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October 17, 2025

CLERK, U.S. DISTRICT COURT
WESTERN DISTRICT OF TEXAS

BY: Diego Cesena

DEPUTY

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
EL PASO DIVISION**

**LEAGUE OF UNITED LATIN § 3:21-CV-00259-DCG-JES-JVB
AMERICAN CITIZENS, ET AL §**

V. § 8:31 A.M. TO 12:32 P.M.

**GREG ABBOTT, IN HIS §
OFFICIAL CAPACITY AS §
GOVERNOR OF THE STATE OF §
TEXAS, ET AL § OCTOBER 10. 2025**

**PRELIMINARY INJUNCTION HEARING
BEFORE THE HONORABLE DAVID C. GUADERRAMA,
HONORABLE JERRY E. SMITH
AND HONORABLE JEFFREY V. BROWN
DAY 9 (MORNING SESSION) OF 9 DAYS**

APPEARANCES:

FOR THE PLAINTIFFS LULAC AND MALDEF:

Ms. Nina Perales
MALDEF
110 Broadway Avenue, Suite 300
San Antonio, Texas 78205
(210) 224-5382
nperales@maldef.org
and
Mr. Javier Silva
MALDEF
100 North LaSalle Street
Suite 1900
Chicago, Illinois 60602
(312) 427-0701
info@maldef.org

FOR THE GONZALES PLAINTIFFS:

Mr. David Fox
Mr. Richard A. Medina
Elias Law Group
250 Massachusetts Avenue NW
Suite 400
Washington, DC 20001
(202) 987-5010
dfox@elias.law
rmedina@elias.law

1 **APPEARANCES: (continued)**

2 **FOR THE PLAINTIFF MEXICAN AMERICAN LEGISLATIVE CAUCUS:**

3 Mr. Sean McCaffity
4 Mr. George (Tex) Quesada
5 Sommerman, McCaffity & Quesada, LLP
6 3811 Turtle Creek Boulevard, Suite 1400
7 Dallas, Texas 75219
8 (214) 720-0720
9 smccaffity@textrial.com
10 quesada@textrial.com

11 **FOR THE PLAINTIFF TEXAS NAACP:**

12 Ms. Lindsey Cohan
13 Dechert LLP
14 515 Congress Avenue, Suite 1400
15 Austin, Texas 78701-3516
16 (512) 394-3027
17 lindsey.cohan@dechert.com
18 and
19 Mr. Robert Weiner
20 Mr. Jeremy Lewis
21 Mr. David Rollins-Boyd
22 Ms. Jennifer Nwachukwu
23 The Lawyers Committee for Civil Rights Under Law
24 1500k NW
25 Washington, DC 20005
(617) 893-1322
rweiner@lawyerscommittee.org
drollins-boyd@lawyerscommittee.org
jlewis@lawyerscommittee.org
jnwachukwu@lawerscommittee.org
and
Mr. Carroll Rhodes
Law Offices of Carroll Rhodes
P.O. Box 588
Hazlehurst, MI 39083
(601) 894-4323

26 **FOR THE BROOKS PLAINTIFFS:**

27 Mr. Chad W. Dunn
28 Brazil & Dunn
29 1900 Pearl Street
30 Austin, Texas 78746
31 (512) 717-9822
32 chad@brazilanddunn.com

33

1 **APPEARANCES: (continued)**

2 **FOR THE BROOKS PLAINTIFFS:**

3 Mr. Mark P. Gaber
4 Mark P. Gaber, PLLC
5 P.O. Box 34481
6 Washington, DC 20043
7 (715) 482-4066
8 mark@markgaber.com

9 and

10 Ms. Molly Elizabeth Danahy
11 Molly E. Danahy, Esq
12 P.O. Box 51
13 Helena, Montana 76112
14 (406) 616-3058
15 danahy.molly@gmail.com

16 and

17 Ms. Sonni Waknin
18 Sonni Waknin, Esq
19 6417 N. Figueroa Street, #10
20 Los Angeles, California 90042
21 (732) 610-1283
22 sonniwaknin@gmail.com

23 and

24 Mr. Jesse Gaines
25 Jesse L. Gaines Attorney at Law
6015 Meadowbrook Drive
Fort Worth, Texas 76103
(817) 714-9988
gainesjess@ymail.com

FOR THE CONGRESSIONAL INTERVENORS:

17 Mr. Gary L. Bledsoe
18 The Bledsoe Law Firm
19 6633 East Highway 290, Suite 208
20 Austin, Texas 78723-1157
21 (512) 322-9992
22 garybledsoe@sbcglobal.net

23 gbledsoe@thebledsoelawfirm.com

24 and

25 Mr. Robert Notzon
Law Offices of Robert Notzon
1502 West Avenue
Austin, Texas 78701
(512) 474-7563
robert@notzonlaw.com

1 **APPEARANCES: (continued)**

2 **FOR THE STATE DEFENDANTS:**

3 Mr. Ryan G. Kercher
4 Mr. William Francis Cole
5 Mr. William D. Wassdorf
6 Mr. Steven Loomis
7 Ms. Ali Thorburn
8 Mr. Zachary Berg
9 Mr. David Bryant
10 Mr. Anthony Rodregous
11 Office of Texas Attorney General
12 P.O. Box 12548
13 MC 009

14 Austin, Texas 78711
15 (512) 936-2613
16 ryan.kercher@oag.texas.gov
17 william.cole@oag.texas.gov
18 will.wassdorf@oag.texas.gov
19 steven.loomis@oag.texas.gov
20 ali.thorburn@oag.texas.gov
21 zachary.berg@oag.texas.gov
22 david.bryant@oag.texas.gov
23 anthony.rodregous@oag.texas.gov

24 and
25 Mr. William Thomas Thompson
26 Lehotsky Keller Cohn LLP
27 Special Litigation Unit
28 408 W. 11st Street, 5th Floor
29 Austin, Texas 78701
30 (210) 286-0806
31 will@lkefirm.com

32 and
33 Mr. Trevor E. Ezell
34 Office of the Governor
35 P.O. Box 12428
36 Austin, Texas 78711-2428
37 (5120) 463-1788

38 Also in Attendance:
39 Mr. Richard Rienstra
40 Ms. Katherine McKnight

41 Court Reporter:
42 Laura Wells, RPR, RMR, CRR
43 601 Rosenberg, Suite 615
44 Galveston, Texas 77550

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**DAY 9
(INJUNCTION HEARING)**

	Page
October 10, 2025	
Reporter's Certificate.....	168

ALPHABETICAL

WITNESSES	Page
SEAN TRENDE, Ph.D.,	
Direct Examination (cont.) By Mr. Kercher	6
Cross-Examination By Mr. Gaber	79

EXHIBIT INDEX

PLAINTIFFS' EXHIBITS

EXHIBIT NUMBER	OFFERED	ADMITTED
Plaintiffs' Exhibit Number 520	137	139
Plaintiffs' Exhibit Numbers 521 and 522	140	141

DEFENDANTS' EXHIBITS

EXHIBIT NUMBER	OFFERED	ADMITTED
State Defendants' Exhibit Number 571	26	26

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PROCEEDINGS

(Call to order of the Court.)

JUDGE GUADERRAMA: Good morning, everyone.

Please be seated.

08:31:36

Dr. Trende is on the witness stand.

Mr. Kercher.

SEAN TRENDE, Ph.D.,

having been previously duly sworn, testified as follows:

DIRECT EXAMINATION (continued)

08:31:40

BY MR. KERCHER:

Q. All right, Dr. Trende. When we left off yesterday we had been talking about the whole robot workload, if you will. You start with information. You have to do something to merge that information into a shapefile or some other product that you can then feed to the robot, and the robot then gives you outputs.

08:32:03

Do I have that right so far?

A. That's a good summary.

Q. If we talk about the data with which you start and then the merging process and then the shapefile, is it right to say -- because I've got an arrow here from all three of those things to the robot.

08:32:15

Is it right to say the data, the merge process, and the resulting shapefile are what we call the inputs?

08:32:30

A. Yes.

1 Q. In order to evaluate another expert's work who is
2 using a map drawing robot, which of those pieces, if any,
3 do you need?

08:32:44

4 A. Well, to make sure you have got it right, you need the
5 shapefile. It's ideal to have all three so that you can
6 check to see whether there is any errors made in the
7 merging process.

08:33:02

8 Q. Is it right to say that you also need the robot
9 inasmuch as you need the code that the other map drawing
10 expert runs?

11 A. Yeah. Having the robot is that R code. That much you
12 have.

08:33:13

13 Q. Can you describe for the Court what information you
14 got from Dr. Barreto in support of his map drawing
15 project?

16 A. So I got a script, an R Script that ran the
17 simulations. And I believe the step one data is all
18 provided as well.

08:33:36

19 Q. So when you say you got a script, is it right to say
20 that that means functionally you got the code, you got the
21 robot; is that right?

22 A. Yeah. Yeah.

23 Q. What else did you get?

08:33:49

24 A. I believe he provided the data on the left, but I'm
25 not sure.

1 Q. When you say you are not sure about whether he
2 provided the data on the left, why don't you know?

3 A. It was a big production from stuff from August to
4 today. I believe there were some representations in some
08:34:03 5 of the back-and-forth that that was made available. But
6 there was also a direction to a web page from the State of
7 Texas that had something like 200 shapefiles on it. So
8 I'm not entirely sure.

9 Q. Okay. So when you say a direction to a website from
08:34:22 10 the State of Texas, is that the Texas Legislative Council
11 website, TLC?

12 A. That's right.

13 Q. When you say there is a direction to it, what do you
14 mean by that?

08:34:30 15 A. We were referred to the web page that had some 200
16 files on it.

17 Q. Were you given a description specifically of the data
18 files of which of those 200-some-odd data files
19 Dr. Barreto relied on?

08:34:44 20 A. There wasn't a specific name but, I mean, I suppose
21 you could have figured it out eventually but it would
22 require a lot of weeding through files.

23 Q. Okay. When we talked yesterday about the merging
24 process, I understood you to say that there are choices
08:34:58 25 that can be made in the merging process. Is that true?

1 **A.** That's right.

2 **Q.** And I think you told us -- and this is just by
3 background to move things along. I told the Court we
4 would get you off the stand in two hours -- there are
08:35:10 5 mistakes then that you can make in the merging process; is
6 that right?

7 **A.** That's right. There is judgment calls and mistakes.

8 **Q.** The merging process, is that usually identified or
9 shown in the code you receive from a map drawing expert?

08:35:25 10 MR. McCAFFITY: Objection. Leading.

11 BY MR. KERCHER:

12 **Q.** Can you tell the Court whether or not the merging
13 process code is typically provided by map drawing experts?

14 MR. McCAFFITY: Objection. It's still leading.

08:35:35 15 I don't think "whether or not" fixes it. He suggested the
16 subject. He should just ask what is the usual --

17 JUDGE GUADERRAMA: I don't think it suggests an
18 answer.

19 BY MR. KERCHER:

08:35:45 20 **Q.** Dr. Trende?

21 **A.** I always provide it. Typically you receive it.

22 **Q.** Why do you provide it?

23 **A.** Because my understanding from litigating and having
24 done this is that the purpose of this exercise is to let

08:35:56 25 the opposing expert check your work.

1 Q. Well, I don't want to make a lawyer out of you but --
2 well, you are a lawyer. I don't mean to make you into a
3 lawyer in this case.

4 When you provide your data -- when you provide your
08:36:10 5 merging code, is that a function of -- is that for
6 transparency purposes or some other reason?

7 A. I don't want to do it, because it makes me nervous,
8 did I do something wrong that I'm going to get caught on.
9 But, again, I think the purpose of exchanging this is that
08:36:26 10 the other side gets to see what you do and go behind your
11 back and see if you did something wrong.

12 Q. Did you get Dr. Barreto's merging data?

13 A. No.

14 Q. Excuse me. Merging code?

08:36:35 15 A. No.

16 Q. Did you get the result of Dr. Barreto's merging
17 process?

18 A. No.

19 Q. Did you get Dr. Barreto's output or his maps?

08:36:49 20 A. No.

21 Q. We spoke yesterday about the F-READ command that we
22 saw in Dr. Barreto's code and about the shapefile that you
23 had placed in there.

24 Do you remember that?

08:37:15 25 A. Yes.

1 Q. Did you -- I think you just testified you did not
2 receive Dr. Barreto's shapefile; is that right?

3 A. That's right.

08:37:26

4 Q. So when you got Dr. Barreto's code, instead of the
5 shapefile that we saw in that code that you placed in the
6 demonstrative yesterday, what was there?

7 A. There was something -- it just said file name, which
8 is sort of a generic placeholder. There is some file that
9 goes in there.

08:37:41

10 Q. I'll represent to you that it said filepath.
11 Does that sound right?

12 A. Oh, filepath? Okay. Same sense.

13 Q. Are you aware of a reason for a map drawing expert not
14 to produce the shapefile that goes in that line of code?

08:37:57

15 A. I really can't think of any.

16 Q. Can you tell from the data you received whether or not
17 the shapefile Dr. Barreto used would have been saved
18 somewhere such that he could have produced it?

08:38:14

19 A. Since it's being read in with that F-READ command, I'm
20 assuming it's saved somewhere.

21 Q. Are those shapefiles large? Are they difficult to
22 produce? Do you know?

23 A. They are not small, but I regularly zip them up and
24 put them up on a Google Drive and then transfer them over

08:38:30

25 and they make their way over to the plaintiffs. So it can

1 be transported pretty easily.

2 **Q.** We've heard a little bit about how Dr. Duchin uses a
3 little bit different process. She is using a different
4 coding language.

08:38:42 5 Does she still have to have shapefiles to do what she
6 does?

7 **A.** Yes.

8 **Q.** Did you receive Dr. Duchin's shapefiles?

9 **A.** I believe so.

08:39:00 10 **Q.** We've heard a little bit about split precincts in the
11 context of drawing maps and the context of Dr. Barreto's
12 analysis and his reports.

13 Can you split precincts and shapefiles that gets fed
14 into your map drawing robot?

08:39:14 15 **A.** Yes. So that's one of the judgment calls that has to
16 be made when you are setting up your -- when you are
17 processing the data to set up your shapefile for
18 simulations. How do you handle split precincts? Because
19 in the enacted map there is always going to be some split
08:39:32 20 precincts.

21 My practice is to split the precincts exactly the same
22 way the enacted map did. That way it's at least
23 theoretically possible to produce the enacted map.

08:39:43 24 **Q.** Well, let me ask you, Dr. Trende. You talk about your
25 practice. Is your practice borne out in the code that you

1 provided as a part of your production in this case?

2 **A.** Yes. If you follow through my code, you'll see where
3 I did it.

4 **Q.** Did you get that code from Dr. Barreto?

08:39:54

5 **A.** I didn't. So I don't know if he did the same thing.

6 **Q.** Do you know how Dr. Barreto made choices like whether
7 and how to split precincts?

8 **A.** No. And there is other choices like how to weight the
9 data when you dis- -- when you aggregate it or

08:40:07

10 disaggregate it. You can weight it by population. You
11 can weight it by voting age population. You can weight it
12 by CVAP.

13 Those all give you slightly different answers. And
14 there is no clear right answer; but if you are trying to
15 reproduce outputs, you want to make sure you make the
16 choices the same.

08:40:22

17 **Q.** Well, if there is no clear right answer, then does it
18 matter whether you get the information about those choices
19 or not?

08:40:32

20 **A.** Well, it does. Because it can alter your output.

21 **Q.** Have you ever caught serious errors by double-checking
22 the work of other redistricting experts in litigation?

23 **A.** Yeah. So in the *Rucho* case, the gerrymandering case
24 out of North Carolina, the opposing expert produced -- he

08:40:54

25 had a model for figuring out how to handle cases where

1 someone was unopposed, to figure out how many -- try to
2 create the universe where they had been opposed, how many
3 votes the -- so for Republicans unopposed, you would
4 estimate how many votes the Democrat would have gotten if
5 the Democrat had run in that race.

08:41:11

6 And when I went back and reproduced the output and dug
7 into the code, it turned out that his model was producing
8 negative votes.

9 **Q.** Dr. Trende, have you ever been an expert in a case
10 opposite Dr. Kosuki Imai?

08:41:26

11 **A.** Yes.

12 **Q.** Did you receive simulation output from him?

13 **A.** Yes.

14 **Q.** Now, we have been talking about the inputs that you
15 did not receive from Dr. Barreto and the output that you
16 did not receive from Dr. Barreto. If you had received all
17 of his inputs, would you have had what you needed in order
18 to evaluate whether Dr. Barreto undertook his map drawing
19 project correctly?

08:41:36

20 **A.** Yes. You can make mistakes on the merge. I had
21 another case in New York where it turned out that there
22 was a slight error made in the indexing of the VTDs and
23 the maps were -- that were produced were noncontiguous.
24 You wouldn't be able to do that without the code.

08:41:51

25 **Q.** Is it right to say -- well, let me ask you.

08:42:08

1 Which do you need in order to evaluate another map
2 drawing expert's project? The input or the output?

3 **A.** I think either is probably sufficient. The input is
4 probably the more important.

08:42:23 5 **Q.** Okay. In this case, have you produced all of your
6 outputs?

7 **A.** In this phase of the trial, yes.

8 **Q.** What about for the trial that we had earlier this
9 year? Did you produce your outputs; that is, the maps
10 that your map drawing robot drew?

11 **A.** No.

12 **Q.** Why not?

13 **A.** Because at that point I didn't understand how to
14 transfer the gigantic output. I think somewhere along the
15 way I figured out that you could put it up onto Google
16 Drive, like we talked about, and transport it that way.
17 The files are too large to email. And so what I did was I
18 did something called setting a seed.

19 **Q.** What is setting a seed, Dr. Trende?

08:43:05 20 **A.** So setting a seed is you put a number into R and it
21 guarantees that the numbers that are produced after are
22 all going to be the same. So it makes random choices the
23 same way so that they can reproduce the output perfectly,
24 based on your inputs in your code.

08:43:21 25 **Q.** So when we're talking about setting a seed in your

1 code, does that mean you are setting a seed in the robot?

2 **A.** Right.

3 **Q.** So by setting a seed and producing all of your inputs,
4 were you -- did you produce in the first part of this
5 trial the information necessary for other experts to
6 reproduce precisely the maps that your robot drew?

08:43:42

7 **A.** It should do that, yeah.

8 **Q.** Did Dr. Barreto set a seed?

9 **A.** No.

08:44:11

10 **Q.** Dr. Trende, have you ever been in a case involving
11 simulated maps or a map drawing exercise where the
12 opposing expert refused to produce the shapefiles
13 necessary to reproduce the work?

14 **A.** No.

08:44:22

15 **Q.** Are you aware of any reason, of any good reason why an
16 expert might refuse to turn over that central piece of
17 information?

18 **A.** I really can't.

08:44:39

19 MR. KERCHER: Richard, please bring up what has
20 been marked for identification purposes as State
21 Defendants' Exhibit 1586 and is offered here for
22 demonstrative purposes only.

23 BY MR. KERCHER:

24 **Q.** Dr. Trende, it's a little fuzzy, but do you recognize
25 this?

08:44:50

1 **A.** I do.

2 **Q.** Is this your production from the trial phase?

3 **A.** It is.

4 **Q.** And I see the code is numbered. What does that mean?

08:44:57

5 **A.** That means you run it in that order. So you open 1,
6 make the maps, run that. Open 1B, make the comparison
7 maps, run that. And it is set up so that it will create
8 the file structure to sort the maps -- the output by
9 subject, so it's organized in the output.

08:45:18

10 I even inserted language to save the simulation, so if
11 the expert on the other side wanted to see the output and
12 keep it around, it would do that for them. It's
13 everything you need.

08:45:31

14 **Q.** Which one of these, if you could point to it, and it's
15 not -- and I don't know whether one of these is actually
16 the portion, but can we see here in these scripts that you
17 have provided which of them is the script to merge the
18 data you used?

19 **A.** That would be the "make the maps" file, number one.

08:45:43

20 **Q.** The very first one?

21 **A.** Yes.

22 **Q.** Did Dr. Barreto give you code like that?

23 **A.** No.

08:45:53

24 MR. KERCHER: Richard, could you please bring up
25 1587.

1 BY MR. KERCHER:

2 **Q.** Dr. Trende, do you recognize this?

3 **A.** I do.

4 **Q.** It's a little blurry.

08:46:00 5 Can you walk us through it, please? What is it, and
6 what does it mean?

7 **A.** So this is my code for making the shapefile, taking
8 the -- so you download publicly available data. Okay?

9 And that is what you start out -- I don't make you do
08:46:17 10 that. I produce all the publicly available data in the
11 folder.

12 And then this is the exact code that makes my
13 shapefile that gets fed into the redistricting
14 simulations.

08:46:30 15 And so there is a note at the top that kind of tells
16 you how to set up the folders. You would have to -- that
17 set working directory, set WD, you would have to change
18 that to whatever the expert on the other side uses for
19 their working directory. It's something that would make
08:46:47 20 perfect sense to someone who programs in R.

21 And then everything else, all these -- is it red? I'm
22 color-blind. Orange?

23 **Q.** So we've got TX 2016, 2020 that's in green.

24 **A.** Green. There you go.

08:47:01 25 All the green stuff are -- that's really green?

1 Q. Yes, sir.

2 A. The green stuff is stuff that gets read in. Those are
3 files that are available -- if you go back to that
4 original folder, you would actually see all these files in
5 that folder that I produced.

08:47:20

6 Q. Well, what about saving information as you go? Does
7 the code that we see here show us whether and how you do
8 that?

9 A. Yeah. So as I go, as I produce maps, so if there is
10 an image, there would be a command in there "ggsave"; and
11 it should have a command to create the folder that it
12 would go into. And then it would save the document.

08:47:33

13 I inserted language at the end whenever I'm running
14 simulations to save the simulation outputs. So that would
15 be available.

08:47:48

16 Q. Are those things that you do so that you are sort of
17 leaving a trail of breadcrumbs for other experts to be
18 able to follow the steps that you followed?

19 A. Yeah. I'm not going to claim that I'm perfect on
20 getting everything right every time, but I just try to
21 make it so that it can be replicated.

08:47:59

22 Q. I'll represent to you that when Mr. Barreto was on the
23 stand, Mr. Dunn talked to him about something called an
24 interim shapefile.

08:48:11

25 Are you familiar with that?

1 **A.** I would understand that to be the shapefile that gets
2 fed in, but I don't know.

3 **Q.** Dr. Trende, how long did it take you -- once you had
4 your data and your code set up, how long did it take you
5 to run simulations?

08:48:28

6 **A.** In this case?

7 **Q.** Yes, sir.

8 **A.** About 48 hours for all of them.

9 **Q.** And did you save your outputs?

08:48:40

10 **A.** I did.

11 **Q.** Did you produce your outputs to the plaintiffs?

12 **A.** I did.

13 **Q.** Okay. How many times did your computer crash while
14 you were running your simulations?

08:48:50

15 **A.** It didn't.

16 **Q.** Is it a fancy computer?

17 **A.** It's a Dell laptop.

18 **Q.** I mean, Dells could be fancy.

19 **A.** It's about three and a half years old. So it's nice,
20 but not fancy.

08:48:59

21 **Q.** Dr. Trende, do you know whether you have successfully
22 reproduced Dr. Barreto's outputs?

23 **A.** So eyeballing them, some of my charts look the same as
24 his. So I'm comfortable saying I got at least close, but

08:49:18

25 I don't know if I perfectly replicated them. I don't know

1 if there is, like I said, technical issues with the maps
2 that he produced.

08:49:29

3 **Q.** Well, I mean, there is a line in your report -- and I
4 don't have the page number. But there is a line in your
5 report where you suggest that you were able to reproduce
6 his simulated maps.

7 Did you or didn't you?

08:49:43

8 **A.** I got output and I believe it's close because our
9 maps, a couple of our charts look the same. But I can't
10 know precisely if I did it the same or if they are
11 slightly off in a way that matters because of an error
12 made in the merge.

13 **Q.** Now, we've heard testimony about a Dr. Cory McCartan.
14 That's M-c-C-a-r-t-a-n.

08:49:59

15 Do you know Dr. McCartan?

16 **A.** I'm acquainted with him.

17 **Q.** Does he testify in redistricting cases?

18 **A.** He does.

19 **Q.** Have you ever been opposite of him in a case?

08:50:08

20 **A.** Yes.

21 **Q.** To your knowledge has he ever testified on the side of
22 a map drawn by Republicans?

