.2d 144, 148 (1980). In a case with such important consequences for democracy in this State, the Court

will decide Plaintiffs' claims on the basis of the record and arguments presented by the parties here, rather than follow stray dicta from prior cases involving different claims and evidence.

71. In order to reject Defendants' invocation of the political question doctrine, the Court need to decide to the legal standards governing Plaintiffs' claims would apply in all future cases, including a hypothetical close case. This case is not close. The extreme, intentional, and systematic gerrymandering of the 2017 Plans runs far afoul of the legal standards set forth above, or any other conceivable legal standard that could govern Plaintiffs' constitutional claims.

72. The Court concludes that partisan gerrymandering claims are justiciable under, and violate, the North Carolina Constitution.

VI. The Court Will Enjoin Further Use of the 2021 Plans

73. For the reasons stated above, and as set forth in the decree below, the Court declares that the 2021 Congressional, Senate, and House Plans are unconstitutional under the North Carolina Constitution and enjoins their use in the 2022 primary and general elections.

74. The Court should afford the General Assembly two weeks to enact remedial plans.

75. The Court should require Legislative Defendants and their agents to conduct the entire remedial process in full public view. At a minimum, that would require all mapdrawing to occur at public hearings, with any relevant computer screen visible to legislators and public observers. Given what transpired in 2017, the Court should prohibit Legislative Defendants and their agents from undertaking any steps to draw or revise the new districts outside of public view.

76. If Legislative Defendants were to retain one or more individuals who are not current legislative employees to assist in the map-drawing process, the Court should require Legislative Defendants to obtain approval from the Court to engage any such individuals.

PROPOSED DECREE

77. The Court declares that the 2021 Congressional, Senate, and House Plans are unconstitutional and invalid because each plan violates the rights of Plaintiffs and other Democratic voters under the North Carolina Constitution's Equal Protection Clause, art. I, § 19; the Free Elections Clause, art. I, § 5; and the Freedom of Speech and Freedom of Assembly Clauses, art. I, §§ 12 & 14.

78. Legislative Defendants and State Defendants, and their respective agents, officers, and employees, are permanently enjoined from preparing for or administering the 2022 primary and general elections under the 2021 Congressional, Senate, and House Plans.

79. Except as otherwise noted in this Order, the following criteria shall exclusively govern the redrawing of districts:

a) Each district shall have equal population within plus or minus 5% from the ideal population of House or Senate districts, and equal population plus or minus one person for the congressional districts.

b) Each district shall be contiguous, with water contiguity permitted.

c) The legislative districts shall comply with the county grouping and county traversal requirements of the North Carolina Constitution's Whole County Provision.

d) The districts shall be as compact as reasonably possible, and shall split as few municipalities, VTDs, and precincts as reasonably possible.

e) The invalidated 2021 districts shall not be used as a starting point for drawing new districts, and no effort shall be made to preserve the cores of invalidated 2021 districts.

f) Prior election results or other political data shall not be used in constructing the remedial districts, and no effort shall be made to favor voters or candidates of one political party.

g) All remedial districts shall comply with the VRA and other federal requirements concerning the racial composition of districts.

80. Legislative Defendants and their agents, officers, employees, and successors are permanently enjoined from using past election results or other political data in any future redistricting of North Carolina's state legislative districts to intentionally dilute the voting power of citizens or groups of citizens based on their political beliefs, party affiliation, or past votes.

81. Legislative Defendants and their agents, officers, employees, and successors are permanently enjoined from otherwise intentionally diluting the voting power of citizens or groups of citizens in any future redistricting of North Carolina's state legislative districts based on their political beliefs, party affiliation, or past votes.

DATED: December 31, 2021

By:/s/ Narendra K. Ghosh

PATTERSON HARKAVY LLP

Burton Craige, NC Bar No. 9180
Narendra K. Ghosh, NC Bar No. 37649
Paul E. Smith, NC Bar No. 45014
100 Europa Dr., Suite 420
Chapel Hill, NC 27517
(919) 942-5200
bcraige@pathlaw.com
nghosh@pathlaw.com
psmith@pathlaw.com

Counsel for Harper Plaintiffs

ELIAS LAW GROUP LLP

Abha Khanna
1700 Seventh Avenue, Suite 2100
Seattle, Washington 98101
Phone: (206) 656-0177
Facsimile: (206) 656-0180
AKhanna@elias.law

Lalitha D. Madduri
Jacob D. Shelly
Graham W. White
10 G Street NE, Suite 600
Washington, D.C. 20002
Phone: (202) 968-4490
Facsimile: (202) 968-4498
LMadduri@elias.law
JShelly@elias.law
GWhite@elias.law

ARNOLD AND PORTER
KAYE SCHOLER LLP

Elisabeth S. Theodore
R. Stanton Jones
John Cella
Samuel F. Callahan
601 Massachusetts Avenue NW
Washington, DC 20001-3743
(202) 954-5000
elisabeth.theodore@arnoldporter.com

Counsel for Harper Plaintiffs

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing *by email*, addressed to counsel for all other parties.

This the 31st day of December, 2021.

_/s/ Narendra K. Ghosh_____
Narendra Ghosh