

# **Exhibit A**

IN THE UNITED STATES DISTRICT COURT  
FOR THE MIDDLE DISTRICT OF NORTH CAROLINA

COMMON CAUSE, et al., )  
)  
Plaintiffs, )  
vs. ) Civil Action No.  
) 1:16-CV-1026-WO-JEP  
ROBERT A. RUCHO, in his official )  
capacity as Chairman of the )  
North Carolina Senate )  
Redistricting Committee for the )  
2016 Extra Session and )  
Co-Chairman of the Joint Select )  
Committee on Congressional )  
Redistricting, et al., )  
)  
Defendants. )  
)  
LEAGUE OF WOMEN VOTERS OF NORTH )  
CAROLINA, et al., )  
)  
Plaintiffs, )  
vs. ) Civil Action No.  
) 1:16-CV-1164-WO-JEP  
ROBERT A. RUCHO, in his official )  
capacity as Chairman of the )  
North Carolina Senate )  
Redistricting Committee for the )  
2016 Extra Session and )  
Co-Chairman of the 2016 Joint )  
Select Committee on )  
Congressional Redistricting, )  
et al., )  
)  
Defendants. )  
)

DEPOSITION OF JOWEI CHEN

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10:00 A.M.

MONDAY, JULY 30, 2018

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Chen 14	Appendix 2, Supplemental Declaration of Jowei Chen, July 11, 2018	14
Chen 15	Declaration of Dr. Jowei Chen, July 11, 2018	65
Chen 16	Notice of Filing with attached Exhibit A: Clarification Regarding Paragraph Describing Plaintiff Russell Walker in July 11, 2018 Supplemental Declaration of Jowei Chen	65

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JOWEI CHEN,

having been first duly sworn or affirmed by the  
Certified Shorthand Reporter and Notary Public  
to tell the truth, the whole truth and nothing  
but the truth, testified as follows:

EXAMINATION

BY MR. STRACH:

Q. Good morning, Dr. Chen. How are you?

A. Good morning, sir. I'm doing well.

Q. You've been deposed and have testified numerous  
times, so I'm dispensing with the formalities  
other than to say if you need a break at any  
time, just let me know. Okay.

A. Yes, sir.

Q. Dr. Chen, you testified in these matters, the  
Common Cause and the League of Women Voters  
matters, in North Carolina under oath in a  
deposition in 2017; is that correct?

A. Yes, sir.

Q. And then you testified at the trial in October  
of 2017. Do you recall that?

A. Yes, sir.

Q. All right. And you're aware that the reason for  
the deposition today is that the case is on  
remand from the U.S. Supreme Court?

1 A. I'm generally aware of that.

2 Q. Okay. Since the trial in October of 2017, have  
3 you submitted any articles for publication?

4 A. Any academic articles?

5 Q. Yes.

6 A. Since 2017. Let me think about that for a  
7 minute.

8 Q. Sure. Since October 2017 specifically.

9 A. Okay. To my recollection, I have not.

10 Q. All right. And then similar question: Have you  
11 published any articles or had any articles  
12 published since October 2017, academic articles?

13 A. There are no new articles that were not already  
14 on my c.v. that was discussed at trial. I  
15 believe at the time there was a forthcoming  
16 article, and it may have been -- I just want to  
17 be technically accurate -- may have been that it  
18 did not actually go to print until after  
19 October, but certainly it was -- it was on my  
20 c.v. at that time. It was already in the  
21 publication process and certainly on my c.v.

22 Q. All right. And so to your knowledge, no new  
23 writings that have been submitted or published  
24 other than what was on your c.v. in  
25 October 2017?

1 A. That's right, sir.

2 Q. All right. Have you participated in any other  
3 partisan gerrymander cases other than this  
4 North Carolina case since October of 2017?

5 A. I have served as an expert in other  
6 redistricting cases since that time.

7 Q. Which cases are those?

8 A. I was disclosed as an expert in a Pennsylvania  
9 state case, state court case, and that went to  
10 trial in December of 2017. I was also disclosed  
11 as an expert in a federal case involving two  
12 state house districts in Georgia. I believe  
13 that was Georgia NAACP versus Kemp. And I  
14 believe that those are the only two cases in  
15 which I have been disclosed as an expert since  
16 October.

17 Q. All right. You're familiar with the Whitford v  
18 Gill case or Gill v Whitford case?

19 A. Yes, sir.

20 Q. That's the decision that the Supreme Court  
21 recently handed down dealing generally with  
22 partisan gerrymandering.

23 A. Yes, sir.

24 Q. Have you read that decision?

25 A. I'm generally aware of it. I haven't read it in



1           any great detail, but obviously I've read it  
2           about it.

3           Q.    Have you actually pulled the opinion and read  
4           the opinion?

5           A.    I haven't read it in its entirety.  I obviously  
6           read about it in the news.  I'm sure that I  
7           downloaded a copy of the decision and looked  
8           through some parts of it, but I did not look at  
9           it in any great detail.

10          Q.    All right.  You understand that in the opinion  
11          there's a majority opinion and then a concurring  
12          opinion?  Do you understand that?

13          A.    I generally understand that.

14          Q.    With regard to the majority opinion, which was  
15          the opinion written by Chief Justice Roberts, do  
16          you recall reading all or any part of that  
17          opinion?

18          A.    I'm sure I looked through parts of it, but,  
19          again, I did not read it in great detail.

20          Q.    All right.  When you say that -- when I don't  
21          read something in great detail, that might mean  
22          something different from when you don't read  
23          something in great detail.

24                        When you say you don't read -- you did  
25          not read it in great detail, does that mean you

1 did not read every word in the opinion?

2 A. I definitely did not read every word. What I  
3 generally mean is that I obviously am not  
4 legally qualified to read and interpret the  
5 case, and so to those of us who are not lawyers,  
6 a very large portion of any court case involves  
7 material that we're just simply not qualified to  
8 understand at all, and so when I read it, I  
9 would skip over a great deal of any part of any  
10 Supreme Court case. That's all I generally mean  
11 is that I obviously am not even qualified to  
12 really understand a great deal of any given  
13 Supreme Court case.

14 Q. Since -- you recall when the Gill decision came  
15 down it was in June of this year?

16 A. Yes, sir.

17 Q. Since that decision was issued, have you  
18 participated at all in the Wisconsin case that  
19 gave rise to that opinion?

20 A. My understanding is that I have not been  
21 disclosed as an expert in that -- in that case.

22 Q. All right. Do you intend to submit any reports  
23 in that case since it was issued by the U.S.  
24 Supreme Court?

25 A. Do I intend to -- if I could just ask you to

1 repeat your question.

2 Q. Do you intend to submit any reports in the Gill  
3 decision post the Supreme Court decision?

4 A. I don't have any immediate plans to do that  
5 right now.

6 Q. Are you preparing any reports for that case?

7 MS. RIGGS: Objection to the extent it  
8 requires him to reveal materials that would be  
9 protected by the attorney work product in that  
10 case.

11 MR. STRACH: I'm just asking him the  
12 fact is he preparing a report in that case.

13 MS. RIGGS: And whether he's preparing  
14 a report, until he's prepared to disclose it, it  
15 is attorney work product privilege.

16 MR. STRACH: You're asserting that the  
17 fact of preparation of a report, nothing to do  
18 with the report itself, but the fact of  
19 preparing a report is privileged.

20 MS. RIGGS: Until it's decided whether  
21 or not it's going to be disclosed and used, yes.

22 MR. STRACH: The fact of preparation.

23 MS. RIGGS: Yes.

24 BY MR. STRACH:

25 Q. So are you going to refuse to answer that

1 question?

2 MS. RIGGS: I instruct the witness not  
3 to answer the question.

4 BY MR. STRACH:

5 Q. All right. Are you going to follow Ms. Riggs'  
6 instruction and not answer that question?

7 THE WITNESS: That's my instruction?

8 MS. RIGGS: Yes.

9 THE WITNESS: I'm following counsel's  
10 instruction not to answer the question.

11 BY MR. STRACH:

12 Q. All right. Since the Gill decision, have you  
13 participated at all in a partisan gerrymander  
14 case called Benisek out of Maryland?

15 A. I have not.

16 Q. Do you intend to participate in that case at  
17 all?

18 A. I have no such plans right now.

19 Q. We're going to take a look at them in a moment,  
20 but you've submitted two reports in this case,  
21 one on behalf of League of Women Voters and one  
22 on behalf of Common Cause; is that correct?

23 A. That is correct.

24 Q. And both of those --

25 A. I just -- if I could just ask you to repeat that

1 question. I want to make sure I heard it  
2 properly.

3 Q. Sure. Since the Gill decision, you've submitted  
4 two reports in this case, one for the League of  
5 Women Voters and one for Common Cause?

6 A. I just want to clarify. I submitted two  
7 supplemental declarations in this case, one  
8 for -- on behalf of the League of Women Voters  
9 plaintiffs and one on behalf of Common Cause  
10 plaintiffs.

11 Q. All right. How long did it take you to prepare  
12 those reports or those declarations?

13 A. I prepared them -- both of them during, I  
14 believe, the first one and a half weeks of July,  
15 so it might have spanned approximately one week  
16 or so, perhaps up to ten days, all in that time  
17 period right before July 11th.

18 Q. All right. If I use the term cracking as it  
19 relates to redistricting, does that term have  
20 any meaning to you?

21 A. I've obviously heard it used in journalistic  
22 news articles and by other people discussing  
23 redistricting. I don't have any understanding  
24 of that term in any precise scientific way as an  
25 expert, as a social scientist. In other words,

1 I'm just qualifying that it does not mean  
2 anything to me precisely in social science  
3 terms, but, obviously, anybody that reads about  
4 redistricting will come across that term.

5 Q. Have you ever written any academic publications  
6 regarding how to identify cracking in  
7 redistricting?

8 A. Have I ever read any academic articles about how  
9 to identify cracking?

10 Q. Have you ever written any?

11 A. Oh, have I ever written. To my knowledge, I  
12 have never used the term cracking in my own  
13 academic work.

14 Q. All right. Is there any term that is similar to  
15 cracking that you've used in lieu of the word  
16 cracking?

17 A. As I said, I don't understand the term cracking  
18 in any social scientific way in my own work as  
19 an empirical social scientist, so I don't have a  
20 substitute word for that either. It's just not  
21 a term that I would normally use in my academic  
22 work.

23 Q. Can you sitting here today give me a definition  
24 of what cracking is in the redistricting  
25 context?

1 A. Well, as I said, I've certainly seen other  
2 people use the word cracking and so I have an  
3 idea of what other people mean by it. It's just  
4 not part of my own terminology in my academic  
5 work or in my expert work as a social scientist.

6 Q. Sure. Aside from what other -- how other people  
7 define cracking, sitting here today can you  
8 define cracking for me?

9 A. Not other than what I just said, which is that I  
10 know how other people mean that and I can  
11 describe for you how journalists and other  
12 people who use the term mean it, and I'd be  
13 happy to give you my best shot at that, but I  
14 just want to qualify that I personally don't use  
15 the term because I don't understand it to mean  
16 anything specific in terms of social science.

17 Q. All right. Would the same be true for you for  
18 the term packing in the redistricting context?

19 A. Yes, sir, I would give all the same answers that  
20 I just gave you.

21 Q. Okay. All right.

22 (WHEREUPON, Defendant's Exhibit 14 was  
23 marked for identification.)

24 BY MR. STRACH:

25 Q. The court reporter is going to mark that and

1 hand it to you. I have three other copies.  
2 Y'all can distribute accordingly.

3 Dr. Chen, if you'll just flip through  
4 what's been marked as Exhibit 14 and let me know  
5 if that document looks familiar to you.

6 A. Yes, sir, I do recognize it.

7 And I also wanted to tell you that if  
8 there's an opportunity for me to go to the  
9 restroom, I would be very appreciative of that.

10 MR. STRACH: All right. Let's take a  
11 break and do that now.

12 (Brief Recess: 10:13 to 10:18 a.m.)