23 **A.** Not to my knowledge.

08:50:17

24 **MR. KERCHER:** Richard, could we please go to
25 Brooks Exhibit 284, page 31. Go to the third full

1 paragraph, please.

2 BY MR. KERCHER:

3 **Q.** Dr. Trende, have you read this?

4 **A.** Yes.

08:50:28

5 **Q.** This is part of Dr. Barreto's rebuttal report, right?

6 **A.** Yes.

7 **Q.** And this is the email that Dr. Barreto produced from
8 Dr. McCartan to Dr. Barreto; is that right?

9 **A.** That's right.

08:50:46

10 **Q.** It reads [as read:] To your point, for that article
11 we included the code and underlying shapefiles for our
12 Pennsylvania and Florida analyses in the replication
13 package that is published alongside the article.

14 Did I read that correctly?

08:50:59

15 **A.** You did.

16 **Q.** I know Dr. McCartan didn't write the letter to you;
17 but as an expert reviewing another experts' discussion of
18 it, when you read Dr. McCartan talking about producing
19 underlying shapefiles and code, do you understand

08:51:17

20 Dr. McCartan to be discussing the inputs we have
21 discussed?

22 **A.** At the very least, the thing that's labeled shapefile
23 on the chart, the thing that gets fed directly into the
24 simulations.

08:51:28

25 **Q.** Did Dr. Barreto comply with Dr. McCartan's

1 recommendation in this case?

2 **A.** I don't believe so. Because whatever shapefile data
3 was provided wasn't sufficient to recreate the analysis
4 without additional code writing.

08:51:41

5 MR. KERCHER: Richard, let's go the next page,
6 please.

7 BY MR. KERCHER:

8 **Q.** Dr. Trende, this is an email, also a part of
9 Dr. Barreto's rebuttal report, from Dr. Imai.

08:51:50

10 Have you seen this?

11 **A.** I have.

12 **Q.** Dr. Imai testifies in cases, doesn't he?

13 **A.** He does.

08:51:56

14 **Q.** And has he ever, to your knowledge, testified on the
15 side of a map drawn by Republicans?

16 **A.** Not to my knowledge.

17 **Q.** In the first full paragraph it reads [as read:] You
18 are only expected to deposit your code in the original
19 input data (shapefiles, VTD, election data, census data,
20 et cetera).

08:52:12

21 Do you see that?

22 **A.** Yes.

23 **Q.** Did Dr. Barreto do that here?

08:52:19

24 **A.** I don't believe so, because it doesn't have the data
25 that has the shapefiles that actually run the simulations.

1 Q. A little further down in the letter Dr. Imai
2 references what looks like an article, "Replication Data
3 for Widespread Partisan Gerrymandering."

4 Do you see that?

08:52:33

5 A. I do.

6 Q. Are you familiar with that?

7 A. I am.

8 Q. What is that? Is that an academic article or what?

9 A. Yes. It's an academic article.

08:52:39

10 Q. Have you reviewed that academic article?

11 A. I have reviewed the article and the replication data.

12 Q. Is that publicly-available?

13 A. It is. There is a website. All you have to do is
14 Google the article title, and it's one of the first things
15 that comes up.

08:52:53

16 Q. Okay. And in support of the article that Dr. Imai
17 references, can you tell the Court whether Dr. Imai
18 published his outputs as a part of that article?

19 A. Yeah. If you go to this replication data site, the
20 second file you see is saved simulations. The third file
21 you see is saved simulations. The first file is a read.
22 It is just a text file. But the actual simulation output
23 is right there on the page that he references.

08:53:05

24 Q. Have you seen Dr. Imai's input for that article?

08:53:21

25 A. Yes. It's on the --

1 Q. Have you seen Dr. Imai's output for that article?

2 A. Just to double-check, to make sure I was seeing what I
3 thought I saw, I downloaded the files, read them into R;
4 and they are simulated maps produced by code on this page.

08:53:36

5 Q. Have you seen Dr. Duchin's input for her map drawing
6 project in this case?

7 A. I believe so, yes.

8 Q. Have you seen Dr. Duchin's output for her map drawing
9 project in this case?

08:53:46

10 A. We requested it from her and it took a while, but she
11 provided us with, like, 800 gigabytes of data.

12 Q. Have you seen Dr. Barreto's input in this case?

13 A. I haven't.

14 Q. Have you seen Dr. Barreto's output in this case?

08:54:00

15 A. I haven't.

16 Q. All right, Dr. Trende. Let's talk about your report.

17 MR. KERCHER: Richard, could we please bring up
18 State Defendants' Exhibit 571.

19 BY MR. KERCHER:

08:54:17

20 Q. Dr. Trende, this is the report that you supplied on
21 September 22nd, prior to this hearing; is that right?

22 A. That's right.

23 MR. KERCHER: Your Honors, State defendants offer
24 State Defendants' Exhibit 571, Dr. Trende's supplemental

08:54:32

25 expert report, in support of this preliminary injunction

1 hearing.

2 (State Defendants' Exhibit Number 571 offered
3 into evidence.)

08:54:43

4 JUDGE GUADERRAMA: Plaintiffs, any objection to
5 571?

6 MR. GABER: Can you say that again?

7 MR. KERCHER: State defendants offer State
8 Defendants' 571, which is Dr. Trende's supplemental
9 report, the only report that he has produced in support of
10 this preliminary injunction hearing.

08:54:54

11 MR. GABER: No objection, Your Honor.

12 JUDGE GUADERRAMA: All right. State Defendants'
13 571 is admitted.

14 (State Defendants' Exhibit Number 571 admitted
15 into evidence.)

08:55:02

16 BY MR. KERCHER:

17 Q. All right. On page 1 of your report, Dr. Trende --

18 MR. KERCHER: And for the record, Dr. Trende is
19 pretty sophisticated with PDFs and so the first two pages
20 of his PDFs don't have numbers, like you might expect with
21 a table of contents. So page 1, if you are just thumbing
22 through it by paper, is actually the third piece of paper.

08:55:13

23 BY MR. KERCHER:

24 Q. Dr. Trende, the first part of your report discusses

08:55:28

25 Dr. Barreto's original opinions about split VTDs, right?

1 **A.** That's right.

2 **Q.** What is your basic response to Dr. Barreto's notion
3 that the number of split VTDs or the nature of the split
4 VTDs may be evidence of racial discrimination?

08:55:42

5 **A.** I don't really see that, because there is a lot of
6 reasons you might split a VTD besides race. You might
7 split it for population equality. You almost always have
8 to split at least as many VTDs as you have districts. You
9 can split it because it keeps a neighborhood intact or you
10 can split it because it gives the district a more regular
11 shape. You can't just say there is 440 split VTDs,
12 therefore, race was used.

08:55:59

13 **Q.** We mentioned yesterday, as we were looking through
14 some of the R code, of the number, the total number of
15 VTDs in Texas; and I don't recall what it was exactly, it
16 was like 9,200 or 9,700; is that right?

08:56:14

17 **A.** Well, that includes the split VTDs, so it would make
18 the total number of VTDs on an order of 8,800.

19 **Q.** In your experience, is there some percentage of VTDs
20 that get splits that raises a red flag in analyzing
21 whether or not a redistricting draw might be an
22 unconstitutional gerrymander?

08:56:32

23 **A.** I am not familiar. Usually when people do this kind
24 of work, they go through and illustrate the VTDs to show
25 how they are split heavily on the basis of race. That

08:56:47

1 comes up -- came up in a North Carolina case I was in.

2 It's in a Mississippi case that I'm in right now,
3 examining a demonstration map where, when you go through
4 the VTDs the expert split, it's obvious that they follow
5 racial boundaries.

08:57:08

6 **Q.** The Court has heard ad nauseam about the different
7 sizes of census geographies, the VTDs, and the blocks are
8 smaller.

9 Can you tell the Court whether or not the only data
10 available at the block level is racial data?

08:57:20

11 **A.** That's the way most of -- well, no. That's not even
12 true. Because you get the shape of the map overall as you
13 are working through it. So you can see on the screen if
14 there is a weird protrusion from a VTD that you want to
15 cut off.

08:57:38

16 You get the street map underneath it. You almost
17 always have a map underneath your image you are working
18 with so you can see whether the VTD follows a street
19 boundary or if you have to trim it to make it conform to
20 the street boundary.

08:57:53

21 **Q.** Is it possible to get somehow, whether off the shelf
22 or by derivation, partisan data at the block level?

23 **A.** So I don't think off the shelf you can get that.
24 Whether you can derive it, I mean, they would have to have
25 substantially more resources than I have. But, I mean,

08:58:11

1 parties do all kinds of crazy microtargeting. You know,
2 they will get the *Guns and Ammo* magazine subscription list
3 and use that to target Republican voters. So I don't know
4 what they can do with that type of backing.

08:58:27

5 **Q.** You talked about some of the non-racial reasons that
6 there might be for splitting a VTD.

7 Did you describe any of these in your report?

8 **A.** Yes.

08:58:45

9 MR. KERCHER: Richard, let's please go to page 5
10 of Dr. Trende's report, Exhibit 571, Figure 3.

11 BY MR. KERCHER:

12 **Q.** Dr. Trende, what do we see here?

08:59:01

13 **A.** So this is an example of a VTD that is split. And so
14 what I have done, Judge Guaderrama asked yesterday about
15 whether you can produce, even down to the census block
16 levels, the shapefiles. And this is an example where I
17 have pulled the census blocks for Precinct 004140, shaded
18 them using the data that's contained on the relevant lines
19 by the White voting age population in every one of the
20 census blocks. And then I have illustrated how they are
21 split between the two districts.

08:59:22

22 **Q.** And what, if anything, do we see by evaluating the way
23 it's split -- well, let me ask you this: Where is it
24 split? It's not immediately evident to me where

08:59:41

25 Precinct 4140 -- and this is in District 18 under the '25

1 map; is that right?

2 **A.** It's split between 18 and 22.

3 **Q.** Okay.

08:59:52

4 **A.** So if you look in the bottom right corner, you can see

5 that white square. That actually is labeled 18. And what

6 has happened is the precinct boundary crosses a street.

7 And the map drawer has -- where the red arrow is pointing.

8 And the map drawer has gone in and shaved an unpopulated

9 portion off to bring the district boundary to follow the

09:00:12

10 street boundary.

11 **Q.** Well, if that's in the middle of a road, do you know

12 whether that is a populated area?

13 **A.** These are unpopulated blocks.

14 **MR. KERCHER:** Richard, let's please go to page 6,

09:00:22

15 Figure 4.

16 **BY MR. KERCHER:**

17 **Q.** Dr. Trende, what do we see here?

18 **A.** So this is one that there is some population involved.

19 This is Precinct 003009.

09:00:34

20 **Q.** This is again in District 18 under the 2025 map?

21 **A.** Well, it's split between District 22 and District 18.

22 **Q.** Okay.

23 **A.** And so you can look. The portion in District 18 has a

24 population of 564, which in a district of 700-some-odd

09:00:54

25 thousand people isn't going to make a huge impact. It has

1 a BVAP of 15 percent. The portion outside has a more
2 substantial population, 3,530, and a BVAP of 5 percent.

3 But, again, if you were trying to segregate by race
4 when you are drawing your districts, you would bring that
09:01:13 5 boundary up a little bit closer to the 18 number. And
6 then you would have it follow around that long stretch of
7 low White voting age population around that really large
8 census block in the center.

9 **Q.** If I'm following you, you are saying the effective
09:01:34 10 racial gerrymander would take 18 along the northwest
11 diagonal, if you will, of what is 22 in this VTD; is that
12 right?

13 **A.** That's right. There is a lot of kind of low White
14 voting age population areas that get missed and some high
09:01:51 15 White voting age populations that get brought into 18 with
16 this.

17 **Q.** So a racially targeted split VTD should be made of
18 sterner stuff. Is that fair?

19 **A.** This is a pretty incompetent racial gerrymander.

09:02:12 20 MR. KERCHER: Richard, let's please go to page 8
21 of Dr. Trende's report 571, Figure 6.

22 BY MR. KERCHER:

23 **Q.** Dr. Trende, what do we see?

24 **A.** So this is one -- it's split between 18 and I believe
09:02:27 25 -- yeah, 22. And what has happened is you can see the VTD

1 as drawn has this like kind of tongue that sticks out at
2 the bottom that would give it a weird shape. And so the
3 map drawer has sliced that little tongue off of the bottom
4 so that the district boundary is more regular. That is a
5 street. And so this is a split VTD that accomplishes
6 nothing in terms of racial or political makeup because
7 there is no people in those blocks. It's purely to smooth
8 out the boundary of the map.

09:02:49

9 MR. KERCHER: Richard, page 15, please, of 571,
10 Figure 13.

09:03:08

11 BY MR. KERCHER:

12 **Q.** All right, Dr. Trende. You put a bunch of these in
13 your report and the Court will have the opportunity to
14 look at all of them, but this is the last one you and I
15 are going to look at today.

09:03:16

16 What do we see on page 15, Figure 13 of your report?

17 **A.** Yeah. And so what I have done is I have gone
18 through -- there is no way I could go through all 444
19 precincts. So I just selected District 18 and I went
20 through all the split precincts in District 18, put a map
21 up of them so you could see the splits, and described the
22 populations in 18 and out of 18. So that's what you'll
23 see when you read the report.

09:03:29

24 But what this does is this is a precinct in northern
25 Houston. And so you can see there is two splits of it.

09:03:46

1 And the first split in the northeast between 29 and 18,
2 that's another one where it is shaved to bring -- the
3 precinct crosses over an interstate, and so the district
4 boundary is shaved. There is no population in that
5 portion of 29 in the northeast. It's shaved to bring it
6 coterminous with the interstate. So that district -- and
7 if you look on the map, District 18 follows that
8 interstate boundary all the way across.

09:04:05

9 The portion on the western part, if you look at the
10 District 18 map, it follows a straight line on kind of a
11 diagonal between 18 and 29. What that is really doing,
12 there is a railroad that runs there. It follows the
13 railroad line the entire way. And so what this cut
14 portion does is bring the district boundary in line with
15 the railroad.

09:04:24

09:04:44

16 **Q.** Now, if we were to look at all 440 split precincts --
17 and I'm not asking you to guess here, but based on your
18 experience, would you anticipate that some of them might
19 look like they draw races into one part of the split VTD
20 as opposed to the other?

09:05:06

21 **A.** I would be surprised if there weren't some that did
22 that.

23 **Q.** Is it possible to do that without intending to do
24 that?

09:05:14

25 **A.** Yes. I mean, in America different racial groups

1 cluster or tend to cluster together. And a lot of times
2 neutral boundaries, like interstates or city boundaries,
3 can separate those groups. So sometimes by just following
4 interstates or railways, you can end up with a map that
5 has some racial disparities in how the precincts are
6 split.

09:05:32

7 **Q.** Overall, Dr. Trende, your report I think has 19
8 precinct splits that you evaluate. We are mercifully just
9 showing the Court four today.

09:05:50

10 How many of those precinct splits have unpopulated
11 portions?

12 **A.** Four.

13 **Q.** Of the remaining 15, how many involve a population
14 split of fewer than 500 people?

09:06:01

15 **A.** Seven.

16 **Q.** And in a congressional district of over 750,000 total
17 population, is that going to make or break for purposes
18 either of a partisan or a racial gerrymander?

19 **A.** It's unlikely to do so.

09:06:17

20 **Q.** Of the remaining eight, how many involve situations
21 where a higher BVAP portion is in 18?

22 **A.** Five.

23 **Q.** Does it surprise you that it's not exactly 50/50?

24 **A.** No. First, even if it's random, it's -- having five

09:06:35

25 out of eight isn't that unusual. But, again, we know that

1 racial groups cluster. So the fact that there might be
2 some differences, even if you are drawing indifferently to
3 race, isn't shocking.

09:06:51

4 **Q.** Of the 15 populated precinct splits that we talked
5 about, how many involve situations where the difference in
6 the BVAP included in 18 and excluded from 18 is greater
7 than 15 percentage points?

8 **A.** I believe it's four.

09:07:08

9 **Q.** And in how many of those cases is the higher BVAP
10 portion of the split VTD put into 18?

11 **A.** Two.

12 **Q.** All right.

13 MR. KERCHER: Richard, let's please go to page 21
14 of State Defendants' 571.

09:07:21

15 BY MR. KERCHER:

16 **Q.** Dr. Trende, this portion of your report begins or is
17 entitled "Response to First Barreto/Rios Report."

18 Do you remember?

19 **A.** Yes.

09:07:28

20 **Q.** And so you are responding not to Dr. Barreto's
21 rebuttal report, obviously, but to his first report
22 submitted -- or submitted in support of -- first two
23 reports submitted in support of this preliminary
24 injunction hearing; is that right?

09:07:43

25 **A.** That's correct.

1 Q. Okay. Dr. Barreto uses some dot density maps in those
2 reports; is that right?

3 A. That's correct.

09:07:55

4 Q. Are those, in your view, a useful or particularly
5 helpful way to conduct the kind of analysis that he
6 attempts?

7 A. I don't think so.

8 Q. Why not?

09:08:05

9 A. So dot density maps are useful when you are trying to
10 show the concentration of different groups. It gets back
11 to what we're talking about with the *Nairne* case. If you
12 think that population compactness is an important portion
13 of the VRA -- and this is how I use dot density plots --
14 then the dot density plots will demonstrate to you whether
15 different racial groups are compact or not. So it will
16 show you population density for individual racial groups,
17 and you can see clusters and whatnot.

09:08:25

18 If you -- but for purposes of racial gerrymandering or
19 wanting to know how a district is drawn, the fact that you
20 see a cluster of Black residents doesn't tell you about
21 the actual precinct because there may be 500 Black
22 residents, which is going to produce a lot of dots, but
23 there could be 10,000 White residents, which would
24 actually make it a, you know, a precinct that you would
25 want to -- if you were racial gerrymandering, to put into

09:08:40

09:08:59

1 the White district.

2 So for this type of inquiry, it's just not that
3 useful.

09:09:10

4 **Q.** And we're just talking about how we're visualizing
5 demographics at this point; is that right?

6 **A.** Right. When I'm examining how a map gets drawn, I'll
7 typically use the choropleth map, which is the shaded map,
8 because that tells you like where there is a high
9 concentration of Black voters relative to White voters.

09:09:25

10 The dot density just tells you that there are many
11 Black voters there. But if you are in a city, you are
12 going to have a lot of precincts that have lots of Black
13 residents; but it could still be in a heavily White area.
14 It doesn't show up if you just show dots for Black
15 residents.

09:09:40

16 **Q.** And we saw choropleth maps or heat maps from
17 Dr. Barreto at trial; is that right?

18 **A.** Yes.

09:09:49

19 MR. KERCHER: Richard, could we please go to
20 page 23 of State Defendants' 571, Figure 20.

21 BY MR. KERCHER:

22 **Q.** Dr. Trende, let's look at how you visualize a
23 population in your report. I am noticing, by the way, a
24 theme here of purple and yellow and green shading.

09:10:03

25 Does this help you with your color-blindness?

1 **A.** It does. And it is a neutral criteria. It also will
2 print out better than red and blue.

3 **Q.** Saving your cyan for later?

4 **A.** Exactly.

09:10:17 5 **Q.** Dr. Barreto -- Dr. Trende, can you tell the Court what
6 we're looking at here in Figure 20 of your report?

7 **A.** So for this I have taken the precincts in the Houston
8 area and I have shaded them by Donald Trump's two-party
9 vote share. We talked about these somewhat at the trial
09:10:34 10 phase. And so they are clipped so that anything below
11 30 percent shows up as yellow. Anything above 70 percent
12 shows up as that dark color. I'm not even going to hazard
13 a guess what the name is.

14 **Q.** Fair.

09:10:48 15 **A.** But, anyway, it's a heat map. And so you can see
16 there it is this heavy cluster of low Trump performing
17 precincts around downtown Houston; and that they are
18 crammed into Districts 29, 18, and 7.

19 MR. KERCHER: Richard, could we zoom in to see
09:11:05 20 sort of Central Harris County so we can really see
21 Districts 7, 18, and 29. That may be a little close.

22 Thank you, Richard. Can we go to page 24, please,
23 Figure 21.

24 BY MR. KERCHER:

09:11:36 25 **Q.** All right. Dr. Trende, what is the Court looking at

1 in Figure 21 of your report?

2 **A.** So this is another map that should be familiar from
3 the trial phase. We spent a fair amount of time
4 discussing it on direct and cross. These are maps where,
5 you know, most of the heavily minority precincts are going
6 to be Democratic. So it's hard to disaggregate that way.

09:11:51

7 So my idea was to look at the more heavily White
8 precincts and see if they follow any pattern according to
9 politics. And so these are the heavily White -- the White
10 plurality precincts only, shaded red if Trump won and blue
11 if Harris won. And as you can see, there are a lot of
12 heavily White precincts that are in fact put into 29, 18,
13 and 7. They just tend to be the precincts that voted for
14 Kamala Harris.

09:12:08

15 **Q.** And so to make sure, because this is showing multiple
16 layers and this is not immediately intuitive to me, the
17 portions of Harris County here that are not shaded red or
18 blue, are those non-White plurality precincts?

09:12:26

19 **A.** They are plurality of some other race.

20 **Q.** And so then the red-shaded portions of Harris County
21 in Figure 23 [sic] are the White plurality precincts that
22 voted for Trump?

09:12:45

23 **A.** Yeah. So it's Figure 21. But yes.

24 **Q.** Thank you.

09:13:02

25 And then the blue-shaded portions of Harris County in

1 Figure 21 are the White plurality precincts that voted for
2 Harris, fair majority; is that right?

3 **A.** That's correct.

4 MR. KERCHER: Now let's go to page 26, please,
5 Richard, Figure 23.

09:13:17

6 BY MR. KERCHER:

7 **Q.** Dr. Trende, what do we see here?

8 **A.** So there was -- this is one of those things that I was
9 kicking myself the whole plane flight home for not coming

09:13:29

10 up with on the stand, but there was a vigorous back and
11 forth about whether it was misleading to show only
12 plurality White precincts. In some of those plurality

13 White precincts, White might be the most common race but
14 there might be a heavy concentration of, if you add them
15 together, a coalition of non-White residents and so --

09:13:45

16 **Q.** Mr. Gaber is a tenacious cross-examiner, isn't he?

17 **A.** It was a very good cross-examination.

18 **Q.** So what have you done, if anything, to address his
19 critique for this report?

09:13:58

20 **A.** Well, what I should have thought of is that majority
21 White precincts are a subset of plurality White precincts.
22 I mean, a majority is also a plurality, because it would
23 be the most common racial group. So plurality is sorted
24 out. Then the subset of majority White precincts will

09:14:17

25 also likely be sorted by race.

1 And so to address it, I went ahead and took the
2 critique seriously and looked only at the majority White
3 precincts. And it's the same thing. If anything, I think
4 it's a little bit more dramatic. The majority White
09:14:33 5 precincts are in District 7. You have a few in
6 District 29. Some in District 18. But they tend to be
7 the ones that voted for Kamala Harris.

8 MR. KERCHER: Richard, can we again, please, zoom
9 in on Central Harris County to see a little bit. Thank
09:14:51 10 you.

11 BY MR. KERCHER:

12 Q. Now, I mean, are there actually differences between
13 Figures 21 and 23? They don't look identical, I guess.

14 A. No. No. They are not identical. There are some
09:15:03 15 differences. There is going to be fewer precincts because
16 you are filtering out plurality White but not majority
17 White precincts. But still, if your goal is to segregate
18 by race, you would go in and you would get those heavily
19 White precincts in Districts 7 and 18 and 29. But if you
09:15:22 20 were really concerned about the politics, you would want
21 to keep them out, which is what happens.

22 Q. Okay. So we have been talking about what politics
23 look like in Harris County, even if you are doing a sort
24 of racial evaluation.

09:15:34 25 MR. KERCHER: Let's turn now to the DFW area.

1 Richard, will you please take us to page 30 of 571,
2 Figure 24.

3 BY MR. KERCHER:

09:15:48

4 **Q.** Dr. Trende, can you tell the Court what they are
5 seeing now?

09:16:04

6 **A.** So this is the same heat map except of the Dallas and
7 Tarrant County area. I think I did something similar at
8 the trial phase. But you can see almost all the low Trump
9 performing precincts are crammed into Districts 30, 33,
10 and then in 25.

11 **Q.** Now, this makes it look like District 25 is probably a
12 Democratic district. Is it?

