UNITED STATES DISTRICT COURT

FOR THE WESTERN DISTRICT OF WISCONSIN

* *

WILLIAM WHITFORD, et al.,

Plaintiffs,

-vs- Case No. 15-CV-421-BBC

GERALD NICHOL, et al., Madison, Wisconsin
May 25, 2016

Defendants. 9:00 a.m.

* *

STENOGRAPHIC TRANSCRIPT OF SECOND DAY OF COURT TRIAL
HELD BEFORE THE HONORABLE JUDGE KENNETH RIPPLE,
THE HONORABLE JUDGE BARBARA B. CRABB, and
THE HONORABLE JUDGE WILLIAM GRIESBACH,

APPEARANCES:

For the Plaintiffs:

Law Office of Peter G. Earle
BY: PETER EARLE
839 North Jefferson Street, Ste. 300
Madison, Wisconsin 53703

Campaign Legal Center
BY: J. GERALD HEBERT
RUTH GREENWOOD
DANIELLE LANG
ANNABELLE HARLESS
1411 K Street NW, Ste. 1400
Washington, DC 20005

Rathje & Woodward, LLC
BY: DOUGLAS POLAND
10 East Doty Street, Ste. 800
Madison, Wisconsin 53703

Lynette Swenson RMR, CRR, CRC
U.S. District Court Federal Reporter
United States District Court
120 North Henry Street, Rm. 520
Madison, Wisconsin 53703
608-255-3821

Continued appearances:

For the Plaintiffs:
University of Chicago Law School
BY: NICHOLAS STEPHANOPOULOS
1111 East 60th Street, Ste. 510
Chicago, Illinois 60637

Also appearing:
Paul Strauss - Chicago Lawyers' Committee for Civil Rights Under Law, Inc.
Dan Brewer - Litigation specialist
William Whitford - plaintiff
Helen Harris - plaintiff
Jim Seaton - plaintiff
Allison Seaton - plaintiff
Wendy Sue Johnson - plaintiff
Wayne Jensen - plaintiff

For the Defendants:
Department of Justice
BY: BRIAN KEENAN
ANTHONY RUSSOMANNO
17 West Main Street,
Madison, Wisconsin 53703

Also appearing:
Jackie Righter - paralegal

* * * * *

I-N-D-E-X

E-X-H-I-B-I-T-S

PLAINTIFFS' EXHIBITS		IDENTIFIED	RECEIVED
Ex. 116	Mayer report - Table F	227	---
117	Mayer report - Table G	228	---
156	Chen article	261	---
158	Chat Figure 3	264	---
257	Agreement	6	---
353	Transcript	44	---
357	1-5-11 letter	121	123
394	Chen & Rodden article	257	---
470	Emails	37	39
477	Spreadsheet	126	---
486	Mayer spreadsheet	194	199
487	Demonstrative	127	---
DEFENDANTS' EXHIBITS			
Ex. 509	2011 Act 43	105	---

THE CLERK: Case 15-CV-421. *Whitford v. Gerald Nichol* called for the second day of court trial. Could we have the appearances, please.

MR. POLAND: Good morning, Your Honors. Appearing on behalf of the plaintiffs we have the same counsel who were appearing yesterday.

MR. KEENAN: On behalf of the defendants we still have me, Brian Keenan, and Anthony Russomanno.

JUDGE RIPPLE: Good morning. And thank you. Before we get underway, I'd just like to inquire of counsel if there are any housekeeping matters that they would like to bring to our attention.

MR. EARLE: Yes, Your Honor. I'd like to move

into evidence Exhibits 475 through 481 which were the demonstrative spreadsheets where the data was sorted in descending order of Republican vote totals that corresponded to the other sheets that were in evidence.

THE COURT: Mr. Keenan.

MR. KEENAN: We objected to these because they weren't -- they were provided after the May 9th deadline in the pretrial order and so they were just provided last week. So we have a timeliness objection to them.

JUDGE RIPPLE: I think those should be admitted and will be. And Mr. Keenan, do you have any housekeeping matters you'd like to bring to our attention?

MR. KEENAN: No.

THE COURT: All right. If I could inquire of counsel for the plaintiffs, maybe you could give us some idea of where you think you are pacewise. Are you behind pace? Before pace? How are we proceeding?

MR. POLAND: Your Honor, I think that we are behind pace at this point. There was quite a bit of testimony that came in yesterday that was actually part of the defendants' case and it makes sense to do it at that time. It was much longer than we had anticipated. It also has another effect. We are going to have to straighten out some of those things that happened

yesterday, we're going to have to do that today in what is essentially rebuttal testimony of Dr. Mayer. So I regret to inform the Court, but I do think that we're a little bit behind pace here.

THE COURT: That was our sense as well. Okay. Thank you very much. All without further adieu, I think we better get on with things and allow the plaintiffs to proceed with their case.

MR. POLAND: Thank you, Your Honor.

MR. EARLE: We call Tad Ottman, Your Honor.

JUDGE RIPPLE: I'm sorry?

MR. EARLE: We call Tad Ottman.

TAD OTTMAN, PLAINTIFFS' WITNESS, SWORN,

JUDGE RIPPLE: Good morning, Mr. Ottman.

THE WITNESS: Good morning.

JUDGE RIPPLE: Counsel, your witness.

MR. EARLE: Thank you.

ADVERSE EXAMINATION

BY MR. EARLE:

Q Good morning.

A Good morning.

Q Would you state your full name and spell your last name for the record.

A Tad Ottman. O-t-t-m-a-n.

Q Now, during the redistricting at issue in this case

you worked for Senator Fitzgerald; correct?
A That's correct.
Q And you were one of three people, along with Adam Foltz and Joseph Handrick who actually drew the various drafts of maps that ended up being Act 43; correct?
A We drew the drafts of the maps that we presented to the legislative leadership that they selected as part of the maps that became Act 43.
Q Thank you. And you did this under the direction of Michael Best & Friedrich; isn't that true?
A We worked in consultation with attorneys at Michael Best & Friedrich who advised us on various legal standards.
Q You were under their control and direction, weren't you, sir?
A I wouldn't characterize it that way.
Q Okay. I would draw your attention to Exhibit 28 -- I'm sorry, 257. Have you seen this exhibit before?
A Yes, I have.
Q If we could call out the first two sentences of the first paragraph. Would you read those two sentences into the record, please.
A "Michael Best & Friedrich, LLP, is currently engaged to represent the Senate Republican leadership, (Republican leaders) in connection with matters relating

to the reapportionment of the Wisconsin Senate, Assembly, and congressional districts arising out of the 2010 census, the representation. This letter will confirm our understanding concerning work performed by you in connection with the representation."

Q Okay. Now, let's look at the rest of that paragraph, the remainder and the highlighted portion. Would you read that into the record, beginning with the sentence that says "All work."

A "All work performed by you in connection with the representation shall be for the sole purpose of assisting MBF in rendering legal advise to the Republican leaders. Said work contemplates services of a character and quality that are adjunct to our services as lawyers and you shall perform said work at our direction. Accordingly, all communications between you and MBF as well as communications with the Republican leaders and work performed by you in connection with the representation shall be confidential and made solely for the purpose of assisting counsel in rendering legal advice."

Q And then let's go to the second paragraph, if we could call out the second paragraph. Would you read the second paragraph into the record.

A "You will not discuss with or otherwise disclose to

anyone or with any entity other than MB&F and the Republican leaders without our written authorization the nature or content of any oral or written communications or of any information or work performed related to the representation. You will not disclose or permit inspection of any papers or documents related to the representation without our written authorization in advance. All work papers, records or other documents or other things regardless of their nature and the source from which they emanate, which are related to the representation, shall be held by you solely for our convenience and subject to our own qualified right to instruct you with respect to the possession and control. Any work papers or materials prepared by you, or under your direction, belong to the Republican leaders pursuant to the representation and every page must be sealed or otherwise stamped attorney/client work product privilege confidential."

MR. EARLE: Let's go to the signature block, please. The signature block below that one.

Q You signed this on July 27, 2010; correct?

A That's correct.

Q And what you signed was approved and agreed upon; correct?

A That's correct.

Q Okay. Now, about six months later you and Adam Foltz moved into Michael Best's offices into the mapping room where you performed all of the mapping functions; correct?
A That's correct.
Q And that mapping room was almost adjacent to Mr. McLeod's office; is that correct?
A It was just down the hall from his office, yes.
Q And Mr. McLeod was one of the people with an all access pass to get in and out of the map room; correct?
A That's correct.
Q And he, in fact, entered and consulted with you in the map room with frequency; correct?
A Yes.
Q Thank you. Now, you used autobound software to draw the maps; right?
A That's correct.
Q And while drawing those maps, you needed an accurate partisanship metric so you could understand the partisan consequences of the line you drew; correct?
A We didn't need it for the drawing of the maps. We did have a partisan metric that we used in helping to evaluate the maps.
Q It was -- you had it right there on the screen, didn't you?

A The partisan metric was available as part of the data that we could see when drawing.
Q All right. So you and Adam Foltz and Joe Handrick created a composite average of various statewide elections to serve as that metric; isn't that correct?
A I'm sorry, I didn't hear the question.
Q Sure. So you and Adam Foltz and Joe Handrick created a composite average of various statewide election results to serve as that metric; isn't that right?
A That's correct.
Q And we've established that that partisan metric was loaded into your autobound software; right?
A That's correct.
Q And so you had to ensure that that metric was accurate before you started making assignments; isn't that true?
A We actually started making some assignments before. We had a couple of different metrics that we looked at and we had started making some assignments. But at some point we shared various metrics with Professor Gaddie and he indicated to us that the metric that we ultimately used was the one that we went forward with.
Q Let's put that in chronological context. You started experimenting with various combinations of statewide races in early April, correct, of 2011?

A I believe that's the time frame, yes.
Q And then along about mid-April you decided to check the accuracy of that metric with Professor Gaddie; correct?
A I can't speak to the exact time frame, but that sounds about right.
Q Well, let's call up Exhibit 226. I'm sorry, let's call up your deposition at -- where are the lines here. I want to get the liens right. At page 73, lines 1 through 17. You testified about this. We have a video of it.
A Okay.
(Video played.)
Q Now, drawing your attention to Exhibit 238, page two, this is an email chain between yourself and Andy Speth, Chief of Staff to Congressman Dan Ryan; correct?
A Congressman Paul Ryan.
Q Paul Ryan. Sorry. Would you please read Mr. Speth's email to you on April 5th, 2011 at, 3:42 p.m. and your immediate response at 3:45 p.m.
A "Again, excuse my ignorance if I am asking the wrong question and please set me straight if I am. Which set of data and what races should I be using to create our political baseline numbers? I want to make sure we are using the exact same data and races to draw our districts

that you are."
Q And your response?
A And my response is "Not a problem. We are using a shorthand that appears to work, with the caveat that we are scheduling our political expert to come in and see if he agrees or would recommend different races. For now, we're using a three-race composite of GOP presidential in 2008 and 2004, plus Attorney General for 2010. I'll let you know if that changes for any reason."
Q Now, in that email you say "we are scheduling our political expert." Who is the *we* in that sentence?
A I don't know if that was myself and Joe and Adam or if I just meant the law firm and myself, Joe and Adam.
Q So that possibly included the law firm Michael Best & Friedrich as well?
A It could have, yes.
Q And the political expert in that sentence is Professor Gaddie; correct?
A That's correct.
Q And the composite did change; correct?
A It did.
Q And you ultimately used a composite that included all statewide races from '04 to '10; isn't that correct?
A That is correct.
Q Now, you settled on this proxy because Professor

Gaddie found it was very accurate and highly correlated with the outputs of his regression model; isn't that true?

A As Joe and I looked at the composite that's discussed in this email here, it didn't seem to jive with kind of our impression of how different races had performed in the state in the previous decade. So Joe and I talked about it and discussed trying a composite of all those statewide races from '04 to '10. So we made that composite, looked at it, it seemed to be a better comparison, and then we forwarded it to Professor Gaddie and that's when he responded and said it seemed to have a pretty good correlation.

Q So in other words, you wanted to test the accuracy of it at that point in time and that's why you send it to Professor Gaddie; right?

A Right. We wanted to see if he agreed with our assessment.

Q Okay. So the entire time that you were using this proxy drafting maps, you believed that that proxy was accurate and reliable, correct, sir?

A While we're drafting maps, we thought it was a good evaluation.

Q Thank you. You also calculated this proxy, this composite score down to the ward level allowing you to

have the most detailed measures you had available to draft your districts; right?

A When working with LTSB, we told them what we were doing and they broke the data down to the ward level and provided it to us.

Q Okay. Now, you then used those composite scores to analyze each draft of the statewide plans with spreadsheets that compared the pre-existing map with the new draft statewide plan you were working on; isn't that true?

A Yeah, that was one of the reports that was generated on any statewide map that we laid down.

Q And we have an example of one of those. Let's call up 364. Now, this report is -- can you read what the title of this map is, this spreadsheet is?

A TadMayQandD.

Q This is a spreadsheet you prepared; correct?

A I don't believe I prepared this one, no.

Q You prepared the map that the data on this spreadsheet represents; correct?

A That's correct.

Q Okay. Who prepared that spreadsheet?

A This looks like a format that Adam Foltz used.

Q Okay. Let's go down and look at the seat tallies. You reviewed these seat tallies at the bottom of the

spreadsheet?
A I looked at them, yes.
Q And they are organized -- would you tell us how the tallies are organized?
A The tallies are organized -- broken out on different groupings of percentages that range from 55 percent and above, 52 -- basically 52.1 to 54.9, and then 48 to 52, 45.1 to 47.9, and less than 45. And then they are labeled safe GOP, lean GOP, total GOP, seat safe lean, swing, lean DEM, safe DEM and total DEM seat, safe and lean.
Q Now, how many total GOP seats safe plus lean did this spreadsheet show for the Assembly map?
A 40 under the current map.
Q And how many swing seats?
A 19.
Q And comparing those two numbers to the new map that you had just drawn called TadMayQandD, how many total GOP safe and lean seats were the result of that map?
A 54.
Q And how many swing seats?
A 6.
Q Thank you. Those seat tallies -- so you took partisan data into account as you evaluated draft districts and maps as demonstrated by this exhibit;

correct?
A It was one of the things that we evaluated maps on, yes.
Q And in fact, isn't it true that your goal throughout the redistricting process was to draw an assertive map in favor of the Republicans?
A That is not how I would characterize it, no.
Q Well, let's see. Let me call your attention to a document called tad_senate_assertive_curve. That's Exhibit 278. You've seen this document before; right?
A I've seen documents like this. I'm not certain if I've seen this exact one.
Q Well, perhaps let's go over to the responses to the WRK 32587 responsiveness spreadsheet detail report. Let's see who -- you see the title; right? It's TadMayQandD.xlsm.
A I see that, yes.
Q And do you see the titles below that, tad_senate_assertive_curve?
A I do.
Q Okay. You're the Tad that's referred in those titles; correct?
A Certainly in TadMayQandD, and I believe so in tad_senate_assertive. And I believe so in tad_senate_assertive.

Q Drawing your attention to 69 through 78, if we could scroll over and see to the right there, could you tell us who the authors are of those spreadsheets?
A Some of them are authored by myself and some of them are authored by Ronald Keith Gaddie.
Q No, sir. I'm sorry. I think they were all authored by Mr. Gaddie; correct?
A Last saved by -- yeah, authored are Ronald Keith Gaddie.
Q But you correctly noted that you saved the majority of them, didn't you?
A Yes.
Q And you don't dispute that they were on your computer?
A I do not.
Q Okay. Now -- and you authored the map that is analyzed by these curves; right?
A I believe so, yes.
Q Now, what does the assertive in the title mean?
A I don't know. I didn't make that title.
Q Had you ever -- well, you've seen the title.
A I have.
Q It was on your computer.
A Yes.
Q You didn't ask anybody how come there's a map or a

document on my computer that has my name on it next to the word assertive?

A I did not.

Q And how long were you -- we'll stop with that. Let's go back to the curve. You refer to these documents as responsiveness curves, don't you?

A I'm not sure how they're termed. I believe that is how Professor Gaddie may have described them.

Q Okay. I think -- well, let's go back to your deposition. Lines -- page 68, lines 6 through 17.

(Video played.)

What do these responsive curves or S curves, depending on how you call them, what do they represent?

A To my recollection, as Professor Gaddie explained, it represents shifts in results based on election waves where either there's larger Democrat turnout or larger Republican turnout.

Q So in other words, you could tell what the consequence of a wave election one way or the other would be for the given map that you drew; correct?

A I don't know that it would have a predictive effect or if it's a looking backward effect.

Q Okay. So you're not sure?

A Not entirely, no.

Q Let's go to your deposition at page 89, lines 9

through 15.

(Video played.)

Now, those were 1 percent increments either way off the 50 percent line; right?

A Well, with the exception of 50 to 48 there, it looks like that, yes.

Q So in other words, these curves were helpful because you wanted to see how the map responded to changes; right? That's basically the sum of what we're saying here.

A I did not use these curves so I can't say how they were helpful.

Q Okay. Well, you saved them on your computer many times; right?

A Yes.

Q And you printed them, didn't you?

A Yes.

Q Okay. And they were in the map room; right?

A Some of them were.

Q After you prepared a number of draft maps, at some point in early June you met with the leadership and presented them with alternatives; right?

A That is correct.

Q And during those meetings, the leadership made choices that resulted in Act 43; correct?

A That is correct.
Q And before they made those choices, you presented the leadership with your data regarding the partisan scores for those alternatives; right?
A They saw different regional alternatives and they saw the partisan scores for the maps that we presented to them in those alternatives.
Q So the S-curves analysis was available to the leadership as well; right?
A I think it was in the room. I don't know if it was out on display.
Q You show -- I want to show you a document called *summaries.xlsx*. Exhibit 283. You've seen this document before?
A I believe so, yes.
Q Let's scroll across the top so we can -- slowly so we can see what the contents are. There was a series of regional quadrants; correct?
A Right now I only see south Milwaukee as a region.
Q Okay. And let's scroll across. What's the title there? It says *Tale of the Tape*. Do you see that?
A Tale of the Tape, yes, I see that.
Q And there's Current Map. Team Map. Let's keep going across. There's a Tad Assertive. Let's keep going across. There's Good Outcomes and Bad Outcomes. Let's

keep going across. Illinois border, that's a region; correct?
A That's correct.
Q Okay. Let's go across. Lakeshore, another region?
A Yes.
Q Fox Cities, another region?
A Yes.
Q And for each of these regions, we see current, aggressive, alt, alt; correct? Various maps?
A Yes.
Q Let's keep going across. Northwest corner, is that a region?
A It is.
Q West Coast, is that referring to western Wisconsin?
A It is, yes.
Q Let's keep going across. Eau Claire area. Do you see that? That's a region?
A Yes.
Q Keep going across. Alt Central. Is that a region?
A It is.
Q Let's keep going across. Southwest, another region?
A It is.
Q East Central another region?
A Yes.
Q Let's keep going across. Team map for northeast

Wisconsin. Is that another region?
A Yes.
Q Can we continue? Is that it? Okay. Good. Now, pulling up the metadata for this document, if we can, it's on line 17 of WRK 32864 of Exhibit 225. Now, this document was initially created on May 25, 2011; correct?
A Yes.
Q And that was prior to the meetings with the leadership; is that correct?
A That's correct.
Q The metadata in front of you says it was printed on June 9, 2011; correct?
A Yes.
Q And that was during the leadership meetings; correct?
A I'm not certain of the exact dates.
Q Okay.
A It would be around that time.
Q Okay. Which exhibit number are we on then? Let's go to the -- let's go to -- go back to the -- where are we? Let's go to the regions printout from Exhibit 225, WRK 32564 folder, spreadsheet named *regionsprintoutxls*. Got it there? Do you see the dates?
A Yes.
Q Okay. So those meetings started on June 6?

A Appears so, yes.
Q And as we scroll down, we can see the various regions. That were different days. Let's go down to the bottom. Those meetings ended on June 10th when you talked about Dane County; correct?
A That's when they were scheduled to end. I don't know if we may have concluded earlier.
Q Okay. All right. So now let's go back to the spreadsheet for the metadata for the summaries document we were just looking at. The Tale of the Tape. I'm sorry, the metadata.
JUDGE RIPPLE: Counsel, it would be very helpful to the Court if you could use exhibit numbers --
MR. EARLE: Certainly, Your Honor.
THE COURT: -- on these documents and frankly perhaps raise your voice slightly when you do. We are having difficult tracking you on these documents and making note of the exhibit numbers.
MR. EARLE: Okay. Thank you, Your Honor. It's Exhibit 225.
JUDGE RIPPLE: Thank you.
MR. EARLE: And let's go back to the metadata.
JUDGE CRABB: I will assume that it's not in evidence yet. I have a whole list of exhibits that I know are unobjected to.

MR. EARLE: This is one of them, Your Honor. This exhibit is in evidence. All of 225 is in evidence, which is a large compilation of the contents of Mr. Ottman's computers, Mr. Foltz's computers and Mr. Handrick's computers.

BY MR. EARLE:

Q All right. Let's go back. So can you tell us what date this was last accessed?

A It appears it was last accessed on 6-13 of 2011.

Q That would have been after the meetings were over; correct?

A Yes.

Q Okay. Now, I want to go back to something you testified a few moments ago. You said you couldn't remember who was in the room with you when you were looking at the S curves?

A That's correct.

Q Do you recall if Mr. Foltz was in the room when he was looking at those S curves with you?

A He probably was. I don't have specific recollection of it.

Q All right.

MR. EARLE: Let's go back to Exhibit 283, please. There are two sections I want to focus on in the spreadsheet in particular. The first, I want to look at

the section that's got the header *Good Outcomes* and *Bad Outcomes* and we prepared a PDF of this section so we can call it out for the convenience of the Court. If we could have that up on the screen. And we've done this so, for the -- in order to -- for mercy of the eyes of the Court and counsel at table.

Q So please list for the Court the good outcomes that are listed on Exhibit 283?

A It says there "statistical pickup above the top 55 percent and below, 45 percent and over," and then on the next lines "statistical pickup, GOP, INC strengthened, DEM incumbent weakened and GOP donors."

Q Okay. Now, there are four types of bad outcomes too; right?

A Yes.

Q And could you list what those are?

A It says "45 percent and above, 55 percent and below," and then underneath it says "DEM incumbent strengthened, GOP income weakened, statistical loss, GOP nondonors."

Q And the 45 percent and above has immediately below it "DEM incumbent strengthened"; correct?

A Yes.

Q And the 55 percent and below has "GOP incumbent weakened"; correct?

A Correct.
Q Now, each of these outcomes are defined right below where they are listed; isn't that true?
A Yeah, there's a definition listed below.
Q Okay. So let's start with the good outcomes. Can you read the definition for the statistical pickup?
A "Statistical pickup equals seat that is currently held by DEM that goes to 55 percent or more (example if number 13 Cullen goes from 44 percent to 58 percent)."
Q And when they say DEM a seat -- a seat that is currently held by a DEM that goes to 55 percent or more, you're talking about a Republican; correct? 55 percent or more Republican vote share; correct?
A Yeah. The percentage refers to the Republican percentage.
Q Right. And so the example is if -- who is Cullen?
A Cullen was a state representative from the, I believe, 13th Assembly District.
Q And what party did Mr. Cullen -- who was he affiliated with?
A He is or was a Democrat state representative.
Q So an example of a statistical pickup is if you design a map where you take a Democratic incumbent's seat from 44 percent Republican vote share to 58 percent Republican vote share; right? That's the definition;

correct? That's an example for the definition that's being laid out here on this spreadsheet; right?

A It refers to the seat number. The incumbent may or may not continue to reside in that seat in the new map.

Q Um-hmm. Okay. But you would expect to win that seat in the following election; correct?

A I don't know that I would -- what expectation I would have.

Q You have no expectation if you shift the numbers from 44 percent Republican vote share to 58 percent Republican vote share?

A I didn't look at future outcomes or what may happen. That was just information that we presented to legislative audit leadership.

Q I see. Okay. How many -- how is incumbent -- GOP incumbent strengthened defined?

A GOP incumbent strengthened equals positive movement on composite.

Q Okay. So that means you get positive increase in the Republican vote share; correct?

A I would assume so. I didn't create these definitions.

Q Okay. And how is DEM incumbent weakened defined?

A DEM incumbent weakened equals positive GOP movement on composite.

Q And how are GOP donors defined?
A GOP donors equals those who are helping the team.
Q Okay. Now, the team is the Republican team; right?
A I assume so. Again, I didn't create these definitions.
Q Okay. It was -- okay. It was a term for those Republican legislators in safe seats with over 55 percent partisan scores whose scores were reduced; isn't that correct?
A I'm not certain.
Q Okay. Let's call up your videotape here from your deposition. It's Exhibit 226, page 110, lines 14 through 25.

JUDGE RIPPLE: 226?

MR. EARLE: Yes. Exhibit 226 is the deposition.

JUDGE RIPPLE: Thank you.

(video played.)

MR. RUSSOMANNO: Your Honors, we object to completeness on this excerpt. There's a beginning part of the answer that they cut off that we think it matters to this excerpt.

MR. EARLE: That's fine. No objection to it. What line?

MR. KEENAN: Page 110/7 it should start.

(Video played.)

MR. EARLE: I believe the witness had already said that.

JUDGE RIPPLE: Mr. Russomanno, are you satisfied?

MR. RUSSOMANNO: Thank you.

BY MR. EARLE:

Q So a GOP donor gives up some Republican voters in his or her district in order to redistribute those voters to surrounding districts in order to help Republicans pick up more seats statewide; correct?

A I wouldn't characterize it that way.

Q Okay. They donate some of their score to the Republican team, don't they?

A I don't know that that's entirely what it meant, no.

Q Okay. How would you characterize it?

A It would simply indicate a seat that had a lower percentage under that partisan metric than it started with.

Q I see. Well, let's define the bad outcomes. How is DEM incumbent strengthened defined?

A DEM incumbent strengthened equals DEM over 45 percent who has negative movement on composite.

Q How is GOP incumbent weakened defined?

A GOP incumbent weakened equals those 55 percent and below who have negative movement on composite.

Q And how is statistical loss defined?
A Statistical loss equals seat that is currently held by GOP that goes to 45 percent or below. (Example: If number 47 goes all Dane County we lose the number, but not the incumbent.)
Q And how is GOP nondonors under bad outcome defined?
A GOP nondonors equals those over 55 percent who do not donate points.
Q Now, let's go to the next PDF, which is under -- the section under the Tale of the Tape?
MR. EARLE: If we could pull up 283, Tale of the Tape PDF. Again, Your Honors, this is a PDF of the spreadsheet we were reviewing before that has been made so that we can see it enlarged. It's No. 283. We got it? Oh. Okay. Tale of the Tape.
Q This section shows comparisons of various partisan outcomes for five draft maps; correct?
A Yes.
Q Would you read what those maps were?
A Current map, team map, Joe Assertive, Tad Aggressive, Adam Aggressive, team map.
Q Now, drawing your attention to the title *Tad Aggressive*, what does the word *aggressive* mean in this context?
A I don't know.

Q Okay. So you worked with Joe Handrick on redistricting in one room for months at Michael Best and you never thought to ask; right?
A I don't know when that title was created, but no, I did not ask.
Q Well, we have a document here that's used with the regional meetings with the leadership and that's how it's characterized. Did the leadership ask you what you meant by Tad Aggressive?
A We didn't present them complete statewide maps so there was no label like that that was presented to them as among the regional alternatives.
Q Did Mr. Foltz ever ask you or ask Mr. Handrick what the term aggressive meant in your presence?
A Not in my presence.
Q Now, you discussed these maps between the three of you; correct?
A We had discussions about all the maps that we were working on, yes.
Q And you had discussions amongst you prior to going into the leadership meetings in order to manage your presentation of the leadership at the meetings; right?
A Right. We had several discussions, including which -- under each region which map alternatives to present to them.

Q And in those discussions, you referenced maps by titles; correct? Because you were talking about multiple maps.
A No, we didn't really reference them by titles.
Q Okay. So each of these maps, the 99 Assembly districts are tallied across five categories; correct?
A It appears so, yes.
Q And those strong categories are strong GOP 55 percent plus; right?
A Yes.
Q Lean GOP 52.1 to 54.9 percent; correct?
A Yes.
Q Swing; correct?
A Correct.
Q Lean DEM 41 -- 45.1 percent to 47.9 percent; correct?
A Correct.
Q Strong DEM 45 percent and below; correct?
A Correct.
Q Now, these tallies are based on the composite score we've been discussing up to this point; right?
A That's correct.
Q We then see that the larger box in the middle compares the 2000's map to the team map on the basis of how many seats have partisan scores above 50 percent for

Republicans, don't they?
A Yes.
Q How many seats were 50 percent or better for Republicans in the current map? And by current map, we're referring to the map that was in effect prior to the enactment of Act 43; correct?
A That's correct.
Q And how many were?
A 49 seats.
Q And how many seats were generated by the team map that emerged from that meeting with the leadership?
A 59 Assembly seats.
Q We then see the team map refers to a final or near final version of the map created on the basis of the decisions; right?
A Yes. It was near completion at that point.
Q And before we leave this document, does the tale -- the title Tale of the Tape have any significance to you?
A I did not create that title. I'm not sure what it signifies.
Q That's not the question. Does it have any significance to you? I know you said earlier that you --
A I'm not sure what the significance was.
Q Okay. Are you aware that Tale of the Tape is a

phrase that refers to pre-fight -- in boxing matches, pre-fight measurements of the boxer's reach?

A I've heard the expression, yes.

Q And that didn't -- okay. You had heard that expression though; right?

A Yes.

Q Good. Now, on that note, let's look at the metadata listed for Trial Exhibit 225, WRK 32864, responsive spreadsheets file detail report, call your attention to line 19, a document called summary.xlsx. Got it up there?

A Yes.

Q Do you see that?

A Yes.

Q The metadata shows this document was authored by Joe Handrick; right?

A It says so, yes.

Q And it was last saved by you; correct?

A It says last saved by Tad.

Q And Tad is you; right?

A Not necessarily.

Q That's because you shared a computer with Joe Handrick; right?

A I set up the log-in password for him and I believe that was the log-in that I used for his computer.

Q But you access his computer as well; right?
A On occasion.
Q Yeah. So you shared that computer; right?
A If that's how you want to term it. I accessed it some of the time.
Q Now, let's look at the actual document itself. It's Exhibit 284.
MR. EARLE: We're pulling up a PDF version of this document for the Court's convenience once again. We can enlarge it.
Q Can you read the definition of GOP donors to the team here?
A "Incumbents with numbers above 55 percent that donate to the team."
Q Okay. Those are all Republicans; correct?
A I believe so, yes.
Q Now, let's look at Exhibit 239. Please identify this document.
A It is an email from Leah Vukmir to myself on Wednesday, May 4 of 2011.
Q Who is Leah Vukmir?
A I believe she is a state Senator, Republican state Senator who I believe had just been elected the prior election.
Q And the date is May 4, 2011; right?

A That's correct.
Q This is an email that you produced in response to discovery in the *Baldus* case's order to compel; correct?
A That's correct.
Q Can you please read the last paragraph of that email through to the end for the Court.
A "If you need a way to take the Staskunas seat, put a little bit of my Senate seat into New Berlin. Two to three wards could make that a GOP Assembly seat. Western, West Allis, Eastern BKFD and New Berlin are areas of like interest. (The previous Duff seat had parts of New Berlin, Elm Grove, BKFD and West Allis). Hope that helps."
Q Staskunas was a Democratic member of the Assembly; correct?
A That is correct.
Q He's no longer there; correct?
A I don't believe so.
Q Now, let's look back at summary.xlsx 284 again. We have statistical pickup; right? It says "currently held DEM seats that move to 55 percent or better"; correct?
A Correct.
Q And if we look at District 15, can you tell us what District 15 says there?
A It says "District 50, old 48.2, new 55.5 percent."