13 THE WITNESS: Mr. Strach, if I may, I  
14 would like to go back and revisit a question you  
15 asked me earlier this morning and make sure my  
16 answer is as complete and as accurate as  
17 possible.

18 You asked me this morning if I had been  
19 disclosed as an expert or if I have been an  
20 expert in any other case since -- any new cases  
21 since October.

22 BY MR. STRACH:

23 Q. Right.

24 A. And I just want to make sure that my answer is  
25 as complete as possible.



1                   Since last October, I have written an  
2                   expert report in a Michigan redistricting case,  
3                   I believe it's something like League of Women  
4                   Voters of Michigan versus I don't know who, and  
5                   my understanding is that that expert report has  
6                   been turned over. I don't know if that  
7                   technically means I've been disclosed as an  
8                   expert, but I wanted to alert you to the fact  
9                   that I had written that report, and that's what  
10                  I wanted to add to my answer.

11       Q.       Okay. And along those lines, are you aware of a  
12                  similar partisan gerrymandering case in Ohio?

13       A.       I'm generally aware that there's been a case  
14                  filed in Ohio.

15       Q.       Have you participated in that case to date?

16       A.       I have not.

17       Q.       All right. So we were looking at Exhibit 14  
18                  which is your declaration on behalf of -- I  
19                  believe this one is on behalf of League of Women  
20                  Voters; is that correct?

21       A.       Yes, sir.

22       Q.       All right. And if you'll look at the first  
23                  page, you reference in paragraph 1 a request by  
24                  plaintiffs' counsel. Can you describe to me  
25                  what this request was.

1 A. Well, it's exactly what I describe here:  
2 Plaintiffs' counsel, specifically League of  
3 Women Voters' counsel -- and from here on out  
4 I'll call -- I'll just call it League counsel,  
5 and if you ask me about the other declaration,  
6 I'll refer to that as Common Cause counsel and  
7 so that you'll understand what I'm referring to.

8 The request was exactly as I describe  
9 here in paragraph 1: The League counsel gave me  
10 four criteria to use, and I applied those  
11 calculations and reported on what I calculated.

12 Q. All right. So the instructions that you  
13 identify in paragraph 1, were they exclusively  
14 counsel's instructions, or did you have any part  
15 in devising any of those instructions?

16 A. I did not participate in the construction or the  
17 giving of those instructions.

18 Q. All right.

19 A. I simply received the instructions is what I'm  
20 saying.

21 Q. And when you received the instructions, were  
22 they these exact instructions that are listed in  
23 paragraph 1 or were they any different?

24 A. They were these exact instructions. I  
25 faithfully wrote down the exact instructions

1           that I received from plaintiffs' counsel.

2           Q.    Okay.  In paragraph 1 you started with the maps  
3           in your Simulation Set 2, correct?

4           A.    I looked at -- so, yes, I started with the 1,000  
5           maps that I had previously turned over as part  
6           of Simulation Set 2.

7           Q.    All right.  And in Step 2, you identified the  
8           maps in that set that contained a district with  
9           a BVAP above 40 percent, correct?

10          A.    Yes, sir.

11          Q.    How many of the 1,000 maps contained a district  
12          with a BVAP above 40 percent?

13          A.    How many of the 1,000 maps in Simulation Set 2  
14          had one district of BVAP over 40 percent.  I  
15          can't tell you the number off the top of my  
16          head, but I would point out that I did these  
17          calculations regarding Step 2 last year, I  
18          believe back in April of 2017.  I disclosed the  
19          computer code as well as the results of those  
20          calculations back in April of 2017, and so  
21          certainly that number was there, and I believe  
22          it was discussed at trial last October.

23          Q.    All right.  Sitting here today --

24          A.    I just can't remember off the top of my head is  
25          what I'm saying.

1 Q. So there was some subset of the 1,000 maps that  
2 contained at least one district with a BVAP  
3 above 40 percent, and out of that subset you  
4 then identified the ones with seven Republican  
5 districts and six Democrat districts, correct?

6 A. Yes, sir.

7 Q. Do you recall how many were -- how many maps you  
8 were left with after Step 3?

9 A. I don't recall that exact number. I would just,  
10 again, point out that obviously I had testified  
11 last October about exactly how many of these  
12 plans have seven Republican districts and six  
13 Democratic districts using the Hofeller formula,  
14 and so certainly all of that data and the code  
15 used to calculate those numbers were turned over  
16 last year, but I can't remember the number off  
17 the top of my head.

18 Q. During the trial you identified the districts  
19 with one district or more with a BVAP above 40,  
20 and you identified what I would call the 7-6  
21 maps, but did you identify during the trial maps  
22 that contained both one district over 40 percent  
23 and were 7-6?

24 A. The combination of both of those things, I can't  
25 recall right now. I certainly -- what I meant

1 is that the underlying computer code and the  
2 calculation needed to isolate that subset were  
3 all turned over last year. I turned over the  
4 computer code used to calculate both the BVAP  
5 numbers as well as calculate the number of  
6 Republican districts and Democratic districts.  
7 I recall that either in deposition in April 2017  
8 or at trial, or perhaps both, there was at least  
9 one figure and perhaps multiple figures that  
10 isolated the partisan distribution of those  
11 simulations with respect to ones that had a  
12 district with a BVAP over 40 percent.

13 So what I'm pointing out is the  
14 underlying data as well as the computer code for  
15 isolating that subset of simulations with those  
16 combinations, with that combination of those two  
17 features that you're asking me about, was  
18 certainly turned over last April and so the data  
19 was certainly there. I simply went back to that  
20 same data, those same maps, and revisited those  
21 calculations that I had done.

22 Q. Right. Sitting here today, do you remember how  
23 many maps you were left with after Step 3?

24 A. I can't remember off the top of my head.

25 Q. Was it less than five?

1 A. To my recollection it definitely was not less  
2 than five. It was definitely more than five.

3 Q. Would it have been more than ten?

4 A. To the best of my recollection, it was  
5 definitely more than ten. Again, as I said, I  
6 just can't remember the precise number.

7 Q. All right. So the instruction to pick what I  
8 will call 7-6 maps, however set per the  
9 instructions, as opposed to 8-5 maps or 9-4  
10 maps, i.e., maps that would elect nine  
11 Republicans, four Democrats, et cetera, did the  
12 idea to isolated maps that were 7-6 maps come  
13 strictly from counsel?

14 A. The instructions to follow these four criteria  
15 came strictly from League counsel. I don't  
16 know, you characterize it as an idea, and I  
17 don't know that it was an idea to me. It was  
18 simply an instruction.

19 Q. In Instruction Number 3, you reference the 7-6  
20 maps and you have a parenthetical that says "and  
21 thus an efficiency gap near zero." Do you see  
22 that?

23 A. Yes, sir.

24 Q. What relevance did that have in the instructions  
25 to you?

1 A. I was simply reporting what I had reported on in  
2 my expert analysis from last year, that -- and  
3 certainly I testified about this at trial last  
4 year regarding the efficiency gap as well as the  
5 number of Republican-Democratic seats in these  
6 simulated plans, so certainly I had already  
7 known and had testified and had reported on  
8 efficiency gaps of maps with various  
9 configurations of Republican-Democratic  
10 districts using Dr. Hofeller's formula. So I  
11 was just reporting on what I had already  
12 reported on in my expert analysis from last  
13 year, in my original expert report as well as  
14 trial.

15 Q. All right. If you will turn to the next page in  
16 the report, Dr. Chen. This is the 7-6 map that  
17 you ultimately chose based on the instructions  
18 from counsel, correct?

19 A. I would just clarify that I did not do any  
20 choosing here. I simply -- as I said before, I  
21 followed counsel's instruction in going back to  
22 the 1,000 maps that I had already produced and  
23 turned over last year, I applied four criteria,  
24 and this is what emerged from the application of  
25 those instructions. I didn't do any choosing.

1 Q. And the number 297 is the plan number that this  
2 was out of the 1,000 maps and in  
3 Simulation Set 2, correct?

4 A. Correct. The Plan 297 has no -- the number 297  
5 has no real substantive meaning. It was simply  
6 referring to the fact that I turned over last  
7 year 1,000 maps, and in the data, the shape  
8 files, the maps that I turned over, they were  
9 numbered from 1 to 1,000, and this particular  
10 one happened to be the 297th one. It was  
11 labeled on the files that I turned over as 297.

12 Q. And remind me, your deposition in this case was  
13 in April of 2017, correct?

14 A. Yes, sir.

15 Q. And had you prepared your report last year after  
16 the November 2016 election?

17 A. My report was turned over after the 2016  
18 elections, that's correct. I believe it was  
19 turned over on March 1st, maybe March 1st or  
20 March 2nd of 2017.

21 Q. All right. If you'll look at this map in what  
22 is labeled District 8 on this map, there are  
23 little stars with names beside them. Those are  
24 the incumbents of those districts; is that  
25 correct?



1 A. These are the locations -- the residential  
2 locations of the incumbents. And again, I would  
3 point out that I analyzed in my expert report,  
4 in my original expert report from last year, I  
5 analyzed the locations of the incumbents with  
6 respect to the Enacted Plan as well as all of  
7 these simulated plans in Simulation Set 2. So  
8 that's all that this is, it's simply copying  
9 over what I had already calculated last year and  
10 reported on last year in my original expert  
11 report.

12 Q. All right. Were you aware that Congresswoman  
13 Elmers was not elected after the November 2016  
14 elections?

15 A. I wasn't specifically aware of that, but I  
16 accept your representation of it.

17 Q. Can you tell me why you used her address in this  
18 report?

19 A. Can I explain to you why I placed a star there  
20 for Elmers?

21 Q. Why did you use the address of a person that was  
22 not an incumbent at the time that you wrote this  
23 report, your report?

24 A. You're asking about my original 2017 expert  
25 report?

1 Q. Right. Whenever you put the -- whenever you  
2 used the residential address for Renee Elmers,  
3 why did you use an address for a person that was  
4 no longer incumbent?

5 A. Okay, I just want to make sure I understand your  
6 question correctly. You're asking me to go back  
7 to my March 2017 expert report and answer your  
8 question regarding why I did the analysis that I  
9 did regarding Elmers, as well as all of the  
10 other incumbents in my original expert reports,  
11 and I just wanted to make sure I understood your  
12 question.

13 Q. We can start there. Go ahead.

14 A. Okay. I appreciate that. So you're asking me a  
15 question about my original March 2017 expert  
16 reports. And so let me go back and try and  
17 remember as best as I can what I did in that  
18 report.

19 In that March 2017 expert report, with  
20 respect to Simulation Set 2, I analyzed the  
21 residential locations of all of the incumbents  
22 as of the 2016 drawing of the enacted -- of the  
23 Enacted Plan, and so the relevant analysis for  
24 that expert report that I did last year was the  
25 residential locations of those incumbents that

1           were in place at the time. I did that for all  
2           of the incumbents. It wasn't a decision that  
3           was specific to Elmers or any particular  
4           incumbent. So that's what I recall about my --  
5           about how I carried out my original expert  
6           report from 2017.

7           Q. All right. When you submitted your expert  
8           report in 2017, why didn't you update it to  
9           include the actual incumbent after the 2016  
10          election?

11                       MR. THORPE: Objection. Phil, I'm  
12           going to jump in just to say that I think  
13           questions that are clearly about the  
14           construction of his original 2017 expert report  
15           are well outside the scope of the purpose of  
16           this deposition today. I'm not going to  
17           instruct him not to answer these, but, you know,  
18           this is -- this is pretty well outside and  
19           certainly stuff that could have and in many  
20           cases was asked of him a year ago.

21                       MR. STRACH: That's noted. I disagree,  
22           but certainly you have a right to put that on  
23           the record.