09:16:30

13 **A.** Well, it's -- one of the stunning outcomes of this
14 election is that when you go outside of Tarrant County and
15 get the rural counties in District 25, they gave Donald
16 Trump about 85 percent of the vote, which means that
17 including those rural counties gives you a big buffer to
18 then go into Tarrant County and soak up a lot of
19 Democratic precincts, while still producing a heavily
20 Trump district.

09:16:50

21 **Q.** And, Dr. Trende, just so the record is clear, we're
22 looking at Figure 24, I think, which is just Dallas and
23 Tarrant Counties.

09:17:11

24 Does District 25 on the enacted map stop at the
25 southern border of Tarrant County?

1 **A.** It does not. It actually goes down and loops around.
2 It goes into Parker County a little bit, which District 12
3 also goes into; and then it goes pretty far into West
4 Texas.

09:17:25 5 **Q.** And what about District 12? It looks like it's got
6 some Harris voters there. Does it operate the same way as
7 District 25 for partisanship purposes?

8 **A.** Yeah. It goes into Parker County, which is another --
9 the Parker County portion of this district gave Trump
10 close to a 50 point margin.

09:17:41

11 MR. KERCHER: Richard, can we please go to
12 page 31, Figure 25 in 571.

13 BY MR. KERCHER:

14 **Q.** All right, Dr. Trende. Following the same pattern as
09:17:56 15 we did in Harris County, first we look at the partisan
16 heat map.

17 What do we see in Figure 25?

18 **A.** So this is, again, the White plurality precincts. And
19 you can see that where White plurality precincts are
09:18:09 20 included in 30 or 33, they tend to be Harris precincts.

21 25, not as perfect, but tends to be the same thing.

22 And where the White plurality precincts are in the
23 other districts, they tend to be either more red or they
24 tend to be districts that extend into very red portions of
09:18:31 25 rural Texas.

1 MR. KERCHER: Okay. If you go to page 32,
2 Figure 26.

3 BY MR. KERCHER:

4 **Q.** Dr. Trende, is this where, again, you address the
09:18:40 5 critique from trial about looking at White majority
6 districts as opposed to White plurality districts?

7 **A.** Yes. And so, again, if your goal were to segregate by
8 race while you are drawing your districts, that cluster in
9 the Dallas area of White majority precincts would probably
09:18:55 10 go into a different district.

11 Instead, they are separated out because those are
12 heavily Harris precincts that are also heavily White.

13 **Q.** We have heard a lot about packing and cracking in the
14 racial context. If we're looking at the cluster of Harris
09:19:11 15 voters there in Dallas, maybe in the northeast corner of
16 Dallas, is that cracking those Democratic voters?

17 **A.** Yes.

18 **Q.** Now, you performed similar analyses for Bexar County
19 and the Travis County area?

09:19:30 20 **A.** That's right.

21 **Q.** Did you come to similar conclusions?

22 **A.** I did.

23 MR. KERCHER: Okay. Richard, let's go to
24 page 35, please.

09:19:41 25 BY MR. KERCHER:

1 Q. "Simulations overview." Dr. Trende, this is really,
2 despite the fact that I think we're more than halfway into
3 your report, this is really the sort of meat of it, isn't
4 it?

09:19:50 5 A. I think so. Probably, yes.

6 Q. Why do you start this portion of your -- why do you
7 talk about a simulations overview or a map drawing project
8 overview instead of diving right into a critique?

9 A. So it's sort of like the same reason that we have that
09:20:06 10 overview at the beginning about how R works. We have
11 talked so much about the map drawing robots and R code, I
12 thought it would be useful to slow down a bit and actually
13 talk about what it is we are doing and how these things
14 work. So there is a, you know, five-page vignette just
09:20:23 15 explaining how simulations work and what their limitations
16 are.

17 Q. I don't want to belabor the point because, as you say,
18 the Court has heard a lot about it; but at the basic
19 level, why do we undertake -- why do we -- why do folks
09:20:38 20 like you undertake map simulating projects?

21 A. So when we say a map is a gerrymander, what we really
22 are at least trying to say is that it's an outlier. It's
23 something that you wouldn't expect to get in the state if
24 you weren't drawing without drawing on political or racial
09:20:55 25 data.

1 The problem is that to make that statement, you have
2 to actually know it's an outlier. You have to know what
3 the universe of available maps is. And Dr. Duchin has
4 estimated there is some astronomically large -- literally
5 astronomically large number of maps available, without
6 constraints placed on them. Something on the order of the
7 number of atoms in the universe or something like that.

09:21:11

8 So we can't go through and enumerate all of the maps.
9 And so instead the -- what has kind of developed is this
10 idea of using the simulations to create a sort of poll of
11 maps. We can't draw them -- we can't draw them all in the
12 same way that we can't talk to all 300 million Americans
13 to get their public opinion. Instead, we randomly call a
14 thousand Americans and there is a map that demonstrates
15 that, with some error margins, we'll know we're pretty
16 close to -- if we got the randomness right, it will be
17 pretty close to public opinion.

09:21:24

09:21:41

18 And so, in the same way, we try to use the simulations
19 to draw a sample of maps. And if the enacted map is weird
20 compared to that sample of maps, then we can start to say,
21 okay, you know, this really is an odd outcome.

09:21:56

22 **Q.** Your report describes two different simulation
23 techniques. Very quickly, what are they?

24 **A.** So the first is the merge-split family of simulations.

09:22:15

25 And the second is the Sequential Monte Carlo or SMC family

1 of simulations.

2 **Q.** Let's start with merge-split. And I think we heard
3 some of this from Dr. Duchin.

4 Who uses merge-split?

09:22:28

5 **A.** So the merge-split was something that was developed by
6 Dr. Duchin. It's been implemented in this R package by
7 Dr. Imai. Dr. Barreto also uses it here.

8 **Q.** Okay. How does it work?

09:22:47

9 **A.** So the idea with merge-split is that you start with a
10 map, and you pick one district at random. You pick an
11 adjacent district. You melt those two districts together
12 into a sort of super district, and then you re-split those
13 districts. And that's a new map. Okay. So that's going
14 to be step one.

09:23:04

15 Then you pick another map or another district at
16 random. You pick an adjacent district. You merge those
17 two districts together. You re-split them, and so that's
18 another map.

09:23:18

19 Then you take that map; and you pick another district
20 at random, maybe it's the district you just split, and
21 pick a district adjacent to it. You merge them together
22 and split them.

09:23:32

23 And the idea is that eventually you start exploring
24 the entire state space of maps that are available. The
25 math behind it is complicated, but if you run it enough

09:23:47

1 times that progression of maps will eventually -- if you
2 run it an infinite number of times, you wouldn't back draw
3 every map available. Of course, that would take an
4 infinite amount of time, so we cut that amount of time we
5 run it; but you get a sample of maps that way.

09:24:06

6 **Q.** So sort of like monkeys on a typewriter, if given
7 enough time, will eventually type *Hamlet*. If we give the
8 computer enough time walking through these steps of
9 redrawing maps, we could eventually redraw all the maps;
10 is that right?

09:24:16

11 **A.** Well, so in that analogy, actually, the producing
12 *Hamlet* would be like a gerrymander. Because a
13 gerrymander -- I mean, it actually works. *Hamlet* would be
14 a gerrymander because a gerrymander is a very specific way
15 that the map is structured.

09:24:31

16 What the monkey is more likely to do is just hit A, A,
17 A, A, A, B or whatever and is the type of maps that
18 merge-split will do when it's just operating blindly. And
19 so that is the precise idea is that if what is produced is
20 really *Hamlet*, it should take a very, very long time for
21 this redistricting simulation to produce that enacted map.

22 **Q.** When you say it would take a very long time, does that
23 mean because it's unlikely?

24 **A.** Yes.

09:24:42

25 **Q.** Another analogy, because we are talking about

1 randomness here, in other words, the thing that I was
2 thinking about is flipping a coin. And I was taught if I
3 flip a coin ten times, there is nothing unusual about
4 getting heads all ten times. Is that math correct?

09:24:57

5 **A.** I think ten times it gets pretty unusual.

6 **Q.** Is it possible?

7 **A.** It's possible.

09:25:10

8 **Q.** But if I flip the coin 100 times or a thousand times,
9 is it right to say that the number of times that I get
10 heads and the number of times that I get tails will even
11 out over time?

12 **A.** It should start to converge on 50/50.

09:25:27

13 **Q.** When you talk about merge-split, if we start with a
14 district that is a square, merge-split will then take an
15 adjacent district, is that right?

16 **A.** Right.

09:25:51

17 **Q.** So let's say on top of the square district you have a
18 rectangular district. Tell me if this is correct.
19 Merge-split will merge these two spaces together and then
20 redraw the line between them somehow; is that right?

21 **A.** It will do it under certain constraints.

09:26:10

22 So, for example, it would make sure that those two
23 chunks were equipopulous, because you can't draw a legal
24 map where the districts aren't the same population. So
25 for that division to work, there would have to be an equal

1 number of people.

2 And then there is a number of constraints that the
3 user can put on it with different degrees. There is kind
4 of tuning knobs of how strong the constraint is. So you
5 can say, I want it to draw really compact districts. And
6 so then it would probably avoid that split because that
7 would make the district substantially less compact.

8 **Q.** So when merge-split merges the square with the
9 rectangle and draws a new line between them, not any old
10 line will do; is that right?

11 **A.** Well, again, it depends how strong you make your
12 constraints. But that's right. It will act according to
13 the constraints you place upon it.

14 **Q.** Okay. We've been talking about merge-split. Can you
15 tell us what the other kind is? My favorite mathematical
16 term I think I have ever heard.

17 **A.** Sequential Monte Carlo.

18 **Q.** What is that?

19 **A.** Sequential Monte Carlo is -- so merge-split has some
20 problems. The -- when we talk about that --

21 **Q.** Hold on, Dr. Trende.

22 Does merge-split have some problems?

23 **A.** Well, yeah. To understand why SMC exists, you have to
24 understand some of the problems, because it was developed
25 to address them.

1 Q. Okay. What problems with merge-split led to the
2 development of Sequential Monte Carlo?

3 A. Well, we have talked about the progression of maps.
4 You may have heard the term Markov chain thrown around.
09:27:33 5 That progression of maps is a Markov chain. And so it's a
6 Markov chain Monte Carlo technique.

7 One of the problems with Markov chains is they can get
8 stuck. They can find a configuration that they really
9 like, and they can't get out of that configuration. And
09:27:52 10 so you don't explore the entire state space.

11 So what Sequential Monte Carlo says is, rather than
12 doing this kind of dependent progression where the maps
13 that I can produce are dependent on the configuration that
14 I have in the preceding step, I'm just going to draw maps
09:28:11 15 from scratch every time.

16 And so the Sequential Monte Carlo says, okay, let's
17 take the universe of precincts. We are going to split
18 them up into districts the same way a map drawer would do.
19 That's a map. Save it. Start over from scratch.
09:28:28 20 Generate another way of doing it.

21 So by approaching the problem that way, it doesn't
22 have the problem of the chain kind of going around,
23 exploring space, and then finding a really nice
24 configuration of districts and being unable to leave that
09:28:42 25 configuration of districts.

1 Q. Okay. Dr. Trende, your report describes an analogy
2 about Mars rovers. Can you describe that for the Court?

3 A. Yes. So what happens with the Markov chain, imagine
4 we want to -- I'm going to shift from maps or polls to a
09:29:04 5 moon somewhere that we can't travel to. And so we want to
6 know the properties of this moon. And what we do, keeping
7 with the robot theme, we shoot a rover onto that moon.
8 And the rover makes random choices. And every six hours
9 or so it fires a picture back to Earth or some data back
09:29:24 10 to Earth.

11 And as the rover makes its random choices and ideally
12 eventually it goes across the entire surface of the moon
13 and we have a good sample of what the properties of that
14 moon is -- are.

09:29:41 15 Q. What happens next?

16 A. Well, maybe our rover lands in a crater. And so it
17 goes around for a couple days and makes random choices,
18 but it can't get out of the crater. That's what happens
19 with Markov chain Monte Carlo when it finds a really nice
09:30:01 20 configuration. It's stuck, and it can't get out.

21 Now, if you let it go an infinite number of times,
22 eventually it makes a random choice that finds the path
23 out of the crater; but it can take a very, very long time,
24 especially if it's an unlikely choice.

09:30:13 25 And so that's what I mean by Markov chains can get

1 stuck.

2 **Q.** Have you ever seen a picture of a crater on Earth?

3 **A.** I have.

4 **Q.** Is that representative of all the things that you
5 might see if you were to travel the entire planet?

6 **A.** No. That's the problem with it getting stuck is that
7 you let it run a really long time, so you think you have
8 explored the entire planet; but really, you have just seen
9 the crater. You haven't gotten a true random sample.

10 **Q.** So what is the solution to the robot in the crater
11 under the merge-split technique?

12 **A.** So it's -- it can be a solution, done right, which is
13 you launch eight probes or 16 probes. And the odds that
14 they all land in craters are pretty low. And so you let
15 them all go around the planet. And this is the key. When
16 they all start showing the same basic results, okay, so
17 you don't have one of them that's still showing things
18 that are indicative of the crater, that means that all
19 your robots or your rovers have gotten out of any craters
20 or whatever and they have all explored the surface of the
21 planet or the moon.

22 Then you have a good random sample but -- and so the
23 nice thing is, because you have multiple robots going
24 around, you can tell because all their data starts to look
25 the same. You can tell when you have actually explored

1 the entire moon.

2 And that's called convergence when all the data starts
3 to look the same. That means you have thoroughly explored
4 the state space, and you have your nice random sample that
5 you were hoping for.

09:31:46

6 **Q.** Okay. So that's merge-split, the problems that can
7 arise, how you might address them.

8 How, if at all, is Sequential Monte Carlo different?

9 **A.** Sequential Monte Carlo is different because you are
10 basically continually bombarding the planet with probes
11 that just send back one picture. And you are randomly
12 targeting the map. And so it draws -- if the rover lands
13 in the crater, it draws a map of what the crater is like.
14 And then the rover lands on a different part of the planet
15 and draws a map of what that's like. And then it lands
16 again. Because every map that the Sequential Monte Carlo
17 program is drawing is independent of what the last map is.
18 So it doesn't matter if you land in a crater once, because
19 the next probe is unlikely to land there.

09:32:04

09:32:22

20 **Q.** Are there limitations to the usefulness -- and not to
21 use a legal term here, but we've talked about probes. Are
22 the useful -- are there limitations to the probativeness
23 of mapping simulations in your line of work?

24 **A.** There are. Because, first off, you might not get the
25 random sample. The other thing is that, by their nature,

09:33:02

1 these maps don't want to draw -- or these techniques don't
2 want to draw gerrymanders.

3 As Dr. Duchin said the first time she was testifying,
4 these -- because of the spanning tree approach -- I will
09:33:24 5 throw out some jargon -- they tend to draw compact
6 districts naturally. And so that is actually great if you
7 are in a state where partisan gerrymandering has been
8 outlawed. You have some specific thing. You know, the
9 maps have to be compact. You can't pay attention to what
09:33:41 10 incumbents want. So there is no worry about, you know,
11 getting the district office in Geryville in the right
12 place.

13 And so the -- but when you start wanting to do
14 something where a map looks really ugly and you are trying
09:33:53 15 to decide whether it's race or politics, and political
16 gerrymandering is completely legal, it's hard to
17 get -- it's hard to force these things to draw maps that
18 look like what the map drawer did because they just
19 naturally draw compact districts.

09:34:07 20 **Q.** Okay. Dr. Trende, as you are working with your map
21 drawing robot, you described a number of choices that can
22 get made about the parameters that you feed the robot and
23 how it's going to sort of weight or prefer the choices it
24 can make and how to draw maps.

09:34:23 25 Are there diagnostics that you can run in this code in

1 order to make sure that you are doing things correctly?

2 **A.** There are.

3 **Q.** Can you describe those for the Court?

4 **A.** It's real simple. You get your output and you type in

09:34:36

5 summary, parentheses, whatever your output file is called,

6 close parentheses. And it will give you diagnostics on

7 whether or not you have achieved convergence, diagnostics

8 on whether you have poor acceptance rates, and it will

9 tell you in no uncertain terms you have done it wrong if

09:34:57

10 you have done it wrong.

11 **Q.** When you say -- let me back up.

12 Because it sounds like you said this is something you

13 just type in a code command; is that right?

14 **A.** That's right.

09:35:07

15 **Q.** So is this something that happens at the robot stage

16 of the map drawing project?

17 **A.** So after the robot is done drawing, it won't do it on

18 its own, you have to type in -- so let's say the robot

19 draws its maps and you have done the assignment thing in R

09:35:24

20 and you have assigned it the name output, just to keep it

21 simple. Okay? Your next command would be summary,

22 parentheses, output, close parentheses. And it will go

23 through, and it will tell you if you have done it right.

24 **Q.** Do you run diagnostics when you produce your maps?

09:35:42

25 **A.** Yeah. Since I've learned about this, all the time.

1 Q. Is that something that shows up in code or that gets
2 produced or no?

3 A. Usually. I mean, it is the type of thing you might do
4 in the console window. But for something like this, I
5 would probably put it in my code. It's in my code that we
6 produced to plaintiffs here.

09:35:56

7 Q. In order to demonstrate that you had in fact run the
8 diagnostics?

9 A. That's right.

09:36:05

10 Q. Based on the code that you received from Dr. Barreto,
11 does it look like he ran diagnostics?

12 A. The commands aren't in there. And based on what
13 happens when you run those commands, I'm skeptical.

14 Q. You said that for your report in this case you
15 produced the diagnostics for the map drawing project that
16 you undertook.

09:36:36

17 Can you describe the results of the diagnostics you
18 got for the maps that your robot drew?

19 A. Every set of maps failed at least one of the
20 diagnostic criteria, and when you get the --

09:36:52

21 Q. For your maps or Dr. Barreto's?

22 A. Well, they are the simulations that I produced that I
23 think are at least similar to what he did.

24 Q. Okay.

09:37:05

25 A. Which is why it would be really nice to have his

1 actual simulation output so I could say, yes, I ran it on
2 his maps.

3 But on what I produced, every time a set of maps got
4 produced, I ran the summary command. And you get a bright
09:37:19 5 red X with a warning in all caps and then a list of what
6 is wrong.

7 **Q.** Dr. Trende, do any of Dr. Barreto's maps, insofar as
8 you were able to create them, pass the diagnostic metrics
9 in R?

09:37:37 10 **A.** No.

11 **Q.** Do you have an opinion, as an expert who uses R for
12 map drawing simulations, as to whether any of
13 Dr. Barreto's maps are reliable?

14 **A.** They aren't. They needed to either run longer or they
09:37:54 15 needed to have the constraints relaxed.

16 **Q.** And you used a contraction. I'm going to make sure
17 the record is clear. Your answer was they are not?

18 **A.** They are not.

19 MR. KERCHER: Richard, let's please go to page 43
09:38:06 20 of Exhibit 571.

21 BY MR. KERCHER:

22 **Q.** Dr. Trende, while that comes up, your day job is as
23 the senior elections analyst for RealClearPolitics?

24 **A.** That's right.

09:38:19 25 **Q.** And so there you are evaluating the competitiveness of

1 congressional districts?

2 **A.** Correct.

3 **Q.** We have heard this term a couple of times. What does
4 "PVI" stand for?

09:38:30

5 **A.** That is Partisan Voting Index.

6 **Q.** Is that a tool that you use to evaluate congressional
7 districts as a part of your ordinary work?

8 **A.** All the time.

9 **Q.** Can you explain it again briefly to the Court?

09:38:40

10 **A.** So to really understand why it's important, in 1984,
11 Ronald Reagan wins nationally, gets 60 percent of the
12 vote. He actually manages to win Massachusetts that year
13 with 41.5 percent of the vote. Okay? If you just looked
14 at Massachusetts being 41 -- 51.5 percent Republican, you
09:38:59 15 might conclude that Massachusetts is a Republican state,
16 which of course it isn't. It was just such a good
17 environment for Ronald Reagan that when he is winning
18 nationally with 60 percent of the vote, that wave floods
19 over into Massachusetts.

09:39:15

20 But if you were to draw a bunch of congressional
21 districts that year that were 51.5 percent Republican, in
22 a normal environment, when the wave recedes, the
23 Republicans are going to lose them all because those
24 districts are like eight points to the left of the
09:39:29 25 national environment.

1 And so what we usually do when we are evaluating
2 congressional districts is we subtract the congressional
3 district value from the national value when we are using
4 presidential. And we evaluate the districts relative to
5 presidential national vote share because we want to know
6 what is going to happen in a 50/50 situation. That's the
7 true lean of the districts.

09:39:45

8 **Q.** Why does that matter here?

9 **A.** Well, because in 2020 Donald Trump loses the popular
10 vote by four points. So a district that's 50 percent plus
11 one Republican, using the 2020 presidential data, will
12 have a slight Republican lean to it. It's still going to
13 be a vulnerable seat. If you are trying to gerrymander,
14 you don't want to draw it.

09:40:00

15 In 2024, surprising everyone, including myself, he won
16 the popular vote by two points. And so using 2024 data,
17 that 50 percent plus one district is actually going to
18 have a slight Democratic lean to it and the Republicans
19 will be favored to lose, favored to lose it outright in a
20 neutral environment.

09:40:14

21 **Q.** Well, so what does that tell us about what a
22 Republican partisan gerrymander -- gerrymanderer would
23 want regarding a Trump 50 plus one district under the 2024
24 numbers?

09:40:33

25 **A.** You really wouldn't want that under the 2024 numbers

09:40:52

1 because it would actually be a district we would consider
2 to have a Democratic lean because it would be to the left
3 of President Trump's 2024 vote share.

4 So for an elections analyst, presidential vote numbers
09:41:11 5 53 percent, you tell me a Republican carried a district by
6 53 percent of the vote. The first thing I want to know
7 is, okay, well, what was the presidential candidate's
8 national vote share, because that 53 percent has no
9 meaning. It might have been a year like 1984 where the
09:41:24 10 Republican is blowing it out and that district will
11 usually elect a Democrat. That is why.

12 **Q.** What does that mean for the way that Dr. Barreto is
13 attempting to draw his simulation?

14 **A.** So the first simulation sets from his first report are
09:41:38 15 using that 50 percent plus one cutoff to define a
16 Republican district.

17 **Q.** Is that an effective way to measure a Republican
18 partisan gerrymander?

19 **A.** It is not. Because some of the districts he is
09:41:50 20 counting in his first report as Republican wins are
21 actually districts that anyone who evaluates elections and
22 congressional districts as part of -- as a job, they would
23 consider those to be Democratic districts.

24 **Q.** Now, in that -- you are talking about the first
09:42:11 25 report. And the Court knows that Dr. Barreto produced a

1 report that was attached to the preliminary injunction
2 motions and then made a supplemental one prior to your
3 response report.

4 Is that what we're talking about, that first one?

09:42:23

5 **A.** Exactly.

6 **Q.** In that first report did Dr. Barreto load the right
7 map?

09:42:35

8 **A.** So I don't know. There are three sets of simulations.
9 The first two sets I don't believe I ever got any code
10 for. I have looked through all the code in the various
11 productions, and I haven't seen it. It might be buried
12 somewhere. I don't know.

09:42:48

13 The third simulation set you'll recall there is
14 hashtag -- in his code there is hashtags and then it says
15 "load up presidential data 2024 CVAP data" and then there
16 is a map to load up.

09:43:07

17 And for that, the third set of simulations in the
18 first map, the label that he affixes is the 2021 map. Not
19 the 2025 map. So that may be a mistake. Because I don't
20 have the input data, I can't tell. So I just have to take
21 him literally. And so my conclusion is that evaluates the
22 wrong map.

23 **Q.** Okay. So that's his August report.

09:43:21

24 Let's turn now to his September report or the second
25 one that he produced in support of this preliminary

1 injunction hearing.

2 He runs simulations on Districts 7, 18, and 29, all in
3 the Harris County area; is that right?

4 **A.** That's right.

09:43:34 5 **Q.** Does he do that correctly or is there a problem?

6 **A.** So part of the problem is that when you -- there is
7 pros and cons to this sort of envelope approach where you
8 only select a certain subset of districts and run the
9 simulations out of that. But the problem is that's not

09:43:50 10 really -- what the computer is thinking is that the only
11 precincts that were available to the map drawer are the
12 precincts that ended up in Districts 7, 18, and 29. But
13 we know that's not the case because the shape of those
14 districts changed. Like, the map drawer considered other
09:44:07 15 precincts that didn't end up ultimately in 7, 18, or 29.