(and then Staskunas)
Q Okay. Now, let's look at Exhibit 351. Who is this email addressed to and who is it from?
A It is addressed to myself and Adam Foltz from Jim Troupis.
Q What is the date of the email?
A Monday, June 13, 2011.
Q Can you read the first three lines of that email.
A "Good morning Tad and Adam. Sounds like the latest map went well with the leadership. Congratulations on walking that fine line."
Q Now, this refers to your meetings that we just went over in June with the leadership; right?
A I believe so, yes.
Q And June 13 was the same date that we established the Tale of the Tape document was modified; isn't that right?
A I believe so, yes.
Q After -- and that was after that -- that document was printed at that point; correct?
A I don't know if it was printed.
Q I think the record speaks for itself in that regard. Let's go to 470. This is a series of emails on June 24, 2011, between yourself, Jim Troupis, Eric McLeod and Ray Taffora with Adam Foltz cc'd; right?

A That's correct.
Q On June 24, 2011, at 2:52 p.m. you sent an email to Jim Troupis, Eric McLeod and Ray Taffora with the subject line *Legislative Drafts* that says "This is the draft that arrived today." And you can see that; right?
A Yes.
Q And you can see that right below that email is your response to Mr. Troupis; right? I mean Mr. Troupis's response to you; correct?
A There is an email from Mr. Troupis above that email.
Q I'm sorry. Where are we? I lost my place. Can you read Jim Troupis's response at 4:02 p.m.?
A "Like the summary at the outset and the numbers look good. Interesting that the census tracks read quite reasonably. Any issues to date with members?"
Q Can you read Eric McLeod's response at 4:03?
A "I think all the members are very happy with their new districts based on Tad's and Adam's reports to date."
Q The reports that Mr. McLeod is referencing are your meetings with the individual senators and Adam Foltz's meetings with the individual representatives; correct?
A That's my belief, yes.
Q Who were the leaders that participated in your meetings with the individual senators?
A There were two rounds of meetings with the

individual senators, one at the very beginning of the process and then another one after we were preparing to introduce the map. Senator Zipperer sat in on some of those meetings, but not all of them.

MR. EARLE: Your Honor, at this point I would like to move Exhibit 470 into evidence.

JUDGE RIPPLE: Mr. Keenan?

MR. EARLE: These are these emails here.

MR. KEENAN: Our objection was that it was untimely under the pretrial order. It was disclosed after the May 9th deadline; so...

JUDGE RIPPLE: I think we can admit that.

MR. EARLE: You can admit? Thank you.

BY MR. EARLE:

Q Let's look at Exhibit 348. Could you tell us who is it addressed to and who is it from?

A That is from Jim Troupis is Eric McLeod.

Q And who was cc'd?

A Adam Foltz, myself and Sarah Troupis.

Q And what is the subject line of this email?

A Experts.

Q Can you read the email starting with the third sentence of the first paragraph through to the end of the paragraph?

MR. EARLE: We'll highlight that part there.

Third sentence. "I strongly" -- I'm sorry. Let's start right there.

A Through the end of the paragraph?

Q Yes, please.

A "I strongly believe Professor Grofman is essential to our efforts as he brings to any three-judge panel three decades of national and international redistricting work on both sides of the aisle. He's been recognized by courts as perhaps the single-most respected political scientist addressing matters of redistricting. There is no doubt we will end up in court of whatever is passed and so having a stable of powerful experts is essential. Without Grofman in 2001, we would not have succeeded in getting the map we did as Easterbrook followed his direction in drawing the map. We will need to put everyone under the confidentiality and retention agreements which will require retainers. Let's discuss this tomorrow and get folks under contract before the map becomes public. They will want to review it ASAP."

Q Thank you. And now prior -- there was a public hearing on Act 43; correct?

A There was a public hearing on the Senate bill which became Act 43.

Q Right. Right. And you spoke to the Republican caucus at that hearing; correct?

A I spoke to members of the committee at that hearing.
Q I'm sorry, yes. Let's look at 241. These are your notes in preparation for speaking to the caucus, the members of the Republican caucus; right?
A I'm not certain which notes -- which meeting I prepared these in advance of.
Q But you recognize the exhibit; right?
A I do.
Q You're the author of this exhibit?
A I believe so, yes.
Q Yeah. Now, can you read for the Court the last line of the second paragraph.
A "The maps we pass will determine who's here ten years from now."
Q Now, can you read the following paragraph?
A "Today we are going to walk through the proposed maps and talk about how we got there. We have an opportunity and an obligation to draw these maps that Republicans haven't had in decades."
Q Let's look at Exhibit 362. This is an email from yourself to Jim Troupis, Ray Taffora and Adam Foltz on July 12, 2011, the date before the sole hearing on the bill that became Act 43; correct?
A That's correct.
Q Would you please read the contents for the Court.

Start with the first paragraph.
A "Attached is most of the information for the memos for the hearing tomorrow. Adam will be sending another sheet. The idea is to print each section as a separate memo and label them SB 148 memo 1 through X."
Q Let's go to the second paragraph.
A "One thing I would recommend changing is the enumeration of the county splits since it doesn't tell a great story and there is not information from ten years ago to compare it to. The municipal splits are a better comparison and a higher priority."
Q Let's go to third paragraph.
A "The other attachment that isn't provided here is the summary of population changes in deviations. This is simply a printout from the LRB analysis that we will submit."
Q Thank you. Now, let's go to Exhibit 237. You drafted these notes in preparation for your testimony at the hearing on the bill that became Act 43; correct?
A Yes.
Q And you've testified about this previously in your deposition; right?
A I have, yes.
Q Can you read for the Court the first paragraph of this document, including the list 1 through 3.

A "Questions and responses: Every question can be traced back to the principles that guide redistricting: Number 1, equal population. Number 2, sensitivity to minority concerns. Number 3, compact and contiguous districts. Different choices can be made along the way, but those criteria must be followed. SB 148 meets these criteria."

Q This question demonstrates that you had a deliberate strategy to evade any questions or discussion about partisanship by always deflecting those questions with a reference to those traditional redistricting principles; isn't that true, sir?

A I don't know that I would characterize it that way.

Q Okay.

MR. EARLE: Your Honors, at this time I'd like to move Exhibit 237, the exhibit we were just dealing with into evidence.

JUDGE RIPPLE: Mr. Keenan.

MR. KEENAN: I don't think there was an objection to that one.

MR. EARLE: It's already in? Okay. I'm sorry.

JUDGE RIPPLE: I'm sorry, sir?

MR. KEENAN: There was never an objection to that one. It's already in.

JUDGE RIPPLE: Thank you. The exhibit is

admitted.
BY MR. EARLE:
Q You actually -- and you did, in fact, testify at the hearing; right?
A I did, yes.
Q Do you remember exactly what you -- what you testified about when you were asked directly about partisan considerations in your map drawings?
A I don't remember.
Q Okay. Let's refresh your recollection. We can look at the transcript because we have a transcript of that. That's Exhibit 353. To refresh your recollection, and let's look at page 46 where Senator Erpenbach asked you directly if partisanship was considered when drawing the maps. And I'd like you to read your response to his question beginning at line 20.
A "That information was available. I do not have that information here with you. It was available, but the principles by which the maps were drawn were those that I enumerated earlier: Equal population, sensitivity to minority concerns, and compact and contiguous districts."
Q Continuing on, read Senator Erpenbach's response to that.
A "Did the partisan makeup of the districts come into play at all when drawing the maps?"

Q Now read your response to that question.
A "The principles were the ones I enumerated. Those were the ones that drove drawing the map."
Q Now, Read Senator Erpenbach's response.
A "So the answer is no?"
Q And how did you answer that question?
A "The answer is that we followed those three legal principles."
Q Thank you.

MR. EARLE: Your Honor, I'd like to move -- sorry. We're done, I'm sorry. We do -- I thought so. Your Honor, we would move Exhibit 353 into evidence.

THE COURT: Any objection?

MR. EARLE: That's a transcript.

MR. KEENAN: We had an objection to the transcript as hearsay. I mean there's a lot in that transcript beyond what they just read. So I mean to the extent that Mr. Ottman's actual testimony is there, we're not objecting to that being in the record here. But, you know, the statements made by Senator Erpenbach or whoever about the map can't be taken for being true. That was our objection.

JUDGE RIPPLE: We can admit it for the limited purpose then.

MR. EARLE: Your Honor, our response would be

that it's a public record. It's an exception to the hearsay rule. It's part of the legislative history of Act 43.

THE COURT: Counsel.

MR. KEENAN: It is.

MR. EARLE: You don't think the hearing --

MR. KEENAN: We still have the transcript. I mean where did you get it from? If you can establish that, then we can. But I mean until then, I don't think it's appropriate to let it in in its entirety.

JUDGE RIPPLE: Well, we'll admit it for the limited purpose I just stated and we'll take under advisement the suggestion that it's a public document. We'll rule on that with the case.

MR. EARLE: Thank you, Your Honor.

JUDGE RIPPLE: Thank you. (10:09 a.m.)

MR. EARLE: With that, we pass the witness.

JUDGE RIPPLE: Counsel.

MR. RUSSOMANNO: Good morning, Your Honors.

JUDGE RIPPLE: Good morning.

MR. RUSSOMANNO: As we did yesterday with Mr. Foltz, our plan was to go ahead and do the direct of Mr. Ottman and I believe that's okay with the plaintiffs' counsel, if that's okay with the Court.

JUDGE RIPPLE: It is.

MR. RUSSOMANNO: Of course that means it will be a bit longer than it otherwise would have been.

JUDGE RIPPLE: Understood.

DIRECT EXAMINATION

BY MR. RUSSOMANNO:

Q Good morning, Mr. Ottman.

A Good morning.

Q I'd like you to talk a bit more about your background, so I'll start with some questions in that area. Do you have a college degree?

A I do.

Q And what is it?

A I have a bachelor's of science degree in Political Science and English.

Q Any degrees beyond that?

A I do not.

Q And starting with after college, can you walk us through your employment at that point?

A At the end of my college career I was working for Senator Jim Harsdorf. That would have been the end of 1988. I continued working for him for several months. Then I worked for Representative Bill Berndt, Representative Sheila Harsdorf for several months, and then I worked for State Senator -- I'm sorry, State Representative Mary Panzer and Steve Foti, who shared

staff. I worked for the two of them until Senator Panzer was elected to the State Senate in, I believe, '95 and then I continued working for her until she was defeated in 2004. And then in 2005, I began working for Senator Scott Fitzgerald where I've worked ever since.

Q Let me just walk you back. So the first time period ended -- you worked for a series of people until 2004; is that right?

A That's correct.

Q Can you describe if your duties -- were your duties different for each person? Were they the same? And if so, can you give us an idea of what you did?

A Sure. Earlier on in my career my duties were largely constituent relations, assisting with some minor drafting of legislation. As I moved on in my legislative career, I became more involved with policy-matter research, more drafting of legislation, particularly being involved with the state budget and the process of putting together the state budget as well as some involvement with other significant policy issues including some involvement in redistricting in following both the 1990 census and the 2000 census.

Q Okay. Can you describe in particular what you did with regard to your redistricting in each instance?

A Sure. In the censuses following 1990 and 2000, my

duties were largely the same. I kind of came in, as the people who had been principally working on it had been working on it for awhile, and I assisted in different exercises, looking at ways to, for example, reduce population deviations, checking for errors to make sure that there were no unassigned areas in certain regions of the state, and just that sort of checking, looking if there were opportunities to reduce splits in municipalities, things like that.

Q And is that -- for the second time in the 2000's, what were your duties then?

A My duties were largely the same then. I also participated in discussions with leadership, in both Republican leadership and both Houses as well as some consultants as they were preparing trial submittals.

Q Where were you located when you were doing this redistricting work first in the 90's?

A In the 90's the work took place over at the law firm of Michael Best & Friedrich.

Q And how about the 2000 one?

A That also took place over at the law firm. Different office, but same law firm.

Q Did you have -- as part of your background you're describing, did you work with the legislative process more generally?

A Yes. I assisted in drafting legislation, I assisted in building support among with caucus members to get legislation passed, particularly when Senator Panzer and then Senator Fitzgerald were both in leadership positions and even to an extent when they were members of the Finance Committee which is also sort of a leadership position. So I helped build support for different proposals as they moved through the Legislature.

Q Did your duties change in 2004 in your new position?

A Yes. At that time Senator Panzer was in a leadership position, so I assisted in kind of floor scheduling for legislation as well as just kind of working more directly with members of the caucus on different -- both administrative and policy matters.

Q And when did you start your current position?

A In 2005.

Q 2005. And at that point what were your duties for that new position?

A For that new position, Senator Fitzgerald had been named chair on the Joint Committee on Finance, so I was involved with kind of putting together the state budget while he was chair. Subsequent to that he became Senate Republican Leader, and so my duties had to do with building support among caucus members for different initiatives that the Republican caucus was putting

forward.

Q Can you describe -- it might be helpful for everyone -- what the typical process, a bill becomes a law. What are the steps, at least from your experience?

A Sure. It varies somewhat depending on how significant the policy matter is. But on -- what happens is largely legislators will work either on their own or with drafters or with a small group of people to develop legislation. Usually it's developed among members of your own party, if not just the individual legislator. They create a proposal with the assistance of the Legislative Reference Bureau. At that point, the bill is often, but not always, circulated among other legislators to see if anybody else would want to sign on. For major policy pieces of legislation sometimes that doesn't occur, for example, various budget amendments are not necessarily circulated.

The bill is then circulated. At some point it is introduced. Not all bills that are circulated are introduced. And then once they are introduced, they are assigned to a committee. The committee chairman or chairwoman can choose to hold a public hearing on that piece of legislation. Most of the time a public hearing is held. There are instances when it is not. And then that legislation is forwarded to the full body, either

the Senate or the Assembly, for debate and then it is passed over to the other House where a similar process occurs.

Q Thank you. How many years total now have you worked in the Wisconsin Legislature?

A I've worked -- I started as a page while I was still in college so that would have been '84. So 32 years now.

JUDGE CRABB: How many of these plans that you worked on were passed by the Legislature?

THE WITNESS: I believe all of the plans that I worked on were passed by at least one House. The most recent plan following the 2010 census is the first plan I've worked on that's been passed by -- that an identical plan has been passed by both Houses.

JUDGE CRABB: So the others never were adopted by the whole Legislature; is that correct?

THE WITNESS: My recollection is that each House passed a version that was not identical and that no identical version was passed through the whole Legislature.

MR. RUSSOMANNO: Thank you.

BY MR. RUSSOMANNO:

Q During your years of employment with the Legislature, were you ever working for the minority party?

A Yes, for several years.
Q Can you recall, estimate about when that was?
A That would have been early on from '89 on through -- I believe I was already working for the State Senate when the Republicans took control of the State Assembly, so it probably would have been -- there may have been a brief window when the Senate Republicans controlled it in the late 1990's or early 2000's and then for much of the post-2000, with the exception of, I believe, one or two sessions more Democrats were in control of the Senate. I was in the minority then, but otherwise for the majority party.
Q In your experience when you were working for the minority party, did the majority party always provide the minority party with legislation in the drafting process?
A Not during the drafting process. Typically the first time the minority party, and frankly most of the majority party sees legislation, is when a bill is circulated, either electronically or prior to that paper copies were handed out.
Q And in your past experience with redistricting in particular, the two prior times, do you know if the Democratic Party created draft maps?
A It's my understanding, yes, they did create draft maps.

Q And did the Democratic Party provide the Republican Party with those maps during the drafting process?

A Not that I'm aware of, no.

Q Now, moving on from your background, can you talk a bit about what you were doing leading up to the process, the redistricting process for the 2010 census?

A Prior to the 2010 census, I was working with -- along with my other duties, I was working with the legislative service agencies: the Legislative Reference Bureau, Legislative Technology Services Bureau, kind of preparing for what was going to happen with redistricting.

The census information is sent to our Legislative Technology Services Bureau. We worked with some of the other service agencies, including, I believe, the legislative counsel who also advises the Legislature where we discussed what equipment the Legislature would need to purchase, how that equipment would be distributed to all four of the partisan caucuses, two in each House, any ancillary equipment that was going to be needed, printers, plotters. The maps that are produced on these plotters are a large size and the Legislature didn't maintain file cabinets that were large enough to do that, so we had to explore where we could obtain cabinets that would hold those maps.

Q If I could back you up a little bit. How did you become involved? Did someone ask you?
A Senator Fitzgerald asked me to kind of participate in that effort and eventually head up the redistricting effort for the Senate for him.
Q Do you know why he asked you?
A I believe it was because of my prior involvement in redistricting in the previous decades.
Q And the process you were just describing, when abouts was that in 2010?
A It started, I believe, relatively early in 2010 while the census was still going on.
Q And during this earlier 2010 time period, was there involvement of law firms, outside law firms?
A Yeah. At some point -- I believe Senator Decker was the majority at that time. At some point -- a lot of times or most times for any retention of outside legal counsel it's done through what's called the Senate Organization Committee Ballot, which is made up of leadership of both parties of the Senate with three of the majority party and two of the minority party, and they vote by ballot to approve expenditures for funds. So we got a ballot that Senator Decker was requesting to hire legal counsel for the Senate Democrats related to redistricting, so Senator Fitzgerald either had me

request from Decker's office or spoke to Senator Decker himself to see if Republicans could also retain counsel.

So Senator Decker agreed, and then there was another ballot circulated approving counsel for Senate Republicans to hire as it related to redistricting.

Q And did the Senate Republicans hire counsel?

A We did, yes.

Q Who did you hire?

A We retained Michael Best & Friedrich.

Q Do you know if the Democrats hired outside counsel?

A They did.

Q Do you recall who they hired?

A I don't recall all the names on the law firm. I believe Cannon, DeJong were two of the named partners in the firm.

Q Do you know what the law firm hired by the Republicans was doing during this time period, this early 2010?

A There was very little that the law firm did at that time. I think they were doing some of the preparation, looking at what redistricting cases across the country occurred in the previous decade that might have bearing on our redistricting. We'd also discussed with them about kind of the physical process potentially of drawing the maps in the provided room for the state Senate where

we could locate our redistricting computer when it arrived.

Q Do you know what the Democrats' counsel was doing during this time period?

A I do not.

Q Did you try to find out?

A Subsequently later on Senator Fitzgerald made an open records request of Senator Miller asking for records of what the law firm retained by the Senate Democrats had done as part of redistricting. I believe they had billed the State Senate somewhere close to $200,000 for legal bills, so we made a -- Senator Fitzgerald made an open records request to get some more information about that, but Senator Miller never fulfilled that request.

Q So moving later into 2010, did something change with this arrangement of counsel?

A Yes.

Q What was that?

A After the elections of 2010, Republicans elected a majority in both Houses of the Legislature and Republican Governor Walker was elected as Governor and so it became clear that a legislatively passed redistricting plan was a possibility.

Q And then did something formal happen to change outside legal counsel's status?

A Yes. After new legislators and the Governor were sworn in this January, the Senate Organization Committee passed a new ballot terminating the previously existing relationship that the Democrat state senators had had with their law firm and kind of reauthorizing a new contract with Michael Best & Friedrich.

Q And could we put up Exhibit 355, please. Can you see the exhibit up on your screen there, Mr. Ottman?

A Yes, I can.

Q Do you recognize that?

A Yes.

Q What is it?

A It was a ballot that was circulated to members of the Senate Organization Committee that provided for the hiring of Michael Best & Friedrich as well as the termination of the previous agreement that had been signed with O'Neil, Cannon, Hollman, DeJong.

Q Is this the document you were just describing, the document that relates to it?

A It is.

Q At this point now, did the Democrats have counsel after this document came to be?

A The only counsel was Michael Best at that point.

Q And what was different now when this document was created than earlier in 2010 when both parties had

counsel?
A What was different now was that there was one party in control of all three branches, which hadn't occurred for a long time, which led Senator Fitzgerald and others to conclude that a legislatively enacted redistricting plan was possible.
Q And why is that relevant to counsel?
A At that point in prior -- in prior redistrictings after the census in the prior year without unified control by one party of both Houses of the Legislature, those redistricting efforts all ended in front of a court and there was no legislatively enacted plan.
Q So still in late 2010/2011, what changed about what you were doing?
A At that point, Senator Fitzgerald asked me to kind of be responsible for working on redistricting for the State Senate and the Legislature.
Q And did you -- where were you located during this time period?
A At the end of the year I was still in the Capitol office, and then at some point, I believe in either late December or early January, I moved over to the office space that Michael Best & Friedrich had provided to the State Senate.
Q Is this similar or different than what you described

earlier about the last two redistricting arrangements?
A It's pretty typical from my experience of how the previous two legislative redistricting arrangements that I had been involved with worked.
Q Can you explain why you moved over to Michael Best in this particular instance?
A It was beneficial to have both myself and Adam Foltz, who was also working on redistricting, in the same room as well as kind of having proximity to the lawyers if we had questions about legal standards that may apply there, as well as there was an interest in protecting the confidentiality of the process that the -- operating out of the Capitol, it's a little less conducive to.
Q Why were you hoping to keep things more confidential?
A We expected litigation to occur as part of this, so we knew it was going to be important to be able to talk about with certainty who had access to what and when and who may also have saw it.
JUDGE RIPPLE: Continue your answer.
Q As well as there's some benefit to kind of controlling the discussions with other legislators at different stages of the process. They're obviously very interested in what's going on and we wanted to kind of have a little bit more kind of defined relationship about

when they could see it and what they could see.

JUDGE RIPPLE: Did the Democratic leadership voice any objection to the termination of funds for their counsel?

THE WITNESS: I believe they voted no on the ballot that terminated their counsel and hired Michael Best.

JUDGE RIPPLE: Thank you.

JUDGE CRABB: I'm sorry, I didn't quite understand that. The Democrats voted no on what?

THE WITNESS: On the ballot we circulated. It was a singular ballot that both retained Michael Best and terminated the relationship with the counsel that the Democrats had previously hired.

JUDGE CRABB: Oh, okay.

JUDGE RIPPLE: If this would be a convenient time, I think we could take our morning recess at this time for about 15 minutes.

MR. RUSSOMANNO: Yes, Your Honor.

JUDGE RIPPLE: Thank you very much.

(Recess 10:31-10:50 a.m.)

THE CLERK: This Honorable Court is again in session. Please be seated and come to order.

JUDGE RIPPLE: You can continue, please.

MR. RUSSOMANNO: Thank you.

BY MR. RUSSOMANNO:

Q Mr. Ottman, when we left off I believe you had described that you had moved to a new location at the beginning of 2011; is that correct?

A That's correct.

Q So now you're located in Michael Best in a room. Can you describe that room in general terms?

A Sure. It was an interior room. It was set up at that point with two redistricting computers, two desks, a conference table, there was a set of map drawers, and then there was a colored printer and a plotter, which is essentially a printer for large documents or maps.

Q Was one of those computers your computer to use?

A Yes, it was.

Q And on your computer what was your -- did you have something set up on that at that point on your computer?

A At that point autobound had been set up on my computer.

Q What is autobound?

A Autobound is the redistricting software that we used for drawing the maps.

Q As well as you can, can you describe -- paint a picture of what autobound would look like if you had it up on the screen.

A Sure. Once I opened up the program, you would

select the map that you wanted, you know, select Wisconsin or whatever, select the districts you wanted to draw, which were the assembly districts. So what would happen, we each had two monitors set up. So on one screen you would have just a geographical representation of the state, and then on the bottom, either on the bottom of the screen or you could take -- it was kind of a floating box that had different demographic information. You could either look at either the bottom of the screen or on the second screen or sometimes I would have an internet browser open on the second screen or something.

Q And that had what you said was a demographic data box. What kind of data in particular? What was in that kind of box?

A That box was configured with census data as well as some custom data. For example, it would have total population and then we, you know, created kind of fixed numbers for the ideal population for each Senate and Assembly seat, which is just the census data for the entire state divided by 99 and 33 respectively. So as you were drawing, you would pick a district that you wanted to work on, assign it a different color, and then as you populated, it would show the number of people in that district, your range of deviation from the ideal

population in that district, and then there was a series of other census demographic information, voting-age population, different minority group populations, you know, black, Hispanic, you know, Asian, Native American, all different sorts. And then at some point you were able to custom figure and we had a column with the partisan metric on the screen as well.

Q Thank you. And at this point in early 2011 what were you doing with that autobound software?

A At the early part of 2011 we didn't have the census data yet so it was largely just kind of familiarizing ourselves with how the software worked, how to make assignments, kind of what sort of reports were available to generate there, just kind of playing around and making sure once we got the census data, we were kind of ready to go and knew how to use the software.

Q Why did you need to wait for the census data? What was its importance to you?

A The census data is the key data that reflects the adjusted population that is the basis for redistricting the state.

Q When you were describing just now, you custom loaded? Is that -- what term did you use you customized the demographic data?

A Yeah. There was different -- there was ability

within autobound to create custom fields and one of the fields that we did that with, the data that came along was largely raw data so any time you wanted to create a percentage, you had to go in and do the math within the program. So even if you wanted different minority percentages or whatever percentages, you would have to do that, as well as the partisan information which was information that the Government Accountability Board provided to the Legislative Technology Services Bureau, then they provided it to us. And when we created the composite, we had to go in and kind of tell the software how to create a percentage of that and then display it as a column alongside the other data.

Q When you say *we* created the composite, who does we refer to?

A There I'm talking about Joe Handrick, Adam Foltz and myself.

Q Did you load into autobound a metric from Professor Gaddie?

A No.

Q Now, at some point was another computer added to that room?

A Yeah. A few months later we did add another computer to the room. The Senate ended up purchasing that computer and that was the computer that Joe Handrick

ended up using.
Q Was there anything different about how that computer was set up?
A It was set up with the same software and configurations. The only difference is because Joe was not a state employee and Joe wasn't over there all the time, I just created the log-in ID and password for that computer when it was set up.
Q If we could bring up Exhibit 225, and this is the exhibit that the parties had stipulated to from the plaintiffs' forensic analyst that opposing counsel discussed a bit earlier. And if we could pull up WRK 32864 spreadsheet which was discussed earlier with you, Mr. Ottman. I'll give you a second just to put eyes on that.
A Okay.
MR. RUSSOMANNO: And now if we could go over to the right a bit, please. One more click maybe. Okay. That's good.
Q Mr. Ottman, you see here there's comment that says *Author* and one says *Last saved by*. The first dozen, what do those say?
A They said Tad under both, yes.
Q But do you know what that means?
A I believe that was just the identity that the

computer had been logged in as.
Q So do you know were these your files?
A No. I believe that computer was left on the majority of the time. So whenever Joe would use it, that's how it would record the author.
Q So whose files do you believe these to be, the ones that say T-a-d?
A I believe those to be Joe's.
MR. RUSSOMANNO: And if we could click back over all the way to the left, please.
Q You were asked earlier about Exhibit 283 called *Summaries*, and if you see over on the file name column, do you see a summaries there?
A Yes.
Q What numbers are those?
A 17 and 18.
MR. RUSSOMANNO: Apologize, but can we click back over to the right again?
Q So for 17 and 18, can you tell who the author and last saved by are?
A The listed author and last saved by both say Tad.
Q Was that you?
A I don't believe so, no.
Q Okay. We can go back to our timeline. What happened next in your process? I believe you said you're

waiting for census data. Did that arrive at some point?
A Yes. That arrived some time in March or April, I believe. Once it arrived, it came to the Legislative Technology Services Bureau and then they did some processing of it to make sure that it imported correctly. They had a copy of autobound software as well, so I think they loaded it onto their machine, made sure it all functioned correctly. And I don't know, at some point they had all the election information that they added to it. I don't know if that was all done at that time. I know different elections for whatever reason weren't all loaded at the same time, so they kind of prepared the information and then came over and installed it on the computers where we were working.
Q And then what? Were you ready to go?
A Then we were pretty much ready to go, yes.
Q And so when you get that new census data, what does it say to you? What do you do next?
A The next thing we did is we can -- just kind of poking around familiarizing ourselves with the data. One of the first things we did was that we had the current map of the state that had already been loaded up, so we looked at every Assembly and Senate district and compared the current population or I should say the census population to the ideal population that we discussed

earlier for each Senate and Assembly district to see how far over or under each Senate and Assembly seat was, which is an indication of kind of what changes were going to be needed to make -- that we were going to have to make to those districts in order to move them closer to equal population.

Q Why did you need to make those changes?

A Equal population is one of the core redistricting principles. It's the directive of the census to reapportion, to bring statewide maps closer to the one-person, one-vote standard.

Q Could you have chosen not to make changes based on the new census data?

A I don't believe so, no.

Q Now, I'm going to put up what's been marked as Defendants' Exhibit 505. Can you identify what that map shows?

A Yes. This is a map of the Assembly districts as they existed at the time with an indication of how far above or below the new ideal population each district was.

JUDGE CRABB: What time was this?

THE WITNESS: This was right after we got the census data, so this would have been in April, I believe. April of 2011.

JUDGE CRABB: 2011?

THE WITNESS: Yes.

BY MR. RUSSOMANNO:

Q Maybe you can just give us an example. What you do you see in that box there? Can you identify that?

A That is a blowup of the Milwaukee County region of the districts in that region.

Q Are there any examples there of the over/under you were just speaking of?

A Yeah. There's several examples there, including the 18th Assembly District which I believe is one of, if not the most underpopulated compared to ideal districts in the --

Q What does that show if you can see it?

A It shows that that district is more than 9,000 people short of an ideal census population.

Q So as a practical matter, what does that mean to you as a map drawer? What do you need to do?

A So as a map drawer, that indicates to me that for that district and all the districts around there that we need to make those districts larger and add more population to them.

Q Okay. And what -- is there an example -- well, let me show you another exhibit here. This one has been marked as Defendants' Exhibit 506. Are you able to

identify what this map shows?
A Yes. This is a similar map with the Senate districts that shows each Senate district and its deviation from ideal population, either plus or minus.
Q Do you know what's the relationship between the first map I showed you and this map?
A Each Senate district contains three nested Assembly districts within it.
Q And are you able on this map to give an example of your overpopulation issue that you discussed a moment ago?
A Yes. Here I think the largest overpopulated district was the 27th Senate District, which is just -- at that time it was kind of the far west side of Madison and counties to the south which was overpopulated by more than 25,000 people.
Q And what did that fact mean to you as a map drawer?
A That indicated to me that that district was going to either have to shrink or its boundaries were going to have to change significantly so that whatever new district resulted contained closer to an ideal population, far fewer than it did at present.
Q Thank you.
MR. RUSSOMANNO: And just for the Court's benefit, the exhibits I referenced so far have all been

admitted at the beginning of the case.

JUDGE RIPPLE: Yes.

BY MR. RUSSOMANNO:

Q Okay. So you have received the census data; you see what we just looked at on those maps. What do you do next?

A Then we begin drawing some draft maps.

Q Okay. What does that process look like?

A Basically what you do and -- we drew at the Assembly map level since they all kind of feed into the Senate districts.

Q And I'm going pause you there. Who are you referring to by *we*?

A By we, at that point it was Adam Foltz and myself. A little bit later Joe Handrick also entered into the process.

Q Thank you. Please continue with your process.

A Yes. So what you would do is you would sit down at your computer, you would open up your statewide map, you would open up a plan that you'd been working on or label a new plan and assign it the Assembly district that you wanted to work with and then you could also pick a color that you wanted that Assembly district to be. It's sort of like a color-by-number exercise. So you pick a color.

You also determine what other layers that you want

to look at on the screen. There were a number of different overlays that you have, anywhere from existing Senate and Assembly districts, you could have that as an overlay, counter boundaries, municipal boundaries, ward boundaries all the way down to census block boundaries. As a practical matter what you tried to do is you would zoom in the region of your screen to the area that you're looking at to the smallest amount that you could see and then have kind of the fewest layers displayed that you would need because the more information that you were requiring it to display slows down the computer speed a lot and makes it really slow to render.

Every time you move -- if you take your mouse and shift the map over a quarter of an inch, it has to redraw the entire screen. So you tried to have as few layers as you needed to work with at the time displayed.

And then what you would do is there were a couple different ways that you could add population to the district. You could either -- let's say, for example, you were working at -- in the City of Milwaukee, for example, you were probably working at the ward level, the old ward level. So you would have the wards displayed and you would literally draw a circle, click on it, and it would assign it to the map and fill it in. And then it would give you an idea of okay, this is how much

population you'd go, and depending on how close you were to an Assembly district, you would then draw further circles and add more.

In other parts of the state, for example, in the northwest part of the state, you might do that at the county level because it's so sparsely populated so you'd grab three or four counties at the time. Or maybe the municipal level and you could click on a city and add it or a village and add it. So you would start on that. You would work getting closer to your ideal population.