24           BY MR. STRACH:

25           Q. Dr. Chen, can you answer the question?

1 A. Sure. My recollection of what I did in the 2017  
2 expert report is that I was interested in  
3 analyzing the incumbents that were there as of  
4 the 2016 drawing. I was not interested in a  
5 hypothetical future set of incumbents that was  
6 not in place as the legislature's drawing of the  
7 Enacted Plan, and my recollection is that I was  
8 strictly trying to follow various portions --  
9 the non-partisan portions of the adopted  
10 criteria as well as the portions of the adopted  
11 criteria regarding incumbents. So that  
12 was -- that was what I did in my original  
13 report, that's what I recall.

14 Q. All right. And then in producing the report  
15 that we're looking at, Exhibit 14, why didn't  
16 you update the incumbents for purposes of this  
17 report?

18 A. Okay. You are asking about this exhibit in  
19 front of me here, my supplemental declaration  
20 for the League plaintiffs.

21 Q. Yes.

22 A. I had -- first, I simply wasn't instruct to do  
23 any new analysis or any new analysis of  
24 incumbents that was not already done as part of  
25 my original expert report. That's why I didn't

1 do any new analysis for this supplemental  
2 declaration.

3 I simply took the same maps, the same  
4 simulated maps that were already produced as a  
5 part of my original 2017 expert report,  
6 including the identification of incumbent  
7 locations that was done as part of my original  
8 2017 expert report which I testified about at  
9 trial last October.

10 Q. All right. Are you familiar with a congressman  
11 from North Carolina named Ted Budd?

12 A. I am not.

13 Q. And so obviously you do not know where Ted Budd  
14 resides, correct?

15 A. No, sir, I don't.

16 Q. And you've not used his residential address in  
17 any of the materials that you've prepared for  
18 your report for which we are here today?

19 A. No, sir.

20 Q. All right. Let's look at Table 2 which is  
21 page 6 of the report.

22 A. Yes, sir.

23 Q. This table contains the precincts in which the  
24 League of Women Voters plaintiffs and certainly  
25 League of Women Voters members reside; is that

1 correct?

2 A. It's just plaintiffs that were given to me by  
3 the League -- it's just precincts that were  
4 given to me -- a list of precincts that were  
5 given to me by League plaintiffs.

6 Q. All right. And in the column called Precinct's  
7 District in Enacted Plan, is that a reference to  
8 the 2016 congressional plan, the map that's  
9 challenged in this case?

10 A. The column that says Precinct's District in  
11 Enacted Plan and in parentheses SB 2, right.

12 Q. When you use SB 2, you're referring to the 2016  
13 congressional plan?

14 A. Yes, sir, the Enacted Plan.

15 Q. All right. And if you look down the column,  
16 there are no -- there's no reference to  
17 District 3; is that correct?

18 A. That appears to be the calculation reported  
19 here.

20 Q. All right. So there -- none of the precincts  
21 for the plaintiffs or League of Women Voters  
22 members that were provided to you were located  
23 in District 3 in the 2016 Plan; is that correct?

24 A. I just want to answer that very precisely  
25 because I think you're asking two different

1 things there.

2 League of Women Voters plaintiffs gave  
3 me a list of precincts. The League did not give  
4 me any plaintiffs. The League counsel gave me a  
5 list of precincts, and I simply analyzed the  
6 Enacted Plan's district in which each precinct  
7 was located, and certainly we see here that  
8 there were none of those precincts in  
9 District 3. I did not analyze any particular  
10 plaintiffs.

11 Q. Okay. But the title of your table is Precincts  
12 in which League of Women Voters of  
13 North Carolina Plaintiffs and Members Reside.

14 Did you write that title?

15 A. I did.

16 Q. What did you mean by League of Women Voters of  
17 North Carolina plaintiffs and members?

18 A. League -- I simply meant the following: League  
19 counsel represented to me that there were  
20 plaintiffs and members residing in these  
21 precincts, and so I titled it that way, but that  
22 was purely based on League counsel's  
23 representation of that fact to me. League --  
24 League counsel did not transmit or communicate  
25 to me anything about any actual plaintiffs or

1 members or any individuals.

2 Q. All right. Let's look at the first row, and let  
3 me make sure I understand the information that  
4 you've put in this table. Let's just go block  
5 by block.

6 The first column in row -- in the first  
7 row is Washington. That's a reference to the  
8 county of Washington in North Carolina?

9 A. Yes, sir.

10 Q. And then beside that is Plymouth 1. That is the  
11 precinct name in Washington county that you're  
12 referring to, correct?

13 A. Yes, sir.

14 Q. And then the next block that has the number 1 in  
15 it, that is the congressional district in the  
16 2016 Plan in which that precinct is located,  
17 correct?

18 A. Yes, sir.

19 Q. The next block says 31.17 percent, and that is  
20 the vote share that Republicans received in that  
21 precinct in the 2016 Plan using Dr. Hofeller's  
22 formula, correct?

23 A. Not quite. I don't think you quite  
24 characterized that accurately. What that column  
25 represents is the calculation that I did back in



1 my 2017 expert report regarding the  
2 congressional districts' partisanship using  
3 Dr. Hofeller's formula, so I think you might  
4 have described something a little bit different  
5 in your question. I just wanted to clarify that  
6 this column refers to the partisanship of the  
7 entire district as I calculated it last year  
8 using Dr. Hofeller's formula.

9 Q. Okay. That's the partisanship of District 1 in  
10 this row that we're looking at, Plymouth 1 in  
11 Washington county, 31.17 percent is the  
12 partisanship measure of District 1 in the 2016  
13 Plan?

14 A. Correct. It's the partisanship of Congressional  
15 District 1 in the Enacted Plan.

16 Q. And it's using the Dr. Hofeller formula that we  
17 reviewed in the trial last year, correct?

18 A. Yes, sir. I simply used that same calculation  
19 that I had done last year.

20 Q. And why was Dr. Hofeller's formula used?

21 A. You're asking why I reported on Dr. Hofeller's  
22 formula calculations in this table in this  
23 column?

24 Q. Right, as opposed to another measure.

25 A. I did so because plaintiffs' counsel -- League

1           counsel asked me to do so.

2           Q.   Then in the next block over there's the number  
3           12, and that is the location -- that's which  
4           district this precinct would be in in Plan 297?

5           A.   That's correct, the location -- the geographic  
6           location of this precinct within the districts  
7           in Plan 297.

8           Q.   All right. And then the next and final block in  
9           this row is the Republican vote share in the  
10          district in Plan 297 that this precinct sits?

11          A.   Yes, sir. It refers to the calculation that I  
12          did from my original expert report in 2017  
13          regarding the partisanship, the Republican vote  
14          share of that particular district in simulated  
15          Plan 297. In this case, in the first row, we're  
16          talking about District Number 12 of Plan 297.

17          Q.   All right. So if we look back at this row, the  
18          number 31.17 percent, does that indicate that  
19          District 1 in the Enacted Plan is a Democratic  
20          district?

21          A.   It simply tells us that District 1 in the  
22          Enacted Plan is a district that has more  
23          Democratic voters than Republican voters as  
24          calculated by Dr. Hofeller's formula; in other  
25          words, it's a Democratic-leaning district. It

1 has more Democrats than Republican voters.

2 Q. All right. So you would characterize this as a  
3 Democratic-leaning district?

4 A. Yes, sir, it is Democratic-leaning district.

5 Q. All right. If you stay in the same row, the  
6 same district in Plan 297, 40.84 percent, is it  
7 also true that that is also a Democratic-leaning  
8 district?

9 A. The row is calculating -- the row is reporting  
10 that it is a district that has more Democratic  
11 than Republican voters. So District 12 from  
12 Simulation 297 is a district that is Democratic  
13 leaning.

14 Q. Okay. And dropping one row down, the county  
15 Martin with the precinct Jamesville, that's the  
16 same result because it's the same district at  
17 issue there?

18 A. Yes, sir, the same district in the Enacted Plan.

19 Q. All right. If you'll look down at the row for  
20 Wake county precinct 01-04, do you see that one?

21 A. Yes, sir.

22 Q. That is in Congressional District 4 in the  
23 Enacted Plan, correct?

24 A. Yes, sir.

25 Q. And the Republican vote share is 37.68 percent.

1 Do you see that?

2 A. Yes, sir. Using the Hofeller formula, it is a  
3 37.68 percent district.

4 Q. All right. So would it be fair to say that that  
5 would be a strong -- strongly Democratic-leaning  
6 district?

7 A. It is a Democratic-leaning district.

8 Q. All right. Are you willing to characterize that  
9 in any way?

10 A. That was not an analysis that I did.

11 Q. All right. And in that particular precinct  
12 01-04 in Congressional District 4, it's a  
13 Democratic-leaning district, and in Plan 297,  
14 District 10, it would remain a  
15 Democratic-leaning district, correct?

16 A. I see that District 10 of the simulated plan, of  
17 Plan 297, is indeed a Democratic-leaning  
18 district.

19 Q. Okay. In the next column down -- sorry, the  
20 next row down you've got Forsyth Precinct 074.  
21 Do you see that one?

22 A. Yes, sir.

23 Q. That precinct is located in Congressional  
24 District 5 which has a Republican vote share of  
25 56.15 percent, correct?

1 A. Yes, sir, using the Hofeller formula.

2 Q. And the corresponding district in Plan 297 has a  
3 Republican vote share of 49.3 percent using the  
4 Hofeller formula, correct?

5 A. Yes, sir.

6 Q. How would you characterize in terms of  
7 Democratic or Republican leaning District 6 in  
8 Plan 297?

9 A. District 6 in Plan 297 is a Democratic-leaning  
10 district.

11 Q. All right. But it's close to 50 percent,  
12 correct?

13 A. If what you're asking me to affirm is your math  
14 on that, I can certainly do the mathematical  
15 calculation and tell you that 49.3 percent is  
16 0.7 percent away from being 50 percent. So if  
17 what you're asking me is about the math, that's  
18 the calculation.

19 Q. All right. Let's just flip back. You recall  
20 that you created for this report a map of the  
21 Enacted 2016 Plan and of Plan 297, correct?  
22 They're on pages 2 and 3 of the report.

23 A. You're asking me what those are, or you're  
24 asking me --

25 Q. Just turn to them.

1 A. Sure, I've turned to them.

2 Q. So what I want to focus on initially is in  
3 Plan 297, I want you to look at District 6 in  
4 Plan 297. Do you see that?

5 A. Yes, sir.

6 Q. And the color there I would characterize that as  
7 light blue. Is that fair?

8 A. That sounds about right. It's a lighter shade  
9 of blue.

10 Q. What does -- what does the shading mean in these  
11 districts on Plan 297 in terms of what -- what  
12 is that representing in your words?

13 A. The districts here on this map were shaded from  
14 dark blue to light blue and from light red to  
15 dark red in accordance with their partisan vote  
16 share using the Dr. Hofeller formula such that  
17 dark blue districts represent districts with a  
18 lower Republican vote share and lighter  
19 districts represent districts with a relatively  
20 higher Republican vote share for districts that  
21 were Democratic leaning.

22 For districts that were Republican  
23 leaning, I used the reverse color scheme with  
24 lighter red indicating districts that had a  
25 relatively lower Republican vote share and

1 darker red indicating districts with a higher  
2 Republican vote share for those districts that  
3 were Republican leaning.

4 Q. All right. And so what was the percentage  
5 cutoff that would result in a district being  
6 darker shaded versus lighter shading? Was there  
7 a percentage cutoff by which that would result  
8 in one being lighter or darker than the other?

9 A. Sure. I'll explain that cutoff to you. I would  
10 just start by explaining that this is all part  
11 of the -- laid out in the computer code that was  
12 turned over in connection with this -- the  
13 supplemental declaration.

14 There were categories of 5 percent, so,  
15 in other words, districts that had from 50 to  
16 55 percent using Dr. Hofeller's formula were the  
17 lightest red, districts from 55 to 60 percent  
18 were slightly darker red and so on.