16 So that's one problem with it. It's -- when you
17 constrict it that much, to two or three districts, you are
18 not giving the simulations room to breathe.

09:44:25 19 **Q.** Okay. Did you run diagnostics on the -- using the
20 code or your effort to reproduce Dr. Barreto's maps in his
21 September report?

22 **A.** Yes.

23 **Q.** Did you describe those diagnostics in your report?

24 **A.** Yeah. They are described on pages 45 and 46.

09:44:39 25 **Q.** Let's show the Court what you see when you run those

1 diagnostics.

2 MR. KERCHER: Richard, can you please bring up
3 what has been marked for identification purposes as State
4 Defendants' Exhibit 1594 as offered here for demonstrative
5 purposes only at this time.

09:44:52

6 BY MR. KERCHER:

7 Q. Dr. Trende, what are all these red Xs?

8 A. I'm going to be too honest. I don't think this is for
9 that set.

09:45:06

10 Q. Okay. Tell me what we are looking at.

11 A. This is the -- I believe this is for the fourth set of
12 simulations, which is South Texas.

13 Q. Okay. All right. So pretend I was just asking you
14 not about the Harris County area but about the South Texas
15 area so that Richard doesn't have to find something else
16 in a panic.

09:45:23

17 Did you run diagnostics for the simulations
18 Dr. Barreto drew in South Texas?

19 A. I did.

09:45:32

20 Q. Does 1594 show what you saw when you ran diagnostics
21 for those map simulations?

22 A. I believe so.

23 Q. What do those red Xs mean, Dr. Trende?

24 A. Yeah. Okay. I'm looking on page 51 where I describe
25 them, and it is -- so the red X means bad. Red Xs are

09:45:49

1 always bad. And so --

2 **Q.** Bad like how? Like, bad fixable, bad not the best, or
3 bad we can't rely on this?

4 **A.** Bad not reliable.

09:46:02

5 So you can see where it gives you the R-hat values for
6 summary statistics, the next line, full line down is the
7 red X, capitalized "WARNING: Chains have not converged."

09:46:22

8 That's what I was talking about with the robot. When
9 you launch multiple robots, you wait until all the
10 pictures look the same. And that means that nothing is
11 stuck in a crater. You have a nice random sample.

09:46:39

12 This red X means that the chains haven't converged.
13 And, in fact, none of the chains -- not for any of the
14 values are the different chains returning a similar
15 picture.

09:47:00

16 The R-hat value -- if you read down, R-hat values for
17 summary statistics should be between 1 and 1.05. And
18 these are as high as 2.536. There is a really narrow band
19 you can acceptability fall between, and these don't come
20 close.

21 **Q.** So you talked about in your analogy, when we are using
22 merge-split like Dr. Barreto does, that one way to avoid
23 the rover in a crater is that you send multiple rovers; is
24 that right?

09:47:18

25 **A.** Right.

1 Q. And once we start seeing similar images from all of
2 our rovers, that's when the chains converge, is the
3 language you used; is that right?

4 A. That's right.

09:47:26

5 Q. When you say that there was no convergence on any of
6 the chains, what does that mean? Does that mean there are
7 separate chains for each of those restrictions or each of
8 those metrics, like Hispanic CVAP?

09:47:42

9 A. Yeah. It means that you are not getting the same
10 picture from all the chains. So you don't have a random
11 sample you can reliably base inferences on. That is only
12 one of the problems.

09:47:57

13 The other problem you can see in the final conclusion,
14 "chain conversions increase the number of samples." But
15 then it says, "if you are experiencing low plan diversity,
16 address that issue first."

17 And there is low plan diversity. You can see the
18 chain acceptance rates are supposed to be above
19 10 percent. They are all around a tenth of a percent.

09:48:13

20 So there is really two problems with this set of
21 simulations.

22 Q. At the top or on the second line of what we are
23 looking at in 1594, it has the number 51,360 sampled
24 plans.

09:48:34

25 Is that the number of maps produced by Dr. Barreto's

1 map drawing project in South Texas?

2 **A.** That is the total number of -- that is the total
3 number of plans that the thing has sampled.

4 **Q.** Does that undersell the problem?

09:48:53

5 **A.** It does.

6 **Q.** How so?

7 **A.** Because these maps don't have to be -- you can -- so
8 one of the quirks of this -- and it's a good thing, but it
9 can also be a bad thing. One of the quirks is that it
10 will produce duplicate maps. So when you say five -- in
11 other words, it takes a district, it takes an adjacent
12 district, merges them together.

09:49:06

13 Well, maybe that first configuration is really, really
14 nice for the constraints. It's two really, really compact
15 districts.

09:49:24

16 It can split them the exact same way it did them -- it
17 split them -- that they were split originally. And it
18 will count those as two maps, even though they were the
19 same map.

09:49:37

20 Or it could pick a district, pick another district,
21 split them one way, and in the next step pick the two
22 districts and split them back the original way.

23 So when we say 51,000 maps, that doesn't mean 51,000
24 unique maps.

09:49:51

25 **Q.** Do you have any information on how many unique maps

1 Dr. Barreto's map drawing robot was -- made in his South
2 Texas project?

3 **A.** 107.

4 **Q.** 107 as opposed to 51,000?

09:50:11

5 **A.** It's 107 unique maps, and the rest are all duplicates
6 of those 107 configurations.

7 **Q.** Is that the way it's supposed to work, Dr. Trende?

8 **A.** It's not. That's what it means when it says low plan
9 diversity.

09:50:26

10 **Q.** Is that reliable?

11 **A.** It's not. I mean, even setting aside the convergence
12 issue, you just couldn't do much from a poll of 107.

13 **Q.** Okay. So I have showed you the diagnostics that lit
14 up like a Christmas tree in South Texas.

09:50:37

15 Did you run similar diagnostics for the other areas in
16 Texas that Dr. Barreto drew simulated maps?

17 **A.** Yes.

18 **Q.** Did you get similar results?

19 **A.** It doesn't always have the convergence issues. The
20 last two sets have these severe convergence issues. All
21 the rest of them, though, have severe plan diversity
22 issues, which is what you are supposed -- I mean, that's
23 what it prioritizes fixing.

09:50:49

24 **Q.** Can you tell us briefly about what you saw in

09:51:03

25 Districts 30 and 33 in the Dallas area?

1 **A.** So in 30 and 33, I think we actually have some images
2 of what is going on there.

3 **Q.** We might have at one point.

4 MR. KERCHER: Let's see. If we could go to
5 page 47 of Dr. Trende's report, Figure 30.
09:51:18

6 BY MR. KERCHER:

7 **Q.** Dr. Trende, is that what you have in mind?

8 **A.** Page 47, Figure 30.

9 **Q.** All right. We're literally on the same page.

10 Dr. Trende, what are we looking at at page 47,
11 Figure 30, of State Defendants' Exhibit 571?
09:51:33

12 **A.** So what I have done for this set is gone through and
13 picked -- remember, this is a chain, so it's a sequence of
14 maps. And so I started with map 14,000. And then every
15 10,000 steps, I pulled the map, and I produced the actual
16 map.
09:51:53

17 So this is the actual map that the simulations are
18 producing. The 14,000th map, the 24,000th map, the
19 34,000th map and so forth, up to map 124,000.

20 The reason I'm doing every 10,000 steps is that that
21 should give the map enough time to thoroughly mix, you
22 know, to really go through a lot of configurations. And
23 that's not what happens.
09:52:12

24 **Q.** So what we're looking at may be more intuitive to you
25 than it is to the Court.
09:52:29

1 When you say it's not what happens, what is it about
2 looking at the maps you have selected here for the Court
3 that tells you there is a problem with what Dr. Barreto
4 did when he ran his simulations?

09:52:43

5 **A.** Because they all look more or less the same. If they
6 all have that division cutting across at a 45-degree
7 angle, it really, really likes that configuration. And if
8 you look at it, you can see why, because that district in
9 the southwest is really compact in this configuration.

09:53:06

10 And it likes compact districts.

11 If it were to do what the -- all you have to do to get
12 the enacted plan would be to rotate that line about
13 45 degrees counterclockwise, and you would have the
14 enacted map. But it can't do that because that makes the
15 district in the southwest way less compact than it is in
16 the state space. It's stuck in a crater.

09:53:21

17 You let it run long enough, it will make a random
18 choice that weights the compactness less and it will get
19 out of that. That's what we mean when we talk about plan
20 convergence and the importance of letting simulations go
21 long enough. And it can take millions of steps to get out
22 of a crater.

09:53:37

23 But if you really want to create a random draw, a
24 poll -- what is happening here is he is basically polling
25 the El Paso area code and not the other area codes of

09:53:52

1 Texas.

2 **Q.** All right. Dr. Trende, I have drawn a very, very,
3 very, very rough approximation of Districts 30 and 33 put
4 together. And what we see in Dr. Barreto's maps, insofar
09:54:13 5 as you were able to reproduce them, is that you have a
6 line that sort of does this over and over again, more or
7 less. There is a diagonal that separates, let us call it,
8 the eastern portion from the bulk of the western portion.
9 Is that fair?

10 **A.** So, actually, if you move that line over to your
11 elbow. So left. Left. Left. There you go. Start it
12 there at that elbow.

13 If you look carefully, you can see that the split
14 always starts at the exact same point in the upper left in
09:54:45 15 every single map. It's always right at that elbow where
16 the combined district starts to loop back on itself. And
17 then there is just variations on where it goes.

18 **Q.** Okay. So the example that I tried to use earlier in
19 trial with Dr. Barreto, who was patient enough to sit
09:55:06 20 through my drawing as well, was that when you have an
21 overly weighted compactness variable with your robot, you
22 tend to get all Bulgaria and no Croatia.

23 Do you agree with that?

24 **A.** Yes.

09:55:23 25 **Q.** So here we have two districts that are relatively

1 compact that we see over and over again, is what you told
2 the Court, based on the simulations that you have in
3 Figure 30; is that right?

09:55:38

4 **A.** Yeah. That bottom left district is Bulgaria. It's a
5 nice circular district. There is not much you can do
6 about the other district. It has a weird boundary to
7 begin with. But it really likes how that bottom left
8 district gets drawn, and it has a hard time popping out of
9 it.

09:55:49

10 If the map drawer isn't similarly concerned about
11 compactness, then he is not going to be constrained in the
12 same way.

09:56:07

13 **Q.** So instead of drawing Bulgaria or two Bulgarias side
14 by side, a map drawer might draw something more like a
15 Croatia under the appropriate constraints; is that right?

16 **A.** That's right. Whatever a compactness constraint of 2
17 represents, if the map drawer is drawing under a
18 constraint of .05, then it's apples and oranges.

09:56:27

19 **Q.** Let's use another example. Let's use -- this is
20 obviously the Korean peninsula that I have drawn here.
21 Now you have North and South Korea, right?

22 **A.** Yeah. You have the DMZ.

23 **Q.** Dr. Barreto's map is drawing exclusively North and
24 South Korea; is that right?

09:56:43

25 **A.** That's right. Really likes that compact

1 configuration.

2 **Q.** But a map drawer might, unless overweighting
3 compactness, might draw something like southwest and
4 northeast Korea?

09:56:54

5 **A.** Yeah. Not even overweighting. Like the map drawer
6 might just have a different conception of what compactness
7 means.

8 **Q.** You mentioned a moment ago a compactness variable
9 of 2. Where did you get that?

09:57:08

10 **A.** That's what is used in Dr. Barreto's code.

11 **Q.** On cross-examination and maybe on direct Dr. Barreto
12 described that compactness variable as being a light nudge
13 towards compactness.

14 Do you agree with that description?

09:57:22

15 **A.** So the default is 1. And Dr. Duchin testified
16 correctly that these simulations tend to draw compact
17 districts naturally. So that's a light nudge towards
18 compactness. I mean, a light nudge is probably less
19 than 1; but because these are exponential terms, going
20 from 1 to 2 is increasing significantly the compactness
21 constraint past what the default is.

09:57:41

22 **Q.** We talked about, with Dr. Barreto's cross-examination,
23 that a linear progression is up by some amount and over by
24 some amount. So if you start with 50, for example, at 1,
25 then when you get to 2 -- if you start at 25 at 1 and you

09:58:00

1 get to 2, it will be 50; is that right?

2 **A.** That's right.

3 **Q.** Okay. But if it's exponential, that graph will curve
4 dramatically. Such as if you start out as 25 at 1 and you
5 get to 2, it will be 625; is that right?

09:58:25

6 **A.** That's correct.

7 **Q.** Which of these two, a linear progression or an
8 exponential progression, does the compactness variable in
9 R work on?

09:58:42

10 **A.** So my understanding of how it works for the target
11 distribution is it's actually the parameter you feed in --
12 the penalty that's applied is the parameter you feed in
13 times the perimeter of the district. That's how it builds
14 in Polsby-Popper, which is perimeter based.

09:58:56

15 So it's actually worse than that because it's going to
16 be your compactness variable times the perimeter of the
17 district. So you are actually talking about orders of
18 magnitude of differences in how heavily that's weighted
19 going from 1 to 2. And 1 is already drawing compact
20 districts because that's the default.

09:59:16

21 **Q.** We saw earlier when we were looking at the diagnostics
22 demonstrative there was low plan diversity and it had
23 figures of -- acceptance rates of something like
24 .3 percent to .2 percent.

09:59:32

25 Do you recall that?

1 **A.** Yes.

2 **Q.** What is the threshold for the software to accept plan
3 diversity?

4 **A.** It wants above 10 percent.

09:59:40

5 **Q.** Did Dr. Barreto's maps reach 10 percent?

6 **A.** None -- one set comes close but still falls short, and
7 the other ones are nowhere in the ballpark.

8 **Q.** When you talk about -- and we're looking still at
9 Figure 30. You provide a similar analysis in Harris

10:00:00

10 County in your report; is that right?

11 **A.** That's right.

12 **Q.** And there you describe Dr. Barreto and Mr. Rios as
13 conceding defeat from the outset.

14 What do you mean by that?

10:00:09

15 **A.** So they start out, they can't get the requisite number
16 of 59 percent Trump districts. And so they lowered the
17 threshold to 56 percent Trump districts.

18 **Q.** What does that mean? Why is that important?

19 **A.** Well, you are no longer doing what the map drawer
20 wants. We -- actually, in his opening report, Dr. Barreto
21 makes a big deal out of the fact that they found a
22 district that I think was 57 percent -- District 9 was
23 57 percent Republican, and that was unacceptable to them.
24 They wanted it to go up higher than that.

10:00:48

25 And so the fact that he is drawing 56 percent

1 Republican districts doesn't help us at all. I mean,
2 59 percent Trump districts are not a subset of 56 percent
3 Trump districts, especially when race and politics are
4 correlated. You are going to change the racial
10:01:07 5 composition of the districts by a fair amount. And so it
6 wouldn't be surprising that the enacted map would score
7 differently than the ensemble. It's different constraints
8 in a very meaningful way.

9 **Q.** We talked about the diagnostic problems, the lack of
10:01:24 10 plan diversity in a couple of instances, and I want to be
11 clear.

12 Is it the case that in all of the regional maps that
13 Dr. Barreto's robot drew, insofar as you were able to
14 create them, had the same diagnostic problems where they
10:01:37 15 had low plan diversity and where the chains were not quite
16 convergent?

17 **A.** They all had at least one of those problems.

18 **Q.** Did Dr. Barreto, in your opinion, properly account for
19 incumbency in the maps he drew?

10:01:51 20 **A.** He did not.

21 **Q.** Briefly explain why.

22 **A.** Because he doesn't account for it at all.

23 **Q.** Why does that matter?

24 **A.** That matters because it constrains the way the map

10:01:59 25 drawer can draw his district. And so -- and since

1 everything is interrelated, if the map drawer doesn't want
2 to put two Republican incumbents in the same district, it
3 changes the way the districts have to be drawn.

4 **Q.** Well, I'll represent to you that earlier in trial
10:02:14 5 Mr. Kincaid was on the stand talking about how he drew the
6 maps; and the Court asked him a question about why he did
7 not turn District 7 into partisan gerrymandering. And
8 Mr. Kincaid talked about some incumbent constraints to the
9 west of District 7 because those are all red seats.

10:02:34 10 Is that an example of how incumbency would constrain a
11 map drawer in the way that Dr. Barreto did not constrain
12 himself?

13 **A.** So not in this particular example because he is
14 setting Districts 7, 18, and 29 off to the side. But it's
10:02:49 15 an example of how it can work. That there might be a
16 configuration that the computer finds it likes that would
17 not be acceptable to the map drawer because it puts two
18 incumbents in the same district.

19 There are ways to make the program not put incumbents
10:03:03 20 in the same district, to be aware of this; but that is not
21 a constraint that I saw in the code. And so what ends up
22 happening is something like half of the districts in
23 Harris County have Republican incumbents -- or half the
24 maps produced have Republican incumbents in the same
10:03:18 25 district. It would be unacceptable to the map drawer if

1 he were concerned about incumbency.

2 **Q.** Did Dr. Barreto appropriately weight for core
3 retention in the maps he drew?

10:03:32

4 **A.** So that's another thing. When you are doing a
5 partisan draw, incumbents don't like to be thrown into
6 completely new territory because it renders them
7 vulnerable to primary challenges, they don't have the
8 relationship with the voters that they had before.

10:03:46

9 And so I went back and checked and for the Harris
10 County and statewide maps, none of them approached the
11 core retention of the enacted map.

12 **Q.** What is the lowest core retention in any Republican
13 incumbent district in the Harris County area, if you know?

10:04:06

14 **A.** I think it was around 50 -- it was 50-some percent.
15 59 percent, maybe.

16 **Q.** And what about in Dr. Barreto's simulations?

17 **A.** None of them did that. The highest core retention was
18 something like 41 percent in any district.

10:04:25

19 **Q.** And finally, Dr. Trende, Dr. Barreto drew some
20 statewide plans, right?

21 **A.** That's right.

22 **Q.** What is your opinion about his statewide maps?

10:04:39

23 **A.** The statewide maps, they have the problem of not
24 converging. You get the red Xs all over the place. None
25 of them have the acceptance rates at 10 percent. All of

1 them end up placed -- every single map in that set places
2 at least two Republican incumbents in the same district.
3 And none of the maps in that set produce a core retention
4 above 20 percent, as opposed to the enacted plan where, on
5 average, it's up at 64 percent.

10:05:02

6 So it's just not a good foundation for building your
7 inference.

8 **Q.** Dr. Trende, overall, what is your opinion of
9 Dr. Barreto's reports in support of this preliminary
10 injunction hearing?

10:05:16

11 **A.** I just don't think they do what they promise to do.
12 The VTD splits, there is no demonstration that they had a
13 racial basis. And the simulation outputs just don't meet
14 the diagnostics that you need to rely upon simulation
15 outputs.

10:05:32

16 **Q.** In your professional opinion, do Dr. Barreto's reports
17 disaggregate race from politics?

18 **A.** They don't carry -- they don't do the work of
19 disaggregating race from politics, no.

10:05:49

20 MR. KERCHER: Pass the witness.

21 JUDGE GUADERRAMA: Mr. Gaber.

22 MR. GABER: Give me one moment to get set up.

23 JUDGE GUADERRAMA: Yes, sir.

24 **CROSS-EXAMINATION**

10:07:40

25 BY MR. GABER:

1 Q. Good morning, Dr. Trende. How are you?

2 A. I find this is usually the highlight of the day, this
3 exact moment. It's downhill from here.

4 Q. Well, I'm glad to be part of it with you.

10:07:57 5 I want to start with your opinion -- you have a copy
6 of your report in front of you, right?

7 A. Yes.

8 Q. So I want to talk about your opinion with respect to
9 CDs -- first starting with Congressional District 9 in
10 Plan C2333.

11 If I recall correctly from your report and your direct
12 examination, it's your opinion that the map in that area
13 of District 9 reveals a draw that was based on
14 partisanship and not race.

10:08:29 15 Is that generally your opinion?

16 A. I don't think we went into it in my direct. And my
17 recollection from the report is just that it's more
18 responsive to Dr. Barreto's work, saying that the question
19 that he raises ignores some other considerations.

10:08:58 20 He says why don't they use this configuration instead
21 of this configuration -- why don't we use configuration A
22 instead of configuration B. My point is, configuration A
23 would raise some other issues with the map.

24 Q. Just to direct your attention to page 24 of your
10:09:15 25 report.

1 And you say, quote [as read:] We can see how
2 politics, rather than race, seemingly drove the line
3 drawing.

4 And you have a map of the Harris County region?

10:09:30

5 **A.** Oh, yeah. That's not the part of Dr. Barreto's report
6 where he is talking specifically about District 9.

7 **Q.** So District 9 is in Harris County, right?

8 **A.** Yeah.

10:09:48

9 **Q.** Let me ask you this: It's not your opinion that race,
10 rather than politics, drove the line drawing. You are not
11 here for that purpose, right?

12 **A.** Yeah. I don't think there is -- I don't think that's
13 been demonstrated.

10:10:00

14 **Q.** We could cut this a lot shorter if that had been what
15 you had expressed.

16 **A.** Yeah.

17 **MR. GABER:** So I'm going to try to connect to the
18 windows K, correct?

19 **MR. DUNN:** (Nodding yes.)

10:10:10

20 **BY MR. GABER:**

21 **Q.** Now, Dr. Trende, do you recall on your last
22 examination we spent some time on Dave's Redistricting
23 App?

24 **A.** I have thought about that a lot, yeah.

10:10:24

25 **Q.** And, you know, your testimony is part of the record,

1 but you had testified at the time that you frequently used
2 Dave's in your expert work; is that right?

3 **A.** That's right.

4 **Q.** Have you ever used a mapping program other than Dave's
10:10:38 5 in any of your expert engagements?

6 **A.** Yes.

7 **Q.** Which one?

8 **A.** Well, the work I did in Virginia -- no, not Virginia.
9 We used Dave's for Virginia.

10:10:47 10 The work I did for Belize I used Maptitude for
11 Redistricting. And there may be another one or two where
12 I used Maptitude. But it gets expensive.

13 **Q.** Any of your ongoing expert engagements that you are
14 using a mapping program other than Dave's?

10:11:05 15 **A.** No.

16 **Q.** So do you rely on and do you consider the data and the
17 election results reliable?

18 **A.** Yes.

19 **Q.** And I have on the screen, you can see it, it's a copy
10:11:15 20 of Texas 2026 congressional maps.

21 Do you see that?

22 **A.** Yes.

23 **Q.** And I can tell you I clicked the option to duplicate
24 this from Dave's official list of the districts.

10:11:29 25 Does it look to you to be a representation of the Plan

1 C2333?

2 **A.** Yes.

3 **Q.** And I want to focus in on District 9. We're going to
4 start there. And I am going to select it in the district
5 selector.

10:11:46

6 Do you see that?

7 **A.** Yes.

8 **Q.** And I'm going to put in the President 2024 as the
9 election that's selected.

10:12:00

10 **A.** What are the precincts? I can't read that. Above
11 census.

12 **Q.** Above census?

13 **A.** Where it says "shapes."

14 **Q.** 2020 precincts.

10:12:10

15 **A.** So not the ones that the map drawer is using?

16 **Q.** The testimony from Mr. Kincaid was that he used the
17 2020 precincts from the Census Bureau.

18 **A.** Well, that fixes that.

19 **Q.** And I'll select for the CVAP 2023.

10:12:25

20 **A.** All right.

21 **Q.** And for District 9 do you see that it says Republican
22 for the President 2024 is 59.5 percent?

23 **A.** Yes.

24 **Q.** And Democrat 39.6 percent?

10:12:42

25 **A.** Yes.

1 JUDGE GUADERRAMA: Mr. Gaber, is there any way we
2 could enlarge that so we can see those numbers, please?

3 MR. GABER: Yes. Sorry. I'm looking at my very
4 crystal clear computer.

10:13:05 5 Is that better?

6 JUDGE GUADERRAMA: Yes, sir. Thank you.

7 BY MR. GABER:

8 Q. And I just -- now I have on the screen the Texas
9 Legislative Council Plan C2333 election analysis for the
10:13:25 10 2024 general election.

11 Do you see that?

12 JUDGE GUADERRAMA: I think it's --

13 THE WITNESS: Of sorts.

14 BY MR. GABER:

10:13:32 15 Q. Oh, it's really -- sorry.