My personal preference as I drew was to kind of draw in clusters of three Assembly districts. So I would kind of have three Assembly districts in mind and I would maybe add to one or the other and then switch between them. And part of the reason I did that was we didn't get the zero population deviation on any Assembly district, so if I would have one Assembly district that maybe was a little bit over ideal population, then I would kind of make a note that okay, one of these other two Assembly districts I'm going to try to make sure it's a little bit under ideal population so that when I got to the end and had three Assembly districts that were going to make up a Senate seat that that Senate seat was then closer to ideal population.

Q Did you, in fact, start in a particular place on the

map in your process?
A When we started, we spent a lot of time early on working in the City of Milwaukee, almost exclusively in the City of Milwaukee.
Q And this is Exhibit 505 still if it's helpful for you to kind of see the Milwaukee area. Why Milwaukee?
A We knew there were going to be more redistricting criteria, including I believe the voting rights application that was going to apply there. So what we wanted to do was make sure we spent a lot of time there, drew those districts correctly and had some things to show both the lawyers and the political consultants, Professor Gaddie that we had hired at that time, to look at what we were doing and get some feedback and advice from them on were we doing this the right way? Are there other things we need to look at? Is there more information you need to evaluate? With the idea that eventually we wanted to kind of get those Milwaukee districts drawn in such a way that the lawyers advised us was kind of in a good place and then we just kind of wanted to lock that in and leave it alone before we drew the rest of the map.
Q Can you go back. You said you consulted with lawyers and your expert. Who in particular, if you're able to name the people you consulted with.

A Consulted primarily with Eric McLeod. Jim Troupis, I believe, was involved in some those discussions, and Professor Gaddie.
Q And what was the subject matter of those consultations?
A The subject matter was largely Voting Rights Act compliance.
Q And this regards Milwaukee?
A Correct.
Q Did any of the people you consulted with draw any of the map districts or lines?
A None of those people I mentioned, no.
Q Did they tell you what lines to draw?
A They did not, no.
Q And just to clarify, you said at this point you were also working with Adam Foltz?
A That's correct.
Q Were you working together on one map? Separately? Can you describe what the working meant at that point?
A Sure. Each of us had our own workstation and we each kind of did our own thing. We were in the same room, so sometimes we would have discussions about hey, you know, I'm in a box over here. What did you do over here? Or maybe we'd go and look at each other's computer and say okay, what are you doing there? Whatever. But

largely it was just us each working on our own coming up with our own different draft maps.

Q Why not work together? Why work separately?

A We knew all along that this was going to have to be something that legislative leadership was going to have to make some decisions on about what they wanted to do and it was just helpful to have kind of different alternatives for -- to present to leadership. In the case of -- Milwaukee was a little bit of a different situation, but largely the idea was, you know, let's develop our own alternatives and then maybe you'll think of something that I didn't think of and vice versa and then compare later.

Q At some point did you finish and move away from Milwaukee?

A Yes. At some point we kind of got sign off from the lawyers that okay, we think this is in a good place. And then what we actually did or what I actually did is kind of took those boundaries for the Assembly districts and there's an ability within autobound to kind of lock and unlock districts so that you don't inadvertently alter them. So I kind of locked these districts so I wouldn't alter them, saved that portion of the map, and then any subsequent draft maps that I worked on I just kind of loaded that saved map in Milwaukee and then worked on

other areas of the state.
Q Where did you move to next?
A It varied. Sometimes I would work out from those maps to the suburbs of Milwaukee. Other times I would start in different corners of the state and work there and build maps in kind of different directions.
Q Did you draw a full map?
A Eventually I drew some complete statewide maps. I drew a lot of partial maps that did not include the whole state.
Q Those partial maps, did you ever abandon some maps?
A Sure. Sure. Some of them were abandoned.
Q Do you know why?
A Sometimes as you're drawing, you'll get kind of a good chunk across the state, for example, and you may have some districts that you really like and then you find out you're over in another corner of the state where you don't have anywhere else to go and you're not left with another -- with enough territory to add to a new district without that district being a really odd shape. You know, it might be one township wide for seven townships or something, or just leaves you with a odd configuration.
Q Why do you care if it was an odd configuration?
A That kind of played into our evaluation of when we

were evaluating several things, including compact, contiguous, as well as core retention for current districts.

Q What does that mean, core retention?

A Core retention refers to the amount of territory that is in the current district at that time compared to the new district; how much is territory that was in that district before and how much is new territory. So sometimes when you would get to that point, you're just left with the choice of okay, either I can go back and unwind a lot of what I've already done which may necessitate changes all across the state or I can just start from a new map.

Q And during this larger -- moving out of Milwaukee now during this process, did anyone tell you what lines to draw?

A No.

Q Did attorneys at Michael Best tell you what lines to draw?

A No.

Q Did Professor Gaddie tell you what lines to draw?

A No.

Q And during this initial drafting process did you have any meetings with legislators?

A Yes. During the early part of the drafting process

I met with all the Senate Republican legislators with the exception of Senators Fitzgerald and Zipperer.

Q And what did these meetings entail?

A Those meetings were primarily to kind of sit down with each Senator, let them know okay, here is what the census data shows for your district. Your district is either underpopulated or overpopulated. Here are some changes that are going to have to -- as a result your district is going to have to change.

To the extent I could, I explained to them that not only are the population changes in your district going to have an impact on how your new district looks, but things going on in other parts of the state are going to have an impact on your district. For example, any of the legislators surrounding Milwaukee could say okay, even if your district were perfect population, the Milwaukee districts have to get bigger and that's necessarily going to impact how your district looks. So I wanted to explain to them kind of that principle.

Another thing I wanted to do was verify where they lived. We had geographic -- we had graphical representation that LTSB had plotted about each Senator's home address and so we wanted to verify; show them a map, is this actually where you live or whatever and if it needed to be corrected then we did so. And then it was

just kind of an open-ended question of okay, tell me a little bit about your district. Tell me, you know, are there areas you like, are there areas you don't like, are there areas surrounding your district that you like. It was a fairly open-ended question of just tell me what you'd like to about your district.

Q Were requests made to you about what to do?

A There were a couple of requests; not a lot, but there were a few.

Q Do you recall if you made any changes based on a request from these meetings?

A Not specific changes as a request from those meetings. Once we were further along in the map process, we'd go back and check and say okay, were we able to accommodate some of the interests that the legislators had indicated.

MR. RUSSOMANNO: If we could pull up Exhibit 239, please. And if you -- are you able to get the text more centered.

Q Do you recall a bit earlier being asked about this email --

A Yes.

Q -- from a Senator? Is this a request made after one of these meetings?

A I received this after one of the meetings, yes.

Q Did you go back and redraw something because of these requests?
A I did not. At that point -- this was one of -- Senator Vukmir's district is right on the edge of Milwaukee. In fact, I believe her whole district included wards in the City of Milwaukee. So given what was going on in Milwaukee, this was one of those areas where there was simply less flexibility in how we could draw that district than in some other areas of the state.
Q Do you know what happened with -- to the reference to a Staskunas seat?
A I don't recall specifically what happened with that seat.
Q Did you make a change because of this request?
A I did not, no.
Q Did you meet with the Democratic Senators during this time?
A I did not.
Q Why not?
A It wasn't typical to meet with members of the other party on major policy legislation, including this. Also at some point the former Senate Democrat Majority Leader had filed a lawsuit against the state saying that the districts were unconstitutionally malapportioned, so there was that pending at the same time. And we

anticipated that this was going to be a legislatively enacted plan and there was no expectation that the Democrats were likely to wind up voting for that plan.

Q Did any Democrats approach you with requests?

A No.

Q Did any Democrats approach you with proposed maps?

A No.

Q Do you know if the Democratic Party had access to districting computers during this time?

A Yes. The redistricting computers and software was provided to all four partisan caucuses, the Senate and Assembly Democrats as well as the Senate and Assembly Republicans.

Q Now, you've already alluded to this, but can you walk through the considerations while drafting the map? I suppose outside of Milwaukee since you already addressed that. What were your considerations when you were drawing the map districts?

A Sure. The first thing we looked at was population, trying to get a close-to-ideal population.

Q What else did you consider?

A We also looked at just kind of an eyeball test of how does this district look in terms of, you know, compactness and contiguousness. Then we would also --

Q Can I stop you there? I'm sorry. What does

contiguous mean to you?

A Contiguous just means that every portion that you've included in that district is connected to the rest of the district so there's not a gap where you're jumping over something.

Q And you said you looked for compactness. How do you understand compactness to look?

A At that point when you're in the initial drawing stages, it's just a matter of looking at it and basically looking at the size and the shape to see if it's reasonably configured. There are reasons based on population that it may not be, but it's just kind of an eyeball test to see if the shape is reasonable or not.

Q Did you have numerical compactness scores as you went along in this process?

A Not as we went along. There was a report that you could generate within autobound, but I never ran that on anything except a fully completed statewide map.

Q Is there a reason you didn't run it as you went along?

A The information isn't particularly useful unless you have a completed statewide map because every place that hasn't been assigned as a district is, you know, saying it's not compact and it would show as discontiguous. So it's really incomplete information at that point.

Q I interrupted you. What else did you consider?
A Sure. We also looked at the partisan scores of the districts that we had drawn. You'd look at kind of where the incumbents lived.
Q Let me stop you there. So when you say you looked at the partisan score is it?
A Yes.
Q What do you mean? Did you -- in what way did you look at it?
A It was just kind of a point of reference to -- the information was there on the screen. You'd say okay, I've got these districts and it would have the percentage Republican score on there. So it was just something of note. Until you have either a complete statewide map or a nearly statewide map, it's not entirely useful data. Because as you go in the process of refining the districts, all of those factors change and those numbers all change at the end. But it's just something that was displayed there that you could look at.
Q Did you change maps based on the score you saw in your process?
A Not just based on the score, no.
Q Okay. Go ahead. Your other considerations?
A Sure. We looked at kind of what the core of the existing district was compared to the new district. We

-- or I looked at municipalities that were split -- and because I had worked for the Senate, I had more of a sense of areas where there would be delayed voting by voters moving between Senate districts so that they would, if they were scheduled to vote in the upcoming election in a Senate seat and they were moved to a district that was not scheduled for election, I was able to eyeball that a little bit just because I was familiar with the Senate seats.

Q Is there a term for that?

A Disenfranchisement is the term.

Q And I believe you testified earlier that you looked at where incumbents lived?

A That's correct.

Q Can you explain that a little bit more?

A Sure. We looked at where incumbents lived and kind of were they drawn in the same district that they continued to represent or were they being presented with a lot of new territory under the proposed map.

Q Why did that matter?

A That mattered because in the end this was a map that we were going to ask the Legislature to vote for and we knew that that was one of the considerations that was going to be very important to the people being asked to vote for this.

Q And why would it be important to them?
A Because most of them I think intended to continue to run for election and I think it was important to them to know many things comparing their old district to their new district and kind of evaluate whether or not they were happy with it.
Q Does the term pairing mean anything to you?
A Yes.
Q Did that come up?
A Yeah, it's something we looked at. If there were instances where two legislators were paired in the same seat under the new proposed map.
Q And do you remember how much pairing ended up in the map, the final map?
A If I could recall correctly, I think there were 22 legislators paired in the final map.
Q Do you know how that divided up between Republicans and Democrats?
A I believe that was split right down the middle, 11 of each.
Q And during this drafting process did you have it as a goal to pair Democrats?
A No. That was never a goal.
Q Do you know, could you have paired more Democrats than ended up being paired?

A Certainly. One example in particular that springs to mind, as I was drawing the maps for the City of Madison, on the west side of Madison there were two incumbent Democrat legislators at the time. I believe it was Representative Terese Berceau and Representative Brett Hulsey that happened to live one ward apart from each other, and I just happened to notice that all three wards were of virtually identical population and by simply flipping two wards, you could either pair them in the same seat or unpair them in the same seat.

Q Do you know if they ended up paired?

A They did not.

Q Is there anything else you considered that you haven't stated?

A Like I say, we looked at some of the natural boundaries. For example, you would look at if there were a lake or a river, we considered whether or not you would cross some of those natural boundaries. We also, as you'd map, you'd look at some of the maps you've created and say okay, are there communities of interest maybe that are created by this.

Madison is another example where I looked at. At the time it was split between three different Senate seats, when the city was, when the population of the city did not -- was not enough to sustain two full state

Senate seats. So things like that were among the factors that we looked at.

Q And did these factors all work together all the time?

A No, absolutely not. They were often -- you were often unable to accommodate both factors. One good example is in municipal splits, sometimes you could have a whole municipality in one district, but it may result in that district being further away from the ideal population, whereas if you split that municipality, you could make perhaps two districts closer to equal population.

There were other times where the current map split a municipality. The example that always popped in my head is the city or village of Oregon just south of Madison, which I believe it's one ward or a very small segment is split off into a separate Senate seat. It would have been very easy to reunite that village in one Senate seat, but it would have caused a disenfranchisement issue. So in the end it was decided to kind of leave that split as it was under the old map in order to avoid that. So sometimes those principles just don't work together.

Q So what did you do when they didn't work together? How did you decide?

A That was one of the things that we discussed with legislative leadership and just kind of made a decision. Sometimes they decided in favor of one criteria, sometimes it was decided in another -- in favor of another.

Q Did you use a measure created by Professor Gaddie in this process?

A Not that I recall, no.

JUDGE RIPPLE: If I may, when you were involved in this process, you testified that at times you gave state maps along the way, as I understand it. Can you give me some idea of how frequently, as you went through the process of creating these new districts, you referenced them to a state map while creating a state map to see how it would fit in?

THE WITNESS: I believe in total I myself created maybe three or four complete statewide maps where I went to the trouble of filling in the entire state and then going back and zeroing it out so I made sure I had no unassigned blocks and that there were no other errors that the plan --

JUDGE RIPPLE: With respect to regional maps, how frequently did you reference the regional situation while working on the particular Assembly district?

THE WITNESS: I had a number of partially

completed state maps which had varying levels of the state in there. As we were preparing maps to discuss with legislative leadership, I looked at a lot of those maps.

JUDGE RIPPLE: Thank you.

BY MR. RUSSOMANNO:

Q During this drafting process, did anyone tell you to draw maps for districts to reach a certain partisan score?

A No.

Q Did you draw maps to achieve a certain partisan score?

A No.

Q So the drafting process comes to an end at some point; is that correct?

A That's correct.

Q And can you explain what happened?

A At some point Senator Fitzgerald called me and said we want to be prepared to act on a redistricting plan. When can you have something ready for us to look at? And then we kind of talked about it and kind of worked backwards in terms of okay, we're going to need to do some things to finish up some map alternatives. The amount of time, we're going to need some time for -- to meet with legislative leadership for you, meaning Senator

Fitzgerald and other members of leadership, to decide on what you want the final map to look like. And then we're going to need to build in some time once that's done and we have that map completed to meet with legislators and get an idea if we have enough support to go forward with that map, get it drafted mechanically, hold a hearing and be on the floor. So we kind of created a timeline for action that way.

Q And do you know about when that was, this shift into out of drafting?

A It was some time, I believe, in June that we kind of started that process.

Q Did that timing have any impact related to wards and census blocks?

A Yes.

Q What was that?

A we were anticipating acting in that time frame, that June/July time frame. The municipals are not typically completed in a redistricting process until the end of the year, so we wrote -- we also drafted legislation that allowed the state to act and draw out the census block level in advance of municipalities completing their ward drawing.

Q Did that difference change anything about the considerations you've been speaking about in the map

drawing?

A It didn't really change any of the considerations. The only thing it did do was allow us in some areas to draw at the census block level where it may have split preexisting wards or wards that municipalities might otherwise have drawn.

JUDGE RIPPLE: Can you explain census block level?

THE WITNESS: Sure. My understanding of census block level, it's the smallest unit that the census collects information on. It's literally as you would think of, typically a city block as they define it.

BY MR. RUSSOMANNO:

Q Do you know how long you would have needed to wait to get all the ward data in?

A From my experience in previous redistrictings, that data largely came in by December of the year following the census. So my expectation would be if that process had continued, that information wouldn't have been available until December of 2011. And I seem to recall that at least in the prior redistricting there was some municipalities that still hadn't completed their ward drawing process at that point, maybe even including Milwaukee. I seem to recall there was at least one larger municipality that hadn't finished it. And what

that means is that if you wait until that point, any maps that you've worked on that are built off of the ward layer, you then have to go back and basically redraw with the new ward information.

Q From your past experience in the Legislature, do you know was this idea of using census blocks instead of wards ever floated in the past redistricting processes?

A Yes. I specifically recall a discussion following the 2000 census that I believe Senator Chvala had drafted a bill that it made changes that would allow the state to act earlier or put a deadline for municipalities to act. But there were discussions between the Houses about moving forward at that legislation. Ultimately it did not move through both Houses. But when we drafted legislation, we kind of referred to that bill draft when we drafted the bill that we ultimately did, allowing the state to act in front of municipalities completing their wards.

Q Who was Senator Chvala was it?

A He was the Democrat Senate Majority Leader at the time of the previous redistricting.

Q So after your drafting process, how did the selection process proceed?

A After we had made a number of draft maps and set up meetings for legislative leadership to come over, Joe

Handrick, Adam Foltz and myself kind of sat down, discussed how to kind of break up the states in regions to discuss with the legislative leadership, and then we each kind of printed off maps that we had been working on for those different regions. We kind of broke them out by Assembly districts and just kind of printed them out and discussed amongst ourselves okay, let's take this map of Tad's, this map of Joe's and this map of Adam's or maybe we'll take two of the alternatives Joe has drafted and one of Adam's and put that in part -- as part of the packet to show --

Q When you say map, are you talking about a whole map, statewide map?

A No, I'm talking about individual. We had broken it down by Assembly districts. So it was individual Assembly district maps at that point.

Q When you referred to regions, can you give an example of a region if you're looking at regions?

A Sure. We prepared alternatives for them for everything except the City of Milwaukee. So we had regions in southeast Wisconsin, central Wisconsin, maybe Eau Claire, the Fox Valley area, the Illinois border. Some of those titles that were discussed earlier, just different regions or corners of the state.

Q Do you know how many maps total you were selecting

from?
A I don't know the total number. Each -- Joe, Adam and myself each just kind of, you know, printed out some different alternatives and then we just kind of sat down and looked at them and selected these will go in the packets.
Q Were the regions alternatives that you were selecting all from complete maps?
A I don't believe so, no. I know at least some of the maps that I included or forwarded for consideration in the packet were not from a complete statewide map.
Q So did they all come from any particular map?
A Not to my recollection, no.
Q Did you limit which maps you were pulling from based on when they were drafted?
A No.
Q Did you know the partisan score for these regions as you were doing this process?
A We knew the partisan score for each of the Assembly districts.
Q I'm referring to your score right now. The one you created.
A Yes.
Q Are we clear? Okay.
A Yes. For each of the Assembly districts we knew

what the partisan score of that Assembly district. We didn't have separate partisan scores for the regions and because all three of us had drawn differently, there wasn't like a regional boundary that matched up because a map I may have drawn may have gone north of the region that Joe or Adam may have drawn. So it wasn't like a perfect fit within the region, which is kind of why we selected them based on Assembly districts so that we would be considering the same Assembly seats but not necessarily the exact geographic boundary -- same exact geographic boundary.

Q To the extent you could see the partisan score for something, did you only select the highest scores?

A No.

Q And what did you do with these selections?

A Once -- we kind of tried to narrow it down to a manageable number of alternatives in each region for the leadership team to look at and then we kind of prepared packets of each region. And then when we sat down with legislative leadership, we kind of went through region-by-region, kind of talked in general about okay, here's what this map does. Here are the Assembly numbers. Here are the current seat holders in their Assembly and Senate seats. We discussed it for both the Senate seats that made up the region as well as the

Assembly seats; discussed a little bit about okay, here are some of the things that either the Representative or the Senator had to say about that in our earlier meeting with them and then discussed some of the different -- we discussed the partisan scores for those Assembly seats we had, as well as looked at okay, this does this, but, you know, it splits a county or splits a municipality or something like that. So we just kind of had a general discussion.

Q Can you explain what you mean -- you said manageable number. Do you know about how many alternatives of each region you presented?

A I think we tried to limit it to three or four per region. It could have been more, but typically it wasn't -- it wasn't too many.

Q Did you present a partisan score for a whole statewide map?

A No, not as part of that selection process.

Q Why not?

A We were asking them to choose among various statewide maps. We asked them to make selections within each region, and then after they did that, after the conclusion of each day's meetings, then we would sit down and kind of try and stitch together to the best of our ability the alternatives they selected. Because even

within the regions it wasn't like all the maps, all the choices that they liked were not mutually exclusive. They required some redrawing to kind of do our best to cobble together what they had agreed to.

Q If I could step back to the meetings with the regional maps just to be clear, did you present choices between statewide maps called MayQandD?

A Not a complete statewide map. There were some districts from within that map that made up part of the selection.

Q What about a map called *aggressive*, the whole map called aggressive?

A I'm not sure what map that refers to.

Q What about a whole map called aggressive or assertive? Sorry.

A Again, I'm not sure which map that refers to.

Q Did you present any statewide map to the leadership?

A I believe we -- there were some on display there, but as part of the meetings we only discussed by region.

MR. RUSSOMANNO: And if we could pull up Exhibit 364, please. And if you could zoom to the top.

Q You see the title there?

A Yes.

Q Do you recall being asked about this document earlier today?

A Yes.
Q And what does this say at the top there?
A It says *TadMayQandD.*
MR. RUSSOMANNO: And if we could go down to the bottom where there's data. All the way down if you can.
Q While she's doing that, does this data on this document correspond to a statewide map that was presented as part of these meetings?
A No. There was no statewide map presented for them to select from.
Q And so same question. At the bottom here you were asked about these numbers. Do these numbers represent data from a statewide map that was presented to the leadership to select from?
A They do not.
MR. RUSSOMANNO: If we could pull up Exhibit 283, please.
Q You were also asked about this Exhibit 283 earlier by opposing counsel. Do you remember being asked about this?
A Yes.
Q Did you create this document?
A I did not, no.
MR. RUSSOMANNO: And maybe, Jackie, if you wouldn't mind scrolling to the right, just kind of get an

idea what's there. It goes on for quite awhile.
Q Maybe that's enough to give you the flavor. Did you present this as part of your meeting?
A No.
Q Was the leadership ever given a choice between partisan scores for complete statewide map?
A No.
Q And you had begun to talk about what happened next. So going back to that, you said you started stitching a map together?
A That's correct.
Q Can you explain what you mean?
A Yeah. Each day, at the end of each day where we met with legislative leadership, we'd take what had been discussed and the decisions they had made at those meetings and we began building what eventually became the map that was introduced to the Legislature. So we would take the decisions they made in each region, try to draw them, and then where the selections they made did not match up with each other, then we just kind of made decisions about okay, this is what we, you know, think they talked about here, so let's draw this that way and then that's going to mean we have to make some other changes in the rest of the map so that we have a complete map that either -- that doesn't have unassigned territory

and doesn't have territory assigned to two districts at the same time.

Q As part of that stitching-together process, were you asked to move lines just to increase the partisan score?

A No.

Q And did you?

A No.

Q At some point did you have a full map then, a final map?

A Eventually, yes, we did have a final map.

Q What did you do then?

A Then at that point we began meeting with individual legislators.

Q Actually maybe I skipped a question here. Did you run data on that stitched-together map?

A Yes. Yes, we did. We did generate some reports on that map.

Q Do you recall what kind of reports?

A Sure. There were reports that measured compactness. There were reports that generated the partisan score. There were also reports that talked about discontiguities. One of the features of the -- two of the main features that we had to check on any completed state map were discontiguities and unassigned territory. So first of all, you would run a report to make sure that

you didn't forget to assign some block somewhere to a district, and so you'd run through and make sure that every census block was assigned to a district. Then it would generate a contiguity report, and that would be a long list of discontiguous territory.

What we did is I would go through and look at every instance that the report said was discontiguous and determine if it were a legal discontiguity or something that we needed to fix.

Q What do you mean by that?

A Certain town islands are part of the town even though they're disconnected from each other, and we were informed by legal counsel that that -- even though they're not physically contiguous, it's a legal discontiguity to allow them to be in the same district even if maybe they don't physically touch each other. So we went through every instance that the report --

JUDGE CRABB: Would you say that again? It's illegal to have these little islands in the same area?

THE WITNESS: It's my understanding that it is legal for a town, even if it has territory that's not physically adjacent to the rest of the town -- like the City of Madison, I know there's Town of Madison that has little islands in the city; that having those islands in the same district as the rest of the town, even if it's

entirely surrounded by a separate district that's in a another district is a legal discontiguity that doesn't need to be in the same district.

JUDGE CRABB: Are you saying it is a legal --

THE WITNESS: I'm sorry. It is a legal discontiguity as opposed to an illegal.

JUDGE CRABB: Okay.

MR. RUSSOMANNO: Thank you for that clarification.

THE WITNESS: Sorry. So I would go through that report and make sure -- and you would come across some things. I would fix them, then I would generate the report again and go through it all again until there was nothing that needed any changes.

BY MR. RUSSOMANNO:

Q And did you run a population deviation at that time too?

A Yeah, that was also a report. That was kind of self-generated at the time, but yeah, you were also able to generate a total population.

The other thing that we looked at was disenfranchisement numbers. I was not able to -- LTSB had tried to find a way to automatically do that calculation. For whatever reason I couldn't get that to work on my computer, so I just did a manual total of the

disenfranchisement number.

Q What was your conclusion?

A The conclusion is we ran the number, saw what the total was, discussed it with legal counsel and said does this, you know, cause any, you know, legal concern at this number. I believe it fell within the range of previous disenfranchisements under court-drawn plans in the previous decades.

Q What about population deviation? Did you have any reaction to that number that -- conclusions based on that number you ran?

A Yeah. We again, you know, ran those numbers, discussed them with legal counsel, and they felt it was sufficiently within legal standards.

MR. RUSSOMANNO: If we could put up Exhibit 509, please. Come out a little more, please.

Q Do you see what it says in the right-hand column there at the top?

A *2011 Act 43*.

Q And if you look down at the bottom of the screen, do those numbers mean anything to you?

A Yeah. That, I believe, reflects the range of population deviations in the final map.

Q What you were just referring to?

A Correct.

Q And do you know how it related to the prior plans?
A It was close to, if not a little better, than the prior plans.
MR. RUSSOMANNO: And if we could pull up -- this is actually a stipulated fact in Docket 125, page 46, paragraph 221.
Q And you said you ran compactness scores. Do you recall what your conclusion was from that?
A I don't know that I made personal conclusions with that, but I did forward them to the legal team and Professor Gaddie and they seemed to indicate as far as I could tell that they were within acceptable range.
Q Do these numbers on this stipulated fact ring a bell for you as far as compactness numbers consistent with what you were turning at the time?
A Yeah, those appear to be what we had generated at the time.
Q And you also said that you generated a partisan score for the whole map?
A Yes.
Q What did you understand that score to tell you?
A That was just kind of a reflection of how the old map compared to the new map in terms of a partisan metric.
Q Did you understand the partisan score to predict the

future going forward?
A That was not my understanding, no. It was just a tool to compare how the new districts under the old elections compared to the old districts under the same set of elections.
Q What did you do next with this map, old map?
A At that point we began the meetings with various legislators.
Q And who did you meet with?
A I met with all the Republican Senators, again with the exception of Senators Fitzgerald and Zipperer.
Q What did those meetings involve?
A Those meetings involved me showing them their Senate district as well as some information about how their district had changed, number of new constituents, as well as a selection of races from the previous decade in their Senate seat. I didn't always use the same races, and sometimes it was a percentage and sometimes it was a raw number of voters like, for example, it might say something like there are, you know, 500 more Scott Walker voters in your new district than in your old district.
Q Did you present that information in a certain form, in a certain way?
A Yeah. I had prepared kind of a talking point for each of the Republican Senators' districts that I met

with.

MR. RUSSOMANNO: Can we pull up Exhibit 242, please.

Q Can you identify what this is?

A Yes. This is one of those talking points for my meeting with at the time Senator Kinsey for Senate District 11.

Q Did you present the partisan score for the district being discussed at these meetings?

A I did not, no.

Q Does it appear on your memo?

A I don't see it, no.

Q Did you present the partisan score for the whole map at these meetings?

A I did not.

Q Did any Senators make requests at these meetings?

A Not at these meetings, no.

Q Were there any requests made to change the map at any point along here?

A Not as part of my meetings with the state Senators, no.

Q Just returning for a moment to the partisan score that you generated for the whole map, do you know was that the highest score out of the statewide maps that were drafted?

A The team map score?
Q Right, correct. If that's a final map score.
A No, that was not the highest of the draft maps I had worked on.
MR. RUSSOMANNO: And if we could pull up Exhibit 364 again, please. And if you could zoom to the top so we can see what we're looking at.
Q Can you identify what we're looking at here?
A That is the partisan scores on the map titled TadMayQandD.
MR. RUSSOMANNO: And then can we go down to the bottom where that dataset is. Zoom in when you get there, please.
Q Was this MayQandD, the map that this data represents, was that whole map ever presented to the leadership or the membership of the Republican Party as a choice?
A No, this was never presented as a choice.
Q I'll draw your attention to the bottom right box, three lines down. What were those words there?
A *Total GOP seats safe and lean*.
Q What does it say under the Assembly column?
A 54.
MR. RUSSOMANNO: If we could pull up Exhibit 172, please, page three.

Q Can you identify what this spreadsheet pertains to?
A This is a measure of the partisan scores on the final map.
Q The map you were just talking about that you stitched together?
A Yes.
MR. RUSSOMANNO: And if we could go down to the data box here, please. Over to the right, please.
Q And can you see what's the number there for the total GOP seats under the Assembly column?
A 52.
Q How does that compare to what we just looked at in the MayQandD spreadsheet?
A It's fewer.
Q After the meetings what happened next?
A After the meetings with the Senators?
Q Correct.
A The Assembly took a little bit longer to complete. There were a couple of changes that were made coming out of those Assembly meetings. But after that, then the -- I took the final map that we put together and took it to the Legislative Reference Bureau to have drafted as a bill for introduction to the Legislature.
Q Maybe I'll stop you and back you up one step. The changes you just described, were those changes to

increase the partisan score?
A No.
Q Do you know what the changes were?
A The changes that I'm recalling had to do with in or around the Appleton seat. Within Senator Ellis's district there -- he had concerns. I believe, Representative Crawford, who was one of the representatives that made up his Assembly seat, had some concerns about how his map was drawn. So we kind of redrew the Assembly boundaries a little bit in that area to address those concerns.
Q Do you know what the concerns were?
A I believe he was paired with another representative in there and had -- did not kind of like where the boundary of where his old seat was on the proposed map.
Q And what happened next then you were about to say.
A So then after that point the map was finalized, we checked it for completeness, and then I took it over to the Legislative Reference Bureau and asked them to draft it up in bill draft form for introduction to the Legislature.
Q At this point had -- before that step, had any Democrats seen the map?
A Not prior to that point, no.
Q Had Republican Senators, nonleadership Republican

Senators seen the whole map?
A No. They had only seen their own districts.
Q Okay. What happened next?
A Then we got the draft back from LRB and I believe it was on a Friday, we sent out a -- I don't know if it was a ballot that we were coming through, but we made the map publicly available and a hearing -- a public hearing was scheduled for the following week on the map.
Q Did you speak at that hearing?
A I did.
Q And what was the general -- why did you speak at that meeting?
A I spoke at that meeting, I believe it was a joint hearing between a Senate committee and an Assembly committee to kind of describe the map, describe some of the changes that had been made and answer any questions that the committee members had about the maps.
Q And what was the next step?
A The next step then after the public hearing, I should mention that at the public hearing we also offered an amendment for Assembly Districts 8 and 9, which were the Hispanic seats in the City of Milwaukee, and then I believe even subsequent to that a second amendment was offered. So the committee, after the public hearing, within a couple of days voted the map and approved it.

This was the Senate committee approved it. And then it was scheduled for a floor debate on the Senate the following week, at which point the Senate took up the legislation, debated it, passed the map, and then it went over to the Assembly where a similar process was followed.

Q Okay. I'll back up a little bit to get more detail. Was there a caucus meeting at some point in here?

A Yes. I believe it was after the public hearing. I'm not 100 percent sure of when it happened, but there was a caucus. Both the Senate Republicans and the Assembly Republicans had a caucus.

Q What is a caucus meeting?