19 And the same for the blue districts,  
20 the Democratic-leaning districts. Districts  
21 from 50 down to 45 percent were lightest blue,  
22 districts from 45 to 40 percent were a somewhat  
23 darker blue and so on.

24 Q. So is it fair to say that in Plan 297,  
25 District 11 is a strong Democratic district?

1 A. I would characterize it as a Democratic-leaning  
2 district.

3 Q. Would you characterize District 11 any  
4 differently than, say, District 6 despite the  
5 different shading?

6 A. You're asking me if I would characterize it  
7 differently in terms of partisanship?

8 Q. Yes.

9 A. To answer that, I would go back to the numbers  
10 that I reported, and certainly I could tell you  
11 the precise partisanship number of those  
12 districts.

13 Q. All right. Let me ask you this way: Is it fair  
14 to say that District 11 is a stronger Democratic  
15 district than District 6?

16 A. I would say they have -- they certainly have  
17 different partisanship numbers using  
18 Dr. Hofeller's formula. I didn't analyze these  
19 districts in the way that I think you're asking  
20 me, but I obviously reported on the calculations  
21 that I did last year regarding the partisanship  
22 of each district, and certainly I can affirm for  
23 you that they have different partisanship  
24 numbers using the Dr. Hofeller formula.

25 Q. All right. Is it fair to say that District 11



1 has a higher number of Democratic voting  
2 individuals than District 6?

3 A. I can affirm your math on that one. Certainly  
4 District 11 has a Hofeller score or Hofeller  
5 formula partisanship of 36.78 percent, and that  
6 number is lower than the corresponding number  
7 for District 6 in Plan 297.

8 Q. So if you look at the next page, which is the  
9 Enacted 2016 Plan.

10 A. Yes, sir.

11 Q. If you look at District 5 in that plan -- and  
12 District 5 is what I would characterize as a  
13 medium shade of red -- would that be in the 55  
14 to 60 percent range?

15 A. Yes, sir. The actual number was 56.15 percent,  
16 so certainly it would have -- as I described it  
17 a moment ago, it would have been the second band  
18 which is why it's a somewhat darker shade of  
19 red.

20 Q. In the Enacted 2016 Plan, the District 13 is a  
21 light shade of red which is the lowest  
22 Republican-leaning district you can have,  
23 correct?

24 A. District 13 is drawn in a light shade of red,  
25 yes, sir.

- 1 Q. All right. In Plan 297 of Simulation Set 2, is  
2 it fair to say that District 5 in that district  
3 contains much of the same territory as  
4 District 5 and 13?
- 5 A. That's not an analysis that I did.
- 6 Q. Is it fair to say that?
- 7 A. It's just not an analysis I did so I can't offer  
8 an expert opinion on that.
- 9 Q. Can you read the county names on these maps?
- 10 A. I think I can see most of the county names so I  
11 can -- I can see the county names listed on each  
12 of these maps.
- 13 Q. All right. Is it fair to say that most of the  
14 counties in Districts 5 and 13 in the 2016 Plan  
15 are in District 5 in the Plan 297?
- 16 A. I haven't done that calculation or that  
17 analysis. If you want to go through them one  
18 county -- each at a time, I'm happy to read out  
19 the county names.
- 20 Q. Can you count them? Can you sit there and count  
21 them?
- 22 A. Sure, I can go -- you want me to go through the  
23 individual counties?
- 24 Q. I just want you to count up the counties in  
25 District 5 and 13 in the 2016 Plan and then

1 count up the -- any number of similar counties  
2 in District 5. Are you able to do that?

3 A. I think I can see most of the county names. I'm  
4 happy to start going county by county. And  
5 maybe this will be responsive to your question,  
6 and I think this is what you're trying to ask  
7 me.

8 So, for example, I can look at the  
9 northwest corner and see that Ashe county is in  
10 District 5 of Plan 297, and I can see that Ashe  
11 county is in District 5 of the SB 2 Plan. I  
12 could keep on doing that for all these  
13 individual counties if you'd like me to keep on  
14 going.

15 Q. Can you do that to yourself and count the number  
16 of counties that overlap between those  
17 districts?

18 MR. THORPE: I want to be clear about  
19 your instructions. You mean entirely overlap  
20 where the whole county -- I'm not sure the point  
21 of the task. If we're going to have him count  
22 up the counties, I want to be very precise.

23 MR. STRACH: Just whole counties.

24 MR. THORPE: Whole counties that are  
25 whole in both the Enacted Plan and Plan 297 in

1           either District 5 of Plan 297 or Districts 5 or  
2           13 of the Enacted Plan?

3                   MR. STRACH: Right. The overlap in  
4           whole counties between District 5 in Plan 297  
5           and Districts 5 and 13 in the 2016 Plan.

6                   MS. RIGGS: I'll just also object to  
7           the form of the question in light of the fact  
8           that he's represented he didn't do this  
9           analysis. I can't see all the county names on  
10          both of these maps. If you want him to do it  
11          now, I think he needs pen and paper.

12          BY MR. STRACH:

13          Q. Do you need some pen and paper?

14          A. I'm happy to go through them individual -- the  
15          individual counties each, but that would be  
16          helpful to have a pen and paper.

17          Q. All right. Let's take a quick break.

18                               (Brief Interruption.)

19          BY MR. STRACH:

20          Q. Back on.

21          A. I just want to make sure that your instructions  
22          are to go through each whole county but to  
23          disregard the split counties; is that correct?

24          Q. Yes, let's disregard the split counties.

25          A. And you want me to go through and tell you

1           whether each of these whole counties is both in  
2           District 5 of the SB 2 Plan as well as in  
3           District 5 of the 297 Plan, right?

4           Q.   Slightly different.  Whether they are both in  
5           District 5 in Plan 297 on the one hand and in  
6           District 5 or 13 in the 2016 Plan on the other  
7           hand.

8           A.   In 5 or 13 of the SB 2 Plan.

9           Q.   That's right.

10          A.   Okay.  So what I am going to do, then, is I will  
11          go through one county at a time, and each time I  
12          analyze an individual county I'll report to you  
13          what I found.  That's what you want me to do,  
14          right?

15          Q.   Sure, we'll try that.

16          A.   Okay.  I guess I'll go ahead and start with  
17          Watauga county.  And I can see that Watauga  
18          county is in District 5 of the Plan 297.  I can  
19          see that Watauga is not split in that plan.  And  
20          when I look at the SB 2 Plan, I see that Watauga  
21          is also not split, and it is located in  
22          District 5 of the Enacted Plan.

23                        So I've answered your question with  
24                        respect to Watauga county.

25                        Next, I am going to go to -- is it

1 Avery county; is that correct? That's right to  
2 the southwest of Watauga.

3 Q. Yes.

4 A. So I'll look at Avery county next. I can see  
5 that Avery county is not within District 5 of  
6 Plan 297. It appears to be in District 2, so  
7 it's not within District 5. And I'm going to  
8 flip over to the Enacted SB 2 Plan, and I see  
9 that Avery county is located within District 5  
10 of the SB 2 Plan.

11 So now I've answered your question with  
12 respect to Avery county.

13 Next, I am going to go over to Ashe  
14 county, to the northeast of Watauga, and I see  
15 that Ashe county is located within District 5 of  
16 Plan 297. When I look at the SB 2 Plan, I see  
17 that Ashe county is not split, and it is located  
18 within District 5 of the SB 2 Plan.

19 So now I've answered your question with  
20 respect to Ashe county.

21 Next I'll go over to Alleghany county.  
22 And I can see that this county is located within  
23 District 5 of the Plan 297. When I flip over to  
24 the SB 2 Plan, and I can see that this county is  
25 also located within District 5 of the SB 2 Plan.

1           Next I'll look at Wilkes county. And I  
2           can see that Wilkes is located within District 5  
3           of Plan 297, and it's not split, and I can see  
4           that Wilkes is located in the SB 2 Plan within  
5           District 5 in the Enacted Plan.

6           Next I'll go down to Alexander county.  
7           I can see that Alexander county is located  
8           within District 2 of Plan 297, so it's not  
9           located within District 5, no part of Alexander  
10          is located within District 5. And I flip over  
11          to the SB 2 Plan and I can see that Alexander  
12          county is located within District 5 of the SB 2  
13          Plan, so it is located within District 5 of the  
14          SB 2 Plan.

15          Next I'll go down to Catawba county. I  
16          can see that in Plan 297 Catawba is not located  
17          within District 5; it's located within  
18          District 2. I flip over to the SB 2 Plan and I  
19          see that Catawba is split. It is partially  
20          located within District 5 and partially located  
21          within District 10.

22          Now I remember you told me to disregard  
23          split counties, so you can disregard my  
24          statements regarding Catawba.

25          Next I'll go to Surry county. I see

1 that Surry county is located within District 5  
2 of Plan 297. Flip over to the SB 2 Plan and I  
3 see at that Surry county is located within  
4 District 5 of the SB 2 Plan.

5 Next I'll go down to Yadkin county. I  
6 can see that Yadkin county is located within  
7 District 5 of Plan 297. And I can see on the  
8 SB 2 Plan, Yadkin is located within District 5  
9 of the SB 2 Plan.

10 Next I'll go out to Stokes county. And  
11 I can see that Stokes county is located in  
12 District 6 of the -- of Plan 297. And I can see  
13 that in the SB 2 Plan, Stokes county is located  
14 within District 5 of the SB 2 Plan.

15 Next I'll look at Forsyth county. And  
16 I can see that Forsyth county is located within  
17 District 5 of the SB 2 Plan, but when I go over  
18 to Plan 297, I see that Forsyth county is  
19 located within District 6 of Plan 297.

20 Just give me a minute to figure out  
21 what counties I haven't covered.

22 Okay. So next I'm going to go down to  
23 Iredell county, I-R-E-D-E-L-L. And I see that  
24 in the -- in Plan 297, Iredell county is located  
25 in District 5 of Plan 297. And when I go over



1 to the SB 2 Plan, I see that Iredell county is  
2 located within District 13 of the SB 2 Plan.

3 Actually, now I can see that Iredell  
4 county is listed as one of the split counties in  
5 the SB 2 Plan, so I guess you asked me to ignore  
6 split counties, so we can -- you can disregard  
7 what I just said.

8 Next I'll look at Davie county. And  
9 when I look at Plan 297, I see that Davie county  
10 is located within District 5 of Plan 297. And  
11 when I flip over to the SB 2 Plan, I see that  
12 Davie county is not split, and it is located  
13 within District 13 of the SB 2 Plan.

14 Next I'll look at Davidson county. And  
15 I see that in the SB 2 Plan, Davidson is located  
16 within District 13, and it appears to not be a  
17 split county. And when I look at Plan 297 --  
18 well, I can see that in Plan 297, Davidson is  
19 partially located within District 5, but it is a  
20 split county so it is partially located in  
21 District 6. So you asked me not to look at  
22 split counties so I guess you can disregard  
23 Davidson.

24 And let me just look at whether or not  
25 I've missed any other counties here.

1                   Looks like the only other county I  
2                   skipped over was Rowan, and that too is a split  
3                   county in the -- in Plan 297. So for now I  
4                   won't answer your question with respect to  
5                   Rowan.

6                   So I believe I have now covered every  
7                   county that fully is located within either  
8                   District 5 of Plan 297 or District 5 of the SB 2  
9                   Plan. I did not fully cover all the various  
10                  districts of district -- all the various  
11                  counties within District 10 of the SB 2 Plan.  
12                  Happy to do that if you intended for that to be  
13                  a part of your instructions, but I think I have  
14                  now fully answered your question with respect to  
15                  the individual counties in District 5 of the  
16                  SB 2 Plan.

17                Q. All right. So I'm going to add these up and you  
18                tell me if our math equals. There are one --

19                A. If I could just ask you to clarify your  
20                question. Can you tell me what you're going to  
21                add up before -- so I can try and follow along.

22                Q. I'm going to add up the whole counties that  
23                overlap between District 5 in 297 on the one  
24                hand and Districts 5 and 13 in SB 2 on the other  
25                hand.