16 Okay. Now do you see that?

17 A. It's still pretty blurry, but I don't think you will
18 lie to me about what it says.

19 Q. I am not going to.

10:13:49 20 Can you see where I have my mouse? If you look
21 closely, you can see 39.6 for Harris and 59.5 for Trump?

22 A. That looks believable.

23 Q. And so this is -- the TLC is reporting the same
24 election results for the 2024 Presidential election as

10:14:07 25 Dave's Redistricting App has, correct?

1 **A.** Yes.

2 **Q.** That's not surprising to you, right?

3 **A.** It is not.

10:14:29

4 **Q.** Okay. All right. I am going to switch over to a view
5 that isolates just Districts 9 and 36. And I can
6 represent to you what I did here is copy it and then just
7 delete all the remaining districts so that we can focus
8 just on the ones we're concerned about.

10:14:45

9 Does that still look to you like a representation of
10 Districts 9 and 36 in the plan?

11 **A.** I believe you.

12 **Q.** And you can see here -- I can zoom in to them so you
13 can see them better on your screen once we establish them.
14 But you see I have President 2024, Governor 2022,
15 Senator 2018, and Senator 2024 on the screen?

10:15:07

16 **A.** Yes.

17 **Q.** And for Governor 2022, do you see that's 55.7 percent
18 for Trump in District 9?

19 **A.** Yeah.

10:15:27

20 **Q.** And for Senator 2018 [sic], it's 49.3 percent for
21 Trump in District 9?

22 **A.** Yes.

23 **Q.** And, actually, the Democratic candidate carries the
24 district in District 9 in Plan C2333 at 50.1 percent?

10:15:46

25 **A.** Yes.

1 **Q.** For Senator 2024, do you see 54.4 percent for the
2 Republican candidate?

3 **A.** Yes.

10:15:57

4 MR. KERCHER: I'm sorry. Just for the record, I
5 think Mr. Gaber said Senator 2018 that there was
6 49.3 percent for Trump. And I believe he meant for the
7 Republican Senate candidate.

8 MR. GABER: I did. I meant Senator Cruz. Thank
9 you, Mr. Kercher.

10:16:08

10 MR. KERCHER: I wanted to make the record
11 correct.

12 MR. GABER: I appreciate that. Please continue
13 as I proceed.

14 BY MR. GABER:

10:16:14

15 **Q.** Now, I want to turn to select District 36, which is
16 the neighboring district. And that is a district, you
17 understand, with a Republican incumbent?

18 **A.** Yes. Babin?

19 **Q.** That's correct. Brian Babin is the congressman there.

10:16:35

20 And for this district, do you see that Plan C2333 has
21 the Trump performance at 61.8 percent in the district?

22 **A.** Yeah.

23 **Q.** And Governor Abbott in 2022 received 61.6 percent?

24 **A.** Yes.

10:16:51

25 **Q.** Senator Cruz in 2018 received 57.8 percent; is that

1 right?

2 **A.** Yes.

3 **Q.** And Senator Cruz in 2024 received 59.1 percent; is
4 that correct?

10:17:04 5 **A.** That's right.

6 **Q.** I'm going to go back to District 9 on the selection.
7 And on Dave's you can shade for -- we did this before.
8 You can shade for partisan results for any given election;
9 is that right?

10:17:27 10 **A.** That's right.

11 **Q.** And because I have selected for the 2024 Presidential
12 election, that is the shading that will show; is that
13 right?

14 **A.** Yes.

10:17:39 15 **Q.** And I'm selecting the partisan lean.

16 Do you see that?

17 **A.** Yes.

18 **Q.** And because the screen is big, I'm going to need to
19 toggle back and forth a little bit.

10:17:58 20 But to show the partisan lean for the districts, we
21 de-select map colors; is that right?

22 **A.** Yeah.

23 **Q.** And I have the street map on over this, which makes it
24 a little difficult to see the district line. So I'm going

10:18:13 25 the remove that for the moment. And do you see here that

1 in District 9 there are a number of blue-shaded Democratic
2 precincts?

3 **A.** Yes.

10:18:31

4 **Q.** And do you see that there are red-shaded neighboring
5 precincts in District 36 along the border of District 9?

6 **A.** Yes.

7 **Q.** You are familiar -- I think in your report you have
8 mentioned the switch that happened between C2331 and C2333
9 in Baytown switching VTDs between Districts 9 and 36?

10:18:56

10 **A.** Yeah. I don't know if I go into that in my report,
11 but I know what you mean.

12 **Q.** I saw it there. It was a response to Dr. Barreto, but
13 maybe I read too much into it.

10:19:09

14 But you are familiar generally with the fact that
15 there was a switch in the precincts of Baytown that were
16 included in Districts 9 and 36 in that final amendment to
17 the map?

18 **A.** I think so.

19 **Q.** Now we can add the precinct lines; is that right?

10:19:35

20 **A.** Yeah. If you don't mind, can you point me to where I
21 talk about the Baytown switch? Just since I agreed to it.
22 We didn't do that part in my direct, so I'm not as fluent
23 in this portion of the report.

24 **Q.** Give me one moment.

10:20:09

25 If you see on pages 27 through 28 of your report you

1 discuss Dr. Barreto's alternative map of District 9 in his
2 September supplemental report; and you discuss how the map
3 drawer could have worked around for neutral reasons,
4 including contiguity and other reasons.

10:20:29

5 **A.** I just don't see the word "Baytown."

6 **Q.** Well, it is Baytown. I can tell you that that is the
7 city where this occurs. But if you didn't use the word
8 "Baytown," this is what you are referring to with respect
9 to Dr. Barreto's report.

10:20:43

10 **A.** Which paragraph?

11 **Q.** Do you see the last paragraph on page 27, the last
12 sentence of the paragraph of page 27?

13 [As read:] Dr. Barreto's suggestion that this could
14 be equalized by swapping residents out of the southwestern
15 heavily Hispanic portion of the district makes some sense
16 if no other goals were presumed.

10:21:07

17 And then you go on to talk about the manner in which
18 the changes happened in District 9 and 36.

19 **A.** Well, but at this point we're already having him put
20 Liberty County into 39 and having it equal. I don't know
21 that I ever specifically discuss Baytown.

10:21:23

22 **Q.** Okay. So the word "Baytown" may not be in your
23 report, Dr. Trende, but you do recall talking about the
24 changes between C2331 and C2333 as Dr. Barreto explained

10:21:43

25 them --

1 **A.** Yes. Some of them.

2 **Q.** -- with respect to District 9?

3 **A.** Some of them.

4 **Q.** Okay. Now we can put the precinct lines on in Dave's.

10:21:57 5 We can also put labels on the precincts; is that right?

6 **A.** Yes.

7 **Q.** And those can include total population. We can have

8 the voting age population by race. Or since we've

9 selected the citizen voting age population, those numbers

10:22:08 10 will show up if we select the voting age population; is

11 that right?

12 **A.** Yes.

13 **Q.** And we can also have the election results by selecting

14 Democratic or Republican for the district -- for the

10:22:22 15 election that's selected for the map; is that right?

16 **A.** That's right.

17 **Q.** And you can do all of these things by percentages as

18 well, correct?

19 **A.** Right.

10:22:29 20 **Q.** Save perhaps the name and the total population of the

21 district, right?

22 **A.** Correct.

23 **Q.** So I've selected name.

24 Do you see that?

10:22:39 25 **A.** Yes.

1 Q. And we'll give that a moment to load. As normal, I am
2 using my phone hotspot, because I cannot get Wi-Fi from
3 the Court's internet, so it may take a moment for those
4 labels. I see them.

10:23:32

5 So what I want to do, Dr. Trende, is take some of the
6 precincts that are assigned to 9 and some of the precincts
7 that are assigned to 36 and isolate them. And a way to do
8 that would be to assign them to sort of a dummy district
9 that's not 9 or 36.

10:23:50

10 Does that make sense?

11 A. I think I know what you are getting at.

10:24:00

12 MR. KERCHER: And I'll interpose an objection
13 here inasmuch as this is outside of the scope of
14 Dr. Trende's report, as I believe he has just testified.
15 Mr. Gaber did this at trial. We had an argument about it.
16 But Dr. Trende is not moving precincts back and forth in
17 this way. He didn't create this map. So I'll just lodge
18 that objection.

10:24:16

19 MR. GABER: Dr. Trende testified in his reports
20 and testified in this section of his direct examination
21 about the use of -- were you going to rule, Your Honor?

22 JUDGE GUADERRAMA: I'm going to overrule.

23 MR. GABER: Thank you. I'll stop speaking.

24 BY MR. GABER:

10:24:29

25 Q. So what I want to do, Dr. Trende, is I'm going to pick

1 two numbers that are near to one another, to make this
2 easier, and that have a -- you are color-blind, right?

3 **A.** I am.

4 **Q.** What color would you like me to pick?

10:24:42 5 **A.** So, like, 2 and 4 look identical to me, so it really
6 doesn't --

7 **Q.** How about 8 and 7?

8 **A.** I was not allowed to be in the Air Force I'm so
9 color-blind.

10:24:53 10 **Q.** Are 8 and 10, do those --

11 **A.** So 8 is going to look like the blue precincts. So
12 maybe we'll try 10.

13 **Q.** All right. 10 will work.

14 And then can you see just a 10 and 11, are those
10:25:08 15 different?

16 **A.** Yeah. Those should work.

17 **Q.** Okay. And I can turn -- what I'll do for you is I'll
18 turn the partisan leaning off so that that's not
19 interfering.

10:25:12 20 **A.** That helps.

21 **Q.** That helps?

22 **A.** Yeah.

23 **Q.** Okay. So what I'm going to do is select for
24 District 10 and place the number of the precincts that are

10:25:23 25 currently in District 9 and I'm going to assign them to

1 District 10.

2 Does that make sense?

3 **A.** Sure.

4 **Q.** And I'm going to read them aloud to you as I do that.

10:25:34 5 And if you could just confirm that I have done that.

6 **A.** I can't read them, but I will trust you.

7 **Q.** Oh, okay.

8 **A.** I don't think you would lie about this.

9 **Q.** I am not going to lie to you. And I will try to zoom
10:25:44 10 in. I apologize for the --

11 **A.** It's still bad.

12 **Q.** Let me see. This might help.

13 I think what I did last time was actually zoomed up.

14 **A.** I want to go home, so I really will believe you.

10:26:05 15 **Q.** All right. Well, thank you for your belief. I can
16 make this bigger for myself so I can see it then.

17 All right. We said we are going to do District 10.

18 So starting with Harris County Precinct 343. And to make
19 this work, I need to unlock the district; is that right?

10:26:25 20 **A.** Yes.

21 **Q.** So Harris County Precinct 343, Precinct 67,
22 Precinct 203, Precinct 945, Precinct 766, Precinct 946,
23 Precinct 231, and Precinct 172.

24 Do you see that I have assigned those precincts from
10:26:55 25 District 9 to our dummy District 10?

1 **A.** Yes.

2 **Q.** Now, we talked a little bit about Baytown. I will put
3 the overlay map of the communities on.

4 And do you see here where it says Baytown?

10:27:16 5 **A.** Yes.

6 **Q.** So that's Baytown in Harris County. And actually,
7 Baytown actually bleeds over into the neighboring county,
8 Chambers County. And I'm going to assign some census
9 blocks from a precinct to our dummy District 10 here as
10 well.

10:27:38 11 Do you see I highlighted a precinct with my mouse?
12 And then the precinct details, it says part of 249,
13 14 blocks from Precinct 249?

14 **A.** I believe you.

10:28:04 15 **Q.** And in Dave's we can drop down from the precinct level
16 to the block level by selecting block; is that right?

17 **A.** That's correct.

18 **Q.** And you see that I have done that on the screen and it
19 shows the block labels, the numbers of the blocks?

10:28:18 20 **A.** Yes.

21 **Q.** And so I am additionally going to assign to our dummy
22 District 10 block 1012 from Precinct 249, block 1008 from
23 Precinct 249, block 1013 from Precinct 249, and block 1016
24 from Precinct 249.

10:28:46 25 Do you see that?

1 **A.** That's right.

2 **Q.** Now, if we look over on the district selector, do you
3 see that I have moved 27,791 people from District 9 to
4 District 10?

10:29:01 5 **A.** I believe you.

6 JUDGE GUADERRAMA: Can you make that section
7 bigger?

8 MR. GABER: I will. I will, yes, Your Honor.
9 Do you see that, Your Honor?

10:29:21 10 JUDGE GUADERRAMA: Sort of. If you read the
11 number, I can probably figure it out.

12 MR. GABER: So we see under population, the
13 column population for District 10; 27,791. And then we
14 can see District 9 above that, you see it says deviation
15 minus 27,791.

10:29:43 16 Do you generally see that?

17 JUDGE GUADERRAMA: Yes, sir.

18 MR. GABER: Okay.

19 BY MR. GABER:

10:29:56 20 **Q.** Now, do you see, Dr. Trende, that I have District 10
21 selected. That's the area that we moved out of
22 District 9, correct?

23 **A.** Right.

24 **Q.** And do you see the Hispanic CVAP is 76.7 percent for
10:30:09 25 this collection of precincts?

1 **A.** That I can read.

2 **Q.** And do you see that President Trump carried this set
3 of precincts with 61.2 percent of the vote in 2024?

4 **A.** Yes.

10:30:22 5 **Q.** And Governor Abbott carried this set of precincts with
6 72.3 percent of the vote in 2024?

7 **A.** Yes.

8 **Q.** Senator Cruz in 2018?

9 JUDGE GUADERRAMA: Okay. Just so I can
10:30:35 10 understand it. You said Trump and it says Democratic 61.

11 MR. GABER: Thank you, Your Honor. You are
12 correct. I meant to say the opposite of that. So let me
13 go back and fix that.

14 JUDGE GUADERRAMA: Okay. Sure.

10:30:46 15 MR. GABER: Thank you. I caught it too when I
16 saw Senator Cruz with an 18.5 percent. I said, this
17 precinct didn't flip that much.

18 BY MR. GABER:

19 **Q.** So starting over.

10:30:56 20 The set of precincts that we have assigned to dummy
21 District 10, Kamala Harris carried them with 61.2 percent
22 of the vote; is that right?

23 **A.** Yes.

24 **Q.** And Beto O'Rourke carried them with 72.3 percent in
10:31:14 25 the 2022 Governor's race, correct?

1 **A.** Yes.

2 **Q.** Mr. O'Rourke, in the 2018 Senate race, got 81 percent
3 of the vote in these precincts, correct?

4 **A.** That's right.

10:31:24

5 **Q.** And in the 2024 Senate race, the Democratic candidate
6 got 66.4 percent of the vote; is that right?

7 **A.** That's right.

8 **Q.** That was Colin Allred; is that right?

9 **A.** Yes.

10:31:39

10 **Q.** Okay. Now I'm going to move on to -- I'm going to set
11 that aside for a moment.

12 JUDGE GUADERRAMA: Before we move on, can we take
13 our morning break? It's 10:30. Let's come back at 10:45.
14 We are in recess until then.

10:31:55

15 MR. GABER: Yes.

16 COURT SECURITY OFFICER: All rise.

17 MR. VELEZ: This court stands in recess.

18 (Recess from 10:32 a.m. to 10:45 a.m.)

19 JUDGE GUADERRAMA: Be seated, please.

10:45:53

20 Dr. Trende is on the witness stand.

21 Mr. Gaber, whenever you are ready.

22 MR. GABER: Thank you, Your Honor.

23 BY MR. GABER:

10:46:03

24 **Q.** When we left for break we had assigned various
25 precincts from District 9 into District 10 from Plan

1 C2333.

2 Do you recall that, Dr. Trende?

3 **A.** Yes.

4 **Q.** And that was 27,791 people.

10:46:13 5 Do you recall that?

6 **A.** Yes.

7 **Q.** Now, I want to do the same thing, but for District 36,
8 and assign various districts from 36 that border
9 District 9 to isolate them so we can take a look at them.

10:46:30 10 Does that make sense?

11 **A.** Sure.

12 **Q.** And I think you said it would be okay if I used the
13 11th District, that's an -- I see it as a lime green
14 shade.

10:46:40 15 Does that work for you?

16 **A.** It looks yellow, but I believe you. It will show up.

17 **Q.** Okay. Good.

18 And to do that, as I did with District 9, I need to
19 unlock District 36 so we can make changes to it.

10:47:02 20 Does that make sense?

21 **A.** Yeah.

22 **Q.** And I'm going to start with Harris County Precinct 718
23 and assign that to District 11. Harris County
24 Precinct 724 and assign that to 11. Harris County
10:47:25 25 Precinct 721 to 11. Harris County Precinct 92 to 11.

1 And then do you see, Dr. Trende, and I'll zoom in for
2 you, that Harris County Precinct 290 is currently split
3 between Districts 36 and District 9?

4 Do you see that?

10:47:49

5 **A.** Yes.

6 **Q.** So I'm going to assign the 93 blocks, the portion of
7 Precinct 290 that is currently in District 36, to our
8 dummy District 11. Okay?

9 **A.** I follow.

10:48:04

10 **Q.** And to do that, in order that I---

11 **A.** I think you can just click on it.

12 **Q.** I think you are right. Hold on. If 9 is locked, that
13 should work.

14 **A.** I don't think 9 even has to be locked.

10:48:17

15 **Q.** I want to leave the portion that's in 9 in 9 for now.

16 **A.** Yeah. I think it will still work, but...

17 **Q.** You just saved us about five to ten minutes of
18 unselecting blocks, Dr. Trende. Thank you.

19 MR. KERCHER: If the witness could stop being
20 helpful.

10:48:33

21 BY MR. GABER:

22 **Q.** I forgot your phrase from the direct. Too honest
23 maybe or something. Just stick with that.

24 **A.** The relevant one is I want to go home.

10:48:43

25 **Q.** I promise we'll get you there.

1 Okay. And so I'm going to move up a bit to finish
2 assigning precincts to our dummy District 11, and I'm
3 going to assign Harris County Precinct 414.

4 Do you see this?

10:49:06

5 **A.** Yes.

6 **Q.** I'm assigning that to District 11. And also Harris
7 County Precinct 532 to District 11. And then the
8 portion -- do you see we have another situation with a
9 split precinct?

10:49:20

10 **A.** I follow.

11 **Q.** And that's Precinct 2 -- 533. I'm going to assign the
12 portion of Harris County Precinct 533 that's currently in
13 District 36 to the dummy District 11.

14 Does that make sense?

10:49:34

15 **A.** Yes.

16 **Q.** Now, just a couple more.

17 From Harris County Precinct 249 -- and, actually, this
18 is a precinct that's already split. Do you see that it
19 says part of 249?

10:49:51

20 **A.** It's the one we were working in before.

21 **Q.** Right. I'm going to take two census blocks.
22 Block 1001 and assign that to 11, and block 1011 and
23 assign that to 11.

24 Do you see that?

10:50:13

25 **A.** Yes.

1 Q. Now, let me see if I can zoom in for you to the
2 population statistics.

3 Do you see now that there are 27,791 people in our
4 dummy District 11?

10:50:25 5 A. That looks right.

6 Q. And if we look at the citizen voting age population of
7 our dummy District 11, and these are precincts that we
8 have taken from 36, from District 36, do you see that they
9 are 59.3 percent White CVAP or Anglo CVAP?

10:50:46 10 A. Yes.

11 Q. And do you see that in the 2024 Presidential election
12 President Trump carried these precincts with 56.4 percent
13 of the vote?

14 A. Yes.

10:50:59 15 Q. And in the 2022 gubernatorial election, Governor
16 Abbott carried these precincts with 57.3 percent of the
17 vote?

18 A. Yes.

10:51:13 19 Q. Do you see that in the 2018 Senate election Senator
20 Cruz carried these precincts with 59.1 percent of the
21 vote?

22 A. Yes.

23 Q. In the 2024 Senate election, do you see that Senator
24 Cruz carried these precincts with 54.3 percent of the
10:51:27 25 vote?

1 **A.** Yes.

2 **Q.** Now what I want to do, Dr. Trende, for our purposes
3 for later is I'm going to take a screenshot with
4 District 10 selected on the screen so that the summary
10:51:53 5 statistics for the district, we can save those and refer
6 to those, and I'm going to paste that into a Word
7 document.

8 Does that make sense?

9 **A.** Makes sense.

10:52:12 10 **Q.** And PCs have a wonderful thing called the snipping
11 tool that Mr. Dunn taught me about. It changed my life.

12 MR. DUNN: I will just add he has an addiction to
13 it now.

14 JUDGE BROWN: There are worse things to be
10:52:41 15 addicted to.

16 BY MR. GABER:

17 **Q.** Actually, what I'm going to do, Dr. Trende, I'll
18 just -- I am going to label this something that makes
19 sense for us to refer to before I screenshot it.

10:53:14 20 Can you see I've labeled it "Trende cross dummy
21 District 10"?

22 **A.** Yes.

23 **Q.** Okay. Now that we have set that aside, I'm going to
24 do the same thing for our dummy District 11 and ensure
10:53:58 25 that we have those statistics set aside. So bear with me

1 for one moment, please. I need to relabel it.

2 And you see that I relabeled it dummy District 11?

3 **A.** Yes.

4 **Q.** And I have selected for District 11 in the

10:54:23

5 DistrictViewer. So we have the election and CVAP

6 statistics for District 11.

7 **A.** I think you can just Control-V into Word. You don't
8 even have to copy from the image.

9 **Q.** Oh. Thank you.

10:54:46

10 Okay. Now that we have set those two aside, what I'd
11 like to do is reassign the precincts that were into dummy
12 District 10 that we had pulled from District 9 and put
13 those into District 36. And, in converse, take the dummy
14 precincts that we put -- the dummy -- the precincts in the
15 dummy District 11 that were in CD 36 and put them into
16 District 9.

10:55:04

17 Does that make sense?

18 **A.** Yes.

19 **Q.** And I'll start with the 11 ones that need to go into
20 District 9.

10:55:25

21 And do you see in doing that we have made Precinct 290
22 whole, resolving the split?

23 **A.** Yes.

24 **Q.** And the remainder of them are in that Baytown area

10:55:47

25 that we were talking about before.

1 Does that look right?

2 **A.** Yeah.

3 **Q.** Okay. Do you see now in the district statistics that
4 District 9 now has a zero population deviation that has
5 766,987 people?

10:56:05

6 **A.** Yes.

7 **Q.** And now I'm going to do the same thing I just did
8 except the reverse. We're going to take the VTDs from
9 district -- dummy District 10 and place them into
10 District 36.

10:56:34

11 Does that make sense?

12 **A.** Yeah.

13 **Q.** Do you see now the Gulf Freeway frontage or highway?

14 **MR. GABER:** Judge Brown, what is the name of that
15 highway?

10:57:07

16 **JUDGE BROWN:** It's the Gulf Freeway.

17 **MR. GABER:** The Gulf Freeway. Thank you. I knew
18 it wasn't the frontage road.

19 **BY MR. GABER:**

10:57:15

20 **Q.** The Gulf Freeway, do you see now, forms the border in
21 this region between District 36 and District 9?

22 **A.** Yes.

23 **JUDGE SMITH:** It's been renamed the Gulf of
24 America Freeway.

10:57:29

25 **MR. GABER:** I'm sure it has.

1 JUDGE SMITH: I'm only kidding.

2 MR. GABER: Don't give him any ideas, Your Honor.

3 BY MR. GABER:

10:57:38

4 Q. Okay. So we still had a couple of VTDs in the Baytown
5 area to reassign. And we're doing District 36 right now.
6 And if we put these remaining blocks in, do you see now
7 that District 36 on the DistrictViewer panel has a zero
8 deviation and 766,987 people?

9 A. Yes.

10:58:05

10 Q. Okay. I'm going to zoom out so we can see the work
11 that we've done, and I'm going to remove the precinct
12 labels and lines.

13 And do you see now we have a completely formed
14 District 9 and a completely formed District 36?

10:58:34

15 A. Yes.

16 Q. And I want to -- if Ms. Waknin could come to the
17 board, we're going to -- I'm going to copy Mr. Kercher and
18 use the whiteboard. Do you have a --

19 MS. WAKNIN: Yes.

10:58:51

20 MR. GABER: Thank you.

21 MS. WAKNIN: Thank you.

22 JUDGE BROWN: Taxpayer funded markers.

10:59:12

23 MR. GABER: So if we could, Ms. Waknin, put on
24 the left side a column for the Plan C2333 CD 9. And then
25 on the right side of it, the Trende -- we'll call it

1 Trende alternative -- Trende cross alternative CD 9 and
2 36.

3 BY MR. GABER:

4 **Q.** And I'm going to start with -- since this is what is
10:59:39 5 on the screen, I'm going to start with the alternative map
6 that we have just composed. And I'm going to read the
7 Hispanic CVAP information, as well as the president -- as
8 well as the relevant election results that we have been
9 talking about.