A A caucus is just a meeting of members of the same party where they get together to discuss legislation that's going to be on the floor.

MR. RUSSOMANNO: And if we could put up Exhibit 241, please. And if we could zoom into that text.

Q Do you recall being asked about these notes earlier today?

A I do.

Q I'll direct your attention to about mid-page and you were asked to read a line at the end of the second paragraph. Can you read that line again?

A "The maps we pass will determine who's here ten

years from now."
Q What did you mean by that?
A Simply that these were the maps that were going to be in place for the next decade.
Q In the next paragraph, the second sentence, what does that say?
A "We have an opportunity and an obligation to draw these maps that Republicans haven't had in decades."
Q What did you mean by that?
A What I meant there was that it's a legislative -- one of the Legislature's duties is to redistrict after each census and -- because in my recollection, the Democrats had a chance to do it in the 1980's. I don't believe that Republicans had ever had that opportunity since at least the 50's or 60's.
Q Moving to the public hearing, were the Democrats allowed to speak at that hearing?
A Yes.
Q Did they?
A Yes.
Q Did the Democrats offer any alternative maps at that hearing?
A No, they did not.
Q And I believe you testified that the map would have been gone -- the bill would have gone to a committee?

A That's correct.
Q What was that committee?
A I believe it was Senator Zipperer's committee. I can't remember if it was titled judiciary at that time.
Q Were any Democrats on that committee?
A Yes.
Q Are they allowed to offer amendments in committee?
A They are.
Q Did they?
A Not to my knowledge, no.
Q Did they offer any alternative maps at this stage?
A Not at this stage, no.
Q And then how did it get out of committee?
A The committee, after the public hearing, they scheduled what's called an executive session, which is a session where they vote on the proposal, and they voted, I believe it was along party lines to recommend the proposal for passage.
Q And then remind me what you said happened next.
A Then after it was voted out, then the Senate scheduled for action on the proposal for the following week.
Q Was there debate in the Senate?
A There was, yes.
Q Was there any limit on debate in the Senate?

A There were no limits placed on the debate.
Q Did the Democrats offer any debate in the Senate?
A They did debate it, yes.
Q Were any amendments offered?
A Outside of the amendment I discussed on the Hispanic district that Republicans had put forward, there were no other amendments in the Senate that were offered that I recall.
Q Did the Democrats offer any amendments?
A Not that I recall, no.
Q Could they have?
A Absolutely.
Q You testified earlier you've worked for how many years in the Wisconsin Legislature?
A In some capacity for 32 years now.
Q Based on your experience was the process you just described unusual?
A It was unusual in that there was single-party control that allowed to pass a redistricting map, but in terms of the actual process of how legislation, particularly major policy legislation is passed, it was fairly typical, with the exception of the map-drawing process or the bill-drafting process, if you will, being in the law firm across the street, which is typical to redistricting but not other legislation.

MR. RUSSOMANNO: That's all I have. Thank you.

JUDGE RIPPLE: Thank you. Cross-examination?

MR. EARLE: I have some more questions.

JUDGE RIPPLE: Yes, please.

MR. EARLE: May I proceed. (12:08 p.m.)

JUDGE RIPPLE: Yes.

CROSS-EXAMINATION

BY MR. EARLE:

Q Let's just start with that last statement you made that the bill, the legislation, Act 43, was not unusual in terms of how legislation is normally done. You said Act 43 was typical in the sense that both caucuses had the ability to develop legislation, introduce it and vote; correct?

A I said something to that effect, yes.

Q Right. And you said that both the Democrats and Republicans could hire historically -- we're going back to 2000; right? The 2000 cycle.

A Okay.

Q You said that both Democrats and Republicans could hire outside counsel through funds allocated from the chamber; right?

A In practice the leadership of each House determines that, so in the past Democrats had been in charge of either one House or the other and had done that.

Q During the 2000 cycle, both Republicans and Democrats had counsel financed through the chamber; correct?
A The Assembly, if I recall correctly after 2000, the Assembly Republicans had counsel financed through the chamber and Senate Democrats hired counsel that was financed through the Senate chamber.
Q All right. And you said that -- okay. So let's follow this carefully here. I've got my notes here. You testified that the sole reason that Michael Best & Friedrich was hired as sole counsel for the entire Legislature and for the entire Senate was because there was unified control by the Republicans and that made it different; right?
A That's correct.
Q Okay. But wasn't it true that in 2010 -- as a matter of fact we can go -- let's go to the letter and we can call up Exhibit 257. We can focus -- can you highlight the date there on 257? The date that you sign this agreement with Michael Best & Friedrich giving them direction and control over your activities in redistricting and agreeing to be bound by confidentiality controlled by them on July 27 of 2010, we had Governor Doyle; correct?
A Correct.

Q And we had Senator Decker, correct, as the leader of -- the Majority Leader of the Senate?
A That's correct.
Q And we had Sheridan as the Speaker of the Assembly; correct?
A That's my recollection, yes.
Q Okay. And at that point in time, Michael Best was hired by the Republicans financed through the Legislature; right?
A Financed through the State Senate.
Q Yeah, through the Senate. Yes. Correct. All right. So then -- okay.

MR. EARLE: Now, can we call up uncontested fact No. 20.

Q Would you read into the record the uncontested fact that's not in dispute in this legislature -- I mean in this litigation. Sorry.
A "In January 2011, Scott Fitzgerald, Republican member of the Wisconsin State Senate and Wisconsin Senate Majority Leader, and Jeff Fitzgerald, Republican member of the Wisconsin State Assembly and Speaker of the Assembly, hired Attorney Eric McLeod, McLeod, and the law firm of Michael Best to represent the entire Wisconsin State Senate and Wisconsin State Assembly in connection with the reapportionment of the state legislative

districts after the 2010 census."
Q And as soon as that happened, you moved over to Michael Best, you created a map room, you imposed an access restriction policy, and you swore everybody who entered into that mapping room to secrecy and you proceeded to do the whole map -- mapping process to the exclusion of the Democrats; isn't that right?
A We ask every Senate and Republican member of the Assembly as well to sign a confidentiality agreement and no Democrats were allowed into the room.
Q You didn't ask any Democrats to sign any confidential agreements in order to give them access, did you?
A I did not.
Q Okay. Now, earlier today Judge Ripple asked you whether the Democrats objected to only hiring Michael Best and your response was they voted no on the ballot, referring to Exhibit 355; correct?
A That's correct.
Q What you didn't tell Judge Ripple was that Representative Barca and Senator Miller sent a letter to protest and object; isn't that right?
A They -- they may have.
Q Let's call up --
A I don't recall that.

Q Call up Exhibit 357. What is the date of that letter?
A January 5, 2011.
Q Okay. Let's go to the first paragraph there. Could you read what they wrote in that letter?
A "Dear Majority Leader Fitzgerald and Speaker Fitzgerald: We write today to urge you to reconsider your recent actions to retain outside, exclusive legal counsel for Republicans in the Senate and Assembly for purposes of legislative redistricting."
Q And then could we go to the second paragraph, if you could read that paragraph in.
A "At our inaugural just this Monday, the Governor and you spoke of working together, focusing on jobs, and changing business as usual. Yet just minutes after the Senate adjourned, a paper ballot began circulating to provide a blank check for partisan legal counsel exclusive to Republicans. The Assembly Organization Committee acted yesterday to adopt a similar partisan political position."
Q Let's go to the next paragraph. Can you read that?
A "Your actions raise serious concerns."
Q And let's find out what those concerns are. Let's go to the next paragraph.
A "We can only conclude from the partisan nature of

your actions that your intention is to gerrymander legislative districts to gain an unfair political advantage."

Q And let's go to the next paragraph.

A "Your actions are counter to the needs of the citizens of this state who are counting on us to get to work on the issues they care about like jobs and the economy. Instead you've begun the legislative session with raw partisan politics and back-room dealing."

Q Let's go to the next paragraph.

A "In difficult fiscal times one of your first official actions in the majority is to give a blank check to outside lawyers for redistricting. Rather than continue down this road, we ask you to join us in authorizing our legislative counsel to take on additional staff to serve the Legislature in a nonpartisan fashion to meet our duty and fashion a redistricting plan."

Q And could you read the final paragraph.

A "If you are truly interested in living up to the standards called for by Governor Walker and yourselves in your inaugural speeches, we ask you to rescind your actions and join us in creating a fair, responsible and frugal redistricting process."

Q Now, did Scott Fitzgerald respond to this letter?

A I don't recall.

Q The answer -- okay. Did the Legislature take any actions to assuage these concerns?

A I don't know. Not that I'm aware of.

MR. EARLE: Your Honor, we move that Exhibit -- what is it -- 357 be received into evidence.

MR. RUSSOMANNO: We object to that, Your Honors. It's an out-of-court statement. It's hearsay. It's not admissible for the truth of the matter.

MR. EARLE: It's legislative correspondence, Your Honor.

JUDGE RIPPLE: Well, again --

MR. EARLE: It's not offered for the truth of the matter asserted and so it's not hearsay in the first instance.

MR. RUSSOMANNO: What is it offered for?

MR. EARLE: The effect on the leadership and it's something that's part of the record of this case and it's directly responsive to a question did --

JUDGE RIPPLE: The letter is admitted.

MR. EARLE: Huh?

JUDGE RIPPLE: The letter is admitted.

MR. EARLE: Thank you.

BY MR. EARLE:

Q Let's continue. Now, we talked about wards. SB 139, that was the legislation that changed the sequencing

of wards, the timing of how they were drawn; correct?
A I don't recall the exact number, but it probably was, yes.
Q And that was part of this process to put Act 43 into place; correct?
A It was -- I believe it was necessary for that to pass as part of the Act 43 process.
Q Let me correct my prior question. I meant -- I should have referred to SB 150 and Act 39.
A Okay.
Q You remember Act 39; right?
A Not specifically.
Q Okay. Now, traditionally in Wisconsin the sequencing of redistricting was that municipalities went first and drew their districts and designed the wards as part of that process; correct?
A They went in advance of the Legislature, yes.
Q And traditionally the Legislature waited until after that occurred and then did the statewide redistricting; correct?
A That's how it's operated in the past, yes.
Q We could say that's the historical tradition in Wisconsin codified; correct?
A I don't know how you -- if you'd like to characterize it that. As I've said, it was the existing

process at the time.
Q Now, Act -- SB 150 was introduced on July 11 of 2011; correct?
A That's my recollection, yes.
Q And that's two days before the public hearing at which you testified on July 13, 2011; correct?
A I believe so, yes.
Q And it was passed on July 19, 2011; correct?
A I believe so, yes.
Q And it was published and went into law on August 8, 2011; correct?
A I don't remember the exact date, but that sounds about right.
Q Do you think it's coincidental that 13 recall elections were scheduled beginning later that month into August?
A I don't know how I'd characterize that.
Q Well, recall -- one recall election was scheduled for July 19 of 2011. You know that; right?
A I don't recall the dates.
Q Six -- you don't recall that six recall elections were scheduled for August 9th of 2011?
A I know they happened that summer. I don't recall the specific dates.
Q And it's your testimony that you don't know whether

that event had anything to do with the rush to change the sequencing for the drafting of the wards?

A I don't know that I would term it a rush, and the timing was the decision of legislative leadership.

Q Okay. Okay. Now, I'm going to address here the -- your response to a series of questions suggesting that you, in fact, drew a more aggressive map than Act 43. That was the essence of your testimony; right?

A I think my testimony was I drew a map under that metric that measured total Republican seats had a higher number than the final map.

Q Okay. And you were referring to the TadMayQandB -- D spreadsheet that was on the screen; right?

A Yes.

Q And so your testimony is that that was more pro-Republican than the final map that was passed; right?

A That had more total Republican seats in that chart than the final Republican map.

Q Okay. So we're going to put on the screen here -- let's put your TadMayQandD sorted by -- up on the screen. It's 477. This is a sorted version of your spreadsheet in which -- it's a sorted version of the spreadsheet in descending order of partisan scores.

Do you see that there?

A Yes.

MR. EARLE: And the column to the left where it says "1," let's go down -- okay. Is the sequencing here -- let's go and you can see the column that says *new*. Let's go and highlight the column that says *new*. I'm sorry. Right there. And let's take that column down with the highlighter to the 50 percent demarcation line. Now, let's take the other column down -- just highlight that. There you go.

Q Could you tell the Court how many seats above 50 percent are in your map? Republican. Republican seats.

A I'm sorry, it's a little small.

MR. EARLE: Can we expand it for Mr. Ottman? Not much more?

THE WITNESS: I believe the number on that is 57.

MR. EARLE: Thank you. So -- and now let's go to the final map. And we have a new demonstrative, Your Honors, for the final map. It's Exhibit 487. And where are we here? And this is sorted in descending order of pro-Republican vote share. And let's go down to the 50 percent demarcation line. Could we highlight that? There we go.

BY MR. EARLE:

Q How many seats are above the 50 percent demarcation line on the final map?

A It looks like 59 from what I can read.

Q Do you have a marker up there, sir? Do we have a pen here? I mean a large marker. Could you go to the board there and put a big red circle on the 59 line at the very end of the -- see that line there ascending?

A There?

Q If you go out a little further --

MR. RUSSOMANNO: Your Honors, we object to this. What's the foundation for using the witness in this way?

MR. EARLE: I would like the record to reflect that, in fact, the final map had 59 seats and his representation, there is testimony he was incorrect with regards to him having drawn a more aggressive pro-Republican map.

JUDGE RIPPLE: He can do this without using the map, I think.

MR. EARLE: Okay. That's fine. Your Honor, may I have Attorney Lang record that on our chart since we're tracking seat shares on that map? Thank you. And Attorney Lang, could you write final map underneath the circle up there. Thank you.

Your Honor, we're done at this point with the witness.

JUDGE RIPPLE: I would suggest that you might want to clarify these recall, you mentioned these recall

elections.

MR. EARLE: Yes, Your Honor.

JUDGE RIPPLE: Would you perhaps with a colloquy with the witness just clarify what these recall elections were for those of us who are not from the Badger state?

MR. EARLE: Yes, Your Honor. Okay. Thank you, Your Honor.

JUDGE RIPPLE: And nine other people a thousand miles away.

MR. EARLE: Yes, Your Honor.

BY MR. EARLE:

Q You recall that there were recall elections that happened in Wisconsin in 2011; correct?

A That's correct.

Q Do you know why those recall elections happened?

A They -- well, there's a petition process to recall any legislator within a certain amount of time after the election.

Q Now, let's go back to -- do you recall Act 10?

A I do.

Q And Act -- would you describe this in two or three sentences what Act 10 was.

A Act 10 was a redefinition of public bargaining in Wisconsin.

Q Basically took collective bargaining rights away

from public sector unions in Wisconsin; correct?
A It narrowed them to, I believe, wages only.
Q Cost of living; isn't that right?
A I believe so, yes.
Q Yes. And it imposed onerous recertification requirements on those unions as well; correct?
A I don't know if I would characterize them as ownership.
Q Onerous I said. Not ownership. Onerous.
A I don't know that I would characterize them as onerous. It did impose requirements.
Q And how would you characterize the public reaction in Wisconsin to Act 10?
A There was a lot of protest as a result of some of those actions, yes.
Q And tens of thousands, if not more than a hundred thousand people descended on the capitol in protest; correct?
A There were thousands, yes. I don't know how many.
Q The capitol was occupied, correct, around the clock?
A I believe so for a period of time, yes.
Q And did some Senators leave the state?
A Yes.
Q How many Senators left the state?
A I believe 14 Senators left the state.

Q And what party did those Senators belong to?
A Democratic Party.
Q And why did they leave the state?
A They left the state -- it's my understanding that they left the state to prevent a quorum of the Senate from acting.
Q Regarding the enactment of Act 10; correct?
A I believe so. I don't know that they stated specifically, but I believe so.
Q And as a result of that did voters from the Democratic Party react to that as well?
A I'm sorry, as a result of what?
Q As a result of the presentation of Act 10, I mean of the legislative process leading to Act 10, did voters in the State of Wisconsin react by initiating recall petitions to recall Republican Senators?
A It's my recollection that citizens of the State of Wisconsin petitioned to recall Senators, some of both parties, mostly Republicans.
Q And you recall -- and that was -- and recalling a Senator means removing that Senator from office; correct?
A That's correct, yes.
Q And then there was a recall election as a result of that process that was scheduled for July 19th; correct?
A I don't remember the dates of the recall elections.

Q Okay. That's right. We asked that question. I forgot that you had answered that. But the recall elections happened very closely after the passage of Act -- of Act 43; correct?

A Some of them did.

Q All of them did; right?

A No. There were some Senators who weren't able to be recalled in that cycle because of the proximity of the previous election.

Q Thank you. Well, the recall elections presented the prospect that the partisan control of the Senate would change; correct?

A To the extent that any election presents that opportunity.

Q Enough Republican Senators were the targets of recall elections that had those elections been successful, control of the Senate would have flipped; isn't that correct?

A If -- it's my recollection that if all of the Republican Senators who were petitioned for recall in that cycle were recalled and replaced with Democrats, it would have resulted in a shift in the partisan makeup of the State Senate from Republican to Democrat.

MR. EARLE: Thank you.

JUDGE RIPPLE: Thank you, Counsel.

Mr. Russomanno.

MR. RUSSOMANNO: I just have something very quick.

JUDGE RIPPLE: What are your plans in terms of more examination?

MR. RUSSOMANNO: I have three very quick questions.

JUDGE RIPPLE: I think we'll go ahead with that so the witness will be free to leave.

MR. RUSSOMANNO: Thank you, Your Honor. I'll just stay here if that's okay.

JUDGE RIPPLE: Certainly.

REDIRECT EXAMINATION

BY MR. RUSSOMANNO:

Q There was some discussion about Senate recall elections. Did Republicans maintain control of the Senate after those recall elections?

A They did.

Q And who won the recall vote for Governor after that?

A Governor Walker won that recall as well.

Q And who won the Governor race in 2014?

A Governor Walker.

MR. RUSSOMANNO: That's all I have.

JUDGE RIPPLE: Thank you, Counsel. If there's nothing further -- sir, you are free to leave then.

Thank you for your testimony.

(Witness excused at 12:31 p.m.)

JUDGE RIPPLE: It is time for us to take a lunch break. The Court will resume at 1:35 central daylight time.

MR. EARLE: I'm sorry. We'll take it up when we get back from lunch. Sorry, Your Honors.

(Noon recess 12:31-1:35 p.m.)

THE CLERK: This Honorable Court is again in session. Please be seated and come to order.

JUDGE RIPPLE: Good afternoon everyone. The plaintiff, I believe, is ready to present its next witness.

MR. EARLE: Your Honor, there are three minor housekeeping details we'd like to present to the Court at this point. The parties have agreed that we can move into evidence Exhibit 257 and 463, and we'd ask that those be received.

JUDGE RIPPLE: Without objection they are received.

MR. EARLE: And the plaintiff would like to move into evidence over the objection of untimeliness from the defendants Exhibit 487, the final map which was sorted as a demonstrative for purposes of illustrating the number of Republican vote share seats above 50 percent.

JUDGE RIPPLE: Mr. Keenan.

MR. KEENAN: I've made a timeliness objection to these demonstratives because they weren't in the pretrial order and I just -- I haven't had a chance to look at them to see if they're accurately actually ordering them the right way on the document. So that's why I've been objecting to these demonstratives.

JUDGE RIPPLE: Why don't you take some time after court today to take a look at them and then, Counsel, you can renew your motion tomorrow.

MR. EARLE: Thank you, Your Honor. And then the final housekeeping detail is that the parties have conferred and are prepared to stipulate that Russ Decker was the -- when he was the Majority Leader of the Senate was a Democrat. That detail was omitted from my questions earlier. And that Jim Doyle, the Governor, was a Democrat as well at the times addressed in the testimony. And Mike Sheridan was the Assembly Speaker and he was also a Democrat.

JUDGE RIPPLE: And Mr. Keenan, you have no objection that stipulation?

MR. KEENAN: Yes, those are true facts. I thought it might have been clear in the testimony, but I guess we're clarifying that.

JUDGE RIPPLE: In that case, the stipulation is

accepted.

MR. EARLE: Thank you, Your Honor.

JUDGE RIPPLE: Mr. Poland.

MR. POLAND: Thank you, Your Honor. Your Honors, the plaintiffs call to the stand Professor Kenneth Mayer.

KENNETH MAYER, PLAINTIFFS' WITNESS, SWORN,

JUDGE RIPPLE: Good afternoon, Professor Mayer.

THE WITNESS: Good afternoon.

DIRECT EXAMINATION

BY MR. POLAND:

Q Professor Mayer, would you please introduce yourself to the Court.

A My name is Kenneth Mayer and I'm a professor of political science at the University of Wisconsin-Madison.

Q Dr. Mayer, you were retained as an expert witness in the litigation by the plaintiffs; correct?

A That's correct.

Q And you prepared an expert report in this case?

A I did.

MR. POLAND: Could we please pull Exhibit No. 2 up on the screen.

Q Dr. Mayer, you have -- I've given you two notebooks that are in front of you. One is a notebook that contains exhibits. Could you please turn to the tab

that's Exhibit 2.

A Okay.

Q Can you identify Exhibit 2, please.

A This is the initial expert report that I prepared in July of 2015.

MR. POLAND: And so the Court will know, the exhibits that I'll refer to are exhibits that are not objected to, so we've already moved them into evidence. If an exhibit comes up that has been objected to, I'll raise it with the Court and I will formally move it into evidence.

JUDGE RIPPLE: Thank you.

MR. POLAND: Thank you, Your Honor.

BY MR. POLAND:

Q Dr. Mayer, have you prepared any other reports in this case?

A I did. I prepared a rebuttal report and an amended rebuttal report.

Q Let's start out with your first rebuttal report. When did you prepare that report, sir?

A I prepared that in December of 2015 in response to the expert reports of Dr. Goedert and Mr. Trende.

MR. POLAND: And would you please pull out Exhibit 104 up on the screen.

Q And Dr. Mayer, would you take a look, please, at

Exhibit 104 in the exhibit binder in front of you.
A This is a copy of my rebuttal report.
Q Now, Dr. Mayer, you testified a minute ago that you prepared an amended rebuttal report; is that correct?
A That's correct.
Q And when did you prepare that rebuttal report?
A I prepared that in, I believe, March of 2015.
Q Why did you prepare an amended rebuttal report?
A Because I discovered that I had made a small number of transcription errors in moving data from one spreadsheet to another and wanted to correct that to make sure that the Court had accurate information.
MR. POLAND: Could we pull Exhibit 114 up on the screen, please.
Q Dr. Mayer, would you please turn to Exhibit 114 in the trial binder in front of you.
A Okay.
Q Can you identify for the Court, Dr. Mayer, the amendments and the corrections that you made to your rebuttal report.
A So subsequent to preparing this report, I discovered that I had made a couple of transcription errors in the course of responding to preparing the swing analysis where I had inadvertently copied in the incorrect numbers from one spreadsheet to another and so I went ahead and

identified the correct information and redid the calculations with the correct information.

Q Dr. Mayer, when did you discover those errors?

A I discovered those errors during my deposition.

Q And that was on March 30th of this year; correct?

A I believe so.

Q And when did you correct those errors and prepare your amended rebuttal report?

A It was immediately. I recall doing it that day and the next day.

Q Can you please look, what's the date on the front of Exhibit No. 114?

A March 31ST.

Q And that was the very next day, wasn't it, Dr. Mayer?

A That's correct.

Q Was that -- do you know whether that document was provided to counsel for the defendants?

A It was.

Q Now, Dr. Mayer, is Exhibit No. 114, does that contain the accurate numbers that reflect your opinions?

A It does.

MR. POLAND: Your Honors, at this time I would like to move Exhibit 114 into evidence.

JUDGE RIPPLE: Mr. Keenan.

MR. KEENAN: We had objected basically because the pretrial order required leave of court to do an amended expert report and they just had never sought leave of court. So I mean now that they're seeking leave of court, I think it will probably come in so I'm not really going to object. But that was the basis of the objection.

JUDGE RIPPLE: The exhibit is admitted.

MR. POLAND: Thank you very much, Your Honor.

BY MR. POLAND:

Q Now, Dr. Mayer, in your expert reports, and I'll refer now to your original report which we have as Exhibit No. 2 and I'll refer to your amended rebuttal report which is Exhibit 114, you rely on a number of scholarly articles for your opinions; correct?

A I do.

Q Do you know how many articles there are that you've cited?

A I would have to look at the bibliography, but it's a fairly large number. I'm not entirely sure. I'd have to look at the bibliography.

Q Dr. Mayer, have we -- for the purpose of your testimony here today, have we prepared for you a binder that contains a number of the articles that you've cited?

A You have.

MR. POLAND: Your Honor, may I approach?

JUDGE RIPPLE: Please.

MR. POLAND: I've actually provided Dr. Mayer with a copy of the binder. If I could give a copy to opposing counsel, and I have copies for the Court as well, one for each of the judges. May I approach?

JUDGE RIPPLE: Yes.

BY MR. POLAND:

Q Dr. Mayer, if you open the binder that I've handed you, it says "Kenneth Mayer Reliance Material" on the front. Do you see that?

A I do.

Q And do you see that there's an index the 12 articles; correct?

A Correct.

Q Are each of these articles scholarly publications on which you've relied for your opinions?

A They are.

Q And if you go through each of the articles, you'll see that there is highlighting on each of the articles; correct?

A That's correct.

Q And are those statements in those articles on which you have relied for your opinions?

A They are.

MR. POLAND: Your Honor, I'd like to move into evidence, not the articles themselves, but under Federal Rule of Evidence 803.18 the highlighted statements in each of those articles. The statements themselves can be read into the record and come into evidence as learned treatises even if the articles may not be admitted themselves as exhibits.

JUDGE RIPPLE: Mr. Keenan.

MR. KEENAN: I think in a learned treatise you're supposed to actually go through and read it off, not just mark a binder with highlighting and then get maybe 15 articles in. So I don't think it's a proper use of the learned treatise rule.

JUDGE RIPPLE: We'll -- we will allow counsel to refer and the witness to refer to both the articles and the underlined material subject to your objection, Mr. Keenan, and we'll take that -- we'll rule on that objection in due course.

MR. POLAND: Thank you, Your Honor.

BY MR. POLAND:

Q Dr. Mayer, you have prepared a current curriculum vitae; correct?

A I have.

MR. POLAND: Could we have Exhibit 103 up on the screen, please.

Q Dr. Mayer, is Exhibit 103 a copy -- a true and accurate copy of your current curriculum vitae?
A It is. There may be a couple of minor things that I've added since I submitted this, but this is for all practical purposes a current copy of my CV.
Q Thank you. Dr. Mayer, what were you asked to do in your engagement as an expert witness for the plaintiffs?
A What I was asked to do was to determine whether it was possible to draw a Demonstration Plan for Wisconsin Assembly districts using 2010 census data that had an efficiency gap close to zero and which treated members of the political parties symmetrically and fairly.
Q Is that reflected anywhere in your expert report?
A It is reflected in my initial expert report, the analysis of that report and of Act 43.
MR. POLAND: Could we pull up Exhibit 2, please, at page one. I'm sorry, I didn't mean of the table of contents, I mean of the first actual page.
Q And that reflects what you were asked to do in this case or your expert report does?
A Yes. That is reflected in the second paragraph on this page.
Q Were you also asked to do anything with respect to the traditional redistricting criteria?
A I was. I was also asked to ensure that the district

plan that I drew, the Demonstration Plan that I drew complied with the statutory and constitutional redistricting criteria which are population, equality compactness, respect for political subdivisions, and compliance with the Voting Rights Act.

Q Dr. Mayer, you used a term a minute ago, *efficiency gap*, and certainly that has appeared in the pleadings and argument before this court. But could you briefly describe what the efficiency gap is as you examined it?

A The efficiently gap is a metric that is set out in what I believe is a forthcoming article in the University of Chicago Law Review and in effect the efficiency gap is a measure, given any particular districting plan, it's a measure of the net wasted votes that are cast by Democrats and Republicans and is a metric of the partisan bias that exists in a plan.

Q Dr. Mayer, after you prepared your initial report, expert report, were you subsequently asked to do further tasks?

A I was.

Q And what were those?

A I was asked to prepare a response to the expert reports of Mr. Trende and Dr. Goedert as well as respond to some of the criticisms that they leveled at my original report.

Q Thank you. Now, your curriculum vitae reflects many publications, research grants, honors, other activities. We don't have time to go through them all this afternoon. But can you briefly describe your qualifications from your previous work that most closely relate to your work in this case?

A I've been studying elections and election administrations in Wisconsin for decades. I've served as an expert witness in two federal redistricting trials. I was an expert in the 2001/2002 *Baumgart* case. And I was also an expert witness in the 2011/2012 *Baldus* case. In 2003 I was appointed by the Chief Justice of the Wisconsin Supreme Court to co-chair a special committee on redistricting to devise procedures that the Court might use in the event that there was a legislative impact -- impasse. And then this case.

Q Have you worked at all in your role as a professor at the University of Wisconsin with the Government Accountability Board?

A I have. In 2008 -- 2009, I and three other colleagues in the Political Science Department were retained by the Government Accountability Board to assist them in implementation of a grant from the U.S. Election Assistance Commission and to prepare some reports to evaluate their compliance with some of the federal data

reporting requirements, and we did a number of studies coming out of that.

Q I might have missed this in your first answer. Have you testified as an expert in any county redistricting cases?

A Yes. In 2011, I served as an expert on behalf of the City of Kenosha in a local redistricting dispute between the City of Kenosha and the County of Kenosha.

Q Thank you. We'll go over this in more detail a little bit later as well, but for now can you tell the Court generally what you did to investigate the issues you were asked to examine in this case?

A So my overall aim was to draw a plan that had an efficiency gap as low to zero as I could get it. In order to do that, I had to come up with a methodology for evaluating the baseline partisanship of Wisconsin, applying the standard political science methodologies of evaluating alternative redistricting plans or comparing different district configurations. So the first step of that was preparing an estimate of the baseline partisanship of different geographies in Wisconsin.

Q Now, as you went through this investigation or after you went through it, did you reach any opinions based on your investigation?

A I did. My opinions are set out in my report, and if

I could refer to it.

Q Certainly.

A So my overall opinions are set out on page five of my initial report. I concluded, first of all, based on my analysis of ward-level partisanship that the redistricting plan in Act 43 was significantly biased against the Democrats and I calculated an open-seat baseline efficiency gap measure of 11.69 percent. My analysis of Act 43 allowed me to identify how that efficiency gap was achieved. It was primarily through the classic techniques of packing and cracking; in the event of packing Democrats into a small number of districts where they had overwhelming support, and then cracking Democrats so that they would have below 50 percent and a sufficient number of districts to allow Republicans to win a larger number of districts than they would have had under a fairer map.

I also compared my measure to the composite measure or the baseline measure that Professor Gaddie had prepared or evaluated and I created a Demonstration Plan that had an efficiency gap of 2.2 percent, applying again the consistent open-seat baseline method to evaluate the partisanship of the plan.

Q Did you also reach opinions in your rebuttal report?

A I did.

Q And can you summarize for us very briefly the opinions you set forth in your rebuttal report.
A My opinions in my rebuttal report largely consisted of two things: One was a criticism of the overall approaches that Mr. Trende and Dr. Goedert used in their analysis of the partisanship of Act 43 and of the political geography of the state, but in response to some of the criticisms that Dr. Goedert and Mr. Trende made criticizing me for not doing certain types of analysis. I went ahead and did that analysis and found that it didn't alter my conclusions at all.
Q Did you set forth any opinions in your rebuttal report about whether the pro-Republican gerrymander was necessary?
A I did. I concluded that it manifestly was not necessary based on either the political geography of the state or compliance with the traditional redistricting principles.
Q Now, Dr. Mayer, your opinions and the bases for those opinions are set forth in your initial report and your rebuttal report?
A That's correct.
Q Now, are your opinions based on the facts, data and analyses set forth in those reports?
A They are.

Q Are your opinions based on reliable principles and methods that you use in your field?
A They are.
Q Have you applied those principles and methods in formulating your opinions in this case?
A I have.
Q And Professor Mayer, did you adhere to the same standards of intellectual rigor in formulating your opinion in this case that you -- that are demanded in your professional work?
A I did.
Q Are your opinions to a reasonable degree of scientific certainty?
A They are.

MR. POLAND: Your Honors, at this time I would tender Dr. Mayer as an expert witness.