1 A. Okay. I just want to make sure I understand.  
2 You're going to count up how many whole counties  
3 there are that are fully located within both  
4 District 5 of the 297 Plan as well as District 5  
5 of the SB 2 Plan. Did I get that right?

6 Q. District 5 and 13 of the SB 2 Plan.

7 A. Oh, District 5 and 13. I'm not sure that I've  
8 done all the -- I'm not sure that I've done all  
9 the individual county calculations necessary for  
10 me to verify -- for me to verify you going  
11 through and counting that list. I just want to  
12 go back and make sure that I looked at all the  
13 counties in District 13 because I'm not sure I  
14 tried to fully cover that, so if you can just  
15 give me a second here.

16 Okay. I've looked at the various  
17 counties that are involved in District 13, and I  
18 just wanted to make sure that I had a chance to  
19 look at those before you go with your list. So  
20 I'm happy for you to go through your list. I  
21 just ask you to stop after each one and give me  
22 a couple seconds to verify.

23 Q. Okay. The whole counties that I have that are  
24 located both in District 5 in Plan 297 on the  
25 one hand and Districts 5 and 13 in SB 2 are

1           Watauga.

2           A.    If you could just stop there.  Okay.

3           Q.    Is that correct?

4           A.    I agree.

5           Q.    And Ashe.

6           A.    Okay.  Just give me a second.

7                                I agree.

8           Q.    And Alleghany.

9           A.    I agree.

10          Q.    And Wilkes.

11          A.    Yes, sir.

12          Q.    And Surry.

13          A.    Yes, sir.

14          Q.    And Yadkin.

15          A.    Yes, sir.

16          Q.    And Davie.

17          A.    Yes, sir.

18          Q.    All right.  And that's all the whole counties I  
19                have.

20          A.    Okay.

21          Q.    And that's not counting any of the split  
22                counties that were potentially common between  
23                the two, right, because we didn't look at the  
24                split counties, correct?

25          A.    Those were your instructions to me.

1 Q. All right. Now, if you'll look at SB 2,  
2 District 5 in SB 2 is a medium shade of red,  
3 correct?

4 A. District 5 in SB 2 is what you're asking me  
5 about. It's not the very lightest shade of red.

6 Q. It's the one in the middle, correct?

7 A. I'm not sure I'd characterize it in the middle,  
8 but I think generally we're both talking about  
9 the fact that it was not within the 50 to  
10 55 percent range but instead in the 55 to  
11 60 percent range.

12 Q. Okay. In District 13 was the -- is the lightest  
13 shade of red, between 50 and 55 percent range,  
14 correct?

15 A. District 13 was indeed between 50 and 55 percent  
16 in the SB 2 Plan on the Hofeller measure, so it  
17 would have been the lightest shade of red.

18 Q. And in District 5 in Plan 297, that is the  
19 darkest shade of red which would be, what, over  
20 60 percent per the Hofeller formula?

21 A. If you'll just give me a second to check.

22 Using the Hofeller formula, the  
23 Republican vote share of District 5 in Plan 297  
24 is 63.86. So, yes, I believe that is the  
25 darkest shade of red that we would see on this

1 map.

2 Q. All right. So if you look back at Table 2, and  
3 we're looking at the row of Forsyth precinct  
4 074.

5 A. Yes, sir, I see it.

6 Q. That precinct was in the 2016 Plan in  
7 District 5, correct?

8 A. If you could just repeat.

9 Q. That precinct 074 was in District 5 of the 2016  
10 Plan, correct?

11 A. Yes, sir.

12 Q. And its Republican vote share was 56.15 percent,  
13 so that was in the medium shade of red on the  
14 map, correct?

15 A. Let me just take a look at that map again.

16 It was in a second band, so it was --  
17 because it's 56.15 percent on the Hofeller  
18 formula, it would have been the second slightly  
19 darker shade of red. Not sure I would have  
20 called it medium, but it's pretty clear that it  
21 was not the lightest shade of red.

22 Q. Okay. And now this precinct under Plan 297,  
23 this precinct would be located in District 6,  
24 correct?

25 A. In the 297 Plan, yes, I reported here that it

1 would be -- it would have been in District 6 of  
2 the 297 Plan.

3 Q. And so the precinct would now in District 6 be  
4 in a Democratic-leaning district, correct?

5 A. District 6 in the 297 Plan is a  
6 Democratic-leaning district.

7 Q. And Forsyth county, which is where this precinct  
8 is located, in the Enacted Plan, it appears  
9 Forsyth county was in District 5; is that  
10 correct?

11 A. In the Enacted Plan, Forsyth county is in  
12 District 5.

13 Q. And in Plan 297, it would now be in District 6  
14 of the Democratic-leaning district, correct?

15 A. Forsyth -- Precinct 074 would have been in  
16 District 6 of Plan 297.

17 Q. As well as Forsyth county?

18 A. Oh, Forsyth county was a whole. Okay. Let me  
19 just make sure. I just want to make sure I get  
20 that correct.

21 Indeed, Forsyth county is in District 6  
22 of Plan 297.

23 Q. All right. So a Republican voter living in  
24 Forsyth county in District 5 in the 2016 Plan  
25 would find him or herself now in a

1 Democratic-leaning district in Plan 297,  
2 correct?

3 A. It's true that any voter living in Forsyth  
4 county in Plan 297 would be in a district that  
5 is Democratic leaning because it would be  
6 District 6 of Plan 297.

7 Q. All right. And is it true that a Republican  
8 voter in Yadkin county who would live in a --  
9 who would be in District 5 in the Enacted 2016  
10 Plan, in Plan 297 -- would be in a stronger  
11 Republican district in Plan 297?

12 A. I just want to take those statements one at a  
13 time and make sure I can follow along here. So  
14 you want to start with the --

15 Q. Let's look at Yadkin county in the 2016 Plan --

16 A. Yes.

17 Q. -- is in District 5, correct?

18 A. Yes.

19 Q. And District 5 is a medium shade of red  
20 district, correct?

21 A. Well, District 5 is a 56.15 percent Republican  
22 vote share district using the Hofeller formula.

23 Q. Which is not the strongest shade of red,  
24 correct?

25 A. I'm not sure what you mean by that. I'm simply



1 affirming that it is within the 55 to 60 percent  
2 range and was shaded as such on the enacted map.

3 Q. Right, which is the middle range. It's not the  
4 strongest Republican range.

5 A. Again, I'm not sure what you mean by that. What  
6 I see here is that there's a middle -- there is  
7 a -- there is a range of 55 to 60 percent which  
8 is how that district -- how District 5 is  
9 shaded.

10 I'm not sure what you mean by middle or  
11 medium because I don't see another range that is  
12 even higher than 55 to 60 percent, so I'm not  
13 sure what you mean by medium or where the idea  
14 of medium comes from. I'm just trying to be as  
15 precise as possible in telling you District 5 in  
16 the Enacted Plan, in the SB 2 Plan, is a 56.15  
17 Republican vote share district using the  
18 Hofeller formula and it was shaded as such.

19 Q. I understand, but the darkest shade of red are  
20 districts that have more than 60 percent  
21 Republican voters, correct?

22 A. I'm just pointing out here that every district  
23 on the SB 2 Plan falls below 60 percent, so  
24 there are no 60 or 65 percent districts in the  
25 Enacted Plan as shown here on this SB 2 Plan

1           which is why I was kind of confused why you were  
2           calling it medium, but I'm just trying to be as  
3           precise as possible here.

4                         It is within the 55 to 60 percent range  
5           and it was shaded as such.

6       Q.    So a Republican voter living in Yadkin county  
7           would be in a Republican-leaning district  
8           between 55 to 60 percent in the Enacted Plan,  
9           correct?

10     A.    Yes, sir, it is indeed within the 55 to  
11           60 percent range.

12     Q.    And under Plan 297, that voter would find  
13           himself or herself in a Republican-leaning  
14           district at over 60 percent, correct?

15     A.    You're -- let me just make sure I've got that  
16           right. I want to make sure I'm precisely  
17           correct about this.

18                         You were asking about Yadkin again,  
19           right?

20     Q.    Right.

21     A.    Now we're looking at the simulated plan 297.  
22           And let me just make sure I get the calculation  
23           correct.

24                         District 5 has a Republican vote share  
25           of 63.86 percent using the Hofeller formula in

1 Plan 297.

2 Q. All right. So a Republican-leaning voter --

3 A. So it's a Republican-leaning district.

4 Q. So a Republican voter in Yadkin county in  
5 District 5 of the Enacted Plan would go from  
6 being in a 55 to 60 percent district to a  
7 60 percent plus district in Plan 297?

8 A. I'm agreeing with the numbers that you're  
9 reporting regarding the partisanship.  
10 District 5 in the SB 2 Plan is 56.15 percent,  
11 and when I look at the numbers for Plan 297,  
12 District 5 is a 63.86 percent, so certainly one  
13 is higher than the other.

14 Q. If you look back at Table 2 and look at the row  
15 for Catawba, the precinct is West Newton. Do  
16 you see that?

17 A. Yes, sir.

18 Q. That precinct is located in Congressional  
19 District 10 which has a Republican vote share of  
20 58.17 percent, correct?

21 A. 58.17 percent using -- Republican vote share  
22 using the Hofeller formula.

23 Q. So that would be a Republican-leaning district,  
24 correct?

25 A. It is a Republican-leaning district.

- 1 Q. All right. And so this precinct in Plan 297 is  
2 in District 2, correct?
- 3 A. District 2 of Plan 297.
- 4 Q. Is that correct?
- 5 A. Yes, sir.
- 6 Q. And the Republican vote share in that district  
7 is 63.62 percent; is that correct?
- 8 A. Yes, sir.
- 9 Q. So that precinct goes -- that precinct remains  
10 in a Republican-leaning congressional district  
11 in Plan 297, correct?
- 12 A. I'm affirming that both of those districts we  
13 just described are indeed both  
14 Republican-leaning districts.
- 15 Q. And in Plan 297, the percentage of Republican  
16 voters is higher than in the 2016 Plan, correct?
- 17 A. I'm affirming that indeed 63.62 percent is  
18 certainly higher, higher Republican vote share  
19 than 58.17 percent.
- 20 Q. All right. And then if you look at the next row  
21 for Burke Drexel 01 -- do you see that?
- 22 A. Yes, sir.
- 23 Q. That is in District 11 in the 2016 Plan with a  
24 Republican vote share of 57.11 percent, correct?
- 25 A. I see that number, yes.

1 Q. In Plan 297, that precinct is located in  
2 District 2; is that correct?

3 A. Yes, sir.

4 Q. And District 2 in Plan 297 has a Republican vote  
5 share of 63.62 percent, correct?

6 A. It's 63.62 percent using the Hofeller formula.

7 Q. And 63.62 percent is a higher share of  
8 Republican voters than 57.11 percent, correct?

9 A. I agree that on the Hofeller formula  
10 63.62 percent is higher than 57.11 percent.

11 Q. All right. If you look at the next row for  
12 Mecklenburg Precinct 20 -- do you see that?

13 A. Yes, sir.

14 Q. That's in Congressional District 12 in the 2016  
15 Plan, correct?

16 A. Yes, sir.

17 Q. With a Republican vote share of 36.63 percent?

18 A. Yes, sir.

19 Q. And in Plan 297, it winds up in District 3,  
20 correct?

21 A. Yes, sir.

22 Q. And the District 3 has a Republican vote share  
23 of 45.82 percent, correct?

24 A. Yes, sir.

25 Q. And so both District 12 in the 2016 Plan at

1 36.63 percent and District 3 in Plan 297 at  
2 45.82 percent are both Democratic-leaning  
3 districts, correct?