10:59:55 10 So starting with -- and this is for District 9 in this
11 new map. Starting with Hispanic CVAP, Dr. Trende, do you
12 see that it's 48.1 percent?

13 **A.** Yes.

14 **Q.** Do you see that President Trump carries this version
11:00:09 15 of District 9 with 59.8 percent of the vote?

16 **A.** Yes.

17 **Q.** And Kamala Harris receives 39.2 percent of the vote?

18 **A.** Yes.

19 **Q.** Do you see in the 2022 gubernatorial election Governor
11:00:22 20 Abbott carries the district with 56.5 percent?

21 **A.** Yes.

22 **Q.** And Mr. O'Rourke receives 42.0 percent?

23 **A.** Yes.

24 **Q.** In the 2018 Senate election, do you see that Senator
11:00:40 25 Cruz carries this precinct, this district with

1 50.7 percent of the vote?

2 **A.** Yes.

3 **Q.** And Senator Cruz receives -- I'm sorry.

4 Senator Cruz receives 50.7, and Mr. O'Rourke receives

11:00:58

5 48.7 percent?

6 **A.** Yes.

7 **Q.** In the 2024 Senate election, Mr. Cruz receives

8 55 percent, and the Democratic candidate receives

9 42.3 percent?

11:01:11

10 **A.** Yes.

11 **Q.** Now I'm going to switch over to Plan C2333. And we'll

12 go through the statistics for District 9 so we can compare

13 them. And I need to add, as you can see, the additional

14 election datasets, so we have the same set that we're

11:01:32

15 working with, which is President 2024, Senate 2024, Senate

16 2018, Governor 2022; is that right?

17 **A.** Yeah.

18 **Q.** Let me just double-check.

19 **A.** You are right.

11:01:53

20 **Q.** And we're selecting for District 9. Do you see

21 District 9 has a Hispanic CVAP in Plan C2333 of

22 51.1 percent?

23 **A.** Yeah.

24 **Q.** And President Trump in the 2024 election received

11:02:08

25 59.5 percent of the vote in Plan C2333's District 9?

1 **A.** Yeah.

2 **Q.** And Kamala Harris received 39.6.

3 Do you see that?

4 **A.** Yes.

11:02:20 5 **Q.** In the 2022 gubernatorial election, Governor Abbott
6 received 55.7 percent of the vote.

7 Do you see that?

8 **A.** I believe you.

9 **Q.** And Mr. O'Rourke received 42.8 percent?

11:02:33 10 **A.** Yes.

11 **Q.** In the 2018 Senate election, you see Mr. O'Rourke
12 actually carried this district with 50.1 percent of the
13 vote?

14 **A.** Yeah.

11:02:42 15 **Q.** And that's Plan C2333's version of CD 9?

16 **A.** Yeah.

17 **Q.** And then the Republican candidate got 49.3 percent of
18 the vote. That's Mr. Cruz; is that right?

19 **A.** Correct.

11:02:54 20 **Q.** And in the 2024 Senate election, the Republican
21 candidate, Mr. Cruz, received 54.4 percent of the vote and
22 the Democratic candidate received 42.8 percent.

23 Do you see that?

24 **A.** Yeah.

11:03:15 25 **Q.** Now, can you see Ms. Waknin's figures?

1 **A.** Yes.

2 **Q.** And do you see that in each of the elections in our
3 alternative version of CD 9 the Republican candidate
4 received a larger share of the vote than in Plan C2333's
5 version of CD 9?

11:03:32

6 **A.** Yes.

7 **Q.** And in the case of the 2018 Senate election, the
8 candidate who carries the district actually flips from the
9 Democratic candidate to the Republican candidate.

11:03:43

10 Do you see that?

11 **A.** Yes.

12 **Q.** And I want to, in our alternative map here, look at
13 District 36 and see what happens with its election
14 results.

11:04:01

15 MS. WAKNIN: Mr. Gaber, do you want me to --

16 MR. GABER: We don't need to write that on there,
17 but I wanted to have that in the record.

18 BY MR. GABER:

19 **Q.** Do you see, Dr. Trende, that I have selected for
20 District 36? Do you see that?

11:04:11

21 **A.** Yeah.

22 **Q.** And do you see that the Republican -- Mr. Trump in
23 2024, President Trump, receives 61.6 percent of the vote?

24 **A.** Yes.

11:04:22

25 **Q.** And the -- Ms. Harris receives 37.1 percent?

1 **A.** Yes.

2 **Q.** In the 2022 gubernatorial election, Governor Abbott
3 receives 61.3 percent to the Democratic candidate's
4 37.3 percent?

11:04:36 5 **A.** I believe you.

6 **Q.** And in the 2018 Senate election, the Republican
7 candidate receives 57.1 percent to the Democratic
8 candidate's 42.3 percent.

9 Do you see that?

11:04:47 10 **A.** Yes.

11 **Q.** And in the 2024 Senate election, the Republican
12 candidate receives 58.9 percent to the Democratic
13 candidate's 38.9 percent, correct?

14 **A.** Yes.

11:04:58 15 **Q.** Now, assume for me that the map drawer had a goal of
16 having the existing Republican districts all stay above
17 60 percent for President Trump in 2024, him receiving
18 61.6 percent in this version of the district would satisfy
19 that criterion; is that right?

11:05:21 20 **A.** It would.

21 **Q.** And you had identified that Congressman Babin is the
22 representative for District 36; is that right?

23 **A.** That's right.

11:05:40 24 **Q.** And I'm going to take us to Congressman Babin's
25 campaign website. I've navigated on my browser to

1 babinforcongress.com.

2 Do you see that?

3 **A.** Yeah.

4 **Q.** Do you see there the tab that says "About Brian"?

11:06:00

5 **A.** Yes.

6 **Q.** And I've scrolled down to the last paragraph in the
7 "about" section of this page.

8 And do you see where it says [as read:] The couple
9 still resides in Woodville?

11:06:24

10 **A.** Yes.

11 **Q.** Returning to our alternative map here, and if I zoom
12 in to Tyler County, do you see where it says "Woodville"?

13 **A.** Yeah.

14 **Q.** Based on Congressman Babin's representation to the
15 public of his residence, he still resides in District 36
16 in this version of the map; is that right?

11:06:42

17 **A.** That's right.

18 **Q.** You would agree with me, wouldn't you, that we have
19 made minimal changes to CD 9 and 36, and this is in
20 relation to Texas's map of districts reasonably configured
21 in light of the shape of the other districts?

11:06:55

22 **A.** Can you compare the Polsby-Popper's?

23 **Q.** Yes. We can do that. And we can do both Reock and
24 Polsby-Popper for you.

11:07:12

25 And Dave's Redistricting App will do that; is that

1 right?

2 **A.** It's in the advanced button.

3 MR. GABER: Ms. Waknin, actually, could you
4 return to the board; and we'll do that.

11:07:25

5 BY MR. GABER:

6 **Q.** So this is in the enacted map. District 9 has a Reock
7 score, and that's R-e-o-c-k, of 4.46 and a Polsby-Popper
8 score of .34.

9 Do you see that, Dr. Trende?

11:07:45

10 **A.** I believe you.

11 MS. WAKNIN: Mr. Gaber, could you repeat that?

12 MR. GABER: Yes.

13 District 9 in the enacted map has a Reock score of .46
14 and a Polsby-Popper score of .34. I have rounded up from
15 .338 to .34.

11:08:00

16 District 36 in the enacted map has a Reock score of
17 .29 and a Polsby-Popper score of .13.

18 BY MR. GABER:

19 **Q.** Do you see that, Dr. Trende?

11:08:17

20 **A.** Yeah. What -- the .46 was CD 9 in the enacted?

21 **Q.** Yes.

22 **A.** And the .29 is CD 36 in the enacted?

23 **Q.** That is correct.

24 **A.** Okay.

11:08:30

25 **Q.** Oh, you are correcting the chart. Thank you.

1 **A.** I just don't want to get myself confused.

2 **Q.** We'll switch over. So that's Plan C2333. We'll go to
3 the advanced tab for the Trende cross alternative CD9 and
4 36. And I'll have Ms. Waknin enter those or write those
5 on the board as well for you.

11:09:06

6 Do you see that in this map the Reock score for
7 District 9 is .48. And actually if you would follow the
8 hundredths of percentages up, that goes up to .49; is that
9 right?

11:09:24

10 **A.** Yes.

11 **Q.** And the Polsby-Popper score is .32?

12 **A.** Yeah.

13 **Q.** And then for District 36, the Reock score is .29 and
14 the Polsby-Popper is .13.

11:09:41

15 Do you see that?

16 **A.** 1273, yeah.

17 **Q.** You agree with me, Dr. Trende, that these are similar
18 Reock and Polsby-Popper scores to the districts in
19 Plan C2333?

11:09:55

20 **A.** They are close.

21 **Q.** And, in fact, if we look at all of the districts in
22 Plan C2333, there are a number of districts that have
23 lower Reock and Polsby-Popper scores than the districts
24 that we created on the stand here; is that right?

11:10:16

25 **A.** Yeah. But these are the ones that are drawn to a

1 racial target of less than 50 percent. And so you are
2 subordinating traditional redistricting criteria to your
3 racial target.

4 **Q.** I don't have a racial target.

11:10:29 5 **A.** I don't believe you.

6 **Q.** Okay. Well, I don't have a racial target, Dr. Trende.

7 You agree with me that the Reocks and the

8 Polsby-Popper scores are similar to both the enacted

9 districts that we're talking about, as well as the

11:10:41 10 districts in the map, correct?

11 **A.** They are close.

12 MR. GABER: Great. Ms. Waknin, if you could take
13 a photo of the whiteboard.

14 MS. WAKNIN: May I use my cell phone to take a
11:10:56 15 photo?

16 MR. GABER: Your Honor, may Ms. Waknin use her
17 cell phone to take a photo?

18 JUDGE GUADERRAMA: Sure. You didn't want to do
19 the other board as well?

11:11:05 20 MR. GABER: We will. We just wanted to have a
21 record of it.

22 JUDGE GUADERRAMA: Do you want to erase that
23 board?

24 MR. GABER: No. We'll use the other board for
11:11:14 25 the next district. I apologize. There is just one more

1 of these.

2 BY MR. GABER:

3 **Q.** Dr. Trende, I am going to do what I did earlier, which
4 is to take a screenshot of -- two screenshots of this
11:11:33 5 actually, so that we have the selected District 9 and the
6 selected District 36; and I'm going to copy that over into
7 our Word document.

8 Does that make sense?

9 **A.** Sure.

11:11:49 10 **Q.** And I need to -- we have another internet glitch that
11 will just take a moment.

12 I'm starting with District 9 selected.

13 Do you see that?

14 **A.** Yes.

11:12:12 15 **Q.** I'm going to zoom out of it so that I could get the
16 full -- the full set of election results.

17 And do you see that I'm taking a screenshot of this
18 with District 9 selected?

19 **A.** Yes.

11:12:39 20 **Q.** And did you tell me I could just do Control-V?

21 **A.** I believe you can just go to a Word document and do
22 Control-V.

23 **Q.** Thank you.

24 And then I'm also going to select District 36 and take
11:12:58 25 a screenshot of that as well and copy that into the Word

1 document also.

2 **A.** You can just do the snip and the image comes up and
3 control. You don't even have to go and right click on
4 snip.

11:13:27 5 **Q.** Did I do that?

6 **A.** Yeah.

7 **Q.** Thanks.

8 MR. GABER: Okay. For the Court's record, I'm
9 not moving in this yet, but I am marking this as Brooks
11:13:40 10 Plaintiffs' Exhibit 520. And we will address the
11 admission of it.

12 MR. KERCHER: I'm sorry. For the record, when
13 you say you are marking "this"?

14 MR. GABER: The Word document.

11:13:49 15 MR. KERCHER: I'm sorry?

16 MR. GABER: The Word document that I've pasted
17 the screenshot in.

18 MR. DUNN: The photograph is 521.

19 MR. GABER: The photograph will be 521. Yes.

11:14:00 20 Thank you, Mr. Dunn.

21 JUDGE GUADERRAMA: Are you offering them in? I
22 mean, because you are still working on them, right?

23 MR. GABER: We are still working. We are going
24 to do one more of these, and then I promise we'll move on
11:14:13 25 from Dave's Redistricting. You'll never see me do Dave's

1 Redistricting ever again.

2 MR. KERCHER: Until the trial on the merits.

3 MR. GABER: Until the trial on the merits.

4 BY MR. GABER:

11:14:28 5 Q. Okay. Dr. Trende, I want to move us over from the
6 Harris County region instead over into Bexar County.

7 Do you see that on the map?

8 A. Yep.

9 Q. You'll see on the screen here, do you recognize this
11:14:39 10 as the configuration of Districts 35, 20, the portion of
11 23 that's in Bexar County, and then the portion of 21
12 that's in Bexar County?

13 A. Yes.

14 Q. And if I zoom out, do you see that -- do you recognize
11:14:53 15 this as the rest of those districts?

16 A. Correct.

17 Q. Now, I want to start by taking a look at the partisan
18 shading that Dave's has. And you can see that I have
19 selected for President 2024.

11:15:13 20 Do you see that?

21 A. Yeah.

22 Q. And I am going to select to show the partisan shading.
23 I'm going to remove both the map of the roads, as well as
24 the map colors of the district.

11:15:32 25 But do you see the outline of the district still

1 around the precincts?

2 **A.** Yep.

3 **Q.** Would you agree with me, visually looking at this,
4 there is an area -- a set of precincts that are to the
5 south of the border of CD 20 in CD 35 that are rather
6 substantially shaded blue for Democrat?

11:15:47

7 **A.** Yeah. I don't know exactly what the percentages would
8 be on how substantial, but they are shaded blue.

9 **Q.** And then do you see in -- on the eastern edge of CD 20
10 where it borders CD 35 for the northeastern part on the
11 far eastern side there is a set of precincts that are a
12 lighter shade of blue that are in CD 20?

11:16:08

13 **A.** I don't really see much difference, but they are
14 shaded blue. And there are some areas that are white or
15 light red.

11:16:26

16 **Q.** Would it help for you if I put the Democratic vote
17 share percentages on?

18 **A.** No.

19 **Q.** Well, let's look at one. So we have -- here we have
20 Precinct 4063. I have my mouse around it.

11:16:47

21 And do you see it's 57.6 percent for the Democratic
22 candidate?

23 **A.** Now I do.

24 **Q.** And then on the border here, I'm going back to the
25 southern border of CD 20 where it meets CD 35 and take a

11:17:08

1 look. I have Precinct 1015 here.

2 Do you see that it's 68.1 percent for the Democratic
3 candidate?

4 **A.** Yes.

11:17:22

5 **Q.** And so just at least with respect to these two
6 precincts, the precinct that's in CD 35 just south of
7 CD 20 has a substantially higher Democratic vote share
8 than the precinct we looked at that was in CD 20 in the
9 enacted map?

11:17:43

10 **A.** Yes.

11 **Q.** I'm going to take off -- to declutter this map, I'm
12 going to take off now the Democratic vote shares from the
13 precincts and change the label to the name only.

14 Do you see that?

11:18:03

15 **A.** Yes.

16 **Q.** Oh, one more thing I wanted to do before we look at
17 the precincts. One more thing I wanted to point out to
18 you.

11:18:20

19 Do you see there is -- actually within CD 20, there is
20 a VTD that has no -- or has seven people that borders
21 CD 20 and CD 35, if I move my mouse over it?

22 **A.** Yes.

23 **Q.** And do you see next to that is a red-shaded precinct?

24 **A.** Yeah. I just testified to that.

11:18:33

25 **Q.** And that's a Republican precinct, right?

1 **A.** Yes.

2 **Q.** It's in CD 20, but on the border of CD 20 and CD 35?

3 **A.** I just testified to that, yes.

11:18:48

4 **Q.** So we're going to do the same thing here as we did in
5 Harris County. And I'm going to remove the partisan
6 shading so we can see it better, but I'm going to put back
7 on the map colors so we can see that.

11:19:08

8 Oh, before I do that, Dr. Trende. Sorry. I want to
9 establish the election results and the character of the
10 existing District 35.

11 So I have District 35 selected here.

12 Do you see that?

13 **A.** Yes.

14 **Q.** And you see a Hispanic CVAP 51.6 percent?

11:19:37

15 **A.** Yep.

16 **Q.** And President 2024 --

17 **MR. GABER:** And, actually, Ms. Waknin, this might
18 be -- we might save a step if we just do this now.

19 **MS. WAKNIN:** Okay. I'll do it.

11:19:50

20 **MR. GABER:** Thank you.

21 **MS. WAKNIN:** Set it up the same way?

22 **MR. GABER:** The same. Yeah. And we'll be
23 talking now about the enacted version of CD 35.

24 **BY MR. GABER:**

11:20:22

25 **Q.** Okay. So for the enacted version of CD 35, in the

1 2024 Presidential contest, do you see that President Trump
2 received 54.6 percent of the vote and Ms. Harris received
3 44.2 percent?

4 **A.** Yes.

11:20:37

5 **Q.** And the 2022 gubernatorial election --

6 JUDGE GUADERRAMA: Just repeat the Trump numbers
7 so she can get it.

8 MR. GABER: Oh, sure.

11:20:50

9 The Trump number was 54.6 percent to 44.2 percent for
10 Ms. Harris.

11 MS. WAKNIN: Thank you, Mr. Gaber.

12 BY MR. GABER:

13 **Q.** And the 2022 gubernatorial election, Governor Abbott
14 received 52.5 percent of the vote to Mr. O'Rourke's
15 45.9 percent.

11:21:03

16 Do you see that, Dr. Trende?

17 **A.** Yes.

18 **Q.** And the --

19 MS. WAKNIN: Could you repeat that?

11:21:10

20 MR. GABER: I'll repeat it for Ms. Waknin.

21 Governor Abbott received 52.5 percent to 45.9 percent
22 for the Democrat.

23 BY MR. GABER:

24 **Q.** In the 2018 Senate election, Senator Cruz received
25 49.7 percent to Mr. O'Rourke's 49.4 percent.

11:21:28

1 Do you see that, Dr. Trende?

2 **A.** Yep.

3 **Q.** Then in the 2024 Senate election, Senator Cruz
4 received 50.6 percent to the Democratic candidate's
5 46.8 percent.

11:21:54

6 Do you see that, Dr. Trende?

7 **A.** Yep.

8 **Q.** Okay. Now, I want to go back to the version of this
9 map where we have isolated the Harris County region and
10 the Bexar County region. And, again, we're looking at the
11 Bexar County region; is that right?

11:22:16

12 **A.** Yes.

13 **Q.** Now I want to do the same thing that we did in the
14 Harris County region and create two dummy districts. And
15 one of those districts we will assign precincts that are
16 currently in CD 35 to isolate them. And then in another
17 we will assign precincts that are currently in CD 20 to a
18 dummy district to isolate them.

11:22:29

19 Does that make sense?

11:22:48

20 **A.** Yes.

21 **Q.** And I'll start with the precincts that are currently
22 in CD 35 that we want to isolate. And as we did in Harris
23 County, does the district colors for 37 -- of the
24 districts for 34, 37, and 38, which do you have a color
25 preference?

11:23:10

1 **A.** Why don't we do 5 because that will be yellow.

2 **Q.** I'm sorry. Say that again?

3 **A.** 5 because that will be yellow.

4 **Q.** Oh, 5. Okay. And then which of the others?

11:23:19 5 **A.** 6 should work.

6 **Q.** 6. Okay. Thank you.

7 So we will select District 5 to be the precincts that
8 we are isolating from CD 35. And I will read them aloud
9 as I did before as we move them in to our new CD 5.

11:23:41 10 So the first one, do you see it is the portion of
11 Bexar County Precinct 1026 that is currently in CD 35?

12 **A.** Yes.

13 **Q.** And before I do that, I just want to make sure -- yes.
14 We have 20 locked.

11:24:00 15 **A.** You don't have to lock it.

16 **Q.** I know. I want to unlock it, actually.

17 So we moved that VTD in. Also, do you see part of
18 Precinct 1014 that's currently in CD 36? We'll select
19 that. Bexar County Precinct 1040, Bexar County

11:24:27 20 Precinct 1023, Bexar County Precinct 1025, Bexar County
21 Precinct 1022, Bexar County Precinct 1015, Bexar County
22 Precinct 1097, Bexar County Precinct 1016, Bexar County
23 Precinct 1127, Bexar County Precinct 1021. The portion of

24 Bexar County Precinct 1004 that is currently in CD 35, the
11:25:06 25 portion of Bexar County Precinct 1005 that is currently in

1 CD 35, Bexar County Precinct 1028, Bexar County
2 Precinct 1011, Bexar County Precinct 1018, Bexar County
3 Precinct 1020, Bexar County Precinct 1017, Bexar County
4 Precinct 1019, Bexar County Precinct 4124, Bexar County
11:25:57 5 Precinct 4026, the portion of Bexar County Precinct 4048
6 that is currently in CD 35, the portion of Bexar County
7 Precinct 4027 that is currently in CD 35, the portion of
8 Bexar County Precinct 4031 that is currently in CD 35, and
9 Bexar County Precinct 4037.

11:26:31 10 Do you see that I have moved 61,088 people from CD 35
11 and placed them into CD -- dummy CD 5 here?

12 **A.** Yeah.

13 **Q.** Now, switching over to the precincts from current
14 CD 20 that we are going to isolate from CD 20, I will
11:27:01 15 assign -- and you said which color? I forgot.

16 **A.** I think 6 will work.

17 **Q.** 6. Okay.

18 Bexar County Precinct 4091 -- sorry, I need to unlock
19 20. And I will lock 35 so we don't make a mistake.

11:27:26 20 Do you see that?

21 **A.** Uh-huh.

22 **Q.** That I locked them?

23 **A.** Okay.

24 **Q.** And we're using the district -- as a dummy district,

11:27:37 25 District 6 for this purpose.

1 Bexar County Precinct 4091.

2 Do you see that?

3 **A.** Yes.

4 **Q.** Bexar County Precinct 4035, Bexar County

11:27:49

5 Precinct 4125, Bexar County Precinct 4139, Bexar County

6 Precinct 4120, Bexar County Precinct 4044, Bexar County

7 Precinct 4045, Bexar County Precinct 4047, Bexar County

8 Precinct 4102, Bexar County Precinct 4181, Bexar County

9 Precinct 4175, Bexar County Precinct 4106, Bexar County

11:28:46

10 Precinct 4135, Bexar County Precinct 4063, Bexar County

11 Precinct 4195, Bexar County Precinct 4154, Bexar County

12 Precinct 4192, Bexar County Precinct 4142, Bexar County

13 Precinct 4049, Bexar County Precinct 4076, Bexar County

14 Precinct 4061, Bexar County Precinct 4166, Bexar County

11:29:29

15 Precinct 4064, Bexar County Precinct 4182, Bexar County

16 Precinct 4080, Bexar County Precinct 4146, Bexar County

17 Precinct 4145, Bexar County Precinct 4189, Bexar County

18 Precinct 4198, Bexar County Precinct 4168, and Bexar

19 County Precinct 4191.

11:30:23

20 Do you see that I have assigned those to dummy

21 District 6?

22 **A.** Yes.

23 **Q.** And then you can see we -- if you look at the

24 population on the district selector for District 6, there

11:30:38

25 are 61,031 people.

1 Do you see that?

2 **A.** No.

3 **Q.** Hold on. Let me make it bigger for you.

4 Do you see that now?

11:30:49

5 **A.** No.

6 **Q.** Okay. Now do you see 61,031 people assigned to

7 District 6?

8 **A.** I do.

9 **Q.** Do you see that our current version of District 5 has

11:31:13

10 61,088 people?

11 **A.** Yes.

12 **Q.** And so by my math we are 57 people in deviation at

13 this moment.

14 Do you see that?

11:31:22

15 **A.** Yes.

16 **Q.** What I'm going to do is bring us to Bexar County

17 Precinct 4026, which we had assigned to dummy District 5,

18 and select for the census blocks.