JUDGE RIPPLE: Mr. Keenan.

MR. KEENAN: We've never objected to Dr. Mayer as an expert witness.

JUDGE RIPPLE: Thank you. He is accepted as an expert witness.

MR. POLAND: Thank you.

BY MR. POLAND:
Q Now, Dr. Mayer, you testified a few moments ago that you created a Demonstration Plan.

A That's correct.
Q Why did you prepare a Demonstration Plan?
A Because I was asked to determine whether it was possible to do so and create a district plan that complied with the traditional redistricting criteria and also had an efficiency gap of close to zero.
Q Now, did you know at the time that you were asked to create a Demonstration Plan what the efficiency gap of Act 43 was?
A I had seen an estimate or a calculation of the efficiency gap in the 2015 article by Stephanopoulos and McGhee.

MR. POLAND: Could we pull up Exhibit 41, please. And Dr. Mayer and Your Honors, this is tab number 5 in the binder of reliance materials that I provided.

Q Could we turn to page 882, please.
A So this is a graph that shows the efficiency gap calculations for state legislative district maps. And it's a little tough to see. See if this works. Wisconsin is right there and it shows roughly that Wisconsin has an efficiency gap of about 12 percent.
Q All right. And you mentioned that that was a starting point for you in your analysis; is that correct?
A That was my starting point.

Q All right. Now, how did you go about creating your Demonstration Plan?
A The initial step was to come up with a methodology for estimating partisanship, so that was the first task. And then once I had completed that, I used a GIS redistricting program called *Maptitude* for redistricting to go ahead and complete the task of actually drawing the Assembly district map.
Q You mentioned a baseline -- a model baseline of partisanship; correct?
A Correct.
Q Why did you do that?
A The political science literature is quite clear that if we are trying to estimate the effects of redistricting, we need a way of reliably comparing alternative configurations. And in doing so, it's not an appropriate methodology or an accurate method to simply take the election, the votes that we observed, say, in state Assembly races and then reconfigure, rearrange those votes into a new district. So the method that I used was essentially identical to the method that Professor Gaddie described in his deposition yesterday.
Q And what were the data that you used for that?
A The data that I used were 2012 election data and census data that was prepared by the Legislative

Technology Services Bureau.

Q Why couldn't you have just used the actual 2012 state Assembly election results?

A So the primary problem, you can't simply reconfigure the existing vote in Assembly contests is because we have a large number of uncontested districts. I think there were 27, maybe 28 uncontested districts in 2012. And that does not give you an accurate measure of the underlying partisanship because in a district that is uncontested, only one candidate is on the ballot and voters in that district only have an opportunity to express a preference for one party and that will show up as showing that there are no Republicans in a district with only a Democrat on the ballot or no Democrats in a district with no Republican on the ballot. And we know that's not true. There are Republicans and Democrats in every district, every geography in the state. So it's necessary to construct some measure of the underlying partisanship of a geography, whether it's at the ward or municipal, county, whatever geography you're working with. And the political science literature is essentially unanimous on that being the appropriate method.

Q All right. So it's a two-step process as you testified. First, you create a model of baseline

partisanship of Wisconsin wards; correct?
A That's correct.
Q And then second you integrate your Demonstration Plan; correct?
A That's correct. There was an intermediate step which is it was necessary to disaggregate the ward-level partisanship estimates down to the census block level.
MR. POLAND: If I may pause just a second, Your Honors, I'm reminded that I forgot to tender Dr. Mayer as an expert in specific fields and that's something that I should do. I would like to tender him as an expert in legislative redistricting and in political and elections analysis.
JUDGE RIPPLE: That's done.
MR. POLAND: Thank you, Your Honor.
BY MR. POLAND:
Q Now, Dr. Mayer, in general terms what was your approach to determining how alternative districts would have performed in 2012?
A So the primary methodology was to estimate the relationship between the Assembly vote, the actual Assembly vote that we observed in contested districts, and the set of exogenous variables or variables that didn't depend on any particular configuration of districts. And so I used a regression model to generate

those estimates.

Q You just used a word *exogenous* which I think a lot of us probably don't know what that is. Would you please explain what exogenous means.

A So an exogenous variable is one that we can clearly identify the direction of causality; that we know that one variable causes another and that it is not caused by that. In this context if we're looking at the State Assembly vote, we can consider things like the presidential vote exogenous to the Assembly vote because a person's -- the vote for president doesn't actually depend on the things that affect Assembly elections like the strength of Assembly candidates or which candidate is the incumbent.

So we speak of presidential coattails. We know that the presidential vote affects the Assembly vote, but it's not true that the Assembly vote actually has an independent causal effect on the presidential vote. So an exogenous variable is one that is independent of whatever variable that we are looking at. It's not caused by that variable, it is a causal factor of that variable.

Q So you came up with a baseline of the Assembly vote; is that correct?

A I did.

Q And did you do that for comparison purposes or why did you do that?

A So the other reason why it's necessary to compare -- to construct a baseline partisanship measure that is actually independent of any particular configuration of Assembly votes is that once I have that baseline partisan measure at a geography, I can reconfigure that into any alternative redistricting plan and it gives me, in effect, an apples-to-apples comparison. I know what the baseline partisanship is of my starting point of an existing plan and I can compare that directly to the partisanship of an alternative configuration of districts.

Q Now, once you had the estimate of votes, what could you then do?

A I generated my estimates of the open-seat partisanship at the ward level because I had data at the ward level and that gave me much larger "N." I then used those ward-level estimates and disaggregated those votes to the census block based on -- each ward is comprised of a number of census blocks. The average is -- each ward on average in Wisconsin has 40 census blocks in it and we can observe the population of each census block because that's recorded in the census. And I assigned ward-level vote totals to each census block based on that block's

percentage of the ward population. So I essentially uniformly distributed the ward-level vote to census blocks based on that block's share of the ward-level population totals.

Q And then what did you do once you had done that?

A At the end of that process, I actually had an estimated baseline partisanship for each of Wisconsin's -- there were roughly 225,000 populated census blocks in the state and I could aggregate those census blocks to whatever geography I needed to and then I used those census blocks and at times I actually reaggregated those census block data to the municipal level because there was about 1,830 municipalities in the state. It was much easier if I was assigning complete township or complete village to a district and then used that data, mostly census blocks but occasionally municipal data and constructed my districting plan, the Demonstration Plan, using that data. And at the end, I had two district configurations that I could compare the partisanship of those plans directly.

Q Now, you spoke before about a regression model. What's the regression model you're talking about?

A Regression is a technique where we can seek to explain a dependent variable, the variable that we're trying to account for. And we use -- we attempt to

explain the values that a dependent variable takes with what are called *independent variables* or underlying causal variables. Essentially the technique that Dr. Gaddie used.

Q Now, Dr. Mayer, is there support in the academic literature for the approach that you used for your work in this case?

A Yes.

MR. POLAND: Could we pull up Exhibit 102, please. This is Tab 2 that's in the binder in front of you.

Q Can you identify Exhibit 102?

A This is an article written -- published in the *Journal of the American Statistical Association* by Andrew Gelman, who I believe at that point may have been in the Ph.D. program at Harvard. He has since moved to Columbia University.

Q Actually -- I'm sorry to interrupt you, Dr. Mayer. We're actually looking at 102, which is Tab 2 in your binder.

A Oh, Tab 2. Tab 2 is an article written by a political scientist named Bruce Cain, who at the time this was written he was at Caltech. He has since moved to the University of California-Berkley and it outlines a general method of trying to evaluate alternative

redistricting plans.

Q And is that an article that you had relied on?

A Yes.

Q And can we turn to Exhibit No. 100, please. That is Tab 1 in the binder.

A So this is the 1990 article by Andrew Gelman and Gary King, again laying out a general method for evaluating alternative redistricting plans. I should note that this is a problem that has occupied political scientists for decades. People have really since the 1960's and 70's been trying to work out ways of addressing this problem.

Q And is Exhibit 100 an article on which you relied for the approach you used in this case?

A It is.

Q Can you please look at Exhibit No. 148. That's Tab 6 in your binder. Can you identify the article?

A This is a 1994 article, again written by Andrew Gelman and Gary King, which is more or less the end point of this journey. They identified what they describe as a universal and unified method of evaluating alternative redistricting plans.

Q Is that an article on which you relied for your approach in this case?

A It is.

Q Now, Dr. Mayer, you talked a minute ago about the model and you talked about some variables that you used. I'd like to pull up Exhibit No. 3, please, on the screen and have you explain in terms that we can understand the basic aspects of your model.

A I'll do my best. So this is the regression model that I used to try to come up with an estimate of the baseline partisanship of geographies in Wisconsin. The Assembly vote subscript i, which is right here, that's the quantity that I'm seeking to explain. That's my dependent variable. And the variables to the right of the equal sign are the independent variables that I use to try to explain the Assembly vote, all of which are exogenous in the sense that they are all variables that we can expect to have a causal effect on the Assembly vote but are not actually themselves determined by the Assembly vote.

Q Now, Dr. Mayer, what cases did your model include?

A Two -- there we go. Because I needed to have a good estimate of partisanship where voters were able to express their vote for candidates of both parties, this portion of the analysis was limited to wards in the 72 Assembly districts that were actually contested in 2012 which I defined as races where there was both a Republican and Democratic candidate on the ballot.

Q Now, why did you go down to the ward level?
A I went down to the ward level because that gave me 5,282 cases as opposed to 72 and it's as close to -- I mean I guess I would describe this as a law, that all other things being equal, your statistic estimates are going to become more much precise and accurate as the number of cases that you have as the end grows larger. And so I had basically over 70 times as many wards as I had districts.
Q Referring back to Exhibit 3, Dr. Mayer, could you identify for us the variables that you used in your model?
A So there are three general categories: The variables in the first line: Total VEP, black VEP and Hispanic VEP, these are all census-level estimates of the voting-eligible population at the ward level. These are basically the voting-age population of each ward and I applied an adjustment to remove ineligible adult populations, which in Wisconsin are either noncitizens or people who were residing in correctional -- federal/state correctional institutions serving felonies. And so that's my baseline measure of the demographics of each ward.

The second line are two variables which capture the Democratic and presidential vote in each ward, and these

are my primary independent variables.

The third line shows variables capturing the effect of whether the Assembly candidate in a ward was a Democratic or Republican incumbent because we know that incumbents will do better than nonincumbents and will outperform races that are open seats when there is no incumbent running.

And that last set of variables, the Sigma with the 1 to 71, that's what's known as a fixed effect. There's a dummy variable for 71 of Wisconsin's 72 counties and that picks up geographic effects that might not be captured in some of the other variables. We know that some counties are more Democratic, other counties are more Republican, and this is a way of picking up variation in the dependent variable that is not otherwise accounted for.

Q Dr. Mayer, how powerful was the model that you constructed?

A It was very, very precise.

Q And how do you know that?

A Because if we look at the actual results of the model, we can see both in terms of the values of the coefficients but the overall diagnostics of the model show that they pick up almost all of the variation in the dependent variable.

Q Could we pull up Exhibit 18, please.

A This is the table where I set out --
Q Doc -- if you could just wait a minute, Dr. Mayer, we just want to put it up on the screen and make sure it's here. Okay. Terrific. I'm sorry. Go ahead.
A This is a table that shows the regression results for all the substantive coefficients. I actually didn't include the 71-county level --
JUDGE CRABB: Excuse me. I thought we had 72.
THE WITNESS: Good point, Your Honor. The reason I had 71 is that when we have an exhaustive set of dummy variables, that if you add up all those dummy variables you would effectively create a coefficient that is identical to the constant and you have what's called multi-colinearity. So the practice is that when you have an exhaustive set of dummies that captures all of the data, you need to remove one case, which I think the case I described in the report, the one county I didn't count is Dunn County. So that's why there's 71 rather than 72.
BY MR. POLAND:
Q All right. Dr. Mayer, this is Table 1 from your expert report we're looking at now; correct?
A That's correct. So for the purposes of looking at the overall accuracy of the model, one of the most important diagnostics is what's called the *R squared* and that's a measure that tells me what percentage of the

variation in the dependent variable my model is picking up. So this is in effect a percent, and it ranges from zero when the model doesn't pick up any of the variation in the dependent variable to 1, when it's picking up 100 percent of the variation in the dependent variable.

Q So you mentioned the number the R squared; correct?

A Correct.

Q And is the .9903, is that large R squared?

A I would actually regard that as ridiculously high. It's the kind of number you almost never see in social science research. And what that shows is that this model picks up over 99 percent -- over 99 percent -- explains almost 99 percent of the variation in the Republican Assembly vote.

There's actually one other point I need to make here is that because my underlying model is not based on percentages, I'm actually generating predictions of the actual number of votes that are going to be cast for Democratic and Assembly candidates. I had to run separate regressions for both Democratic and Republican Assembly candidates, so that's why there are two regressions. If all I was interested was picking up the share of the two-party vote, I would only need to run one because we know one candidate share, one party's share of the two-party vote we can immediately calculate the other

by subtracting it from 1.

Q And we also had an R squared for the Assembly Democratic votes shown on Table 1; correct?

A That's correct.

Q And what's that R squared?

A .9843.

Q What's the significance of that number?

A That means that I'm picking up 98.43 percent of the variation. Again, this is an absurdly high R squared that is rarely seen in social science research.

Q And Dr. Mayer, how about the accuracy of your model? Did you prepare anything that shows the accuracy?

A I did. I prepared a number of charts that show the accuracy of the ward-level and district-level estimates.

MR. POLAND: Could we bring up Exhibits 7 and 8, please. And could we put those on the screen side by side.

Q Dr. Mayer, can you identify -- I'll state for the record these are Figure 4 and Figure 5 from your expert report; is that correct?

A That's correct.

Q Could you explain these, please.

A Figure 4 shows the observed and predicted values of the Democratic and Republican vote totals, the actual vote level counts for the 2012 elections and I plot the

actual Assembly vote along the x-axis. You can see ranges from between 0 to about 1,400, and the predicted Assembly vote, which is what the model generated on the y-axis. The line is the 45-degree line which is where the points would fall if they were exactly equal. And you can see that all of the points are clustered pretty tightly right around the 45-degree line, which means I'm exactly picking that up.

The other thing to point out about this chart, there are actually almost 11,000 individual data points on this chart and most of them are clustered so tightly around the 45-degree line that you can't make out the individual points and that's the sort of left side of the graph; that this is -- has a very, very high degree of predictive accuracy in estimating the actual vote outcomes at the ward level.

Q And how about Exhibit 8 which is Figure 5?

A So Figure 5 shows what happens if I take these wards and aggregate them up to the district level. So now I have an estimate of what the actual vote totals were in the 72 contested Assembly races. And again, you can see that all of the points are very, very tightly bunched around the 45-degree line which means that I'm predicting the correct outcome almost all the time.

Q Dr. Mayer, how accurately did your model predict

district outcomes?
A Of the 72 contested Assembly districts, my model accurately predicted the winner in 70 of those districts.
MR. POLAND: Could we bring up Exhibit 19, please.
Q And Dr. Mayer, can you identify Exhibit 19?
A This is Table 2 in my initial report, and what it shows, it's a spreadsheet that shows the actual two-party percent of the GOP vote in 2012 and each contested Assembly district. It shows the result of my model aggregated to the district level, and then the third column shows whether I forecast the correct winner, which is essentially if I'm on the right side of 50 percent.
Q And how often did you forecast or predict the correct winner?
A I identified the correct winner or predicted the correct winner in 70 of the 72 districts.
Q And what were the two where you did not predict the winner, correctly predict the winner?
A I think the first one is District 50 -- 51. In District 51, the Republican candidate received 51.9 percent of the Assembly vote and my model predicted that the Republican candidate would get 49.9 percent of the votes. This is a close election that the model did not pick up.

Q And what does this tell you about the accuracy of your model?

A Well, there's -- it shows that the only races that it missed were actually very, very close and that I came within a tenth of a percentage point or so of actually picking up the right winner.

I think the other district I missed was the 70th where the Republican candidate actually received 49.7 percent of the vote and the model generated a prediction of 50.1 percent of the vote. So again, it was very close, but I was basically one-tenth of a percentage point away from identifying or predicting the correct winner.

Q Dr. Mayer, what did you do next in your analysis after you ran your model and attained these results?

A The next thing I did is that I had a model that told me what was going to happen or what happened in contested districts and I applied this model, the coefficients, to all Assembly districts essentially applying the model to generate estimates of what would happen in all 99 Assembly districts, including the 27 uncontested districts in 2012.

Q Did you at some point in time remove the incumbent advantage?

A Well, in generating the baseline partisanship, that

was the next step. So I generated my baseline partisanship or that generated an estimate of the vote in each district, and then to convert that into a baseline, I had to remove the incumbency advantage. So I essentially calculated the partisanship of every district, all 99 districts of what the baseline partisanship would be assuming that the district was contested and that there was no incumbent running.

Q Why did you assume the race would be contested?

A Because that's what -- when I'm reconfiguring districts, I'm interested in the baseline partisanship and we don't know under an alternative district configuration which districts are going to be contested or even which districts will have an incumbent. So this is the way of doing a true apples-to-apples comparison from one district configuration to an alternative.

Q Dr. Mayer, is there support for this approach in the academic literature and in practice?

A There is. I mean this is how the district plans are, in the academic literature, this is how alternative district plans are compared and analyzed.

Q And in the notebook in front of you, can you identify any of the academic literature that supports this approach?

A Well, all three of the articles that we had gone

over earlier: Exhibit 100, the Gelman and King; Exhibit 102, the Cain article; and Exhibit 148, these sources all outline general approaches and they sometimes use somewhat different mathematical calculations, but they all rely on the method of generating a baseline estimate of partisanship that doesn't depend on the -- that removes the effect of election-specific factors. So all three of them support this as a general rule.

Q And in practice, are there other practical applications of the approach that you followed?

A Sure. This allows you to identify any hypothetical or alternative configuration and it's actually how it's done in practice. It's what's Professor Gaddie did in his analysis leading up to the preparation of Act 43.

Q When you were -- were you present in the courtroom on Tuesday when we played the videotape or the video, it wasn't a tape, a video of Dr. Gaddie's testimony in this case?

A I was.

Q And you listened to his testimony about his regression model that he created?

A I did.

Q And is the approach that you followed in this case similar to what Dr. Gaddie did?

A I would say other than the fact that we used

different -- somewhat different independent variables, I would say that my method is -- was identical to his in broad outline.

Q Now, Dr. Mayer, after you generated your baseline partisan estimates for each ward what did you do next?

A The next step was to disaggregate those baseline partisan estimates to the ward level which then gave me a estimate of the partisanship of every census block in the state that I could use to develop an alternative map configuration and compare it directly to what we see in Act 43.

Q Why did you engage in that disaggregation process?

A So the normal practice in Wisconsin up until 2011 had been that the municipalities had drawn their wards first and then those wards were used as the building blocks for districts. This time that practice was reversed. The districts were drawn first and then municipalities were required to draw their ward lines in ways that matched the district boundaries. And what that did is that meant I couldn't use the wards as my building blocks because those wards were actually dependent on Act 43. Whatever bias that we observe in Act 43 is in effect baked into those wards because the districts were drawn first and then the wards were drawn to comply with those districts.

And so the normal practice would have been to use wards, but I couldn't do that us because that meant that I would simply be replicating the partisan bias in Act 43 and so I disaggregated down to the census block level. Census blocks, they generally don't change from one decennium to another. Sometimes the boundaries will change a little bit, but for all practical purposes those boundaries are fixed. And in any event, they're not altered in response to any elections. They're fixed by six census and so that we can regard them as completely independent of any political geographies.

Q Now, Dr. Mayer, can you use your open-seat baseline to predict what actually happened in 2012?

A Actually you can't.

Q Why not?

A Because it's not designed for that. The purpose of the open-seat baseline is not -- is actually not to explain what actually happened. We know the model is accurate because of the earlier diagnostics. What the open-seat baseline is designed to do is allow you to directly compare alternative map configurations and so you can't look at the open-seat baseline estimates and say that oh, you missed that election or you missed this election because what you actually observe is a function of incumbency and things that are election specific.

I think Professor Gaddie described it accurately yesterday when he said that the purpose of this method is to generate an underlying measure of the basic partisanship of a ward, which is the starting point of what happens next. But it doesn't actually explain any particular outcome. We use it to compare alternative district configurations.

Q So Dr. Mayer, with your open-seat estimates in place, what line drawing criteria did you use to create your Demonstration Plan?

A So there were the traditional redistricting criteria which is to draw districts that have equal population, to draw districts that are compact, to draw districts that respected municipal boundaries, to draw districts that complied with the Voting Rights Act. But because I had my baseline partisan estimates, I knew what the partisanship was of different areas and I made an effort to draw a balanced map that treated the two political parties symmetrically and fairly.

Q Would we refer to that as competitiveness?

A That's one measure. It's not the only one, but in the context of how I did it, one of the decision rules that I used is that when it was possible to draw a district that was actually competitive and while still complying with these other criteria, I did so.

The other element is that I attempted to draw a roughly equivalent number of competitive Republican and Democratic districts so that I wasn't actually cracking one party.

Q But why -- so you used the term cracking. How does competitiveness relate to cracking?

A Well, so one of the -- one of the -- probably the most efficient way of creating a gerrymander is that you want to distribute the other side's partisans in a way so that they form a substantial minority of a district, 40, 43, 44 percent, but I'm basically ensuring that they will not have a meaningful opportunity to contest an election.

The other side of that, if I create lots of districts where my party has a comfortable meaningful majority, the numbers we can quibble with could be 53, 54, 57 percent. That means that I am distributing my party's voters much more efficiently, and if I do it well, I might be able to draw a map when the other party might have 40 percent of a lot of different districts, 10, 15, 20 districts, but they won't be able to win any of them. And the way to do that, the way not to draw a biased map is that you really are not going to be able to draw every district 50/50, but you draw an equivalent number of districts so that a Republican competitive district or competitive district is going to be matched

against an equivalent number of Democratic competitive districts.

Q Is competitiveness a normative value in drawing maps?

A It's not one of the traditional criteria, but from the standpoint of political theory and the way we think about representation, it's very important because one of the things that competitive races do is it gives members of both parties and candidates from both parties a chance to compete for seats and compete for representation and it has the effect of making a districting plan responsive to changes in voting behavior, changes in the statewide vote.

Q Dr. Mayer, did you consider incumbents' addresses in designing your Demonstration Plan?

A I did not.

Q Why not?

A Well again, in using the baseline partisan estimates, I'm assuming every seat is open and so I did not incorporate incumbency in those maps for the -- because for the purposes I was -- I was drawing the maps it was irrelevant. I wanted to compare directly how the partisanship of Act 43 compared to the partisanship of the Demonstration Plan.

Q In drawing your demonstration plan, did you consider

how Assembly districts would be grouped into Senate districts?
A I did not.
Q Why not?
A Because my aim was simply to draw an Assembly plan. I was not asked to draw a Senate plan.
Q Could a valid configuration of Senate districts be formed based on your Demonstration Plan?
A Certainly.
Q How so?
A Well, as people have testified, that Wisconsin Senate districts are made up on three nested Assembly districts and so you could take the Demonstration Plan map of 99 Assembly districts and group them into any number of valid Senate plans. The numbering of my plan was essentially arbitrary. I didn't do it in a way that matched up to Act 43. But you could take those 99 Senate districts and group them into a valid Senate plan.
Q And could you make at least one lawful configuration of Senate districts from your Demonstration Plan?
A You can make many more than one.
Q How many configurations could you make?
A I actually haven't worked out the math. It's probably possible, but my guess is it's probably in the hundreds or thousands, if not more.

Q Now, you've talked a bit about your Demonstration Plan. Why don't we take a look at it.

MR. POLAND: Could we please pull Exhibits 11 and 12 up on the screen and display those side by side.

Q Dr. Mayer, we have Exhibits 11 and 12 up on the screen now. Exhibit 11 is labeled Figure 8. Exhibit 12 is labeled Figure 9. Can you identify and explain those, please.

A Figure 8 is the statewide Demonstration Plan that shows all 99 districts in the plan. Figure 9 shows the districts in the Milwaukee area, primarily Milwaukee County, Waukesha County, Racine and Kenosha County.

Q Looking at Figure 8, which is your full state -- the statewide map of your Demonstration Plan, how does that plan compare to Act 43 in terms of population deviation?

A I believe those metrics are set out in my -- I think it's Table 5 in my initial report. The population deviation in Act 43 is .86 -- or .76 percent. The population deviation of the Demonstration Plan is .86 percent.

MR. POLAND: I'm actually going to ask if we can pull up here the joint pretrial report and ask that we look at page 47 and paragraph 226. Okay. There we go.

Q So I'm sorry, Dr. Mayer, I'm going to ask you the question again. Can you identify how your Demonstration

Plan compares to Act 43 in terms of the population deviation?

A So the first row of data in this table shows that Act 43 has a population deviation of .76 percent whereas the Demonstration Plan has a population deviation of .86 percent.

Q Dr. Mayer, how does your Demonstration Plan compare with Act 43 in terms of its compliance with the Voting Rights Act?

A It is equivalent.

Q Same number of majority black districts?

A Yes. In Act 43 there are six African American majority/minority districts in the Milwaukee area, and while I didn't use the precise boundaries of those districts, all of the overall African American percentage population and percentage of the voting-age population are equivalent to what we see in Act 43.

Q So the same number of majority African American districts is in Act 43?

A Yes. There are six.

Q How about majority Latino districts?

A So there's one majority/minority Hispanic district in the state which is the 8th Assembly District. Because that was drawn by the federal court in *Baldus*, I left it intact. So the boundaries of Assembly District 8 in the

Demonstration Plan are the same as the boundaries of Assembly District 8 in Act 43.

Q Dr. Mayer, who actually drew the boundaries of District 8 in Milwaukee, the majority Latino district?

A So the actual boundaries were drawn by the federal court in response to a proposal by the plaintiffs. They accepted the map that the plaintiffs submitted in that case for District 8.

Q And that was a map that you drew, that you proposed and submitted to the Court that the Court adopted; correct?

A That's correct.

Q How did your Demonstration Plan compare with Act 43 in terms of compactness?

A The score that I used to or I've actually heard this pronounced about four different ways: Reock, Reock or Reock, but we can call it the smallest circumscribing circle. So it's the measure of the smallest circle that contains the ratio of a district area to the smallest circle that contains it. The Demonstration Plan had a score of .41. Act 43 had a score of .39. So the Demonstration Plan is slightly more compact on average.

Q How does your Demonstration Plan compare with Act 43 in terms of splits of political subdivisions?

A So the number of splits also shown here, that the

Demonstration Plan has three fewer county splits, 55 compared to 58, and two more municipal splits, 64 compared to 62.

Q Dr. Mayer, did you calculate an efficiency gap for Act 43 based on your model?

A I did.

Q How did you go about doing that?

A I applied the methodology in the Stephanopoulos and McGhee article and what I did is using the baseline partisan estimates, I generated estimates for the number of Democratic and Republican votes that were cast in each district and I used that to calculate the number of surplus and lost votes. According to that methodology, votes cast for the losing candidate are all lost. Votes cast for the winning candidate, anything in excess of what was needed to capture that district is called the surplus vote. You add those two together. Those are the wasted votes. So I was able to actually do those calculations for every district in Act 43.

MR. POLAND: Could we bring up Exhibit 25, please.

Q Dr. Mayer, can you identify Exhibit 25?

A This is Table 8 on my initial report.

Q All right. And again, what does Table 8 show? What does it demonstrate?

A It shows the efficiency gap calculations. Again, just going through it quickly, I have the first two columns are the predicted number of Democratic and Republican Assembly votes, and the columns that are A through F tabulate the number of lost and surplus votes; leading to column E, which is the total number of wasted Democratic votes; column F, the total number of wasted Republican votes; and then the last column is the net numbers of wasted votes. So these are all calculated directly from the district-level vote estimates, again using the open-seat partisan baseline model.

Q Dr. Mayer, what efficient gap did you calculate for Act 43 based on your model?

A That's set out in my report. The efficiency gap that I calculated was 11.69 percent.

MR. POLAND: Could we bring up Exhibit 27, please.

Q Now, Dr. Mayer, is this Table 10 from your report?

A It is.

Q And does it reflect your efficiency gap calculation for Act 43?

A It does.

Q All right. Can you explain where that is, please?

A It's the middle column called the *Act 43 Baseline* and it shows the results of the calculations and

estimates in Table 8.

Q Now, did you calculate an efficiency gap for your Demonstration Plan?

A I did, and that is shown in the first column, the *My Plan Baseline*, shows an efficiency gap of 2.2 percent.

Q How did you calculate the efficiency gap for your plan?

A In exactly the same way as I did for Act 43, and that's set out, I believe, in Table 7 of my report.

Q All right. And we just looked at Table 7 a minute ago. I'm sorry, we hadn't actually.

MR. POLAND: Could we bring up Exhibit 24, please.

Q Can you identify Exhibit 24, Dr. Mayer?

A This is Table 7 in my report which shows the efficiency gap calculations for the Demonstration Plan.

Q Now, could we go back to Table 10, which is Exhibit 27. What's the efficiency gap that you calculated for your plan?

A 2.2 percent.

Q Again, that's right next to the efficiency gap you calculated for your Act 43 baseline?

A That's correct.

Q Once you had calculated efficiency gaps for Act 43 and your Demonstration Plan, you compared these two

efficiency gaps; correct?

A That's correct.

Q What kind of comparison is this of the efficiency gaps? Is this a true comparison?

A It's a direct comparison. It's using the same underlying data. It's simply reconfigured into different district configurations. So the underlying method is the same. It's an open-seat baseline, and it shows the Demonstration Plan has an efficiency gap that's more than five times smaller than what we observe in Act 43.

Q Now, Dr. Mayer, we heard some testimony this morning from Mr. Ottman about the traditional redistricting criteria that he claims they employed in drafting Act 43. Were you present for that testimony?

A I was.

Q Do you have an opinion about whether Act 43's large efficiency gap is justified by federal and state redistricting criteria?

A It's not remotely. First of all, we know that the Demonstration Plan complied in an equivalent way with all of those criteria resulting in a much lower efficiency gap. So that alone demonstrates that the efficiency gap in Act 43 was not required by those criteria because if it were, the efficiency gap and the baseline would be accomplished with a much higher number of municipal

splits, a much higher or much lower compactness and probably a much higher population deviation.

Q Would it have been possible for you to come up with something like your Demonstration Plan if the traditional redistricting criteria justified Act 43?

A Not in a way that was equivalent to Act 43 on those criteria. No, it wouldn't be possible.

Q Now, Dr. Mayer, what accounts for the Demonstration Plan's traumatically lower efficiency gap as compared to the Act 43 baseline?

A So the primary way that the efficiency gap was lowered in the Demonstration Plan was drawing a roughly equivalent number of competitive Democratic and Republican districts.

MR. POLAND: Could we pull up Exhibits 15 and 17, please, and put those side by side. For reference, Figure 12 is Exhibit 15 and Figure 14 is Exhibit 17.

Q And do you see those on the screen in front of you, Dr. Mayer?

A I do.

Q All right. Can you explain the answer that you just gave with reference to Exhibits 15 and 17?

A So Exhibit 15, which is Figure 12 in my report, shows the baseline partisan measure for Act 43 and this is a histogram which classifies each of the 99 districts

based on the underlying baseline partisanship. And what we see is a couple of patterns. The primary reason that Act 43 has such a large efficiency gap is the fact that there is 42 Republican districts that are between 50 and 60 percent of the vote and the fact that equivalent is only 17 Democratic districts where the Democratic candidate would get between 50 and 60 percent of the vote. So that's the cracking right there and that means that Republicans are distributed in a much more efficient manner than Democrats. These are districts that the Republican -- again, this is a open-seat baseline, so it's before we're factoring in incumbency that we see an imbalance that there are 42 Republican leaning or even safe Republican districts in Act 43 compared to only 17 leaning or comfortable Democratic districts.

Q You used the term *cracking*. What do you mean by cracking when you're looking at Figure 12?

A Well, the evidence of cracking is observed in the number of Democratic districts or since we're looking at the Republican share of the vote, cracking would occur if we look at a district where the Republican candidate is expected to get between 40 and 50 percent of the vote. These are districts where -- I'm sorry, I'm getting myself confused.