4 A. They are both Democratic-leaning districts.

5 Q. Let's look at your individual district maps.  
6 District 1 of Plan 297 is on page 8. Do you see  
7 that?

8 A. Yes, sir.

9 Q. And in District 1 of Plan 297, all of Buncombe  
10 county is in District 1, correct?

11 A. Yes, sir.

12 Q. And with the inclusion of Buncombe in  
13 District 1, District 1 is a Republican-leaning  
14 district, correct?

15 A. If you'll just give me a second.

16 District 1 is a Republican-leaning  
17 district.

18 Q. If you turn the page to District 2, I have just  
19 a curious -- a question about your legend. What  
20 does a star mean versus a triangle?

21 A. In this map, the star simply denotes the  
22 location of Precinct 40 in Catawba which is the  
23 precinct named West Newton. The triangle  
24 denotes the location of Precinct 01 which is  
25 Drexel, the precinct named Drexel in Burke

1 county. So it just refers to the two different  
2 precincts on this map. There's no good  
3 substantive reason for choosing a triangle  
4 versus a star. It was just meant to be -- meant  
5 to distinguish the two precincts.

6 Q. All right. Look at District 3 on page 10. Are  
7 you able to tell looking at this map whether  
8 District 3 splits the city of Charlotte?

9 A. I don't have a map of Charlotte in front of me  
10 or on this map so I'm not able to do that  
11 analysis right now.

12 Q. Look at District 6 on page 13.

13 A. Yes, sir.

14 Q. Is it true that the easternmost line of  
15 District 6, which goes through Guilford county,  
16 goes through the city of Greensboro?

17 A. I don't know.

18 Q. All right. If you'll look at District 8 on  
19 page 15.

20 A. Yes, sir.

21 Q. Are you able to tell whether this district is  
22 fully contiguous in the parts of the district  
23 that appears to be in Hoke, maybe part of  
24 Robeson down at the bottom? Do you know if  
25 that's fully contiguous?

1 A. Yes, sir, it is.

2 Q. How do you know that?

3 A. How do I know that the district satisfies  
4 contiguity?

5 Q. Right.

6 A. I know because I know the process by which I  
7 produced last year the simulated maps and so I  
8 described that process in my expert report and  
9 at trial, and certainly part of that process  
10 involved following the requirement of district  
11 contiguity by checking for contiguity at the end  
12 of the districting process.

13 Q. Is there any part of the code you'd be able to  
14 look at to confirm that the computer followed  
15 your instructions and that that is actually  
16 contiguous?

17 A. How -- you're asking how would we know whether  
18 this district is in fact contiguous?

19 Q. Right.

20 A. Last year, in connection with my expert report,  
21 I turned over computer shape files depicting in  
22 great deal the latitude, longitude coordinate  
23 boundaries of every single one of these maps.  
24 Obviously, one of those that I turned over was  
25 Plan 297. All one would have to do is to zoom



1 in on the Robeson portions of District 8 here,  
2 zoom far in to be able to verify that it is in  
3 fact contiguous. You don't really need to do  
4 any fancy computer work. You could actually  
5 just zoom in on the map itself using the shape  
6 files that I turned over last year in connection  
7 with my expert report last year.

8 Q. All right. And is it true that District 8 --  
9 that in District 8, in Plan 297, Robeson county  
10 is split?

11 A. It is.

12 Q. All right. And then the next page, District  
13 9 --

14 A. Yes, sir.

15 Q. -- is it -- is it the case in District 9 that  
16 Johnson county is split?

17 A. It is.

18 Q. And also Robeson county is split?

19 A. Yes, sir.

20 Q. And then the next page, District 10, is it true  
21 that in District 10 Johnson county is also  
22 split?

23 A. It is.

24 Q. And the part of Johnson county that is included  
25 in District 10 is now in a Democratic-leaning

1 district, correct?

2 A. I just want to make sure I understand your  
3 question. You're asking me whether the Johnson  
4 county portion of District 10 is in a  
5 Democratic-leaning district? Did I get that  
6 question right?

7 Q. Yes.

8 A. Correct.

9 MR. STRACH: All right. Let's take a  
10 quick break and we'll come back.

11 (Brief Recess: 11:41 to 11:50 a.m.)

12 BY MR. STRACH:

13 Q. Let me hand you what will be marked as  
14 Exhibit 15 and 16.

15 (WHEREUPON, Defendant's Exhibits 15 and  
16 16 were marked for identification.)

17 BY MR. STRACH:

18 Q. Do Exhibits 15 and 16 look familiar to you,  
19 Dr. Chen?

20 A. I recognize Exhibit 15 as my supplemental  
21 declaration for Common Cause plaintiffs. I have  
22 never seen, at least not the first page, of  
23 Exhibit 16.

24 Q. Okay. Flip through it, I think you'll recognize  
25 the attachment to it.

1 A. I do recognize the last page of this exhibit as  
2 the clarification that I wrote, I believe it was  
3 several days after July 11, regarding my  
4 July 11th supplemental declaration.

5 Q. Let's look at Exhibit 15, the July 11, 2018,  
6 declaration. In this particular declaration,  
7 you use the maps in both your Simulation Set 1  
8 and your Simulation Set 2, correct?

9 A. Yes, sir.

10 Q. And you also use the residential addresses for  
11 the Common Cause plaintiffs provided to you by  
12 counsel.

13 A. Yes, sir.

14 Q. All right. And for this particular exercise,  
15 you've used two different measures of  
16 partisanship, correct?

17 A. I simply reported on the calculation that I did  
18 for my original 2017 expert report using the two  
19 different measures of partisanship.

20 Q. All right. And one of those measures involves  
21 20 statewide elections held between 2008 and  
22 2014?

23 A. Yes, sir.

24 Q. And that measure of partisanship is an average  
25 of the Republican or Democratic vote share in

1           those elections; is that correct?

2           A.   Not quite.  It's as -- and again, I would  
3           qualify that I explained exactly how that  
4           measure works in my original expert report in  
5           March of 2017, and obviously I testified about  
6           it at trial and deposition.

7                         It's not literally taking the average  
8           between those 20 elections.  It's simply summing  
9           up the number of Republican votes cast across  
10          all of those elections and then summing up the  
11          number of Democratic votes cast across all those  
12          elections and then calculating the Republican  
13          vote share using those sums of the Republican  
14          and Democratic votes.  I just wanted to clarify  
15          that, but, again, I explained that as part of my  
16          expert report from 2017 and in my testimony in  
17          2017.

18          Q.   All right.  So let's look at Figure 1 and  
19          Figure 2.

20          A.   Yes, sir.

21          Q.   So both Figure 1 and Figure 2 use maps from  
22          Simulation Set 1, correct?

23          A.   Figure 1 and Figure 2 are indeed about  
24          Simulation Set 1, yes, sir.

25          Q.   And the plaintiffs in Figure 1 and Figure 2 are

1 all the -- they're all the same, correct?

2 A. Same list of plaintiffs in both figures.

3 Q. And what does this figure -- is this a plot? It  
4 looks like a bunch of dots. Is there a  
5 particular name that you give this kind of a  
6 chart?

7 A. We could just call it a scatter plot or a dot  
8 plot. I understand what you're referring to.

9 Q. Okay. We'll call it a dot plot. How's that?

10 A. Yes, sir.

11 Q. I like that. That rhymes.

12 So on the dot plot, for each plaintiff  
13 you've got a series of dots on this line and --  
14 on a horizontal line, and then the vertical line  
15 is at .5, correct?

16 A. Yes, sir.

17 Q. And the .5 represents -- well, not the .5, but  
18 the numbers at the bottom of the dot plot  
19 represent the Republican vote share for the  
20 district in each one of the plans that you've  
21 dotted on the plot?

22 A. Basically, sir, it's a Republican vote share of  
23 the simulated district as well as the enacted  
24 district in which each of these plaintiffs  
25 resides. And when I say Republican vote share,

1 in this figure we're talking about using the  
2 20-election measure that you and I just  
3 described a minute ago.

4 Q. Right. So in Figure 1 you used the 20-election  
5 measure, and in Figure 2 you used Dr. Hofeller's  
6 measure?

7 A. Yes, sir. And again, I was simply reporting on  
8 calculations that I had performed last year as  
9 part of my expert report and turned over last  
10 year as part of my expert report.

11 Q. Right. So the only difference methodologically  
12 between Figure 1 and Figure 2 is Figure 1 uses  
13 the 20 elections and Figure 2 uses the Hofeller  
14 elections?

15 A. Right. I was just reporting on two different  
16 sets of calculations that I had done last year  
17 as part of my 2017 expert report.

18 Q. All right. And so for instance, for each  
19 plaintiff -- let's look at Russell G. Walker.

20 A. Yes.

21 Q. That is -- Mr. Walker lives in Congressional  
22 District 13, correct?

23 A. Congressional District 13 of the Enacted Plan.

24 Q. And so Mr. Walker's district in the Enacted Plan  
25 in terms of its Republican vote share, it falls

- 1 on the dot plot where the red star is in that --  
2 on that line, correct?
- 3 A. Yes, sir, that's what the red star represents is  
4 the enacted Congressional District 13.
- 5 Q. Okay. So Mr. Walker, according to this line on  
6 the dot plot, in the 2016 Plan lived in a  
7 Republican-leaning district, correct?
- 8 A. District 13 of the SB 2 Plan is indeed a  
9 Republican-leaning district.
- 10 Q. All right. And all of the gray dots are the  
11 Republican vote share in each of the thousand  
12 simulation set plans, correct?
- 13 A. In each of the simulated districts in which  
14 Mr. Walker would have resided under the 1,000  
15 plans in Set 1.
- 16 Q. Right. Okay. So whatever district that would  
17 have been in each one of those plans, if it  
18 included his residence -- let me make sure that  
19 I'm straight on that -- not his precinct, but  
20 his actual residence?
- 21 A. His actual geographic residence, yes, sir.
- 22 Q. Okay. Then the Republican vote share for that  
23 district would be plotted along this line with a  
24 dot, right?
- 25 A. Yes, sir.

1 Q. And so if you look for District 13, there are a  
2 number of dots on both the Republican-leaning  
3 side of the chart and on the Democratic-leaning  
4 side, correct?

5 A. I think what you're asking is whether there are  
6 dot -- there are circles that are below  
7 50 percent and circles that are above  
8 50 percent, and clearly that's the case.

9 Q. All right. And would you be able to calculate  
10 the number of dots on the Republican side of  
11 this chart for District 13?

12 A. You're asking -- I think you're trying to ask me  
13 whether -- how many dots are above 50 percent  
14 versus below 50 percent, right?

15 Q. Yes. Yes. Do you know?

16 A. I can't tell you off the top of my head, but I  
17 would again point out that all of these  
18 calculations were turned over last year as part  
19 of the data in the computer code I turned over  
20 in connection with my original expert report.

21 Q. All right. Was this -- was this Figure 1 part  
22 of that expert report? And I'm just asking  
23 because I don't remember. Or is this something  
24 new you've done?

25 A. Figure 1 was not part of the original expert



1 report. It simply extracts partisanship numbers  
2 that were already calculated and turned over in  
3 connection with my expert report in describing  
4 certain districts in the simulated plan -- in  
5 Simulation Set 1. So the figure itself  
6 obviously was not included in my expert report.

7 Q. All right. And -- right. So the number of dots  
8 above 50 percent for District 13, that specific  
9 number is not reported in this July 11, 2018,  
10 report, is it?

11 A. I don't believe there is any place in this  
12 report -- in -- I'm sorry. I don't believe  
13 there's a place in this supplemental declaration  
14 that has that number reported. What I was  
15 simply pointing out a moment ago with my  
16 original expert report, those numbers -- those  
17 underlying calculations were all turned over.

18 Q. Okay. And in Figure 2, Mr. Walker his -- the  
19 red dot representing his residence is also in a  
20 Republican-leaning district in the 2016 Plan,  
21 correct?