19 Do you see that I have selected that?

11:31:43

20 **A.** Yes.

21 **Q.** And I think we testified -- or you testified that you

22 can select for the population for the census blocks.

23 Do you see that?

24 **A.** Yes.

11:31:57

25 **Q.** And then I have selected for total pop.

1 And do you see here that there is a census block --
2 census block 2007 from that precinct that has 57 people?

3 **A.** Yes.

11:32:18

4 **Q.** And so to balance population, we can take that census
5 block and move it into our dummy district -- I think I
6 might have done that backwards. Give me one moment if you
7 would, Dr. Trende.

8 Okay. I see my confusion.

11:33:50

9 Dr. Trende, do you see that currently CD 35 has a
10 negative deviation of 61,088?

11 **A.** I believe you.

12 **Q.** And CD 20 has a negative deviation of 61,031.

13 Do you see that?

14 **A.** I believe you.

11:34:02

15 **Q.** And that matches the populations of the two regions
16 that we have selected for.

17 Do you see that?

18 **A.** I believe you.

19 **Q.** So I'm going to turn off the precinct labels.

11:34:21

20 Do you see that?

21 **A.** Yes.

22 **Q.** And zoom out. And I want to take a look first at
23 dummy District 5 and take a look at the election and the
24 demographic details for that section.

11:34:39

25 Do you see District 5 on the screen?

1 **A.** Yeah.

2 **Q.** And do you see that the Hispanic CVAP of this region
3 is 50 -- or, excuse me, is 86 percent?

4 **A.** Yeah.

11:34:56 5 **Q.** And in the 2024 Presidential election, Kamala Harris
6 carried this dummy District 5 with 65.3 percent to
7 President Trump's 33.5 percent?

8 **A.** Yeah.

11:35:17 9 **Q.** And Governor Abbott carried this dummy District 5 with
10 73.4 percent?

11 **A.** No.

12 **Q.** Thank you.

13 Mr. O'Rourke carried this dummy District 5 with
14 73.4 percent to Governor Abbott's 25 percent?

11:35:30 15 **A.** Yeah.

16 **Q.** And in the 2018 Senate election, Mr. O'Rourke carried
17 this dummy District 5 with 78.7 percent to Senator Cruz's
18 20.5 percent?

19 **A.** Correct.

11:35:42 20 **Q.** And in the 2024 Senate election, the Democratic
21 candidate received 68.9 percent to Senator Cruz's
22 28.2 percent in the region that's identified here as dummy
23 District 5 on the south of CD 20.

24 Do you see that?

11:36:01 25 **A.** Yeah.

1 Q. And if we turn to dummy District 6, which is the area
2 that was in CD 20 that we have isolated on the
3 northeastern part of CD 20, do you see that the Hispanic
4 CVAP for this region is 46.6 percent?

11:36:25

5 A. Yeah.

6 Q. And in the 2024 Presidential election, Ms. Harris
7 received 59.4 percent of the vote in dummy District 6 to
8 President Trump's 39.3 percent?

9 A. Yes.

11:36:41

10 Q. In the 2022 gubernatorial election, the Democratic
11 candidate received 62.6 percent to Governor Abbott's
12 35.5 percent?

13 A. Yeah.

11:36:57

14 Q. In the 2018 Senate election, Mr. O'Rourke received
15 66.6 percent to the Republican candidate's 32.4 percent?

16 A. I do.

17 Q. And in the 2024 Senate election, the Democratic
18 candidate, Mr. Allred, received 62.3 percent to the
19 Republican candidate's 34.8 percent.

11:37:16

20 Do you see that?

21 A. I do.

22 Q. Now, just as we did in Harris County, I'm going to
23 take a screenshot with both of these two dummy districts
24 selected and paste that into that same Word document.

11:37:35

25 And you would agree that we have taken territory just

1 from CD 20 and just from CD 35, correct?

2 **A.** I think so.

3 **Q.** And I need to rename it. This will be "Trende cross
4 dummy District 5."

11:38:52 5 Do you see where I have pasted that into the Word
6 document with your help showing me how to do that?

7 **A.** I see that.

8 **Q.** And then we'll do the same thing selected for
9 District 6. We'll change the name of it to "Trende cross
11:39:07 10 dummy District 6" and copy that screenshot into the Word
11 document as well.

12 And do you see that that is pasted into the Word
13 document?

14 **A.** Yes.

11:39:34 15 **Q.** Now we will do as we did in the Harris County region
16 and assign the portion of -- that is dummy District 5 to
17 what is currently in the enacted map CD 20. And we'll do
18 that now. And I'm unlocking CD 5, obviously, and CD 20 is
19 unlocked.

11:40:05 20 Do you see that?

21 **A.** Sure.

22 **Q.** And selecting for District 20, we'll reassign those
23 precincts. Let me first make sure that we have locked
24 CD 35 so we don't cause a problem there.

11:40:49 25 Okay. Dr. Trende, do you see that I have assigned all

1 of the precincts that were in dummy District 5 to CD 20
2 and CD 20 now has a zero population deviation and has
3 766,987 people?

4 **A.** Yes.

11:41:10

5 **Q.** And I will take now the population, the precincts that
6 we have assigned to dummy District 6, and assign those to
7 CD 35.

8 Does that make sense?

11:41:29

9 **A.** I don't know if it makes sense, but I am sure you are
10 doing it.

11 **Q.** Okay, Dr. Trende. Do you see now that CD 35 has a
12 zero population deviation and a population of 766,987?

13 **A.** Yep.

11:42:44

14 **MR. GABER:** And if I could have Ms. Waknin join
15 us again at the Vanna White board.

16 **MS. WAKNIN:** Just speak slowly, Mr. Gaber.

17 **MR. GABER:** I will slow down. This does seem
18 slow. Perhaps to everyone.

19 **BY MR. GABER:**

11:42:58

20 **Q.** Since we have already done the enacted version, we'll
21 just be reading the CD -- the new CD 35 statistics. Let
22 me zoom in so you can see that, Dr. Trende.

23 Do you see that the District CD 35 in this map now has
24 a Hispanic CVAP of 48.6 percent?

11:43:20

25 **A.** Yes.

1 Q. And Mr. -- President Trump carries this version of
2 CD 35 in the 2024 election, 54.8 percent to Ms. Harris's
3 44 percent?

4 A. Yep.

11:43:35

5 Q. In the 2022 gubernatorial election, Governor Abbott
6 carries this version of CD 9 with 52.8 percent to the
7 Democratic candidate's 45.6 percent?

8 A. That's right.

11:43:56

9 Q. In the 2018 Senate election, Senator Cruz receives
10 50.3 percent to the Democratic candidate's 48.7 percent.
11 Do you see that?

12 A. Yeah.

11:44:16

13 Q. And in the 2024 Senate election, Senator Cruz receives
14 50.8 percent to Mr. Alired's, the Democratic candidate's
15 46.7 percent?

16 A. Yep.

17 Q. Do you see that?

18 A. Yes.

11:44:25

19 MS. WAKNIN: Mr. Gaber, you didn't give the HCVAP
20 for the enacted 35.

21 BY MR. GABER:

22 Q. I'm switching to the enacted version of CD 35 to place
23 on the whiteboard the Hispanic CVAP 51.6 percent.

24 Do you see that, Dr. Trende?

11:44:41

25 A. Yes.

1 Q. Would you agree with me, Dr. Trende, looking at the
2 whiteboard and what we have gone over, that the Republican
3 performance in the version of CD 35 that we've gone
4 through here, the alternative version, has a higher
5 Republican vote share in each of the elections that are
6 listed on the board, the 2024 President, 2024 Senate, 2022
7 Governor, and 2018 Senate?

11:45:08

8 A. Yes.

9 Q. And one in particular I want to draw your attention to
10 is the 2018 Senate that, in the enacted map, that was just
11 a .3 percent victory in this district -- in enacted CD 35
12 for Senator Cruz. That margin increases to 1.6 percent in
13 this alternative version of CD 35; is that right?

11:45:27

14 A. Correct.

15 Q. I also want to draw your attention to the enacted
16 version of CD 20 and CD 35. And I want to put the city
17 boundaries on and the labels of the cities. And then you
18 would agree that you can use the selector, select for
19 city, and then highlight a city and see whether it's split
20 by districts?

11:45:53

11:46:17

21 A. Yeah.

22 Q. Do you see that on the enacted version of CD 35 and
23 CD 20 the city of Windcrest is split between CD 35 and
24 CD 20?

11:46:28

25 A. Yes.

1 Q. And the city of Converse is split between CD 35 and CD
2 20?

3 A. Yes.

4 Q. Do you see that the city of Kirby is in CD 20?

11:46:41

5 A. Yes.

6 Q. Now, there is an unincorporated area that looks to be
7 a split, but it's just caught between cities here.

8 Do you see that?

9 A. Okay.

11:46:50

10 Q. Between Converse and Windcrest. So that doesn't show
11 up as a city. I just wanted to clarify that.

12 So that's both Windcrest and Converse split. If we go
13 to the alternative version that was just drawn and put the
14 city lines and the city labels on, do you see that this
15 alternative version has placed Kirby, the city of Kirby,
16 into CD 35?

11:47:13

17 A. Yeah.

18 Q. And it has placed all of the city of Windcrest into
19 CD 35?

11:47:27

20 A. Yes.

21 Q. And then it just leaves that same split of the city of
22 Converse. Do you agree?

23 A. I believe you that it's the same. But Converse is --

24 Q. Well, it's split, right?

11:47:38

25 A. You said the same split. I believe you would get the

1 same splits.

2 **Q.** And I'm just double-checking. It is.

3 So this alternative version of CD 30 and 25, you would
4 agree, resolves one of the city splits that are in the
5 enacted version of the map; is that right?

11:47:53

6 **A.** Yep.

7 **Q.** So the last step I'm going to do on this, I believe,
8 Dr. Trende, is to take the same screenshot that we did for
9 the other version, the other districts, and cut and paste
10 that into our Word document. And I'm going to start with
11 the statistics for CD 20.

11:48:16

12 CD 20 is a Democratic district, right?

13 **A.** Yes.

14 **Q.** And I'll put it in. I don't think we really need to,
15 but I'm going to put it in just to be safe.

11:48:36

16 I'm going to take the county labels off so the
17 district labels come on.

18 And do you see I have selected for District 20? Do
19 you see that?

11:48:58

20 **A.** Yes.

21 **Q.** I'm going to rename this "Trende cross alternative
22 CD 20," because we'll have the 20 -- District 20 data
23 selected.

24 And then I'm going to select District 35 so its data
25 is shown.

11:50:01

1 Do you see that, Dr. Trende?

2 **A.** Yep.

3 **Q.** And I'm going to relabel it "Trende cross alternative
4 CD 35."

11:50:15 5 Do you see that?

6 **A.** Yeah.

7 **Q.** And I'm taking a screenshot, as you have taught me,
8 and pasting that into the Word document.

9 Do you see that?

11:50:35 10 **A.** Yes.

11 **Q.** Something I learned in school, I am going to save the
12 Word document. Actually, I'm not going to show everyone
13 my file folders. So if you would avert your eyes.

14 **MR. KERCHER:** Can we have some transparency in
11:51:04 15 the map drawing process?

16 **MR. GABER:** I'm going to save it while you are
17 looking.

18 520 is that correct, Mr. Dunn?

19 **MR. DUNN:** You are on 522 and 523.

11:51:32 20 **MR. GABER:** This is the earlier.

21 **BY MR. GABER:**

22 **Q.** Okay. Dr. Trende, the good news is, for the most
23 part, we are done with the redistricting. I'm not going
24 to create any more districts. Thank you for bearing with
11:52:15 25 me.

1 MR. GABER: Your Honor, I will send a copy of
2 this exhibit to defendants; but I do move for the
3 admission of Brooks Exhibit 520, which is the Word
4 document with all of the map images pasted into it.

11:52:31 5 (Plaintiffs' Exhibit Number 520 offered into
6 evidence.)

7 MR. KERCHER: I'll object at the minimum on
8 relevance grounds.

9 Also, I will also object on improper expert opinion
11:52:42 10 and on attorney testifying. Mr. Gaber is not a disclosed
11 expert in this case. Asking Mr. Trende -- asking
12 Dr. Trende whether or not he in fact clicked on the
13 precincts that he clicked on is not in any way creating a
14 relevant record other than to walk through what Mr. Gaber
11:53:01 15 did.

16 I'll remind the Court that when Mr. Kincaid was on the
17 stand the plaintiffs objected that he was not qualified or
18 disclosed as an expert. Mr. Kincaid's testimony was
19 nevertheless relevant because of the mechanical process
11:53:15 20 that he used in order to draw the map.

21 Mr. Gaber is not the map drawer in this case. What he
22 does on Dave's Redistricting in his own time is not
23 relevant; and it is attorney testifying, it is improper
24 expert opinion, and is not relevant.

11:53:29 25 MR. GABER: Your Honor, with respect to the

1 expert testimony piece, we disclosed Dr. Trende on our
2 witness list to testify about alternative maps and the use
3 of race in redistricting.

4 And this is, in all regards, rebuttal testimony to
11:53:47 5 Mr. Kincaid. He described in detail his map drawing
6 process, naming the cities, including the city of Kirby,
7 for example, that he said he tried and could not make a
8 more Republican district.

9 To the extent it's rebuttal, which is what it is, the
11:54:05 10 Court has already ruled that we would not have needed to
11 file an expert report in advance of that, because we only
12 learned of Mr. Kincaid's map drawing criteria and goals
13 this week.

14 The Brooks plaintiffs did not lodge an objection to
11:54:20 15 Mr. Kincaid testifying on the basis that it was expert
16 testimony. That was objections raised only by other
17 plaintiffs.

18 Dr. Trende has testified to the reliability of the
19 data in Dave's Redistricting App. He testified to the
11:54:36 20 movement of the precincts, confirmed it as it was
21 happening. It is a map. The data is what the data is.

22 And we would be entitled to do this on rebuttal with
23 either Dr. Trende or with another witness, and I thought
24 it would save the Court's time not to do this twice.

11:54:54 25 JUDGE GUADERRAMA: That makes sense to me. I'm

1 going to admit 520. And we can always give it the weight
2 that we feel it deserves based upon those objections.

3 But what you say is not testimony. What the witness
4 says is testimony. If he adopts what you said, then that
5 becomes part of his testimony.

11:55:11

6 So we'll admit it. And we'll subject it to whatever
7 weight we decide to give it.

8 (Plaintiffs' Exhibit Number 520 admitted into
9 evidence.)

11:55:17

10 MR. GABER: Thank you, Your Honor.

11 JUDGE GUADERRAMA: That's just 520.

12 MR. GABER: 520.

13 JUDGE GUADERRAMA: The Word document.

14 MR. GABER: And then I guess, Ms. Waknin, could
15 you take a photograph?

11:55:23

16 MS. WAKNIN: I have.

17 MR. GABER: So Brooks Exhibit 521 will be the
18 whiteboard that is on the left, which is with respect to
19 the Harris County districts CD 9 and 36.

11:55:38

20 And Brooks Exhibit 522 will be the whiteboard -- a
21 photo of the whiteboard that is on the right.

22 MR. DUNN: 522 will be the alternative map CD 35
23 in the Word document.

24 And 523 will be the whiteboard.

11:55:55

25 MR. GABER: One moment while we confer over the

1 exhibit numbers.

2 (Sotto voce discussion between counsel.)

3 MR. GABER: Just to clarify the record, 520 is
4 the Word document with all of the screenshots for CD 9 and
5 CD 36, as well as CD 35 and CD 20.

11:56:27

6 And Brooks Exhibit 521 is the whiteboard on the left
7 with the data for the Harris County CD 9 and CD 36.

8 And 522 --

9 JUDGE GUADERRAMA: That's just a demonstrative
10 thing. It wasn't testimony.

11:56:47

11 MR. GABER: Right. Exactly. It was just a
12 demonstrative.

13 JUDGE GUADERRAMA: 522?

14 MR. GABER: 522. 522 is the one on the right
15 regarding CD 35 and CD 20.

11:56:55

16 JUDGE GUADERRAMA: Did you say something about
17 523?

18 MR. GABER: No. There is no 523.

19 (Plaintiffs' Exhibit Numbers 521 and 522 offered
20 into evidence.)

11:57:02

21 JUDGE GUADERRAMA: All right. So 521 and 522
22 demonstrative exhibits. Any objection?

23 MR. KERCHER: Not other than those we have
24 already lodged, Your Honor.

11:57:15

25 JUDGE GUADERRAMA: Thank you. 521 and 522 will

1 be admitted reflecting the whiteboard as what the
2 testimony was.

3 (Plaintiffs' Exhibit Numbers 521 and 522 admitted
4 into evidence.)

11:57:24

5 MR. GABER: Thank you, Your Honor.

6 BY MR. GABER:

7 Q. Okay. Dr. Trende, we are going to switch gears.

8 MR. GABER: Your Honor, what time is the lunch
9 break? I don't remember.

11:57:32

10 JUDGE GUADERRAMA: Well, I'm expecting that will
11 be at 12:30. I thought maybe we would be done by noon.
12 Somebody mentioned that. I guess that's not true.

13 MR. KERCHER: That would be my hope. For
14 reference, I believe Dr. Trende has a 2:00 p.m. flight.

11:57:51

15 THE WITNESS: 2:30.

16 MR. KERCHER: 2:30. I do have someone standing
17 by to whisk him away to the airport. So if we're going to
18 try to get him off the stand --

11:58:05

19 JUDGE GUADERRAMA: Well, Ms. Perales is already
20 looking at you like...

21 MR. KERCHER: Yeah. She does that. Me and
22 Dr. Trende will make travel arrangements as necessary.

23 JUDGE GUADERRAMA: Do you have much more to go?

24 MR. GABER: I do. I have to talk about

11:58:16

25 everything that dealt with Dr. Barreto, but I will

1 endeavor to move through that with -- it will go a lot
2 faster than assigning precincts.

3 JUDGE GUADERRAMA: Is there really a point to
4 putting all that stuff on the whiteboard? He just
11:58:26 5 testified about it.

6 MR. GABER: Not particularly. No.

7 JUDGE GUADERRAMA: So maybe we can save that
8 time.

9 MR. GABER: Yes.

10 BY MR. GABER:

11 Q. Okay. Dr. Trende, I want to switch gears and talk
12 about some other topics. And I am going to -- normally
13 Mr. Dunn does the technology, but I'm attempting to do
14 this today. So I'm going to reconnect.

11:58:49 15 And you were an expert in the North Carolina case
16 *Pierce v. North Carolina State Board of Elections*; is that
17 right?

18 A. Right.

19 Q. I think you mentioned it with Mr. Kercher on direct
11:59:00 20 examination. And we talked a bit about this in your --
21 our cross-examination of you back in the June trial. And
22 you testified, correct me if I'm wrong, that one of your
23 tasks in that case was to calculate the error margins for
24 CVAP and that was one of your main critiques in your
11:59:23 25 report in the *Pierce* case?

1 **A.** Yeah. I think I said this is why I didn't do it in
2 this case.

3 **Q.** Because the Court in the North Carolina -- or sorry.
4 It was the case that you had miscalculated each of the
5 error margins that you reported in your expert report in
6 the *Pierce* case; is that right?

7 **A.** Yeah. There was only one district, but yeah.

8 **Q.** But each one of the CVAP error margins was incorrect,
9 correct?

10 **A.** For the one district, yeah.

11 **Q.** Now, do you see on the screen I have the decision, the
12 order in the *Pierce* case?

13 **A.** Yep.

14 **Q.** And if we turn to page -- and this is Docket
15 Number 131 from 23-CV-193 in the Eastern District of North
16 Carolina, Eastern Division.

17 Did you read this decision?

18 **A.** It's a very long decision, but I read most of it.

19 **Q.** And the Court talked about a number of experts, right?

20 **A.** Right.

21 **Q.** And it made findings and credibility findings about
22 experts; is that right?

23 **A.** Right.

24 **Q.** Now, there was a motion to strike filed by the
25 plaintiffs with respect to your testimony because of the

1 errors in the report, correct?

2 **A.** Correct.

3 **Q.** And if we look at Footnote 3 -- I'll zoom in so you
4 can see that. This is Footnote 3 on page 8. And as I can
12:00:54 5 tell, this is the extent of the Court's discussion of your
6 testimony; is that correct?

7 **A.** Yeah. This is what I talked about on my direct here.

8 **Q.** And what the Court says is [as read:] Plaintiffs
9 argue that Trende's testimony and report are unreliable.
12:01:07 10 The legislative defendants disagreed. The Court does not
11 rely on Trende's testimony and/or report -- there is a
12 misspelling of report -- in making any findings or
13 conclusions. Thus, the Court denies as moot plaintiffs'
14 motion to strike Trende's testimony and report.

12:01:24 15 Is that correct?

16 **A.** That's right.

17 **Q.** The Court said nothing about your credibility or the
18 mistakes that you made in the report?

19 **A.** That's my understanding.

12:01:32 20 **Q.** Dr. Trende, I looked at your CV. I don't see that you
21 list your dissertation advisor committee on your
22 curriculum vitae; is that correct?

23 **A.** That's right.

24 **Q.** Do you see any problem with not listing that on your
12:01:46 25 CV?

1 **A.** If I were going on the academic job market or had an
2 academic appointment, it might be different. For what I
3 do, no.

12:01:58

4 **Q.** And is that -- what is your appointment at the Ohio --
5 is it The Ohio University? The Ohio University?

6 **A.** The Ohio State University.

7 **Q.** The Ohio State University. I knew there was a "the."
8 I'm from Wisconsin. It's close enough. I should have
9 known.

12:02:09

10 **A.** I'm a lecturer.

11 **Q.** You are not a tenure-track professor?

12 **A.** That's right.

13 **Q.** I want to go to your report in this case.

14 Do you see that I have that on the screen here?

12:02:24

15 **A.** Yes.

16 **Q.** And do you have a copy of that in front of you?

17 **A.** Yes.

18 MR. GABER: Perhaps Mr. Kercher can help me with
19 the exhibit number.

12:02:33

20 MR. KERCHER: State Defendants' 571.

21 MR. GABER: State Defendants' Exhibit 571. Thank
22 you.

23 BY MR. GABER:

24 **Q.** I want to go to your discussion of split precincts.

12:02:44

25 Do you recall talking with Mr. Kercher about that on

1 direct examination?

2 **A.** Yes.

3 **Q.** I'm going to go -- starting on page 2 of your report,
4 and this is where your discussion of split precincts
5 starts.

12:03:01

6 Do you see that?

7 **A.** Yeah.

8 **Q.** And the first one you identify is Precinct 1003.

9 Do you see that? And maybe let me --

12:03:10

10 **A.** I'll go off my own copy.

11 **Q.** Oh, you have a copy.

12 JUDGE GUADERRAMA: It would be nice to see it,
13 though.

14 MR. GABER: For the Court, yeah, I'll make it
15 bigger.

12:03:16

16 BY MR. GABER:

17 **Q.** And what you report is that [as read:] The precinct is
18 overwhelmingly Hispanic throughout. The portion included
19 in 18 has a total population of 6,093 with a White VAP --
20 which is voting age population, correct?

12:03:33

21 **A.** Yeah.

22 **Q.** [As read:] -- of 4 percent, a Black voting age
23 population of 23 percent, and a Hispanic voting age
24 population of 72 percent.

12:03:44

25 Do you see that?

1 **A.** Yeah. I used the acronyms VAP, BVAP, and HVAP; but
2 that's right.

3 **Q.** Thank you. I will use them, too. I just wanted to
4 say it once in its full form for the record.

12:03:58

5 And so that's the portion that's included in
6 District 18.

7 And then the portion outside, you report it has a
8 total population of 1,746 people; is that right?

9 **A.** Yep.

12:04:09

10 **Q.** And the White VAP is approximately 6 percent; is that
11 right?

12 **A.** Yeah.

13 **Q.** The Black VAP is approximately 23 percent?

14 **A.** Yep.

12:04:18

15 **Q.** And the Hispanic VAP is approximately -- or is
16 70 percent; is that right?

17 **A.** Yes.

18 **Q.** And then on the next page you show a shaded picture of
19 that precinct; is that correct?

12:04:31

20 **A.** That's right.

21 **Q.** And then you see the blue dividing line shows to the
22 south an area that's placed into CD 14 in the enacted map.
23 And north of that is an area that's placed into CD 18; is
24 that right?

12:04:45

25 **A.** Correct.