Cracking in this case is the number of districts

where Democrats have between 40, 45, 48, 47 percent of the vote. These are districts where they comprise a substantial majority but they are still not going to be able to, as a rule, win those districts. And so Republicans are going to win a large number of districts with fewer votes.

Q And could we look at Exhibit 17, please. How does Exhibit 17, your Demonstration Plan, differ?

A The Demonstration Plan, you can see that the distribution of most districts is much more symmetrical. But again, the key is that we see 29 districts where Republicans get between 50 and 60 percent of the vote which is here -- arrows are kind of -- here and here as opposed to 27 districts where the Democrats will get between 50 and 60 percent of the vote. So unlike the old Act 43 which had an imbalance of 4217 and leaning and moderate partisan districts, the Demonstration Plan has an equivalent number of 29 and 27. So it's much more balanced. It's also much more symmetrical and treats the parties much more fairly.

Q Now, Dr. Mayer, your Demonstration Plan efficiency gap is still pro-Republican; correct?

A That's correct.

Q And why is that?

A Well, it could have something to do with the fact

that the initial step that I used was at the ward level and so we could see some element there. I actually didn't draw repeated maps trying to get the efficiency gap as low as possible. I suspect I probably could have. Again, I was trying to draw a map that was balanced and symmetric and fair, and when I got to the point where I had an efficiency gap of 2.2 and a map that was equivalent to Act 43, I stopped.

Q Dr. Mayer, do you know whether Professor Gaddie and the map drawers in 2011 performed any analyses of their maps that is similar to your baseline partisanship analysis?

A Well, we know that Dr. Gaddie performed a -- performed, using his regression method, constructed a measure of the underlying partisanship of the Act 43 districts.

We also know that the Act 43 map drawers had their composite measure, which again according to Professor Gaddie those two quantities correlated with the correlation coefficient of .96, I believe. And so they had a measure of underlying partisanship of the Act 43 districts which turned out to be almost identical to what I generated using my model.

Q Had you seen any of Dr. Gaddie's data analyses before your work in this case or as part of your work in

this case?
A Well, I was familiar with the general approach. I'm trying to think of -- at the time that I generated my model, I had actually not seen any of the partisan work that Dr. Gaddie had done.
Q Since that time have you?
A Yes.
Q All right. You've seen some of Dr. Gaddie's spreadsheets?
A Yes.
Q And you've seen some of the email correspondence?
A Yes.
MR. POLAND: Could we pull up Exhibit 172, please.
Q And we've seen it. This has been on the screen in the courtroom a number of times over the past two days. Is Exhibit 172 a document that you have reviewed?
A Yes.
Q And how does Exhibit 172 relate to the analysis that you performed?
A So this exhibit is the spreadsheet of the final map which Mr. Foltz yesterday and Mr. Ottman today testified was what became Act 43. So this map is actually an analysis of the Act 43 districts. Under the Assembly portion of the chart, the column that is listed *New*, it's

a little hard to see, but it's the middle column there. Each figure in those cells going down is the open-seat baseline partisan estimate that is derived from the 04-2010 composite. So this is the analysis that the Act 43 map drawers did of the baseline partisanship of the Act 43 districts.

Q And have you seen anything -- any of the material that you've reviewed or heard in the courtroom that identifies what Professor Gaddie did with respect to his regression model?

A So Professor Gaddie outlined his general approach. I actually haven't seen the actual equation that he used, but I don't think that it matters. And we also know that his analysis, comparing his open-seat regression analysis to the 04-10 baseline, shows that they are almost -- they co-vary almost exactly with a correlation coefficient of, I think, .96 or .93. So for all practical purposes, these baseline estimates are the equivalent of what Dr. Gaddie's regression model would have produced.

MR. POLAND: Could we pull up Exhibit 175, please.

Q Dr. Mayer, Exhibit 175 is on the screen in front of you, and this is a document again the Court has seen many times here in the past few days. Can you identify in Exhibit 175 where Dr. Gaddie refers to the correlation

between his model and the partisan proxy or the composite.

A So the relevant point is in the second line where he says "The expected GOP open seat Assembly vote using the equations correlates at .96 with the 2004-2010 composite." So that tells us that the results of Dr. Gaddie's open-seat regression model correlate almost perfectly with the 04-10 composite that was used by the Act 43 map drawers.

Q What does that tell you about the accuracy of the composite with respect to outcomes?

A That tells you that it's extremely accurate. Again, these are the sorts of R squareds and correlation coefficients that one rarely sees in social science research.

MR. POLAND: Could we go back to Exhibit 172, please. And could we go to the third page. Okay. Terrific.

Q Dr. Mayer, now you had reviewed the spreadsheet, the final map spreadsheet that's on the screen in front of you?

A I did.

Q And does this appear to be the final map that was included in Act 43?

A Well, this is what Mr. Foltz and Mr. Ottman said was

the final map that was Act 43.

Q Did you calculate the efficiency gap for the final map that we see here in Exhibit 172?

A I did.

MR. POLAND: Could we pull up Exhibit 27, please.

Q What is the efficiency gap that you measured for the final map?

A So one of the differences between Dr. Gaddie's method and mine is that he was actually estimating that the two-party vote share and I had an estimate to compare it directly to the previous two models. I needed to come up with a figure that estimated the actual number of votes that you would see under this baseline partisan measure. So what I did is I had my Act 43 baseline measure which told me how many votes were going to be cast or estimated to be cast in every district and I applied the two-party vote percentage in the final map spreadsheet to those figures to generate an estimated number of Democratic and Republican Assembly votes using the -- it says here the Gaddie measure. It's actually the 04-10 composite measure because at the time I prepared this report I hadn't seen the subsequent testimony.

But the third column, the Act 43 Gaddie measure,

shows what the efficiency gap was using the baseline partisanship method that the Act 43 map drawers used.

Q And what is the efficiency gap that you calculated?

A It shows down at the bottom. It's 12.36 percent.

Q Now, how does your open-seat baseline model compare to what the map drawers and Professor Gaddie used for Act 43?

A It turns out that they're almost identical, which is remarkable given that we were using different data, different elections, but we were both trying to estimate the same underlying measure which is baseline partisanship.

MR. POLAND: Could we bring up Exhibit 10, please.

Q Dr. Mayer, displayed on the screen in front of you is Figure 7 from your report, your expert report. That's Trial Exhibit 10. Do you have that in front of you?

A I do.

Q And can you identify Figure 7, please.

A This is Figure 7 of my report that directly compares the Gaddie or composite baseline partisan estimates for the districts to the district-level partisan baseline estimates that my model produced. And as you can see, there's a very, very strong relationship. The red line in this chart is actually the bivariate regression line

that uses Gaddie's measure as an independent variable and my model as the dependent variable and the R squared between the two measures is .96.

Q And what does that tell you?

A That tells you that the two measures are almost perfectly related; that Gaddie's baseline measure explains 96 percent of the variation you see and the estimates that my regression method produced.

Q Does this tell you anything about what the map drawers were doing in 2011 when they drew their map?

A That tells me they knew exactly what they were doing, that they had a very accurate estimate of the underlying partisanship of the Act 43 maps.

Q And that resulted --

A Act 43 map.

Q And that resulted in the efficiency gap for Act 43 that you calculated; correct?

A That's correct.

Q Now, Dr. Mayer, were you in the courtroom yesterday when Adam Foltz was testifying?

A I was.

Q And you heard all the testimony that he gave?

A I did.

Q Now, do you remember that Mr. Foltz and his counsel were going through a number of cells in a large

spreadsheet, Exhibit 556, showing that the number of Republican votes in the 2006 gubernatorial election exceeded the number of total votes in that election in certain districts?

A I did.

Q And then there was very long testimony and I think it was very confusing for a lot of us. You heard that testimony?

A I did; right.

Q Now, have you had an opportunity to look at Exhibit 556?

A I have.

Q Does Exhibit 556 contain data for races other than the 2006 gubernatorial election?

A It is. It actually contains data on 17 separate statewide elections.

Q So 16 elections, in addition to the one that Mr. Foltz and Mr. Keenan pointed out yesterday; correct?

A That's correct.

Q Now, Dr. Mayer, did you check to see if there are the same kinds of impossible results in those other 16 races that there are for the 2006 gubernatorial election that Mr. Foltz and Mr. Keenan pointed out yesterday?

A I did.

Q How did you do that?

A I took that spreadsheet and imported that spreadsheet into a statistical package called *Stata*, which is one that I'm familiar with. And I went through and actually computed the Republican vote percentage of all of the statewide races in that exhibit and examined them for evidence that one would see the same sorts of errors that one saw in the 2006 gubernatorial election.

Q When did you do that, Dr. Mayer?

A I did that this morning.

Q And when you did that what did you find?

A I found that in all of the others races there was no evidence of any inaccuracies and that concluded that all of the other district-level Republican vote percentages were accurate.

Q Have you prepared anything that demonstrates this?

A I did. I prepared a spreadsheet this morning.

Q All right.

MR. POLAND: Could we pull up Exhibit 486, please. And Your Honors, we had provided to your staff a copy, an electronic copy of Exhibit 486. That's the Excel spreadsheet Dr. Mayer prepared this morning. We provided a copy to Mr. Keenan this morning at the break.

Q Dr. Mayer, can you identify Exhibit 486?

A This is the spreadsheet that I prepared after performing the underlying calculations in Stata. I then

exported the data into a spreadsheet which makes it a little easier to display.

Q You just used a term *Stata*. What do you mean by Stata?

A Stata is a statistical package that is very commonly used in social science.

Q Can you walk us through this and the analysis that you performed?

A So the basic issue is that the column, the new governor 06 percent, and this is also the case in the old governor 06 percent, these are the aggregations and reaggregations of a number of state -- of in this case the 2006 gubernatorial election under the old districts and under Act 43. And as we saw yesterday, there were a number of districts where the number of Republican votes cast dramatically exceeded the total number of votes that they were recorded.

So in District 1, for example, we see that the Republican vote share in the first district was 587 percent. I don't even think they'd try to get away with that in Chicago.

District 2, Republican votes more than double or actually more than triple. The number of total votes 417 percent. 500 percent. You go down, it looks like a lot of these district totals are incorrect because it's not

possible that you have more votes cast for one party or candidate than you have the total number of votes cast.

Q And again, that's column G that you're looking at on Exhibit 46; is that correct?

A That's correct. There's another column that shows, I think it's later on, that shows the similar calculations for the old districts and you see the same sort of pattern. And this is -- this is clearly an error.

Q That's the 2006 gubernatorial election; correct?

A Correct.

Q And that's the election -- the data that Mr. Keenan and Mr. Foltz went through yesterday; correct?

A That's correct.

Q Now, what about the other elections that you looked at that are reflected on Exhibit 486?

A So again, I went through the spreadsheet and calculated the Republican vote percentage in every district for all of these elections and because we actually can't observe, using the spreadsheet, the number of votes that were cast for those offices in the new districts, I have to rely on a validity check of those figures and that's shown at the bottom and it gets -- at the end. So -- can you scroll down a little bit more? That's as far as it goes?

All right. So the bottom two rows -- that's better -- for each race in this spreadsheet I calculated the minimum and the maximum Republican vote percentage that we observe. And this will tell us if there is a similar error. We would know right away if there's any Republican vote percentage that exceeds 100 percent, we know right away there's an error. If we see every Republican vote percentage that's 0 or 100 percent, right away we know there's an error. But there's also a plausible range that the Republican vote share can take in these districts. So even in the most heavily Republican districts, the Republican is not going to get 100 percent. Even in the most heavily Democratic district in the state, the Republican candidate is not going to get 0 percent.

So the plausible range of values are roughly -- we would expect the Republican candidate to get in maybe the high single digits, around 10 percent in the most Democratic districts, and maybe 75, 80, 90 percent in the most Republican districts. So this will tell us if any of the values are either objectively incorrect or implausible. And as we go through, there's no other race, other that the 2006 gubernatorial race, where we see an implausible set of values.

Q So what Mr. Foltz and Mr. Keenan did yesterday was

an isolated incident; is that correct?
A I regard it as entirely misleading, in part because we're looking at a measure that is actually based -- the 04-010 measure, it's probably based on 13 races, maybe 14 races, and the exercise that Mr. Keenan and Mr. Foltz went through yesterday would be to isolate errors in one portion of that. We're talking about probably 5, 6 percent of the underlying data and that does not by any stretch mean that the entire composite index, which is based on a much larger number of races, is incorrect.
Q Does it alter in any way or change in any way the efficiency gaps that you calculated for Act 43?
A No, it doesn't. And one of the reasons I can say with certainty that it doesn't affect the overall estimates is that we know that the baseline partisanship estimates in Act 43 that we observe in the final map, that those numbers are actually right; that we can observe those numbers directly and the fact that there's a little bit of noise, the fact that a small piece of that estimate is based on an erroneous measure, all that does is slightly increase the uncertainty of that final measure. But we can observe that directly and we know that that estimate is actually very close to what I produced using different data.
MR. POLAND: Your Honors, at this time I'd like

to move Exhibit 486 into evidence.

JUDGE RIPPLE: Mr. Keenan?

MR. KEENAN: No objection.

JUDGE RIPPLE: It is admitted.

MR. POLAND: Thank you, Your Honor.

BY MR. POLAND:

Q Now, Dr. Mayer, when Mr. Foltz and Mr. Keenan were going through that exercise yesterday and identifying that one set of errors, do you know where that electoral data came from that they used?

A It came from the LTSB or the Legislative Technology Services Bureau.

Q What is the Legislative Technology Services Bureau?

A The LTSB is a nonpartisan unit of the Legislature that provides technical and data support for the Legislature.

Q And where did they attain that data from?

A The LTSB obtained -- my understanding is that they obtained the population data from the Census Bureau and did their own calculations of the ward-level election data using information they received from the GAB or the Government Accountability Board.

JUDGE CRABB: You said this is something that's produced in Wisconsin?

THE WITNESS: So the sequence is that census

data is provided from the Census Bureau to states. It's the PL 94 171 process, and again, my understanding is that when census provides that to the State of Wisconsin, they actually provide that to the LTSB and they are the ones who process it and make it available to others.

JUDGE CRABB: Is that an organization under the Legislature or is it independent?

THE WITNESS: My understanding is the LTSB is actually an agent of the Legislature. It's part of the Legislature.

JUDGE CRABB: So no one knows.

THE WITNESS: I'm not really sure. But we also know that the LTSB also receives data from the Government Accountability Board and then they match those up and produce it in a form that the Legislature -- actually they make it publically available on a website.

JUDGE RIPPLE: Perhaps the parties at some point could enter into a stipulation with respect to the Government Accountability Board and this other entity as to exactly what they are so that it's a matter of record on appeal.

MR. POLAND: We'd be happy to do that, Judge Ripple.

JUDGE RIPPLE: I think that would be very helpful.

BY MR. POLAND:

Q Now, Dr. Mayer, are you familiar with the LTSB data?

A I am.

Q How?

A I've worked with it quite extensively. I've worked with it in the 2001 redistricting case. I worked with it in the -- so that was in the *Baumgart* case. I worked with it in the 2011/2012 *Baldus* case. I've actually used it quite extensively in my own research on election administration and voting in Wisconsin, and I used it in this case.

Q How essential is the LTSB data to your report in this case?

A It's absolutely essential. It was absolutely critical to my underlying estimates of baseline partisanship.

Q How did you obtain the LTSB data?

A I obtained it from their public website. So there's a publicly available website that has all of the GAS or Geographic Information Systems and underlying data that they make available.

Q Dr. Mayer, when you obtained the data from the LTSB, did you check the LTSB data for any errors it might contain?

A Oh, yes.

Q And did you find any errors in the LTSB data when you obtained it?

A Yes. I outlined some of them. I'll start out by saying whenever I receive a large dataset, and it doesn't matter who it's comes from, the only large dataset that I've worked with that I've actually never identified an error in comes from the United States Census Bureau. So they are the gold standard by which other things are compared to identify errors.

I've worked with the LTSB data. I've worked with Department of Transportation data. I've worked with the Statewide Voter Registration System. The pattern is that large datasets will somewhere between frequently and almost always have errors.

So the first thing I do when I receive or start working with a large dataset is I subject it to extensively reliability testing. I start looking at the data to convince myself or to learn how accurate the data are, and also when I identify errors, to see if I can correct them. In my experience working with the LTSB, I found errors in this case. I found errors in 2011. I found errors in 2001. So the LTSB data especially -- it's not the population data. That generally is okay. It's the underlying election data.

And the reason that this frequently goes unnoticed

is that, as far as I am aware, the LTSB election data has no official status. It's just sort of their numbers that they make available. But when I began working with the data in this case, I began checking it against the GAB and found quite a number of errors.

Q What kinds of errors did you find?

A So there were two errors -- two types of errors. Primarily is that in a number of locations the ward-level vote totals were actually incorrect. And I know this because I compared -- usually the way that you would identify an error is that you would aggregate the underlying ward data to some higher geography and compare them to information that you would get from the GAB. So I would be able to tell how many votes were cast in Milwaukee County or Dane County or Marathon County, and I would compare that to what the GAB's totals were. If those two numbers didn't match, I knew there was a problem I had to investigate. And I kept working to a higher and higher level of detail until I was actually able to pinpoint the precise wards where there were mistakes.

The other problem with the LTSB data is there were times when the underlying data had errors of the sort -- there might be an uncontested race where according to the GAB there was no Republican on the ballot, but you look

at the LTSB data, they have votes cast for Republican candidate or vice versa. Or races where it was a contested race where one of the parties received -- was recorded as having zero votes. So I mean this wasn't a large number of wards, but it was enough that I felt it necessary to go in and actually correct them.

Q All right. So you did correct these, the errors in the data before performing your analysis?

A Every one that I could. There was a small number of votes that I was not able to allocate primarily because the way that the GAB reports data and the geographies they use are actually different than what the LTSB uses. And that error comes in -- if you look at the LTSB data, there are roughly 6,590 total wards in Wisconsin, probably 6,530 that are populated, but if you look at the GAB data, you'll see election data reported in only 3,600 wards. The reason that happens is that municipalities in Wisconsin that have smaller -- I believe the cut off is 35,000 population, they are actually allowed to aggregate their individual wards into reporting units.

So instead the City of Madison will report election data for all 110 of its wards. A smaller municipality, the Town of Madison, City of Mequon and so forth, I identified some of these in my report, you won't see an individual vote total, but you'll see City of Mequon

Wards 1, 2, 5 and 10, which is how they report their data to the GAB and how the GAB reports it.

I actually had a conversation with an LTSB staffer when I began work on this case and what I believe happened is that when the LTSB disaggregated from the reporting unit to the ward level, something went wrong. I don't exactly know -- I don't think they know what happened, but that was one of the common sources of errors that I identified I was actually able to correct.

Q And how did you correct them?

A I corrected them primarily by when there was an individual ward error, I actually manually entered the GAB data for that ward. And when there was a reporting unit error, the way that I corrected that is that I had the LTSB ward data that I aggregated back up to the reporting unit level. So I combined the wards the way that the GAB had and now I was able to directly compare the reporting unit totals to the reporting unit totals. And when those were wrong, I manually fixed them and then disaggregated back down to the ward level. So it was a way of identifying errors and then correcting them ultimately; that the total votes, the district-level votes that I had were -- with the exception of about two-tenths of a percentage point of the total number of votes that I wasn't able to identify where the errors

were, but apart from that all of the ward level totals I have are correct.

Q Dr. Mayer, do you know whether Mr. Foltz, Mr. Handrick or Mr. Ottman carried out the same data verification procedure that you did?

A I don't know. Certainly doesn't look like it.

Q Why do you say that?

A Because there's just no evidence that they had gone through it. If they had, they would have identified the error in the 2006 gubernatorial. They would have noticed.

Q Dr. Mayer, whatever errors there may have been in the data that they used, Mr. Foltz, Mr. Handrick and Mr. Ottman produced partisanship scores for the districts in the draft of Act 43 called *final map*; correct?

A Correct.

Q And we saw that on Exhibit 172; correct?

A Yeah. Can we bring this pack up? This is again the final map partisan estimates in that middle column where it shows for new, and again, each entry in that part of the table is a two-party open-seat baseline vote percentage for the Act 43 districts. That's based on the 04-10 composite.

Q Did you carry out any analysis involving these scores?

A I did. If we go back to Figure 7 in my report, it shows how these two line up.
Q What did you seek to do?
A Simply to compare the final map baseline partisan estimates to what I -- the model that I used generated.
Q And why did you do that?
A Because I wanted to see whether the process that the Act 43 map drawers and Professor Gaddie used to evaluate the partisanship of Act 43 were consistent with what I had done because I wanted to assess the level of accuracy of the information that they had.
Q And what did you find when you did that?
A Well, as this chart shows, the two quantities lined up almost exactly. So even though there was an error in one of the races that they used to generate the composite, this shows that it doesn't make any difference; that the final answer that they get, they didn't show their work, but they had the right answer.
Q And did you calculate an R squared for this?
A Yes. It's shown there. It's .96.
Q And did you calculate a correlation?
A Well, the correlation would be the R squared -- the square root of that, and actually I think the square root of .96, I believe, is something like .979, .98.
Q And what does an R squared of .96 mean in layman's

terms?
A It means that for all practical purposes these measures are statistically identical.
Q How does the R squared that you calculated for this correlation compare to what you usually find in the social sciences?
A As I testified, you'll almost never see an R squared in this range. Usually there's far more noise and variation in the underlying data.
Q And does this finding tell you anything about whether the data errors that Mr. Foltz described yesterday were meaningful?
A It does. It tells me that that data error was immaterial to the accuracy of their final estimates.
Q Do you also recall Mr. Foltz testifying yesterday about discrepancies between the S curves prepared by Professor Gaddie in the composite scores that he, Mr. Handrick and Mr. Ottman prepared?
A I did.
Q Do you have any opinion about how Mr. Foltz's comparisons of the S curves and the composite scores?
A Well, it was a little difficult to follow, but my understanding of what happened is that Mr. Foltz was comparing what was the observed values in Professor Gaddie's S curves to the open-seat baseline estimates.

And also, it wasn't clear to me which S curve went with with which map, and so it's entirely possible that we are comparing S curve estimates to something that was a completely different map. But the bottom line is it doesn't matter because whatever errors there were in the underlying data that they used, the final estimates that they generated were dead on.

Q Is the exercise that Mr. Keenan and Mr. Foltz went through yesterday valid or meaningful in any way?

A No. Because what that amounted to was going through what amounted to hundreds and hundreds of pieces of data and cherry picking a small number that appeared to be -- that were incorrect and didn't match. And I don't think there's a statistician in the world who would say that you can go through a huge dataset, look at nine or ten discrepant values, and conclude from that -- draw the inference that all of the data is incorrect. It's just not a valid practice.

Q Do you know of any work that has examined the correlation between Professor Gaddie's regression output and the composite scores that Mr. Foltz, Mr. Handrick and Mr. Ottman produced?

A We have Professor Gaddie's email which shows that they correlate at .96.

MR. POLAND: Could we bring up Exhibit 175

again, please.

MR. KEENAN: I'm just going to object. This isn't based on his firsthand knowledge and it's not in his report. I've let it go on for a while, but I mean, like, what are we doing here? He's talking about what Professor Gaddie emailed?

MR. POLAND: Your Honors, I can explain this. We submitted a trial brief, a joint trial brief, several weeks ago. There was not a single proposed finding of fact that went through -- that identified anything we went through yesterday afternoon between Mr. Keenan and Mr. Foltz. Mr. Foltz testified the first that he heard of this was two weeks ago when Mr. Keenan raised it. So what we're doing now is in the nature of rebuttal. This was sprung on us less than 24 hours ago. We've worked all night and all morning to explain to the Court why that analysis was misleading. This is important to get to the truth of what went on here and that's why we're presenting it to Your Honors.

JUDGE RIPPLE: Mr. Keenan.

MR. KEENAN: Well, they didn't know about it because they didn't bother to go through the spreadsheet. I assumed the score was right too until I actually decided to add up the numbers myself and found the error. That's why it wasn't raised and discovered until two

weeks ago because apparently I'm the only one who wants to go and look at specific cells and spreadsheets and add up numbers. So I don't see why that's an excuse to not have things in the expert report.

This document that I was working off of was taken from the computers by Mr. Lanterman, who is their expert. They've had this document much longer than I have and no one on their team decided to look at it. No one on their team decided to compare the Gaddie S curves, the actual numbers in them, to the actual numbers in the final map. I don't see why that allows you to go beyond the scope of your expert report.

JUDGE RIPPLE: We'll let counsel make his record and we'll rule on the matter in due course.

MR. POLAND: Thank you, Your Honors.

BY MR. POLAND:

Q Dr. Mayer, because it's been raised now, how can you tell from Exhibit 175 that's sitting in front of you what the correlation was that Professor Gaddie identified?

A Well, because of what it states. And I can say I've known Dr. Gaddie for 20 years and he's a very well-respected political scientist and I will take him at his word that if he says the correlation is .96, that it means the correlation is .96.

Q All right. And do you have an opinion about the

relationship between Professor Gaddie's regression output and Mr. Foltz, Mr. Handrick and Mr. Ottman's composite scores?

A Well, they line up almost exactly. I will also say that in the spreadsheet and in that matrix spreadsheet, there is a column entitled *New 04-010 composite.* I went through that and compared the estimates in that column with the estimates in the final map and they're almost identical. And so again, the bottom line is whatever errors there were in the S curves are in the underlying data, it doesn't matter because we can see the estimates that they generated. And the final estimates, the answer that they had about the partisanship of Act 43 were almost exactly what I got. So even though there's a little bit of murkiness about the actual how they did the underlying calculations, the answers they got were correct.

Q Dr. Mayer, you're familiar with the work of Professor Nicholas Goedert in this matter, aren't you?

A Yes.

Q Are you aware of Professor Goedert's criticism of your analysis of Act 43, saying the similarities between your analysis and Professor Gaddie's were just coincidental?

A I am.

Q Are they merely coincidental?
A No. So here is the -- I've been thinking about how to describe this and here's the best analogy I can come up. If I gave Your Honors a quarter and I had a quarter and we flipped them, it's a 50 percent probability that we would either both flip heads or both flip tails. That would be a coincidence. There wouldn't be anything exceptional to that.

But if we were to flip those coins 99 times, the chances that we would get both heads and both tails all 99 times is zero. It's actually 10 to the minus 30, which is effectively saying there's no way that this is an accident. It's not possible for a random process or erroneous process to produce numbers that are so close to mine.

Q Has Professor Gaddie provided any analysis to show the similarities between your analysis and Professor Gaddie's analysis are just coincidental?
A No. He just simply makes the argument without any evidence or argument.
Q So based on the materials that you've seen, do you have an opinion whether the map drawers in 2011 were using models that would forecast the partisan performance in the districts they drew?
A I am and they did.

Q Now, your analysis of or I'm sorry. Your Demonstration Plan has been criticized by Professor Goedert because it didn't take incumbency into account; correct?

A That's correct.

Q Is there any validity to that criticism?

A No.

Q Why not?

A Because it's misunderstanding the purpose of the baseline estimate. The purpose of that baseline estimate was not to explain actual outcomes. It's to give you a method of comparing directly two alternative map configurations. And the way that's done in the literature is that you have to remove the incumbency advantage because you don't know when you draw a map with incumbency, if you draw a different map, you're going to have a different set of incumbents or the incumbents will run in different districts. So that's not an apples-to-apples comparison. You need to use a consistent methodology that removes the incumbency advantage. So that's why it's called a *baseline partisan estimate*.

Q Did you do anything to respond to Professor Goedert's criticism?

A I did. Just to -- I was convinced that it wouldn't

make any difference, but I decided to go ahead and do the analysis anyhow.

Q And what did you do?

A So for Act 43, I didn't have to do anything because I knew where the incumbents were. We have the election results. For the Demonstration Plan, I needed to locate or identify the districts where -- the districts in the Demonstration Plan where incumbents resided. The way that I did that is I received from counsel a list of street addresses of all the incumbents in the Legislature in 2012. And I used a web application that does what's called *geocoding*. This application actually can take a street address and convert it into a longitude and latitude coordinate that you can input directly into GAS software. So I did that, input it back into Maptitude so I could see on a map where all of the incumbents -- actually all of the Assembly -- members of the Assembly, their home residences, so I knew where incumbents resided.

I did a couple of things after that. I removed the legislators who were not running for re-election. There were a couple of incumbent legislators who actually lost in the primary. I removed them. And then I had to do an adjustment for pairings, and the way that I did that, as I explained in my rebuttal report, when I had incumbents

of both parties in a district, I counted that as an open seat because in that situation the incumbency advantage will basically cancel. When I had two incumbents of the same party, I coded that district as having -- as being controlled by the incumbent of that party because hypothetically if the two incumbents run against each other in the primary, one of them will win. They'll run as an incumbent. So now I had data on where incumbents were running -- would run for re-election in the Demonstration Plan so I was able to recalculate the efficiency gap estimates going back and reinserting the incumbency advantage and seeing the effect that it would have on the vote.

Q All right. Now, after you took incumbency into account, you calculated the efficiency gap?

A I did, again using the same method that I did in Figure 7 and 8 in my report for Act 43 in the Demonstration Plan.

Q Did you report your findings from that analysis?

A I did. They are set out in my rebuttal report.

MR. POLAND: And could we pull up Exhibit 113, please.

Q Dr. Mayer, on the screen in front of you is Exhibit 113. Could you identify that and explain it to the Court?

A So this is a recalculation of the efficiency gap once you put incumbency back into effect or put incumbency back into the model. The first row of data is the baseline efficiency gap and these will match the table in my initial report. When you put incumbency back in and recalculate it, you see that the efficiency gap does change a little bit. It increases for both the Demonstration Plan and for Act 43.

Q And how do the numbers change?

A For the Demonstration Plan, the efficient gap goes from 2.2 percent to 3.89 percent, and for Act 43 it goes from 11.69 percent to 14.15 percent.

Q And what accounts for that small change?

A There are two reasons why it changes. One is that there were twice as many Republican incumbents as there were Democratic incumbents. My recollection is that there were 50 Republican incumbents who ran in 2012 compared to only 24 Democratic incumbents. And so you expect to see a change as the vote totals change.

It's also going to be the case that there are a few districts that will actually switch party control where you put the incumbency advantage back in, both Republican and Democratic that will switch one seat -- switch party control, and that's another reason why the efficiency gap will change.

Q Now, Dr. Mayer, does this analysis that you performed taking incumbency into account tell you anything about Professor Goedert's criticism that your baseline model failed to take incumbency into account?
A It means that taking incumbency into account doesn't change my substantive conclusions at all. The efficiency gap for Act 43 actually gets bigger, larger and the efficiency gap for the Demonstration Plan gets a little bit larger but it's still significantly smaller than the efficiency gap for the Demonstration Plan.
Q Is there any merit to Professor Goedert's criticism?
A No.

MR. POLAND: Your Honors, this would be a convenient breaking point in my exam if you'd like to take a mid-afternoon break.

JUDGE RIPPLE: We're just about to do so, so thank you for giving us a heads up that it would be a good time. The Court will stand in recess for about 15 minutes.

MR. POLAND: Thank you, Your Honor.

(Recess 3:29-3:49 p.m.)

THE CLERK: This Honorable Court is again in session. Please be seated and come to order.

JUDGE RIPPLE: Good afternoon everyone. The Court would like to ask a question of the witness at this

time if we may to clear up an ambiguity. If we create an ambiguity, we'll let you take care of that.

MR. POLAND: Yes, please, Your Honor.

JUDGE RIPPLE: Professor, we wondered with respect to the calculation of the -- baseline calculation, you said, as we interpret your testimony, that it was not predictive. Could you explain or elaborate on that a little bit further, please?

THE WITNESS: So what I meant by that was that it was not designed to allow you to -- or the validity of the baseline measure should not be determined by comparing it against the actual outcomes that you observe. So there are -- so in my underlying regression, I got 70 of the 72 districts correct. But when you extract the incumbency advantage, those numbers change a little bit and so it becomes slightly less accurate. So I don't know, it's in the pretrial statement of facts where there were a couple three or four other districts where compared to the actual results, the open-seat baseline actually did not pick the right winner and that happens because we know that there are election-specific effects that the open-seat baseline has already extracted, things like incumbency and some other things as well.