22 A. It is a Republican-leaning district.

23 Q. And in Figure 2, there are also numerous dots  
24 above 50 percent for CD 13; is that correct?

25 A. There are clearly some above 50 percent.

1 Q. For CD 12, in Figure 1 and in Figure 2,  
2 Mr. Gresham resides in a Democratic-leaning  
3 district, correct?

4 A. Yes, sir, District 12 is a Democratic-leaning  
5 district.

6 Q. And in both Figure 1 and Figure 2 there are  
7 numerous dots below 50 percent representing this  
8 district in the simulated maps, correct?

9 A. There clearly are some gray circles below  
10 50 percent.

11 Q. Is it fair to say just by looking at the figure  
12 that for both Figure 1 and Figure 2 the number  
13 of dots below 50 percent exceeds the number of  
14 dots above 50 percent?

15 A. It's not something I'm always going to be able  
16 to eyeball. I think with Figure 1, simply  
17 because I can't remember off the top of my head  
18 the numbers for each of these 1,000, but clearly  
19 from Figure 1 the number below 50 percent for  
20 Mr. Gresham is the majority of the 1,000  
21 simulations.

22 Q. Is the same true for Figure 2?

23 A. Again, it's not something I'm always going to be  
24 able to eyeball, but in this particular case I  
25 think it's pretty clear that the majority are

1 below 50 percent.

2 Q. And let's do this a little differently. Let's  
3 look at also Figures 3 and 4 at the same time.  
4 Let's do this district by district.

5 So in Figures 3 and 4 with regard to  
6 Mr. Walker, in those figures he also is in a  
7 Republican-leaning district in the 2016 Plan,  
8 correct?

9 A. Yes, sir.

10 Q. And in both Figure 3 and Figure 4 there are  
11 numerous dots above 50 percent in both figures,  
12 correct?

13 A. You're asking about Figures 3 and 4, right?

14 Q. Figures 3 and 4 for District 13.

15 A. In Figure 3 I can see that there are some gray  
16 circles above 50 percent, and in Figure 4 I can  
17 see that there are some gray circles above  
18 50 percent.

19 Q. And you say some, but you've not reported in  
20 this declaration the precise number, correct?

21 A. I have not reported the precise number.

22 Q. And then Figures 3 and 4 with regard to  
23 Mr. Gresham in CD 12, in both of those figures  
24 he resides in a Democratic-leaning district in  
25 the 2016 Plan, correct?

1 A. Yes, sir.

2 Q. Is it also the case in Figures 3 and 4 the  
3 number of dots below 50 percent exceeds the  
4 number of dots above 50 percent?

5 A. I can't give you the precise numbers, but  
6 obviously I can see that there are some below  
7 50 percent in both Figures 3 and 4.

8 Q. And is it apparent just from eyeballing it that  
9 the numbers below 50 percent exceed the number  
10 exceeding 50 percent in Figures 3 and 4?

11 A. I'm not sure I can say with certainty off the  
12 top of my head. Obviously the underlying  
13 calculations that I turned over would give you  
14 the precise number.

15 Q. All right. And then with regard to CD 11, Jones  
16 Byrd, back to Figure 1.

17 A. Okay. Yes, sir.

18 Q. In all the Figures 1 through 4, Mr. Byrd lives  
19 in a Republican-leaning district in the 2016  
20 Plan, correct?

21 A. Yes, sir.

22 Q. And in all of the Figures 1 through 4, all of  
23 the dots for CD 11 are above the 50 percent  
24 line, correct?

25 A. Yes, sir.

1 Q. And the same is true for all figures for CD 10  
2 regarding Mr. Wolf, correct?

3 A. We're just talking about the enacted District 10  
4 that Mr. Wolf resides within, right?

5 Q. In all figures he resides in a  
6 Republican-leaning district --

7 A. Yes, sir.

8 Q. -- correct?

9 A. Yes, sir.

10 Q. And in all figures, all the dots are above  
11 50 percent for District 10, correct?

12 MR. THORPE: Objection.

13 BY MR. STRACH:

14 Q. Okay. All --

15 A. We'll just need to go through those one by one.

16 Q. So for Figure 1 -- excuse me. For Figure 1, all  
17 but one dot is above 50 percent for District 10,  
18 correct?

19 A. I'm not able to give you the precise number.  
20 And I do, obviously, see that there is just one  
21 circle, but I'm not able to right now -- without  
22 looking at the actual underlying data that I  
23 turned over in connection with my expert report  
24 last year, I'm not able to tell you that that's  
25 only one and not, say, two circles that just are

1 right on top of each other, so I can't give you  
2 the precise number, but obviously I can affirm  
3 what you're seeing here which is that most of  
4 them are above 50 percent.

5 Q. And for Figure 2, it appears that all of them  
6 are above 50 percent, although one just barely,  
7 for CD 10; is that correct?

8 A. All of them are above 50 percent.

9 Q. And for Figures 3 and 4, all of them are above  
10 50 percent for CD 10, correct?

11 A. They're all above 50 percent.

12 Q. All right. For CD 9, Mr. McNeill, I believe in  
13 all four of the figures he resides in a  
14 Republican-leaning district, correct?

15 A. Yes, sir.

16 Q. And in Figures 1 and 2, there are numerous dots  
17 above 50 percent for both Figures 1 and 2,  
18 correct?

19 A. In Figure 1, I see that there are some gray  
20 circles above 50 percent. In Figure 2, I see  
21 that there are some circles above 50 percent.

22 Q. All right. And then also in Figures 3 and 4  
23 there are also dots above 50 percent, correct?

24 A. I see that in both Figures 3 and 4 there are  
25 some gray circles above 50 percent.

1 Q. All right. For Congressional District 8,  
2 Mr. Brewer, in Figures 1 through 4, he resides  
3 in a Republican-leaning district, correct?

4 A. Yes, sir.

5 Q. And for Figures 1 and 2, there are numerous dots  
6 above 50 percent, correct?

7 A. I would say that there are some gray circles  
8 above 50 percent in Figure 1. In Figure 2, I  
9 see that there are some gray circles above  
10 50 percent.

11 Q. All right. And then there are some in Figure 3  
12 for CD 8, correct?

13 A. I see that there are some gray circles above  
14 50 percent in Figure 3. In Figure 4, I see that  
15 there are some gray circles above 50 percent.

16 Q. In CD 7, Ms. Boylan, she resides in a  
17 Republican-leaning district in all four figures,  
18 correct?

19 A. Yes, sir.

20 Q. And in Figures 1 and 2, there are numerous dots  
21 above the 50 percent -- above 50 percent in  
22 Figures 1 and 2, correct?

23 A. I see that there are in Figure 1 some gray  
24 circles above 50 percent. In Figure 2, I see  
25 that there are some gray circles above

1 50 percent.

2 Q. In Figure 2, isn't it possible to say just from  
3 the naked eye that there are more above  
4 50 percent than there are below 50 percent?

5 A. I'm not disputing that, but I'm not able to  
6 affirm that in front of you off the top of my  
7 head.

8 Q. All right. And then in Figures 3 and 4 there  
9 are dots above 50 percent for both of those,  
10 correct, Figures 3 and 4?

11 A. In Figure 3, I see -- and we're on Ms. Boylan,  
12 right?

13 Q. Yes.

14 A. I see that there are some gray circles above  
15 50 percent. In Figure 4, I see that there are  
16 some gray circles above 50 percent.

17 Q. In Figures 3 and 4, the dots above 50 percent  
18 clearly outnumber the dots below 50 percent;  
19 isn't that correct?

20 A. I don't really have any specific reason to  
21 dispute it, but I can't say that I can give you  
22 a definitive answer right in front of you here.

23 Q. Okay.

24 A. Again, obviously, as I said earlier, all of the  
25 underlying calculations are ones that I turned



1 over last year in connection with my 2017 expert  
2 report.

3 Q. And for CD 6 in Figures 1 and 2 and 3 and 4,  
4 Mr. Morgan lives in a Republican-leaning  
5 district in the 2016 Plan?

6 A. Yes, sir.

7 Q. And in Figures 1 and 2, there are dots above  
8 the -- above 50 percent?

9 A. I see that in Figure 1 there are some dots above  
10 50 percent.

11 Q. And Figure 2?

12 A. In Figure 2, I see that there are some gray  
13 circles above 50 percent.

14 Q. And also Figures 3 and 4 for CD 6?

15 A. We're on Mr. Morgan, right?

16 Q. Right.

17 A. I see that there are in Figure 3 some gray  
18 circles above 50 percent. In Figure 4, I see  
19 that there are indeed some gray circles above  
20 50 percent.

21 Q. All right. Mr. Freeman, Congressional  
22 District 5, he is in a Republican-leaning  
23 district in Figures 1 through 4, correct?

24 A. Yes, sir.

25 Q. And in Figures 1 and 2, there are gray dots

1 above 50 percent, correct?

2 A. I see that in Figure 1 that are some gray dots  
3 above 50 percent.

4 Q. In Figure 2?

5 A. In Figure 2, I see there are some gray dots  
6 above 50 percent.

7 Q. In Figure 2, it would appear that the gray dots  
8 above 50 percent outnumber the ones below  
9 50 percent, doesn't it?

10 A. I'm not able to definitively affirm that. I  
11 don't have any reason to doubt -- to doubt you  
12 on that.

13 Q. All right. And in Figures 3 and 4 -- yeah,  
14 Figures 3 and 4 for CD 5, there are gray dots  
15 above 50 percent, correct?

16 A. I see that there are some gray dots above  
17 50 percent.

18 Q. Isn't it fair to say that in both Figures 3 and  
19 4 the gray dots above 50 percent outnumber the  
20 dots below 50 percent?

21 A. Same answer as before: I can't tell you for  
22 sure right here in front of you.

23 Q. There's two for CD 4 -- looking at Mr. Lurie, he  
24 resides in a Democratic-leaning district in all  
25 the figures, correct?

1 A. Yes, sir.

2 Q. As well as does Ms. Bordsen for CD 4, correct?

3 A. Yes, sir.

4 Q. And for both Mr. Lurie and Ms. Bordsen, for all  
5 four figures there are gray dots below  
6 50 percent, correct?

7 A. Yes, sir.

8 Q. All right. So CD 3, the Tafts, in all figures  
9 they live in a Republican-leaning district,  
10 correct?

11 A. Yes, sir.

12 Q. And in all figures there are gray dots above  
13 50 percent, correct?

14 A. In each figure I can see that there are indeed  
15 some gray circles above 50 percent.

16 Q. All right. And Mr. Berger in Congressional  
17 District 2 is in a Republican-leaning district  
18 in all four figures, correct?

19 A. In the enacted -- for the Enacted Plan I can see  
20 that Mr. Berger is indeed in a  
21 Republican-leaning district in all four figures.

22 Q. And in all four figures there are gray dots  
23 above the 50 percent -- above 50 percent in all  
24 four figures, correct, for Mr. Berger?

25 A. I can see that in each of the four figures there

1 are some gray circles above 50 percent.

2 Q. All right. Mr. Hall in Congressional  
3 District 1, he's in a Democratic-leaning  
4 district in all four figures, correct?

5 A. Yes, sir.

6 Q. And in Figure 1, it appears that all of the gray  
7 dots are below the 50 percent figure, correct?

8 A. Yes, sir, I see that.

9 Q. And in Figure 2, it appears that most of the  
10 gray dots are below 50 percent, correct?

11 A. Yes, sir.

12 Q. And in Figure 3, it appears that all of the gray  
13 dots are below 50 percent, correct?

14 A. Yes, sir.

15 Q. And in Figure 4, it appears that most of the  
16 gray dots are below 50 percent; is that correct?

17 A. Yes, sir.

18 MR. STRACH: Let's go off the record.

19 (Brief Recess: 12:18 to 12:25 p.m.)

20 MR. STRACH: Thank you, Dr. Chen.

21 That's all the questions I have for now.

22 THE WITNESS: Thank you, sir.

23 MR. THORPE: Briefly, a few redirect  
24 questions.

25 ///

## EXAMINATION

1  
2 BY MR. THORPE:

3 Q. Dr. Chen, if I could direct your attention to  
4 the declaration for the Common Cause plaintiffs,  
5 the Figure 1.