1 Q. Now, what do you understand to be the plaintiffs'
2 claim with respect to CD 18 in this case?

12:05:00

3 A. I don't know. I was just picking this as an example
4 of a district that's a minority-majority district, and
5 thought I would go through the precincts that are split to
6 illustrate to the Court different reasons a precinct might
7 be split.

8 Q. But you don't know what the claim of the plaintiffs
9 are endeavoring to prove with respect to CD 18 is?

12:05:16

10 A. I don't know if there is a claim to CD 18.

11 Q. Well, if the claim for CD 18, or at least one of them,
12 is that the district was racially gerrymandered to place
13 Black voters into CD 18, will you understand
14 that -- assume for me that's the claim. Okay?

12:05:34

15 A. Okay.

16 Q. Now, what you are showing here is shading of White
17 voting age population shaded in a gradation of colors with
18 the lowest percentage going from 30 percent and the
19 highest percentage going to 70 percent; is that right?

12:05:49

20 A. That's right.

21 Q. Would you agree with me that the Harris County area
22 has a large population of Black voters, Hispanic voters,
23 Asian voters, and Anglo voters?

24 A. Yes.

12:05:59

25 Q. And this is a precinct that you have identified has

1 White voting age population in the included part that is
2 4 percent and in the excluded part that is 6 percent; is
3 that right?

4 **A.** Right.

12:06:16

5 **Q.** And so what we're looking at here, it's all yellow;
6 and that's because there are very few White people in this
7 precinct, correct?

8 **A.** Correct.

12:06:29

9 **Q.** But what this does not allow us to do is to ascertain
10 whether there are Hispanic people who are separated from
11 Black people or Asian people who are separated from Black
12 people or whether White people are separated from Black
13 people; is that right?

12:06:45

14 **A.** I don't know about the White people separated, because
15 that would presumably decrease or increase their share of
16 the White VAP. But for the other ones, yes.

12:07:00

17 **Q.** Okay. So we can't tell anything about the
18 relationship between the sorting of Black or Hispanic
19 voters from each other based on any of the map images that
20 you show for the split precincts, correct? They all are
21 based on White voting age population?

22 **A.** Based on the images, yeah. That's why you also report
23 out the portion in each one, which are pretty similar.

12:07:17

24 **Q.** Okay. But at least with respect to looking at the
25 pictures, all we are seeing is White and non-White by

1 voting age population?

2 **A.** Yeah. That's right.

3 **Q.** Okay. Now --

4 **A.** Well, so for race that's right. You are also seeing

12:07:29 5 the roads. You are seeing --

6 **Q.** Fair enough.

7 **A.** -- these other reasons that we would split a precinct.

8 **Q.** Thank you.

9 Now, this is voting age population, not citizen voting

12:07:40 10 age population, correct?

11 **A.** Correct.

12 **Q.** And I will represent to you that the claim in the case

13 is that there was an effort to hit a racial target of

14 50 percent plus one Black CVAP. These maps do not show

12:07:58 15 CVAP, correct?

16 **A.** No. But as I showed in my -- one of my supplemental
17 reports, you don't get substantially different results --

18 MR. GABER: Objection to non-responsive, Your
19 Honor, everything after "no."

12:08:10 20 JUDGE GUADERRAMA: All right. Sustained.

21 BY MR. GABER:

22 **Q.** Dr. Trende, the data that you report in your -- with
23 respect to each of these split precincts is also just
24 voting age population data by race, correct?

12:08:21 25 **A.** Of course it is. That is the only way to do it.

1 Q. That's the only way to do it? What is that? You
2 could report it by CVAP, correct?

3 A. I don't think so, because the CVAP at the block group
4 level has huge error margins. When you break it down to
5 the census block level, it's going to have massive error
6 margins. So I don't think you would get a useful chart if
7 you are reporting data at the block level.

8 Q. Dr. Trende, if the goal -- if the goal of the map
9 drawer is to hit a CVAP target as it is reported by the
10 mapping software, regardless -- set aside whether -- you
11 know, the error margins or its accuracy. But if the goal
12 is just to report a 50 percent plus one CVAP district of a
13 particular race, then showing the CVAP is an accurate way
14 to look at that -- what would have motivated that person
15 if that were the goal, correct?

16 A. I would be putting something in a record with my
17 signature on it saying that these are the CVAPs of the
18 different blocks and it wouldn't be right. So I wouldn't
19 do that. Since the voting age population correlates
20 heavily with CVAP, it's a more accurate representation.

21 Q. But you can disaggregate CVAP down to the block level,
22 correct?

23 A. You can do some type of loose approximation that way.

24 Q. In fact, the Texas Legislative Council reports the
25 CVAP for the districts, correct?

1 **A.** That's right.

2 **Q.** And I think the record reflects, you have talked about
3 it in your report, there is over 500 maybe or maybe 400
4 split precincts in the new C2333 map?

12:10:03 5 **A.** Right.

6 **Q.** So the TLC, in reporting CVAP for the districts, has
7 disaggregated the CVAP down to the block level, correct?

8 **A.** So when you aggregate it back up, the errors will tend
9 to cancel out and it won't be as severe at the district
10 level. At this level, it's going to be massive, massive
11 error margins. It would be inaccurate for me to put that
12 in my report.

13 **Q.** I want you to separate the academic for a moment from
14 the -- this exercise, which is to ascertain what would
15 happen if a map drawer selected blocks that had
16 disaggregated CVAP results into them, put them into the
17 district, and those block level CVAP estimates were added
18 to the full district level estimate.

19 That would result in the district's CVAP estimate,
12:10:52 20 correct?

21 **A.** Yes.

22 **Q.** And that is what would then be reported by TLC or to
23 the public or by map drawing software as the CVAP for the
24 district, correct?

12:11:03 25 **A.** Yeah. I have already explained why I'm not going to

1 do that, but I see your point.

2 **Q.** Now, Dr. Trende, it's also the case that the CVAP data
3 is really -- or the CVAP estimates come in at the block
4 group level; is that right?

12:11:19 5 **A.** Yes.

6 **Q.** And block groups are a hierarchy level higher than the
7 census blocks?

8 **A.** Yes.

9 **Q.** And the block group's geography, the polygons that
10 make up the block groups, can intersect and cross over
11 VTDs; is that right?

12 **A.** That's right.

13 **Q.** And then when that happens, the disaggregation applies
14 the portion of the block group that goes to the portion of
15 that VTD and the portion of the other block group that
16 goes to that other portion of the VTD?

17 **A.** I have no idea what you just asked me.

18 **Q.** Okay. So in disaggregating the CVAP data to the
19 VTD -- to the VTD and to the census blocks within the VTD,
12:12:08 20 you draw from the relevant block group that it is
21 covering.

22 Does that make sense?

23 **A.** No.

24 **Q.** Let's take a look at an exhibit and perhaps that will
12:12:21 25 clarify things. This is Brooks Exhibit 409. And this is

1 a map from the Texas Legislative Council, the Central
2 Harris to Liberty County areas, with estimated Black CVAP
3 by block group shaded over the boundaries of Plan C2333.
4 And I'll zoom in so you can see that.

12:12:48

5 Do you see that, Dr. Trende?

6 **A.** Yes.

7 **Q.** And then do you see below that there is gradations of
8 shading color from light -- from white, which is no
9 non-Hispanic Black CVAP, up to green, which goes as high
10 as 49.9 percent.

12:13:05

11 Do you see that?

12 **A.** Yes.

13 **Q.** And then starting with the light color of orange at
14 the 50 percent mark and then getting darker orange as the
15 number gets higher towards 100 percent.

12:13:15

16 Do you see that?

17 **A.** Yes.

18 **Q.** So a light-colored green have a low share -- a
19 relatively low share of Black CVAP percentage; and the
20 orange has a relatively high share of Black CVAP
21 percentage over a majority, correct?

12:13:26

22 **A.** I'll take your word for it on the colors, because
23 three of the bottom four look identical to me and numbers
24 2 and 4 look identical to me.

12:13:42

25 **Q.** Okay. So I want to take you down -- we were looking

1 just now in your report at Precinct 1003.

2 Do you see that on the screen?

3 **A.** Yes.

12:14:01

4 **Q.** And this precinct is divided between District 14 and
5 District 18, correct?

6 **A.** Correct.

7 **Q.** And it's in the -- I think you say in your narrative
8 description of it, in the southern tip of District 18; is
9 that right?

12:14:13

10 **A.** Correct.

11 **Q.** Now, if we zoom in to where this VTD is in the
12 southern part of District 18, it's in the far right, where
13 I have my mouse, in the southeastern corner of the portion
14 of the district that borders with District 14 at the
15 Brazoria County border.

12:14:42

16 Do you see that?

17 **A.** Right. Where the boundary generally follows that
18 road, 6 I think it is.

12:14:54

19 **Q.** Okay. And do you see that north of the border in the
20 portion of this where this VTD is, and we'll look at it
21 more precisely in a moment, is that it is north of
22 District 18, that block group has an over 50 percent Black
23 CVAP; is that correct?

24 **A.** I can't tell that.

12:15:09

25 **Q.** You can't see the light orange shading?

1 **A.** I told you that half those squares look the same to
2 me.

3 **Q.** Yeah. Okay. Well, I will represent to you that -- I
4 mean, the map speaks for itself, but north of the CD 14
5 and CD 18 line is shaded light orange, which is over
6 50 percent Black CVAP. And south of it is shaded light
7 green, which corresponds to the .1 to 29.9 percent Black
8 CVAP.

12:15:27

9 Now, going back to my question to you earlier about
10 the disaggregation of CVAP to precincts when they are
11 dissected by block groups, the appropriate way to
12 disaggregate that is to put -- is to use the block group
13 that covers that portion of the precinct and assign it
14 down to the block level of that VTD, correct?

12:15:50

15 **A.** Can you say that again?

12:16:09

16 **Q.** So imagine we have -- maybe -- I'm going to --
17 Mr. Kercher gave me good ideas. I'm going to use the
18 whiteboard to try to demonstrate this.

19 MR. GABER: Is there a microphone?

12:16:29

20 May I approach?

21 JUDGE GUADERRAMA: Yes, sir.

22 BY MR. GABER:

23 **Q.** Okay, Dr. Trende. I'm going to draw -- can you see a
24 red marker? You can see it, but you just can't tell them
25 apart?

12:16:41

1 **A.** Yeah. I can't tell it apart from the green marker.

2 **Q.** Let's do it here.

3 **A.** But I can't see through you.

4 **Q.** I know. I'm sorry. I'll move in a second.

12:16:49

5 So I'm drawing a square that we're going to call
6 Precinct 1. Okay?

7 **A.** Okay.

12:17:06

8 **Q.** And I'm drawing a rectangle through it that we're
9 going to call block group A. And a precinct with a
10 rectangle underneath it, we're going to call that block
11 group B. And this is Precinct 1.

12 So to disaggregate down to the census block group CVAP
13 to the block level, you use the respective block group for
14 the respective area of the precinct?

12:17:28

15 **A.** You are illustrating perfectly my opinion from the
16 main case on why I think the CVAP estimates are wonky, but
17 yeah. You are right.

12:17:45

18 **Q.** And then with respect to the portion that's in block
19 group B, we can disaggregate it down to the ACS CVAP to
20 the portion of Precinct 1, the blocks in the portion of
21 Precinct 1 that are covered by that block group?

22 **A.** It is a very messy process getting from the CVAP block
23 group data to the district data. That is absolutely
24 correct.

12:17:59

25 **Q.** And, of course, my point is that that is how it would

1 be reported in the mapping software?

2 **A.** Right. That's why CVAP data is so wonky, because you
3 have to do all this manipulation of it that you are
4 describing. That is exactly right.

12:18:13

5 MR. GABER: Objection. Nonresponsive to
6 everything after "yes."

7 MR. KERCHER: For the record --

8 JUDGE GUADERRAMA: Well, he said "right."

12:18:20

9 MR. GABER: Oh. Everything after "right." Move
10 to strike.

11 JUDGE GUADERRAMA: Sustained. I'll sustain it
12 from beyond "right" and strike that. Beyond "right" and
13 "that's exactly right." Those two things.

14 MR. GABER: That's even better.

12:18:40

15 BY MR. GABER:

16 **Q.** Now we can take a look at this. And I'm going to take
17 you back to Dave's Redistricting one more time,

18 Dr. Trende. And we can look at how that works in the
19 precinct itself with respect to the data. And I guess one

12:18:56

20 kind of big question is what that means is that the CVAP
21 for the portion of a split precinct to the extent it has
22 an overlapping census block group as we just saw with
23 respect to your first example, will have -- will not have
24 a uniform distribution of that CVAP across the VTD,

12:19:15

25 correct?

1 **A.** I have no idea what you just asked me.

2 **Q.** Okay. The demonstration I just did on the board means
3 that to the extent the racial CVAP data is different for
4 the two block groups.

12:19:30 5 Do you have that?

6 **A.** Racial CVAP data is different from the two block
7 groups.

8 **Q.** That the -- say the Hispanic CVAP for every block is
9 not going to be uniform across the precinct or the Black
10 CVAP?

12:19:45

11 **A.** I don't know how you get from A to B.

12 **Q.** Well, let's do a demonstration. I hope that we can
13 get you there.

14 So I'm going to go to this portion. Do you see Dave's
15 Redistricting App is open on the monitor?

12:19:58

16 **A.** Yes.

17 **Q.** And if we go to -- I'll put the precinct lines on, and
18 we'll put the label of the precinct so we can see the
19 name. And then I want to put the Black -- sorry, not
20 Black -- it says Black VAP, but I think we've established
21 that since CVAP is the selected racial data, it will be
22 CVAP that shows, correct?

12:20:19

23 **A.** Correct.

24 **Q.** And I'm going to show value as percentages. And then
25 I'll also select Hispanic, since that's what you had

12:20:32

1 reported as the primary racial group in this VTD.

2 Okay. Do you see on the screen there is the north
3 side of Precinct 1003 that is placed into CD 18?

4 Do you see that?

12:20:57

5 **A.** Yeah.

6 **Q.** Let me -- and do you see that it has a Hispanic CVAP
7 of 49 percent and a Black CVAP of 38.9 percent?

8 **A.** Plus or minus some very large number.

12:21:17

9 **Q.** But that's the point. That will reflect the point
10 estimate that's reported in the program, the mapping
11 program.

12 **A.** But the point estimate is useless without the error
13 margin. That's my testimony from the first half of this
14 case. I'm not going to tell you that it's 49 percent
15 because it probably isn't.

12:21:29

16 **Q.** But, Dr. Trende, that's what would be reported. If
17 you split the VTD there and we're looking at the CVAP,
18 that's what would be reported, correct?

19 **A.** Because this is a survey, it's almost certainly not
20 49 percent; but that is what would be reported.

12:21:41

21 **Q.** That's what would be reported, yes?

22 **A.** Yes.

23 **Q.** Okay. And the portion of VTD 1003 that was placed
24 into District 14 has a Hispanic CVAP of 75.4 percent and a
25 Black CVAP of 18.9 percent, correct?

12:22:02

1 **A.** That's what is reported.

2 **Q.** And that reflects a difference in the Hispanic number
3 of 25 -- 26.4 percent between the two portions of this
4 VTD, correct?

12:22:22

5 **A.** That is reported, but everyone would understand that's
6 unreliable.

7 MR. GABER: Objection. Non-responsive to
8 everything after "reported" and move to strike.

9 JUDGE GUADERRAMA: Sustained.

12:22:35

10 BY MR. GABER:

11 **Q.** Dr. Trende, please try to answer the question that I
12 ask you. Okay?

13 **A.** Uh-huh.

12:22:44

14 **Q.** With respect to the Black CVAP, there is a
15 20 percentage point difference between the portion that's
16 in CD 14 on the south side of Precinct 1003 and the
17 portion that's on the north side included in CD 18; is
18 that right?

19 **A.** Can you repeat that?

12:23:00

20 **Q.** The percent -- 20 percentage points higher for Black
21 CVAP in the portion of Precinct 1003 that's included in
22 CD 18 than what is excluded.

12:23:18

23 MR. KERCHER: I'll object under Rule 403 to
24 unnecessarily cumulative and repetitive. We have made
25 this point. Dr. Trende has been on the stand for longer

1 than anybody anticipated. If we could move things along
2 so we could get to closing arguments this afternoon.

3 JUDGE GUADERRAMA: All right.

4 MR. GABER: That's fine, Your Honor. It would
12:23:30 5 help if we got "yes" or "no" answers.

6 THE WITNESS: The way you phrased that, the
7 answer is no because it's almost certainly not 20 percent.
8 If you want to specify it as reported, the answer is yes.

9 BY MR. GABER:

10 **Q.** Okay. That's -- and I do want this to be clear for
11 the record.

12 So, Dr. Trende, what is reported for the Black CVAP is
13 20 points higher in CD 18 for the portion -- for the
14 portion of Precinct 1003 in CD 18 than it is for the
12:23:55 15 portion included in CD 14, correct?

16 **A.** What is reported, that is correct.

17 **Q.** And if we go back to your report, what you reported
18 was that the Black CVAP or the Black VAP for the portion
19 included in District 18 was 23 percent and the portion
12:24:19 20 excluded is 23 percent, correct?

21 **A.** Those are actual numbers, yes.

22 **Q.** For VAP.

23 But to the extent that what we're looking at is CVAP,
24 that's not an accurate reflection of that endeavor,
12:24:30 25 correct?

1 **A.** I don't know because I don't know the actual CVAP
2 numbers. It's an estimate.

3 **Q.** Okay. I want to move on to page 24 through 26 of your
4 report.

12:24:58 5 Do you have that there in front of you?

6 **A.** I do.

7 **Q.** And this is -- again, you talked on direct about the
8 White plurality maps; is that right?

9 **A.** Correct.

12:25:07 10 **Q.** And I think you say in your report that we can see
11 that there is Biden -- or sorry -- Harris carried White
12 plurality precincts in CD 18 and CD 7?

13 **A.** And CD 29, yes.

14 **Q.** Okay. And CD 29.

12:25:22 15 And then on page 26 -- this map is zoomed out quite a
16 bit, but would you agree with me that the number of Harris
17 White plurality VTDs that are in CD 18 is substantially
18 smaller in the majority -- I'm sorry. Let me strike that.

12:25:46 19 This map on Figure 23, this is when you convert to the
20 White majority precincts; is that right?

21 **A.** Correct.

22 **Q.** Would you agree with me that the number of shaded blue
23 Harris White majority VTDs in CD 18 is substantially
24 smaller than the number of White plurality Harris VTDs?

12:26:03 25 **A.** It's smaller, yes.

1 Q. And, again, your image was hard to see, but do you see
2 that one of them has a triangular shape and sort of
3 dissects most of District 18; is that right?

12:26:22

4 A. I gave you the code and all the backups so your
5 experts could have generated any alternative view --

6 Q. Dr. Trende, yes or no?

7 A. Yes.

8 Q. Thank you.

12:26:34

9 And so, you know, had that one not been included, you
10 wouldn't really be able to cross to the northern part of
11 the district, at least not in a compact way; is that
12 right?

13 A. I don't know what other alternate configurations there
14 could be, but I'll agree with you.

12:26:56

15 Q. Now, Dr. Trende, with respect to these maps, all of
16 the maps for CD 18 and then these same maps that appear in
17 your report for CD 30 and CD 33, they don't assist in
18 determining whether race was used to sort voters between
19 Democratic districts, correct?

12:27:21

20 A. I don't know. I hadn't thought about that.

21 Q. So I'll represent to you that in CD 30 and 33, at
22 least for the Brooks plaintiffs, and I believe for others,
23 the claim is that Black voters were sorted into CD 30 and
24 out of CD 33 in the Plan C2333 and both of those districts
25 are Democratic, correct?

12:27:44

1 **A.** Correct.

2 **Q.** And so when we're isolating ourselves to Democratic
3 districts, these White majority Democratic and White
4 plurality Democratic maps are not going to tell us
5 anything about how race was used to sort voters between
6 Democratic districts?

12:27:57

7 **A.** I honestly hadn't thought about that, so I don't know.

8 **Q.** Okay. Now I want to -- on a similar topic, I want to
9 move on to your critique of Dr. Barreto's simulations.

12:28:19

10 And one of your criticisms, and this is a quote from your
11 report, that they don't characterize or they don't
12 accurately respond to a map drawer that was, quote,
13 largely indifferent to compactness.

14 Do you recall that?

12:28:38

15 **A.** Yes.

16 **Q.** If the map drawer has asserted that compactness was a
17 priority criterion, the simulations to accurately reflect
18 that should be set to capture a compactness criterion.

19 Would you agree?

12:28:56

20 **A.** Some level, yes.

21 **Q.** Now, you also criticize Dr. Barreto for his
22 simulations for CD 30 and 33 in the Dallas and Tarrant
23 County area and CDs 7, 18, and 29 in the Harris County
24 region because he restricted the simulations to that

12:29:16

25 Democratic envelope; is that correct?

1 **A.** Right.

2 **Q.** Now, if there were testimony that the map drawer drew
3 the districts by restricting himself to the territory in
4 those respective envelopes, your criticism would wash
5 away, correct?

12:29:32

6 **A.** Yeah. I think that is probably more accurate for the
7 Harris County blob than the Dallas blob, but yes.

8 MR. GABER: Objection. Nonresponsive to
9 everything after "yeah."

12:29:49

10 MR. KERCHER: Dr. Trende cabined his answer as
11 necessary to answer fully.

12 JUDGE GUADERRAMA: Yeah. I'm going to overrule
13 that objection.

14 MR. GABER: Okay.

12:29:57

15 BY MR. GABER:

16 **Q.** And, Dr. Trende, you said it was more accurate for the
17 Harris County than for the Dallas County; is that right?

18 **A.** The Harris County area, we have examples of how the
19 map evolved with different precincts coming in and out of
20 District 18 and 9.

12:30:12

21 **Q.** In which area?

22 **A.** The Harris County area.

23 **Q.** So to the extent the map drawer had one map drawing
24 process for map C2308 that was restricted to the

12:30:25

25 Democratic districts in that Democratic envelope and then

1 used that same approach for C2333, then using that
2 envelope is correct?

3 **A.** I didn't follow you. I can say you make a good point
4 for the Dallas area. I don't think you do for the Harris
5 County area.

12:30:49

6 JUDGE GUADERRAMA: Mr. Gaber, let me -- we're
7 trying to test the idea that maybe we could be done in
8 time for Dr. Trende to make his flight.

9 How much further do you think you are going to go?

12:31:03

10 MR. GABER: I think I probably have maybe 20 or
11 25 minutes.

12 JUDGE GUADERRAMA: Ms. Perales.

13 MS. PERALES: 30 minutes if Dr. Trende answers
14 yes/no. 25 minutes if he answers yes/no.

12:31:18

15 JUDGE GUADERRAMA: Okay.

16 MR. McCAFFITY: I may have some questions, too,
17 Your Honor, but probably no more than 20 minutes.

18 MR. ROLLINS-BOYD: No more than 10 minutes.

19 JUDGE GUADERRAMA: All right. So we're over an
20 hour on that, and I have got to get my court reporter a
21 break because she has been working for two hours. So we
22 are looking at an hour and 15 minutes.

12:31:26

23 JUDGE BROWN: She has been working for four
24 hours.

12:31:43

25 JUDGE GUADERRAMA: Well, I mean without a break.

1 JUDGE BROWN: Oh, without a break.

2 JUDGE GUADERRAMA: She works all the time.

3 JUDGE BROWN: Yeah, that's right.

4 JUDGE GUADERRAMA: So we're looking at, you know,
12:31:50 5 1:00, almost 2:00. And I don't think he will make it on
6 the plane.

7 MR. KERCHER: I think we should probably just go
8 ahead and take lunch so Dr. Trende can make whatever
9 travel arrangements are necessary.

10 JUDGE GUADERRAMA: All right. I agree. So let's
11 do that. Let's recess for lunch to 1:45. And then we
12 will resume our proceedings at 1:45.

13 MR. GABER: Thank you, Your Honor.

14 COURT SECURITY OFFICER: All rise.

15 (Morning session adjourned at 12:32 p.m.)
12:32:16

16 Date: October 17, 2025

17 **COURT REPORTER'S CERTIFICATE**

18 *I, Laura Wells, certify that the foregoing is a*
19 *correct transcript from the record of proceedings in the*
20 *above-entitled matter.*

21 _____/s/ Laura Wells_____

22 *Laura Wells, CRR, RMR*

23

24

25