So I think the way that Professor Gaddie described

it is accurate, that it gives us an underlying expectation of how the district will perform. And to assess the actual -- to assess the actual outcomes, you need to do what I did in, I think it was Table 2, whatever table in my report where I compare the actual results with what the full model generated. And the reason we use a baseline is we're looking for an apples-to-apples comparison of one district configuration, in this case Act 43, and a different district configuration which is the Demonstration Plan. But it can be used, and the baseline is used, to evaluate a huge number of alternative configurations. So it's more designed for a comparison across plans and it does have some predictive value because we can observe what is likely to happen over time, as Professor Gaddie explained, that the further we go into the future, there's going to be more and more error.

But the key is that the purpose of the baseline is to serve as a methodology for comparing alternative configurations. One would use a different method if we were trying to evaluate the underlying accuracy of the model, which is what I did in that earlier table that compared the full incumbency effect with what we actually observe.

JUDGE RIPPLE: Thank you. Thank you very much,

Professor. I think that's all the questions the Court has at this time.

MR. POLAND: Thank you, Your Honor. And certainly at any point in time if the Court has any questions at all, I'm happy to accede the floor to the Court for questions.

THE WITNESS: I encourage my students to interrupt me in class and they don't do it enough. So I'm happy to answer any questions that you have.

JUDGE RIPPLE: I've had that experience.

MR. POLAND: Thank you, Your Honor.

BY MR. POLAND:

Q Dr. Mayer, just before we broke we were talking about some of the criticisms that Professor Goedert has of your analysis; correct?

A Correct.

Q I'd like to move on to another criticism. Professor Goedert criticized your analysis for not performing sensitivity testing and for not analyzing what would happen to the Demonstration Plan under different statewide vote scenarios; correct?

A That's correct.

Q All right. What does he say you should have done?

A Well, he makes the criticism in a couple of different places in his report. Sometimes he calls it a

sensitivity analysis, at another location he says I need to account for what might happen in future plausible electoral environments. What I interpreted him as criticizing me for was for not doing what amounts to a swing analysis.

Q What is a swing analysis?

A A swing analysis is roughly equivalent to the S curves that Dr. Gaddie was referring to yesterday. In a uniform swing analysis, the practice is that we can observe or estimate a set of election outcomes in a districting plan and those district-level results will aggregate to a statewide total. We would be able to calculate or estimate the number of Assembly votes cast statewide or any other race. And so that gives us a statewide percentage that is related to those individual district percentages.

What a swing analysis does is ask the question what is -- what might happen. It's an estimate of what might happen if that statewide vote changes, if it moves in one direction or another. And the way in which it's done is one makes the assumption that we assume that if the statewide vote percentage changes by some fixed amount, most typically it's done in increments of one percentage point. So we change the statewide percentage by one percentage point and we assume that that swing is going

to be equivalent in every district. So if the statewide vote percentage swings by one percent, we apply that one percent -- we basically change the district vote percentages by one percent or two percent and then we observe what the overall outcome is. It's a way of, generally speaking, estimating what is a plausible outcome given a change in the statewide vote, which in this case a change in the statewide vote is a proxy for a different election environment, what might happen if there's a pro-Democratic swing or a pro-Republican swing.

Q And we've seen a number of charts that have been displayed with a bright colors: The bright blue, the aqua, the sort of orangish color, the red color. You've seen those displayed in the courtroom the last two days?

A That's correct.

Q And are those visual representations of a swing analysis?

A They are. I'm actually not quite sure why Professor Gaddie says that these are not equivalent to a swing analysis. As best I can tell, the difference is that usually in a swing analysis you don't sort by district and you don't color code. But the underlying data in those S curves is the result of a uniform swing analysis.

Q Now, why didn't you perform a swing analysis of your Demonstration Plan or Act 43 when you prepared your

original report?
A I didn't do a swing analysis because that was not my aim. My aim was to evaluate whether it was possible to draw a districting plan in 2012 based on what we knew about the 2012 election and to compare that to what we actually observe or would be estimated to observe using the baseline in 2012. It was not my goal to do the swing analysis. Professor Jackman performed extensive analysis on durability and how the statewide changes in the statewide vote might be reflected in changes in the efficiency gap. So my aim was different.
Q Did you do anything to respond to Professor Goedert's criticism?
A I did. And I did not think there was much merit to the criticism, but I decided to go ahead and actually perform a uniform swing analysis. I suspected it wouldn't make much difference in my substantive conclusions, but I performed it in any case.
Q Can you explain how you performed a uniform swing analysis for Act 43 in your Demonstration Plan?
A So what I did is that I went back to -- so I'll describe the overall goal. I wanted to determine what the likely outcomes would be under the largest plausible swings that we might observe in Wisconsin. I didn't want to produce something that was like the S curve. I mean

those are useful, but there's too much data there. So what I wanted to do was to explore what might happen if we saw the largest swings that we have seen in Wisconsin over the last couple of decades.

So under the -- what I did is I calculated directly the Republican percentage of the statewide Assembly vote from 2012 going back to 1992 and I observed the maximum and minimum. And what we saw -- I probably would need to refer to my report -- but my recollection is that in 2012, that my model produced a Democratic statewide vote share of 51.2 percent. I think that was the total. And if we go back, all the way back to 1992, the largest statewide vote share that the Democrats received in Assembly elections was in 2006 and it was 54.2 percent, 54 -- it was 54 and change. And the smallest statewide vote share that the Democrats received was about 46 percent and we saw that in 2010. So that gave me the largest swings that we have observed in Wisconsin going back 20 years. And so I went ahead and performed a swing analysis under the scenarios of a 3-point Democratic swing and a 5-point Republican swing to see what effect that would have on my efficiency gap calculations for the Demonstration Plan.

Q And did you take incumbency into account when you did this?

A Well, I did. So the way I took incumbency into effect -- now, I note that under a baseline partisan, that that's the method that is used for comparing one district configuration to another. In the swing analysis, we're actually using the same district configuration, so we can actually add information back in because the district lines aren't going to change. And so the method that I used is that I calculated for the Demonstration Plan and for Act 43 -- actually observed for Act 43 what we saw in 2012. But for the Demonstration Plan, I calculated the baseline partisan estimates which gave me the winner in every district. So I knew which candidate was estimated to win. I made the assumption that every incumbent would run for re-election, because we don't know exactly which ones were, but most of them do. And so the -- and I did the same for Act 43. So the swing analysis of the -- we'll see when we show the data, that the underlying estimates for Act 43 in the Demonstration Plan are actually the incumbent baselines. So I put incumbency back in. And then I, in performing the swing, I recomputed the estimates, assuming that every incumbent would run for re-election. That's how I determined what the efficiency gap would be under the maximum swings that we have observed over the past 20 years.

Q And you said that analysis is set out in your rebuttal report; is that correct?
A It's in the amended rebuttal report.
MR. POLAND: Could we bring up Exhibits 116 and 117, please. And why don't we look at Exhibit 116 first.
Q Dr. Mayer, on the screen in front of you is Exhibit 116, which is Table F from your March 31st rebuttal report. Do you have that in front of you?
A I do.
Q And can you identify how that reflects the swing analysis you performed?
A So the middle column will see that the MyPlan incumbent baseline, that's the incumbent baseline that we took from the table we saw a little bit earlier that recomputed the efficiency gap once you put incumbency back in. And the D plus 3 is what happens if the statewide vote and the vote in each district swings 3 percentage points in the Democrats direction and it shows the -- I performed those calculations in exactly the same way as I did the original efficiency gap, I went into those tables and actually adjusted -- I swung the individual vote totals 3 percentage points in each direction.
And we see that under a Democratic swing of plus three, so a Democratic year similar to 2006, the

efficiency gap really doesn't change. It goes from 3.89 percent to 3.75 percent, which is not a material change. So under a democratic swing, the efficiency gap for the Demonstration Plan remains low. It actually goes down a little bit.

If we swing in the Republican direction, so we adjust the all-incumbent baseline five points in the Republican direction, we see that the efficiency gap actually becomes basically zero. It drops from 3.89 percent to minus 0.1 percent, which is, if you look at the efficiency gap, the primary quantity is the number of wasted votes. And we see that the number of wasted votes under a five-point Republican swing is about 3,800 votes. That's essentially zero. So the conclusion or the inference that I draw from this chart is the Demonstration Plan is not affected by significant swings either in the pro-Democratic or pro-Republican direction.

Q And could we look at Exhibit 117, please. That's Table G from your rebuttal report. What were your findings when you performed a swing analysis on Act 43?

A So again, this is the result of the equivalent calculation observing the Act 43 actual results with incumbency built back in. And we swing that plus 3 in the Democratic direction. The efficiency gap goes from 14.15 percent, actually gets a little bit bigger. And a

couple things to point out in this chart. It's not only does the efficiency gap increase to 14.88 percent, these are actually important figures because in effect we've swung the statewide democratic vote up to 54 percent. And even under the estimates for Act 43, even when the Democrats receive 54 percent of the statewide vote, they still aren't even close to a majority of the Assembly. The Republicans have a 54-45 majority in the Assembly even when the Democrats capture 54 percent of the vote. So that's significant. If we swing it in the other direction, we assume a Republican swing akin to 2010, the efficiency gap drops from 14.15 percent to 6.09 percent.

The reason that happens, if you look at the seat totals, we've swung the Republican vote percentage from essentially 51 -- 49 percent to 54 percent, so we've swung the Republican vote percentage up to 54 percent. The number of seats doesn't change. So the efficiency gap, because it's a measure of that gap, actually goes down.

My inference in looking at this chart is what that tells me is that the way in which Act 43 has been drawn has already secured what in practice amounts to the most you can practically do. So it is a confirmation that the bias in Act 43 is about the maximum that you can get.

The other thing to note is that if I am -- if I'm

trying to produce a gerrymander, if I'm trying to produce a map that is biased in my favor, I probably don't care if my party does better and my seat total doesn't increase dramatically. Under a 49 percent baseline, I've already captured 60 seats out of 99. My vote goes up by 3 or 4 or 5 percentage points; my seat total doesn't go up, but I don't really care because practically speaking there's not a big difference between a 63-seat majority and a 60-seat majority. I'm still protected.

What I really want to do, my most important task is to protect myself from a swing in the other direction. I want to make sure that my map stays in my favor even if there's a significant swing in the other party's direction. And that's what we observe here, that even under the largest Democratic swing that we've observed since 1992 and in 2006 when that happened, Democrats actually captured a majority of the Assembly, I'm still looking at a Republican majority, a 9-seat Republican majority.

So if I'm trying to produce a gerrymander and I'm thinking carefully about the packing and cracking that I have to do, that's ultimately my most important goal, to protect that majority that swings -- that work in the other parties' favor.

Q And does the swing analysis that you performed on

the Demonstration Plan tell you anything about the durability of the Demonstration Plan's relatively small efficiency gap?

A Well, what this tells me is that the efficiency gap in the Demonstration Plan remains low under all plausible scenarios and that the efficiency gap of Act 43 remains large, but the key is that it gets even larger if the vote goes in the Democrats' favor. So it tells me that the sensitivity analysis actually does not alter my substantive conclusions at all.

Q And what about a Republican wave scenario?

A Well, in the Republican wave scenario, the efficiency gap does go to 6.09 percent, but if I've produced an efficient Republican map with a significant Republican bias, I'm actually okay with that. It's still biased in the Republicans' favor, but the bias goes down a little bit, but I still have that 60-seat majority.

Q Dr. Mayer, would it make sense to conduct sensitivity testing using the open-seat estimates in your Demonstration Plan?

A No. And again, the distinction comes from what -- the purpose of the open-seat baseline is to explore what happens in their alternative district configurations, and in this case, we actually know what the district configuration is. And that's what distinguishes what I

did here from the swing analysis that Dr. Gaddie did. What Dr. Gaddie was looking at was what would happen when you compare the existing map in 2010 to a new map. So in my view, my reading of the literature is that a swing analysis in this context that doesn't look at incumbency is actually jettisoning important enough that you would need to know for this purpose.

Q All right. Well, let's use the open-seat estimates anyway. Do you know what the vote swing was in the Wisconsin Assembly between 2012 and 2014?

A So I believe it was in the range of a 3.4 percent or 3.3 percent swing in the Republican's direction.

Q And so if you were to apply that swing to your Demonstration Plan using your open-seat estimates, how many districts would flip from Democratic to Republican control?

A That's not an analysis that you would want to do or you would want to with this, but if we did this analysis, so I believe there were 15 -- there were 12 Democratic districts where the Democrat under the open-seat baseline got between 50 and 53.4 percent of the vote. I think that's right.

Q All right.

MR. POLAND: Can we pull up Exhibits 24 and 25, please.

Q Do these help you with the numbers?
A Well, so I couldn't compute the percentages here directly and these are not sorted. But if we -- so I think it was 12 Democratic seats between 50 and 53.4 percent. It might be -- it was either -- one was 12, the other was 15. I'm not -- I can't remember exactly which is which sitting here.
Q Okay. So you testified there were 15 districts with Democratic vote shares that would flip; is that correct?
A So there were 15 seats --
Q 15 seats.
A -- where the -- I think there are 15 seats where the Democrat received between 50 and 53.4 percent of the vote or in this case between 46.4 and 50 percent of the vote. And those would switch.
Q Let's consider a swing in the opposite direction. What happens if we were to apply a swing of 3.4 percent in a Democratic direction to your Demonstration Plan?
A So that would result in 12 Republican seats flipping from the Democrats to Republicans because there were 12 seats in the baseline where the Republican candidate got between 46.4 and 50 percent. So those seats would flip.
Q Okay. 15 and 12, that's a large number of seats and large and similar number of seats that would flip; correct?

A That's correct.
Q So what accounts for the large number of these districts on both sides?
A Well, what accounts for that is that in drawing the Demonstration Plan, I attempted to draw a comparable number of seats that were on the different ranges of competitiveness. And I didn't actually, when I was drawing the map, I didn't look at the 53.4 and 46.6, but -- in the context of drawing that map, in drawing a roughly equivalent number of competitive and leaning Democratic and Republican seats, what that means is that as the -- as we do a swing up or down 3.4 percentage points, the key in this context I think is that both parties would benefit equally. So the effect of a 3.4 swing is symmetrical; that if the Republican share goes up, they get more seats. If the Democratic share goes up, they get more seats.
Q Dr. Mayer, does the swing analysis that you performed in response to Professor Goedert's criticism tell you anything about that criticism of your original decision not to perform that analysis?
A Well, so again, the open-seat swing is not something that you would normally do. But in doing the analysis as I did, taking incumbency into effect, the conclusion or the inference that I draw is that the efficiency gap of

the Demonstration Plan is low and durable under maximum swings and the efficiency gap of Act 43 is large and durable under maximum swings that we've seen. So it doesn't alter my substantive conclusions.

Q All right. Dr. Mayer, I'd like to switch gears now. Are you familiar with the state's argument that any high efficiency gap that you observed in Act 43 is the result of an alleged natural political geography in Wisconsin?

A I am.

Q All right. And in the context of that criticism what is political geography?

A So in this context, political geography refers to the distribution of Republicans and Democrats around the state and the analysis of the spread and concentration and differentials and how voters in the political parties are distributed around the state.

Q How does the state make the argument that the high efficient gap of Act 43 is the result of political geography?

A So both Mr. Trende and Dr. Goedert make this argument, and the claim is that Democrats are naturally concentrated in certain parts of the state, primarily in Milwaukee and Madison. And again, I'm describing their version of the argument because ultimately I think it's incorrect. The argument is that the concentration of

Democrats in Milwaukee and Madison means that if you drew a perfectly neutral map without any consideration of political phenomenon and the only thing that you looked at were the population, equality, compactness, respect for political subdivisions and Voting Rights Act, that a perfectly neutral map would have a natural Republican efficiency gap, or I guess to put it in more generic terms, that any neutral redistricting plan would have a natural Republican advantage built in due solely because of the way that Republicans and Democrats are distributed, concentrated and spread around the state.

Q Let's take Professor Goedert's argument first. Are you familiar with his report in this case?

A I am.

Q How does Professor Goedert make the argument that the high efficiency gap in Act 43 is the result of a natural political geography?

A So I will note from the outset that while both Dr. Goedert and Mr. Trende make the political geography argument, neither of them have actually done any analysis that can connect differences in political geography to changes in the efficiency gap. So there's a crucial elision here that the argument they make is a claim that Republicans are distributed more efficiently. So that's an empirical claim that they make, and then they leap

directly to the conclusion that that natural geography explains the efficiency gap that we see under Act 43 and that neither of them have done any analysis that actually demonstrates that or that actually can quantify any effect that political geography has on actual calculation of the efficiency gap. So that's one thing to keep in mind as a foundation. They actually haven't demonstrated that -- any relationship between political geography and the efficiency gap.

But they do both make empirical claims. And what Dr. Goedert claims is that if you look at the distribution of votes at the ward level, that the ward level results indicate that Republicans are more efficiently distributed than Democrats around the state and that therefore there is a natural pro-Republican bias built into any districting plan.

Q Where does Professor Goedert present that analysis?

A He lays it out in a figure in his report.

Q All right. I can help you out here, I think. Can we bring up Figure 136, please. And do you have that on the screen in front of you, Professor Mayer?

A I do.

Q What is 136?

A So what Dr. Goedert has done here is that he has looked at the Democratic share of the presidential vote

in 2012 at the ward level and he has actually conducted a uniform swing analysis where I think the Democratic statewide vote share was about 52, 53 percent, I can't remember exactly, but he has essentially conducted a swing analysis shifting the vote for -- Democratic vote percentage in every ward down to 50 percent. So this is the result of a uniform swing analysis that observes or makes a claim about what would happen in a tied election.

And the argument that Dr. Goedert makes is that because -- that there is a large -- there is a large number of wards that are between 40 and 50 percent of the Democratic share of the vote and that this means that if you neutrally -- if you had a neutral aggregation of these wards into a districting plan, that that would naturally produce a large number of Democratic districts between 40 and 50 percent, ergo political geography can explain the pro-Republican bias in the districting plan.

MR. POLAND: I should note for the record that on the screen we have Exhibit 136. This is Figure 1 that appears on page 22.

Q Now, Dr. Mayer, is it appropriate to make a statement about geographic distribution by looking at the vote in wards?

A Not in this context it is not.

Q And why is that?

A Well, the primary problem is that we go back to the fact that the wards were drawn after districts. And so first of all, we have an issue that the wards are actually a creature of Act 43. So any bias that is built into Act 43 is going to be reflected in some measure in the ward-level results.

But there are two other features of this graph that I think are a problem. The first is that what Dr. Goedert has done, he's actually collapsed 6,600 wards into a histogram with nine bins. So there are only nine columns with nonzero data. In displaying the data like this, he's actually losing an enormous amount of information because we're -- these wards are aggregated in a way that there's a tremendous amount of variation that we're losing here. So in that sense there are better ways to visually describe this data.

The bigger problem is that looking at wards is the wrong level of geography because elections in Wisconsin are actually not decided at the ward level. Elections are decided at the district level. And so if you're interested in looking at the political bias in districts, you need to look at what happens when you aggregate the wards into districts.

So the technical term for the fallacy or the problem that Dr. Goedert has fallen into is what geographers call

the *modifiable aerial unit problem*. And what that means is that the relationships that we observe at one level of geography and the way that demographers or the census looks at it, we have data on demographics and information on education and income and things like that at the census block group and census track level. We might observe a relationship at the census tract or block group level, but if we aggregate up to a higher level of geography like municipality or county, frequently the relationships that we observe at a lower level of geography will either disappear or sometimes even change direction when we aggregate up to higher levels of geography.

Q And is the modifiable aerial unit problem that you mentioned reflected anywhere in the academic literature?

A It's all over the academic literature. I mean it's a pervasive problem in the study of geography.

Q And did we include one such article in the binder of reliance materials that you have in front of you?

A I did. And again, this is just illustrative. I mean if you did a google search of modifiable aerial unit problems, you would probably come up with hundreds of thousands of hits. So the article that I cited in here is Number 12. Gary King. *Why Context Should Not Count*.

Q And is that an article that was cited in the source

material for your report?
A It is.
Q Now, Dr. Mayer, is there a proper way to conduct the analysis that Professor Goedert tries to perform?
A There is.
Q And how would you do that?
A Well, you would have to look at what happens in districts. So what I did is actually recreate the analysis that Dr. Goedert did using what I think is a better and clearer way of showing the data and also showing what happens when you aggregate from the wards up to the districts.
Q Does it avoid the problems you identified with Professor Goedert's analysis?
A It does, because if I'm making an inference about districts that looks at districts, there is no modifiable aerial unit problem because I'm looking at a constant level of geography.
Q So what did you do to perform this analysis?
A Well, I took Dr. Goedert's analysis at the ward level and simply displayed that information in a slightly different way and then aggregated those wards up into districts to look at what happens in districts in a tied 50/50 election to see what that relationship looks like at the correct level of geography.

Q How does the ward and district distributions compare?

A Well, it's set out in a figure in my rebuttal report.

MR. POLAND: Can we bring up Exhibit 107, please.

Q And Dr. Mayer, can you identify Exhibit 107?

A This is Figure C in my rebuttal report.

Q And what does Figure C demonstrate?

A So there's two things going on here. The red line is a continuous version of Dr. Goedert's histogram. This is what's actually called a *kernel density graph*. It actually can take classification data or continuous data and it tells us -- it reflects the true nature of the full range of data. But if you look at the shape of this curve, it's not that much different than when -- what Dr. Goedert demonstrates. It's a little bit different in part because in classifying wards into nine bins, he's losing some information. And we can see that the -- and again, we've already adjusted down to a 50/50 election. And you can see that the red curve is not perfectly symmetrical, but it's mostly symmetrical. There's a little bit -- the tails look a little bit different, but it's not too far from what would be considered something looks kind of like a normal distribution or a bell curve.

There's a single peak. It varies. The mode of the graph or the maximum value of the kernel density curve is about 49 percent and so it looks roughly, not perfectly, but roughly symmetrical.

The blue dotted line shows what happens when we aggregate those wards into districts and observing what would happen in the Act 43 districts in a tied election.

And there are two things to note here. One, that the shape of the curves is radically different. The blue curve has -- it shifted to the left. It's much less symmetric. The peak is much much higher. And it also shows -- we've already talked about my observation and conclusion that much of the partisan bias in Act 43 is the result of cracking, an unusually and excessively large number of Democratic -- of districts where the Democratic vote share is expected to be between 40 and 50 percent. These are districts where the Republicans are going to win. Here we see what happens when you aggregate the wards into districts and we see that the -- I'm losing my arrow here -- that the peak is no longer around 49 percent. The peak now is at about 42 percent.

The other issue is that this area right here, that is the fingerprint of a gerrymander. Because that is the absolute DNA of cracking; that we're looking at what happens in a tied statewide vote. And in a tied

statewide presidential vote, there is an unusually large number of districts where the Democrats will receive between 40 and 50 percent and if you actually calculated the mode of this curve, the mode of the density graphs and districts, it's not at 50 percent. So about a 41, 42 percent. That's -- that is the fingerprint, the forensic evidence of a -- of cracking.

Q Would a neutral map have different distributions?

A Yes. A neutral map would be more symmetric and a neutral map would have a mode or a maximum value that is much much closer to 50 percent.

Q Dr. Mayer, has --

JUDGE CRABB: Dr. Mayer, would you go back over that, why you think that that blue thing --

THE WITNESS: Yes, Your Honor. The difference here is that when we aggregate from wards into districts, what this shows is that Act 43 took what looks more or less like a symmetric distribution of wards -- again, it's not perfectly symmetric, but it takes the 6,600 wards, that is -- in a 50/50 election, that the mode of that graph is really centered at 50 percent. But as we aggregate or as we -- as the Act 43 map drawers, as those wards are aggregated into districts, the bias emerges that the graph is no longer centered at 50 percent. It's no longer symmetric. And so I can -- I can aggregate a

bunch of 52 and 48 percent Democratic wards or 56 and 44 Democratic wards where a neutral distribution would combine them in ways that really got me reasonably close to 50 percent if I wasn't looking at that political information.

But because the map (sic) 43 map drawers were looking at political information, the difference between the density graph of the wards and the density graph districts, the fact that it changes shape and that it shifts to the left, the modal value, the curve looks much less symmetric. What that tells us is as the wards were aggregated into districts, the bias emerges.

JUDGE CRABB: Even though, as I understand it, what you're saying that the wards went into the districts afterwards.

THE WITNESS: Right. So that's the other problem with this. And one of the other reasons we see this is that this is a demonstration of the modifiable aerial unit problem; that Dr. Goedert is making an observation or drawing an inference at wards. That's the wrong unit of geography. You shouldn't even be looking at wards for this context. You need to look at districts. So it's a combination of those two things.

So I probably described it inaccurately by saying the wards were aggregated into districts because they

weren't. The wards were drawn after the districts were drawn. But as an inferential problem when you move from the ward level to the district level, that's what I meant by aggregating, not in terms of temporal sense, but in terms of the thinking of it conceptually.

MR. POLAND: May I proceed, Your Honor?

JUDGE CRABB: Certainly.

MR. POLAND: Thank you.

BY MR. POLAND:

Q Now, Dr. Mayer, has Professor Goedert written any articles that are relevant to his criticisms of your work here?

A He has.

Q And what articles are those?

A Dr. Goedert has written one peer-reviewed article and an update that are both efforts to examine political geography and the relationship between political geography and the bias in districting plans.

MR. POLAND: Could we bring up Exhibit 132, please.

Q Can you identify Exhibit 132.

A This is an article that Dr. Goedert published in a journal called *Research in Politics* in 2014 that examines the relationship between political geography and districting plan bias using the 2012 election.

Q And there's a second article; is that correct?
A There is. Dr. Goedert has another manuscript, I don't know if it's been published -- it hasn't been published. I don't know if he submitted it for publication -- that updates the analysis he did here incorporating the 2014 midterm election results.
MR. POLAND: Could we bring up Exhibit 133, please.
Q Dr. Mayer, is Exhibit 133 the second article or publication you were talking about?
A It is.
Q And generally in these articles what does Professor Goedert do?
A So what Dr. Goedert is trying to do in these pieces is analyze the relationship between political geography, which he actually classifies in terms of the percent of a state's population that according to census lives in an urban area and assess the relative effects of urbanization and the way he defines Republican and Democratic gerrymanders on the political bias in congressional districting plans.
Q Now, does Professor Goedert do anything in these articles to code whether states are gerrymanders?
A He does. He uses the definition that when a state has -- when there's unified party control of the

legislature and the governorship, he classifies that as a gerrymander based on which party controls it. So if Democrats control the legislature and the governorship, he codes that as a Democratic gerrymander. If Republicans have unified control, he codes that as a Republican gerrymander.

Q How does Professor Goedert code Wisconsin in these works?

A He codes Wisconsin as a Republican gerrymander.

Q Are there any other ways in which Professor Goedert's articles relate to his opinions in this case?

A I guess in terms of the argument that we see a differential effect between 2012 and 2014 so his conclusions are actually quite sensitive to which year we're looking at.

Q Okay. Anything about his opinions with respect to unified control that are set out in these articles?

A Well, he has a regression model which he uses to explain the relative effect of unified party control or -- which is how he defines a gerrymander and the other effects of political geography.

Q And does he have -- does he set forth anything in the articles about percentage of urbanization and the effects?

A He does. He has a variable which measures -- an

independent variable which measures the effect of urbanization on the partisan bias of a congressional district plan.

Q How does that relate to his opinions in this case?

A Well, in this context urbanization is a rough proxy for Democratic concentration because large urban areas tend to be more strongly Democratic, so it is generally regarded as a rough approximation of Democratic concentration.

Q Can the models that Professor Goedert used in these models be used to predict what would happen in a neutral process?

A Yes, they can. And what you would do is insert values into his model, setting both the variables for Democratic and Republican gerrymanders to zero, which under Dr. Goedert's model would be either a bipartisan plan or a court-drawn plan, but would give us an estimate of what we would expect to observe, what the model produces assuming a neutral map.

Q All right. And can Professor Goedert's models be used to make predictions for states with different characterizations?

A They certainly can by inserting or substituting different values for the independent variables into the model.

Q And what would the predicted partisan bias be for Wisconsin in 2012 if it had a neutrally drawn map?
A Well, I set out an analysis of what that looks like in my rebuttal report.
Q Okay.
MR. POLAND: Could we bring up Exhibit 110, please.
Q And Dr. Mayer, on the screen in front of you is Table B from your rebuttal report?
A That's correct.
Q All right. And can you explain to us how that -- how that relates to the opinions that you just expressed.
A So I'm going to count on Your Honors to interrupt me if I get too far into the weeds here. This is a table that shows the results of Dr. Goedert's model, but he lays out in both his 2012 and 2014 result. The first column shows the independent variables, Democratic gerrymander, Republican gerrymander, three variables that capture the demographics of a state, the percent of a state that is African American, the percent of a state that's Hispanic, the percent urbanized, and then two controlled variables, one for the statewide Democratic congressional vote and the other for the number of seats in the congressional apportionment plan. This is a linear regression, so if we're trying to generate an

estimate for different states, all we need to do is plug in values -- substitute different values for the independent variables and that will give us an estimate of what he calculates here, the pro-Democratic bias in the plan which is essentially equivalent to the efficiency gap.

Q Okay. And how does this relate to opinions with respect to Wisconsin in 2012?

A Well, Dr. Goedert is making the argument that there is a natural gerrymander or a natural pro-Republican bias due to the distribution of Democrats and Republicans, and there is a foundational assumption in that argument which is that a neutral process would produce a pro-Republican bias in a map. So we can use Dr. Goedert's model here to estimate what his own work shows would have happened in Wisconsin if there were a neutral process; not a Democrat gerrymander, not a Republican gerrymander.

Q What does your analysis of that question show?

A So in column B on this table, I substitute variable values for Wisconsin. The Democratic and Republican gerrymanders are both dummy variables. I set those to zero. The percent black, Hispanic and urbanized are all taken directly from census figures for Wisconsin. The 2012 statewide Democratic congressional vote we observed directly, it's 50.8 percent. There are eight

congressional seats. We know what the constant is. We can multiple those across, sum them, and they show that in 2012 Dr. Goedert's model shows that a neutral process in Wisconsin would have produced a pro-Democratic bias in the plan.

Q And have you investigated what that would go to in 2014?

A Dr. Goedert updated those estimates to take into account what happened in 2014, so essentially reevaluated the regression but using 2014 data.

JUDGE CRABB: Could you back up and explain to me how -- what shows that the Democrats would have had a different result?

THE WITNESS: So this is the value right here. And under the way that Dr. Goedert defines the model, a positive value is a pro-Democratic bias. And basically the values are simply column A multiplied by column B and that gives us the effect of that variable or the effect of that variable in Wisconsin and then we take the values in column A times B and we add them together and that gives us the estimate of the model for what the bias would have been in Wisconsin or would be estimated to be under a neutral process.

JUDGE CRABB: This would show the whole state?

THE WITNESS: This is the whole state.

BY MR. POLAND:

Q So moving on to 2014, could we have Exhibit 133, please, displayed and I'd like to look at Table 3 which is on page 13.

A So this is the table in Dr. Goedert's 2013 manuscript that re-estimates the model for 2014. And my understanding is that the handwritten parts of this are the notations that Dr. Goedert made in his deposition. And we can see that the 1.85 here is the equivalent to what we see in the previous chart in my rebuttal report. And if the model is re-estimates under the -- the re-estimated model, if we observe what the model produces or estimates for Wisconsin using 2014 data, it shows that under a neutral process Wisconsin would have had a 4.39 percent pro-Democratic bias in its congressional redistricting plan.

Q In 2014?

A In 2014. The other thing to note here is the fact that the coefficients, the effective urbanization, which again in this context is the effect of the political geography of the state in terms of the concentration of Democrats and Republicans, in 2012, we see a value of minus .72 and those two asterisks are a measure of statistical significance. It's a way of displaying the precision of those estimates. And so that means that we

know that that coefficient is negative and it's statistically different from zero. It's not zero.

If we look at the coefficient for 2014, minus .0 -- minus 0.35, that coefficient is no longer statistically significant. From the standpoint of the statistical properties of that estimate, it is indistinguishable from zero. So that means whatever effect we observe based on the concentration of Democrats in 2012, it goes away in 2014. So the effects are not consistent and that's not something that we would expect to observe if political geography by itself was having a significant effect and by itself could explain the bias in a plan.

Q Do these findings affect your opinion about Wisconsin's political geography?