6 A. Yes, sir.

7 Q. You here identify plaintiff Russell Walker as  
8 being a resident of Jamestown, North Carolina,  
9 and accordingly Congressional District 13 in the  
10 Enacted Plan; is that correct?

11 A. Yes, sir.

12 Q. And you also identify Russell Walker as being in  
13 District 13 on the last page of this  
14 declaration; is that correct?

15 A. Yes, sir.

16 Q. And just to be clear, if there was any question  
17 about the placement of an individual in a  
18 district in the Enacted Plan, did you turn over  
19 the data files indicating how you determined  
20 where an individual Common Cause plaintiff would  
21 be placed in the Enacted Plan?

22 A. Yes, sir. I turned over the computer code as  
23 well as the underlying data reporting that  
24 calculation for each plaintiff.

25 Q. As well as the address information that you

1 received from Common Cause counsel to make that  
2 determination, correct?

3 A. Yes, sir. I turned over a file reporting the  
4 address information as well as the  
5 latitude/longitude geocoding of that plaintiff's  
6 residence as well as the census block in the  
7 district in which each plaintiff resides.

8 Q. If you could turn to the last page of  
9 Exhibit 16, the clarification.

10 A. Yes, sir.

11 Q. I believe I identified for the first time now a  
12 typographical error in both the first and second  
13 uses of this paragraph.

14 So this currently reads "Plaintiff  
15 Russell Walker resides in Congressional  
16 District 3 of the Enacted 2016 Plan."

17 Should that instead read "Plaintiff  
18 Russell Walker resides in Congressional District  
19 13 of the Enacted 2016 Plan"?

20 A. That is indeed a typographical mistake. I  
21 obviously calculated and reported in all the  
22 figures in the supplemental declaration that  
23 Plaintiff Walker resides in Congressional 13.  
24 Obviously, I tried to copy and paste over 13 and  
25 somehow accidentally dropped the 1 and so

1           somehow 13 became 3, but obviously, as the  
2           supplemental declaration and the underlying data  
3           that I turned over indicates, Plaintiff Walker  
4           resides in District 13.

5           Q.   More broadly, turning to the paragraphs that  
6           follow the figures in your supplemental  
7           declaration of the Common Cause plaintiffs?

8           A.   Yes, sir.

9           Q.   For each plaintiff, what do these percentages  
10          indicate?

11          A.   These percentages are reporting -- you're asking  
12          me about in paragraph 1 where I said  
13          99.9 percent, right?

14          Q.   Exactly.

15          A.   These percentages indicate the percent of the  
16          1,000 simulated plans in Simulation Set 1 and  
17          later in Simulation Set 2 that place each  
18          individual plaintiff into a simulated district  
19          that is either more Republican leaning or more  
20          Democratic leaning.

21          Q.   As measured by one of the two formulas that you  
22          used?

23          A.   Yes, sir.

24          Q.   Okay. I want to go to a couple examples of  
25          that. If you would turn to Figure 1.

1 A. Yes, sir.

2 Q. Plaintiff Gresham, the Enacted Plan is marked by  
3 the red star, correct?

4 A. Yes, sir.

5 Q. Can you identify where -- whether there are any  
6 simulated districts from your simulated plans  
7 that would place Plaintiff Gresham in a district  
8 with a Republican vote share equal to or less  
9 than that of the Enacted Plan?

10 A. Clearly we can see in Figure 1 that all 1,000 of  
11 the simulations would have placed Plaintiff  
12 Gresham into a district that is more Republican  
13 leaning. None of the 1,000 would have placed  
14 Plaintiff Gresham into a district that is equal  
15 or less Republican leaning than the enacted  
16 District 12 that plaintiff Gresham is placed  
17 into.

18 Q. For Plaintiff Byrd in Congressional District 11,  
19 can you determine from this figure whether  
20 there's any simulated district in any of the  
21 thousand simulated plans in which Plaintiff Byrd  
22 would be placed that would have a Republican  
23 vote share equal to or greater than the Enacted  
24 Plan?

25 A. Clearly there are zero such simulated districts.



1 All 1,000 of these simulated districts would  
2 have placed Plaintiff Byrd into a simulated  
3 district that is less Republican leaning than  
4 the enacted District 11 that Plaintiff Byrd is  
5 placed into.

6 Q. If you could turn to Figure 2.

7 A. Yes, sir.

8 Q. Would you report a similar result for Plaintiff  
9 Gresham and Plaintiff Byrd under the simulations  
10 in Figure 2?

11 A. Yes, sir, we see the same thing here.

12 Q. The only difference between Figures 1 and 2  
13 being the election formula that you used to  
14 calculate that result, correct?

15 A. Yes, sir. In Figure 2, I've reported the  
16 calculation that I did last year using  
17 Dr. Hofeller's formula where obviously in  
18 Figure 1 I reported the calculations that I did  
19 in my original expert report using the 20  
20 statewide elections.

21 Q. And could you turn to Figure 3.

22 A. Yes, sir.

23 Q. Would you report the same result with respect to  
24 Plaintiffs Gresham and Byrd under  
25 Simulation Set 2 as reported in Figure 3?

1 A. Yes, sir, we see the same thing.

2 Q. And what about Plaintiff Brewer from  
3 Fayetteville, North Carolina, in Congressional  
4 District 8, are there any of the simulated  
5 districts into which Plaintiff Brewer would be  
6 placed among the thousand simulated maps that  
7 would have a Republican vote share equal to or  
8 greater than the Enacted Plan's Congressional  
9 District 8?

10 A. There is not a single such simulation. All  
11 1,000 of these simulations here in  
12 Simulation Set 2 would have placed Plaintiff  
13 Brewer into a simulated district with a lower  
14 Republican vote share. Not a single one of the  
15 thousand simulations places Plaintiff Brewer  
16 into a simulated district with equal or higher  
17 Republican vote share.

18 Q. And for Plaintiff Berger who was placed in  
19 Congressional District 2 under the Enacted Plan,  
20 is there any simulated district into which  
21 Plaintiff Berger would have been placed across  
22 your thousand simulated maps that would have a  
23 Republican vote share equal to or greater than  
24 enacted Congressional District 2?

25 A. There's not a single one. All 1,000 of the

1 simulations in Set 2 would have placed Plaintiff  
2 Berger into a simulated district with a lower  
3 Republican vote share than Congressional  
4 District 2 which Plaintiff Berger is placed into  
5 in the Enacted Plan.

6 Q. And if you could turn to Figure 4.

7 A. Yes, sir.

8 Q. Based on the results reported in Figure 4, would  
9 you report the same finding with respect to  
10 Plaintiffs Gresham, Byrd, Berger and Brewer  
11 based on the results reported in Figure 4 as you  
12 would in Figure 3?

13 A. You see exactly the same thing.

14 Q. Again, the only difference between Figure 3 and  
15 Figure 4 being the set of elections used to  
16 reach that determination, correct?

17 A. That's correct, sir. Figure 4 reports on the  
18 numbers I calculate in my original expert report  
19 using Dr. Hofeller's formula rather than the 20  
20 statewide elections that was reported on in  
21 Figure 3.

22 MR. THORPE: Unless Allison has  
23 anything.

24 MS. RIGGS: No questions from the  
25 League of Women Voters.

1 MR. STRACH: Let me follow up just real  
2 quickly.

3 FURTHER EXAMINATION

4 BY MR. STRACH:

5 Q. Dr. Chen, two things: One, since we're looking  
6 at typos, look at Figure 3. Figures 3 and 4  
7 deal with Simulation Set 2; is that correct?

8 A. Yes, sir. I can see that in the legend Figure 3  
9 that the -- the second line in the legend right  
10 below where it says legend, obviously I had  
11 meant to write plaintiff's district in each of  
12 the 1,000 Simulation Set 2 plans. This was  
13 correctly labeled at the top of Figure 3 where  
14 it says Simulation Set 2 in very large fonts.  
15 For whatever reason, the legend miscopied that.

16 And I can see that the same mistake was  
17 made in Figure 4. Obviously at the top of  
18 Figure 4 it says Simulation Set 2. I described  
19 in text that I was describing Simulation Set 2.  
20 And the second line in the legend box should  
21 read plaintiff's district in each of the 1,000  
22 Simulation Set 2 plans.

23 So thank you for catching those,  
24 Mr. Strach.

25 Q. All right. And let's just take a quick look at

1 Table 1, which was the last page of the report.  
2 And this is a comparison of the district that  
3 each plaintiff -- Common Cause plaintiff lives  
4 in in the 2016 Plan versus the district they  
5 would -- they would be in in Plan 297, correct?

6 A. Yes, sir.

7 Q. And it compares the Republican vote share in  
8 their district in the Enacted Plan versus their  
9 Republican vote share in the Plan 297 using the  
10 Hofeller formula; is that correct?

11 A. Yes, sir.

12 Q. So in district -- for plaintiff Larry Hall, in  
13 Plan 297, he would remain in a  
14 Democratic-leaning district; is that correct?

15 A. Both of those districts are indeed  
16 Democratic-leaning districts. His district in  
17 the SB 2 Plan as well as his district in  
18 Plan 297 are indeed both Democratic leaning.

19 Q. And both districts for the Tafts are  
20 Republican-leaning districts, correct?

21 A. They are.

22 Q. And both districts for Ms. Bordsen are  
23 Democratic-leaning districts, correct?

24 A. Yes, sir.

25 Q. And both districts for Mr. Lurie are

1 Democratic-leaning districts, correct?

2 A. Yes, sir.

3 Q. And both districts for Mr. Morgan are  
4 Republican-leaning districts, correct?

5 A. Yes, sir.

6 Q. And both districts for Ms. Boylan are  
7 Republican-leaning districts, correct?

8 A. Yes, sir.

9 Q. And both districts for Mr. Wolf are  
10 Republican-leaning districts, correct?

11 A. Yes, sir.

12 Q. Both districts for Mr. Byrd are  
13 Republican-leaning districts, correct?

14 A. Yes, sir.

15 Q. And both districts for Mr. Gresham are  
16 Democratic-leaning districts, correct?

17 A. Yes, sir.

18 MR. STRACH: All right. That's all I  
19 have.

20 [SIGNATURE RESERVED]

21 [DEPOSITION CONCLUDED AT 12:37 P.M.]

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A C K N O W L E D G E M E N T O F D E P O N E N T

I, JOWEI CHEN, declare under the penalties of perjury under the State of North Carolina that I have read the foregoing pages, which contain a correct transcription of answers made by me to the questions therein recorded, with the exception(s) and/or addition(s) reflected on the correction sheet attached hereto, if any.

Signed this the                    day of                    , 2018.

JOWEI CHEN

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E R R A T A S H E E T

Case Name: COMMON CAUSE v RUCHO/LWVNC v RUCHO

Witness Name: JOWEI CHEN

Deposition Date: Monday, July 30, 2018

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STATE OF NORTH CAROLINA )  
 ) C E R T I F I C A T E  
COUNTY OF WAKE )

I, DENISE MYERS BYRD, Court Reporter and Notary Public, the officer before whom the foregoing proceeding was conducted, do hereby certify that the witness whose testimony appears in the foregoing proceeding was duly sworn by me; that the testimony of said witness was taken down by me in stenotype to the best of my ability and thereafter transcribed under my supervision; and that the foregoing pages, inclusive, constitute a true and accurate transcription of the testimony of the witness.

Before completion of the deposition, review of the transcript [X] was [ ] was not requested. If requested, any changes made by the deponent (and provided to the reporter) during the period allowed are appended hereto.

I further certify that I am neither counsel for, related to, nor employed by any of the parties to this action, and further, that I am not a relative or employee of any attorney or counsel employed by the parties thereof, nor financially or otherwise interested in the outcome of said action. Signed this 31st day of July 2018.

Denise Myers Byrd  
CSR 8340, RPR, CLR 102409-02

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