A Well, what this tells me is that it confirms my conclusions from looking at Act 43 that it is not the case that the political geography of Wisconsin naturally produces or could be expected to naturally produce a pro-Republican bias.

Q Does it tell you anything about whether there might be a slight Democratic advantage?

A Well, I don't know that I would -- according to this model, it would produce a Democratic advantage and so that -- Dr. Goedert's own work contradicts his argument about the political geography of Wisconsin.

Q Now, Professor Goedert carried out his analysis at the congressional level; correct?
A That's correct.
Q That's not the Assembly district level; correct?
A That's correct.
Q Does that affect your conclusions at all?
A Not really. So there is other work that has examined the effects of political geography on district plans and the best work that has been done on that subject has concluded that the effects of political geography don't change when the numbers of districts change; that if we observe an affect with a small number of districts, we expect to see the same effect at a larger number of districts. And overall, I don't think there's any reason to expect the effects of political geography to depart radically. If we see -- if the concentration of Democrats is having a significant effect at one level, it is reasonable given what we know about the relationship between the number of districts and bias that that relationship is likely to be similar at larger levels of geography.
Q Dr. Mayer, are there any other arguments that Professor Goedert makes about a natural pro-Republican bias in Wisconsin?
A Well, he cites an article written by Jowei Chen and

Jonathan Rodden that examine the effect of political geography on geographic bias.

Q Where does he do that?

A He does it in several places in his report. I think he does it in at least three places in his report. I think it's pages 13, 18 and 21 or 22.

MR. POLAND: Could we bring up Exhibit 136, please. And could we go to page 13, please.

Q I know that's hard to read, but Dr. Mayer, can you find where Professor Goedert cites to the Chen and Rodden work?

A It's at the very top.

Q The very top?

A The first paragraph. Just right here.

Q Okay. And then you also mentioned on page 18; is that correct?

A I believe so.

MR. POLAND: Could we go to page 18, please.

A So there it is here.

Q Okay. And just above it as well?

A Actually there's a specific citation right there.

Q Okay.

MR. POLAND: And can we go to page 21, please.

Q And where is it said on page 21?

A Right there. (Indicating)

Q All right. Now, are you familiar with the article written by Professors Chen and Rodden that Professor Goedert relies on in several places in his expert report?
A I am.
MR. POLAND: And could we bring up Exhibit No. 394, please. And this would be Tab 11 in the binder as well in front of you in the reliance materials.
Q Dr. Mayer, how are you familiar with this article written by Professors Chen and Rodden?
A I've actually know Professor Chen for a number of years and I've seen him give presentations on this method and I've had a number of conversations with him over the years about this. And I was familiar with this article before this case.
Q All right. And are you familiar with the technique that Professors Chen and Rodden use in this article that Professor Goedert relies on?
A Yes.
Q Can you describe that technique?
A It's basically a computer-generated map-drawing technique where Professor Chen and Professor Rodden basically use computers to generate districting plans without any relevance or any reference to any data other than ward-level population. Actually like in the case of this article, it's simply based on population and

compactness. There's subsequent developments that Dr. Chen has sort of enhanced the model so that it can take municipality splits into effect and minimize the number of municipal splits.

But basically the way this works, you have a computer, you tell it to generate district-level plans using just ward geographies without any reference to any political data, and then you can use the results to draw inferences by putting the political data in at that point and seeing what happens with the effects of political geography. Basically what this tells you is that in a perfectly neutral process in which the computer generates a plan based solely on ward geography and population whether that produces a bias.

Q And what is the conclusion of this article by Professors Chen and Rodden?

A Well, they make a general argument that under some circumstances, political geography can produce a bias, which is not a surprise. They do extensive level testing in Florida and a number of other states where they draw a large number of computer-generated maps. When they actually do fine, there actually is a relationship between underlying political geography and bias in maps.

Q And how does Professor Goedert use this article to support his opinions in this case?

A Well, both Dr. Goedert and Mr. Trende cite this article to support their claim that there is a natural pro-Republican bias in the political geography of the state.

Q Is that an appropriate use of the Chen and Rodden article?

A No.

Q Why not?

A Well, I know that for two reasons. One, is that the Chen and Rodden piece actually don't make the claim about Wisconsin. Wisconsin is actually not part of the testing that they do. The other is that Dr. Chen has told me that this is an inappropriate citation.

MR. KEENAN: I'm going to object to this line of questioning about hearsay from Dr. Chen and it's not in his report. I have a feeling this is sneaking in to getting into the documents that were rejected by the Court, the potential amicus. His report does not talk at all about this; so -- the rebuttal report does not talk at all. I've let it go on about, like, you know, generally what does the Chen and Rodden article say. Fine. But, I mean, this is getting well beyond anything that's in his report.

JUDGE RIPPLE: We may be getting further into this, I'm not sure quite where we're going and this is a

serious matter. Let's let the witness answer a few more questions and then we'll see where we are.

MR. POLAND: Thank you, Your Honor. I would note as well that Dr. Mayer is an expert. He's been qualified as an expert. And of course the federal Rules of Evidence allow experts to testify based on hearsay.

MR. KEENAN: If it's in their report and it's not, so that's --

MR. POLAND: I would be able to get into that if the point in time comes, Your Honor.

JUDGE RIPPLE: Let's go on a little bit.

BY MR. POLAND:

Q So Dr. Mayer, you just identified a couple of ways in which or mentioned a couple of ways in which you know that Professor Goedert's and Mr. Trende's citation to the 2013 Chen and Rodden article is inappropriate and you identified a conversation you had with Professor Chen; correct?

A Correct.

Q What's the other way that you know that?

A There's actually a manuscript or actually forthcoming article that Professor Chen has made available on his University of Michigan website that is forthcoming in the Election Law Journal.

MR. POLAND: And could we bring up Exhibit 156,

please.

Q And this is Tab 10 in the binder in front of you. Can you identify this article, please?

A This is the article that's forthcoming. It doesn't say it's forthcoming, but the version on Dr. Chen's website indicates that it is forthcoming. But this is the manuscript.

Q Okay. And what did Professor Chen do in this article?

MR. KEENAN: Again, I'm going to object. This is not in his report. This was never cited by him.

JUDGE RIPPLE: What we're going to do on this entire area is we're going to let the witness at this time testify as to the -- with respect to the Chen article and we are going to require briefs from both sides on the matter of the admissibility of the Chen articles and their views.

JUDGE CRABB: Among other things.

JUDGE RIPPLE: Among other things, yeah.

MR. POLAND: I'm sorry, Your Honor. I didn't hear the last comment.

JUDGE RIPPLE: I was talking to my colleague. We will be more formal about stating precisely what we want you to cover in those briefs.

MR. POLAND: Thank you, Your Honor. Excuse me

one second, please. Your Honors, if Your Honors would prefer that we not go over this with Dr. Mayer, we are prepared to bring Professor Chen in himself as a rebuttal witness to testify directly about this.

MR. KEENAN: That hasn't been disclosed on any witness list.

JUDGE RIPPLE: I suggest right now you continue with this witness and if by motion after this witness is finished you want to bring up that possibility, we'll rule on that.

MR. POLAND: Thank you, Your Honor.

BY MR. POLAND:

Q Dr. Mayer, you have Exhibit 136 -- I'm sorry -- 156 on the screen in front of you?

A I do.

Q All right. Now, what does Professor Chen do in this article that's Exhibit 156?

A What Professor Chen does is apply an updated version of his automated computer-generated map-drawing software to draw 200 simulated maps in Wisconsin, again looking solely at either ward geographies or he has incorporated the ability to assign entire municipalities or entire counties as part of the underlying geography which has the effect of controlling for municipal splits or generating maps that reduce the number or takes municipal

boundaries into effect as the maps are being drawn.
Q Did Professor Chen's analysis respect the traditional redistricting criteria?
A They did. He left the Voting Rights Act, the majority/minority districts intact in Milwaukee, both the African American and Hispanic districts intact; his plans or the maps have population deviations well within acceptable limits, and are actually more compact with fewer municipal splits than Act 43.
Q I was going to just say how did Professor Chen's maps perform in comparison with constitutional and state redistricting requirements relative to Act 43?
A They were at least as good and better on most dimensions.
Q Now, how did Professor Chen's maps perform in terms of the efficiency gap relative to Act 43?
A Well, probably the best way to display that is -- I think it's Figure 3 in this manuscript which shows the relationship between the efficiency gap and the number of county splits, but it also gives an idea of what the distribution of the efficiency gap of the 200 computer-generated maps.
Q Okay.
MR. POLAND: Could we pull up Figure 3 in Exhibit 158, please.

A So this is a chart in this manuscript that actually plots the efficiency gap, again calculated using the 2012 presidential vote. And each -- and on the x-axis and y-axis is actually the number of counties that are preserved, which is 72 minus the number of counties that are split. And for the purposes here, we can actually -- we don't have to worry so much about the vertical dispersion of these points. What's important is the horizontal dispersion of these points.

Each red circle is a computer-generated map and for each map that the computer drew, Professor Chen calculated an efficiency gap. And the important thing here is that there is a range of the different districts, but there's no districts that has -- and again, these are neutral maps that are generated without any reference to any political data. There are some maps that have a pro-Democratic bias. Most of the maps have a small pro-Republican bias. And Professor Chen didn't actually calculate an overall mean or average, but it looks like the mean is sort of in this range at about 2 percent, which is equivalent to what the Demonstration Plan drew.

Act 43 is down here. So Act 43, according to this calculation, has a much higher efficiency gap and actually splits more counties than any of Professor Chen's automated maps.

MR. POLAND: And I think that I misspoke before when I identified this article. It says actually Exhibit 158, not Exhibit 156.

Q Dr. Mayer, again, how did -- what data did Professor Chen use to calculate the efficiency gaps?

A This is the 2012 presidential election, the Democratic -- actually this is calculated using the actual votes, so it's not -- it's calculated the same way I calculated the efficiency gap for the various plans.

Q And did Professor Chen use the full district-by-district method?

A He did.

Q Now, with respect to Professor Goedert's arguments about the Chen and Rodden article, what does Professor Chen's analysis demonstrate?

A Well, what Professor Chen's analysis in my view conclusively demonstrates is that these red circles are the result of a perfectly neutral process. There's no reference to any underlying political data. If there were a natural pro-Republican bias that was built into the plan, we would observe it here and what this demonstrates is not only is there not a significant pro-Republican bias built in, it's also the case that in no sense, to the extent there is a differential effect, that doesn't come close to explaining the large efficient

gap of Act 43.

Q Does Professor Chen's article that's Exhibit 158 refute the reliance that Professor Goedert and Mr. Trende place on it in their expert reports?

A Conclusively.

Q And does Professor Chen's analysis affect your opinion about the justifiability of Act 43's efficiency gap?

A It confirms what I already knew which is that my analysis showed that the large efficiency gap in Act 43 was not required or justified by traditional redistricting principles and this graph here drives a stake through the heart of that argument.

MR. POLAND: At this time, Your Honors, I'd like to move Exhibit 158 into evidence.

MR. KEENAN: We've got our same objections. This has been rejected by the Court. It's not even relied on him in his report and it's just hearsay. I mean he's talking about what someone else has done. He has no personal knowledge of this.

JUDGE RIPPLE: We're going to defer making a decision on this and rule on it with respect when we're dealing with this entire matter as I indicated.

MR. POLAND: I was just reminded I do need to clarify to make sure that the record is correct. Exhibit

156 is the full article, Exhibit 158 is the chart that's Figure 3. And I'd like to move 158, that's the chart is what I'm moving into evidence.

JUDGE RIPPLE: Which we will take up the chart with the article in due course.

MR. POLAND: Thank you, Your Honors. Appreciate it.

BY MR. POLAND:

Q Now, Dr. Mayer, are you familiar with a report that Mr. Trende submitted in this case?

A I am.

Q Does Mr. Trende also rely on the Chen and Rodden article from 2013 that we just discussed?

A He does.

MR. POLAND: Could we pull up Exhibit 126, please. And I'd like to draw your attention to paragraph 89 on page 27.

Q And is there a reference in -- this is Mr. Trende's report?

A That's correct.

Q And there's a reference or reliance on the 2013 work by Chen and Rodden there as well; correct?

A That's correct. Mr. Trende actually cites the article in his list of reliance materials.

Q What is your opinion -- I'm sorry -- strike that

question. How does Mr. Trende use the Chen/Rodden article?

A In the same way as Dr. Goedert uses it to make a claim that there is a natural concentration of Democrats and distribution of Republicans that producing a natural pro-Republican bias in any districting plan.

Q What is your opinion about Mr. Trende's use of the 2013 Chen and Rodden article?

A It's the same as my objections or my conclusions about how Dr. Gaddie uses the article.

Q Very good. Now, shifting gears, Mr. Trende criticizes you for not taking incumbency and other election factors into account in your baseline analysis; correct?

A That's correct.

Q And why didn't you take those factors into account in your baseline analysis?

A For the same reasons I explained in discussing Dr. Goedert's criticism that the baseline partisan analysis is designed to extract the election specific or the district's level factors so that we have a baseline that we can use to compare one plan to a plan with an alternative configuration of districts.

Q Mr. Trende also criticizes your work by arguing that your vote model is biased because you have incorrectly

estimated the baseline vote in uncontested Assembly districts; correct?

A That's correct.

Q And what is your opinion of Mr. Trende's critiques?

A It's entirely unfounded.

Q Why is that?

A Well, if we look at the -- there are two figures in my report that Mr. Trende is referring to and it's based on both a misreading of these charts and a misunderstanding of how multiple regression works.

MR. POLAND: Why don't we bring up Exhibits 6 and 108, please.

Q Can you explain your answer with respect to Exhibits 6 and 8 (sic), Dr. Mayer?

A So Mr. Trende's objection or his claim about a bias in my model is based on the fact that if you look at Figure 3, which is a graph that shows the number of Assembly district -- the number of votes that a Democratic Assembly candidate receives and the number of votes that a Democratic presidential candidate receives, and the black line here is a 45-degree line which is simply a reference line. It's designed to show that -- give you a point of reference, and we see that there's a very strong relationship between the number of Assembly votes and the number of Democratic presidential votes and

this is one of the reasons I used it in my model.

Mr. Trende appears to believe that the fact that the number of Assembly votes actually falls below the 45-degree line means that I'm building in a bias; that when I'm trying -- when I'm estimating the number of Assembly votes that are cast in uncontested wards, that I am overestimating the number of votes because he appears to believe that in uncontested districts, I actually set the number of Assembly Democratic votes to be equal to the number of Democratic presidential votes which is incorrect.

Q I was just about to ask that. Is that what you did?

A Not remotely.

Q And can you --

A So what I did was use the number of Democratic presidential votes in the ward as an explanatory variable to explain what the relationship is in calculating those values for uncontested wards. I didn't equate them, but probably the better way to demonstrate the unfoundedness of his criticism is that what multiple regression does or indeed any regression, it doesn't assume that the underlying values are equal. What it does is that it estimates the relationship by estimating the slope of a line that relates to quantities and we can see -- and I think it's Figure 4.

Q So that would be Exhibit No. 7?
A Right. So actually it's best to put them side by side.
Q So could we have Exhibit 6 and 108 up side by side? That's Figure 6 and Figure D.
A So Figure 3 in my report and Figure D in my rebuttal report, it's the same underlying data. It's plotting the number of Democratic Assembly votes in a contested ward based on the number of presidential votes in a ward. And Mr. Trende is confusing the slope of the regression line with the 45-degree line.

In Figure D, which is Exhibit 108, the red line is actually the bivariate regression line. And we can see that it runs exactly down the middle of the points, indicating that there is some dispersion; that the two quantities are not equal, but the slope of this line is actually less than one, which means that as the number of presidential votes goes up by, say, ten votes, the number of Assembly votes will go up by less than ten, which is a function of the fact that the slope of this line is less than one.

So my reading of this is that Mr. Trende has misunderstood what I've done. He is misstating and misunderstands the nature of statistical bias. It's a misunderstanding of multiple regression. And again, I

don't mean to be flip, but on this matter he has no idea what he's talking about.

Q Are there any other figures that you prepared that help to illustrate this point?

A Well, we can go back and look at the figures in my original report which show the accuracy of the underlying model.

MR. POLAND: Could we bring up Exhibit 6 and 7, please.

A So Figure -- Exhibit 7 is the ward-level vote totals. This is how -- a demonstration of the accuracy of the underlying model. And if there were a bias in this model -- statistical bias in this context means that I am consistently overestimating or underestimating a quantity; that if there were a bias, that we would see more dots above this line or below this line, there would be a systemic error that we could observe here and we don't, that the dots are almost perfectly symmetrically distributed around this line. There is no bias in the regression model.

Q All right. Dr. Mayer, moving on, is there a third area where Mr. Trende criticizes your opinions in your work in this case?

A Well, he does make an argument about the natural -- the sort of political geography creating a bias.

Q And natural pro-Republican bias we were discussing?
A Natural pro-Republican bias.
Q And what is your opinion of that criticism?
A I think he's incorrect.
Q And why is that?
A Well, we've already gone through a number of exercises that contradict that argument. I'll note that there are a number of, even on its own terms, the argument that he makes is incorrect on a number of dimensions.
Q Now, Mr. Trende uses congressional maps in southern areas of the U.S. to support his opinion about political geography; correct?
A Correct. That's the first problem. About half of Mr. Trende's argument about political geography is actually looking at the congressional district vote in states like Virginia, North Carolina, Texas and Louisiana which is essentially irrelevant to the political geography of Wisconsin. That argument really gives us no useful information about political geography in Wisconsin.
Q Does Mr. Trende use a metric or a measure called *the partisan voting index* to criticize your work?
A He does.
Q What does he do there?

A So the partisan vote index as Mr. Trende calculated it is an application of what's -- really what's the Cook political partisan vote index. And the partisan vote index is calculated by subtracting the Democratic or Republican vote share in a geography, whether it's a congressional district, state Assembly district, or as Mr. Trende applies it, to the county, and it subtracts the statewide share of the vote from that. So basically what the PVI does is take the -- we have a distribution of the vote at some geography and the PVI merely recenters that around the statewide average and it tells us which areas are more Democratic or Republican than the state as a whole and which areas are less Democratic or Republican in the state as a whole.

Q Is the PVI used by political scientists?

A It is occasionally used. You will see it cited in the literature occasionally, but it's almost exclusively in as a way of describing the competitiveness of a congressional district.

Q Have you ever seen it used before to study political geography?

A No.

Q Do you have a opinion of the PVI's validity for analyzing political geography?

A Well, again it's used -- even I cite the description

of the Cook PVI in my report where Charlie Cook, who developed it, says they developed this as a way of measuring the competitiveness of congressional districts. It's not a metric that is used in the study of political geography that I've seen. It's not a metric that's been used in the study or evaluating redistricting plans, that it is a metric of the competitiveness of congressional districts that Mr. Trende has adapted to the study of counties and wards in Wisconsin.

Q Have you analyzed Mr. Trende's calculation of the PVI?

A I have.

Q And what did you find?

A I found that he actually made two substantive errors that he hasn't corrected. So Mr. Trende did do a ward-level analysis of the PVI where in various years he actually calculated the PVI by calculating the Republican vote share -- the Democratic vote share in wards and subtracting the statewide vote share of a race that's at the top of the ticket. But he actually made two crucial mistakes in doing that.

Q And what were the mistakes that he made?

A The first is that in 2006, as I describe in my report, during a presidential year -- during a presidential year there's no dispute he used the

presidential race as the top of the ticket to get the statewide percentage. But in a midterm election where there's no presidential election, there are a couple of different possible candidates to use. Mr. Trende most years uses the gubernatorial election, but in one year, in 2006, he actually switches and instead of using the Governor race, he actually uses the U.S. Senate race. And there is some disagreement in the literature about which is the proper top of the ticket race. You can make a case for either the gubernatorial or the -- but there's no justification whatsoever for switching, and that's an error, if we actually look at the distribution of his data has some consequence.

The second is that he calculated it incorrectly for 2014. If you look at the -- examine the R code that he used to do the -- now this is the computer code, the statistical package that he used to generate the estimates. And in 2014 what he did is he took the ward-level share of the 2014, I believe gubernatorial race, but instead of subtracting that from the 2014 statewide share, he actually subtracted that from the 2012 presidential election share and so he has seven years in his analysis, from 2012 to 2014, two of them are wrong and they actually have consequences. These are material errors that he has not corrected.

Q What impact do Mr. Trende's errors in calculating the PVI have on his analysis?
A So the argument that Mr. Trende makes is that since 2002, Democratic wards have become more Democratic and Republican wards have actually become more less Republican. So Democrats have become more concentrated, Republicans have become less concentrated. And there are two graphs that he shows, I think it's paragraph 93 and 94 in his report that show the argument and also make clear what the errors are.
Q Let me stop you there.
MR. POLAND: Can we pull up 126, please, and look at paragraphs 93.
Q And you said the other paragraph, Dr. Mayer, was which one?
A 95.
Q 95.
A So if we could blow up the chart in paragraph 93. So what Mr. Trende has done here is that he has calculated what he calls the partisan lean, which is the PVI in a ward that is more than 50 percent Democratic. And the -- what this is -- what he's attempting to show here is that over time, Democratic wards have become more Democratic, so that Democratic parts of the state have become more Democratic and we'll follow up. But we can

see that the errors that he made in 2006 and 2014 are material because they're both outliers.

So in 2006, in using the Senate race rather than the gubernatorial race, the Democratic gubernatorial candidate was Jim Doyle and he won in 2006, which I believe he won with about 53 percent of the vote. The Republican -- the Senate race was Herb Kohl and I can't even remember who he was running against, but he won with 61 percent of the vote. So this means there's an 8-point difference between the gubernatorial election and the Senate election, and that's why this point -- that's why this point is an outlier. He's using the wrong metric. If he was using the gubernatorial race instead of the Senate race, this figure would be shifted down by 8 points rather than up.

JUDGE RIPPLE: I wonder if I might interpose a question to the witness. You mentioned a few moments ago, Professor, that you believed that it was a given that in a presidential year one uses the presidential figures as the governing metric.

THE WITNESS: That's correct.

JUDGE RIPPLE: That has, in reading the material of the case, that just seemed to me to be counterintuitive; that the presidential election would not necessarily be a good measure of support for a

particular party in a particular state with respect to state issues. And that if I were trying to identify the Democrats in a particular part of my state or Republicans in a different part of my state with respect to state governments, it wouldn't necessarily be how those people voted for the President of the United States but how they voted for state officers.

So my question -- it seemed to me -- my question to you is why not use state officers as the governing metric all of the time rather than the president?

THE WITNESS: Well, there are two reasons, Your Honor. One is that the literature is quite clear that if we are interested in a baseline measure of partisanship, the presidential election is the best measure of that because we're trying to extract election-specific factors and it's actually correlated very closely with other measures.

JUDGE RIPPLE: That to me sounds like ipse dixit. In other words, all the scholars say it but I don't know why they say it if they're trying to measure partisan adherence within the state.

THE WITNESS: Well, it's not merely a matter of assertion. It's been demonstrated by looking at the relationship between that vote and other indicators. For example, the baseline partisanship model that I used to

estimate the Assembly vote, that the presidential vote is overwhelmingly strongly related to that. And in fact, most of the -- probably one of the -- there are scholars who study redistricting. It's actually a common shorthand to simply use the presidential vote as the baseline partisanship.

But the other issue with respect to Wisconsin is that statewide officers in Wisconsin are elected in midterm years, the Governorship for the statewide offices. And so if we're interested in the partisanship in 2012, there actually isn't a statewide race. In two out of the -- in four years out of six or two elections out of three, there would be U.S. Senate election, but again, that's also going to be distinct from statewide issues.

JUDGE RIPPLE: Thank you very much.

THE WITNESS: Okay.

JUDGE RIPPLE: I hope my interruption did not come at an inopportune time. I was trying to gauge when best to do it.

MR. POLAND: Thank you, Your Honor. Not inopportune at all.

BY MR. POLAND:

Q Dr. Mayer, you were explaining the table that we have on the screen from paragraph 93 of Mr. Trende's

report. And you were explaining what you've described for 2006. Do you recall that testimony?

A I do. So basically what would happen is if Mr. Trende in this case used the gubernatorial race rather than the Senate race, the point that he has would be right about there. It's not exactly right. So that point would be shifted down. He actually makes the reverse error in 2014 by using the presidential race to calculate the 2014 estimates rather than the -- using the 2012 statewide share to calculate the PVI as opposed to the 2014 gubernatorial share. This line should actually be shifted up, I believe, and so basically the line, instead of going more like this, would actually flatten out. And he hasn't corrected these errors and I believe my conclusion is that they are material and I have other reasons to not have a lot of confidence in the work that he had done.

You can also see this for the gubernatorial election when the patterns would be reversed.

MR. POLAND: Could we pull up paragraph 95, please. And blow that up on the screen.

A So he makes the reverse error in 2006 where he's normalizing the race, not around 40 percent Democratic but around 50 percent Democratic. Let me make sure I can do the math in my head. That that makes all of the

values smaller than they would otherwise be. So that means that this point should actually be -- let me make sure I have this correct in my head. Right. So this point should actually be larger and I think this point should be larger too. So again, the line should flatten out when he uses the correct --

JUDGE CRABB: You're saying 2006. And what's the other one?

THE WITNESS: 2014 where he uses the presidential vote rather than the 2014 gubernatorial race which was -- he's going to be miscalculating that. But in any event, this is not the sole reason why I questioned his analysis.

BY MR. POLAND:

Q Dr. Mayer, do you have -- what are your other reasons that you questioned his analysis?

A Well, the bulk of his geographic concentration analysis is what he calls his nearest neighbor analysis where he's attempting to make the claim that since 2002, pro-Democratic wards have become closer together in distance whereas pro-Democratic -- pro-Republican wards have become farther apart. And that's part of an argument that he makes that over time Democrats have become more concentrated and Republicans have become less concentrated.

MR. POLAND: Could we pull up paragraph 98 of Exhibit 126, please.

Q Now, Dr. Mayer, is this where Mr. Trende sets out his nearest neighbor analysis?

A This is the beginning of that analysis.

Q Okay. Now, is there any support for the technique that he uses, this nearest neighbor analysis?

A Not that I can see. It's not a technique that I've ever seen in the context of studying redistricting nor is it, as he uses it, a technique that I found in the literature on political geography. And I note that Mr. Trende didn't cite any sources in support of this method either in his report and I understand in his deposition he couldn't cite any either. It's something that he came up with.

Q Do you have any opinions about Mr. Trende's use of the nearest neighbor analysis here?

A I do, and my conclusion is that it's not a reliable method that tells us anything about political geography in Wisconsin.

Q And what criticisms do you have of the use of that?

A Well, there are two -- well, three main criticisms. We've already talked about the fact that I don't think the PVI is the right quantity of interest. If you're trying to look at the partisanship of wards, we ought to

look at the partisanship of wards. And I actually did that calculation and presented that chart in my rebuttal report. Rather than going through this convoluted set of calculations where I'm recentering ward-level vote around statewide averages, we have the ward-level votes. We can compute that quantity directly.

Q And where is that set out in your rebuttal report?

A It's in my rebuttal report. I think it's one -- I can't remember what the figure is.

MR. POLAND: Can we bring up Exhibit 105, please.

A Figure A.

Q And what does Figure A show?

A This shows directly the Democratic and Republican ward vote percentages in the top of the ticket. So I used the gubernatorial race in midterm years and the presidential race in presidential years, and I divided the wards into two categories. Democratic wards are wards where the Democrats receive more than 50 percent and Republican wards are wards where Republicans receive more than 50 percent. So the number of wards each year will change depending on which wards vote which way, but it tells us what the average Republican and Democratic vote percentage was in Democratic and Republican wards.

Q And what does this tell you from your analysis?

A What it tells me is that both Democratic and Republican wards have become more Democratic and Republican. If we look at the starting point in 2002, the average pro-Democratic ward was about 61.3 percent Democratic. The average Republican ward was about 60.5, and so this is actually exaggerating the difference because the y-axis goes from 55 to 64, it's not 0 to 100.

If we look at what happens in 2014, the average Republican -- the Republican vote in an average Republican ward goes from 60.5 to about 63.5 and the average Democratic ward goes from about 61.3 to 63.5. And so there is a little bit of variation, but I look at this and say that both the Democrats and Republicans over the full time period between 2002 and 2014 have increased in their partisanship in almost exactly equal measure.

Q And what does that tell you about Mr. Trende's use of the PVI?

A Well, it tells me that the PVI obscures what the actual pattern we're interested in shows. That if I'm interested in the partisanship of a ward, I'm interested in the partisanship of the ward. I'm less interested in what the ward partisanship is in relation to some other quantity, especially since we can measure it directly.

Q Now, are there any other problems with Mr. Trende's nearest neighbor analysis?

A There are. So there are two major flaws in how he performed the analysis. We probably want to bring up the chart, the two graphs that he uses to make this claim.

Q Could we look at -- there we go. We've got it on the screen right now.

A So these are a little difficult to interpret, but what he's -- the top graphs, the y-axis here is the distance between ward centroids, basically the geographic center of a ward, and the y-axis or the x-axis is a measure of partisanship, which is basically the partisan lean. And as we go -- the difficulty here is that as we move from right to left, that's where partisanship increases. So these wards here and here, these are the most partisan Democratic and Republican wards.

And the argument that he's making is that as Democratic wards become more Democratic, they become closer together. The distance between ward centroids shrinks and the way that he calculates this is that for each ward he calculates his PVI for that ward. And then he calculates the distance between a ward of a particular PVI quintile, basically between 90 and 95. It's not exactly 5 percentage points, but he classifies them and he identifies the classification of a ward based on its PVI and he calculates the distance between that ward and the nearest ward with the same classification of the PVI.

So we're basically looking -- we have a ward that's 90 percent Democratic. We're looking for the nearest ward that's also 90 percent Democratic. It's not precisely right because it's the PVI rather than the unadjusted presidential vote or the unadjusted vote. And he's making the claim that over time that as Democratic wards become more Democratic, the distance between them shrinks and that as Republican wards become more Republican, the difference between them grows. And so that's part of his argument about geographic concentration.

MR. POLAND: I do want to note for the record this is Exhibit 109.

Q And Dr. Mayer, did you have the opportunity to check --

MR. POLAND: I'm sorry, this is paragraph 98 that's displayed on the screen right now. I apologize.

Q Did you have an opportunity to evaluate Mr. Trende's analysis?

A I did and I found two errors in it. The first is that if we were calculating the distances between wards, it's crucial, it's critical to note that wards in Wisconsin are not uniform size. The size of wards in Wisconsin actually varies by a factor of 32,000. The largest ward in this state is 32,000 times as large as the smallest ward in the state.

MR. POLAND: Could we bring up Exhibit 109, please.

A So when political geographers do a nearest neighbor or a version of nearest neighbor, it is universal that whatever unit of geography you're looking at you have to be cognizant of the fact that sizes might not be constant. And so the reason this is crucial is that the distance between two wards is going to depend on how large the wards are. All other things being equal, the largest ward in the state is -- I think in Sawyer County it's 227 square miles and the distance between the centroid of that ward and an adjacent ward is going to be measured in -- it's going to be a large number. It's going to be many miles. Whereas the distance between two smaller wards, other things being equal, it's going to be much smaller. So irrespective of any issue of how close two wards are together, our measure of how close they are is going to depend critically on how large they are. And Mr. Trende doesn't adjust for that.

And we can see -- the other reason is that ward size is actually correlated with the quantity of interest, which is how Republican or how Democratic a ward is and that's what this table demonstrates. It shows that the average statewide -- the average ward statewide is 8.4 square miles. It's basically three miles by three miles,

and that's counting everything: Wards in cities, wards in rural areas.

JUDGE CRABB: I'm not sure I understood this last thing that you were talking about, the quantity of interest.

THE WITNESS: I'm sorry, I revert to my default. What we are interested in in examining is the partisanship of the ward. So Mr. Trende is making a claim about the partisanship of wards and that means we need to be aware of the fact that that value, the partisanship of a ward varies depending on the size of the ward. And so there's actually a bias built into his analysis because ultimately we can see the pro-Democratic wards are actually about half the size of pro-Republican wards, and that's not a function of anything other than the fact that the wards are different size and that there are -- wards in cities tend to be smaller than wards in rural areas.

JUDGE CRABB: And if you took this ward in Sawyer County, for example, it's how many miles?

THE WITNESS: I cite in my report I think it's 227 square miles.

JUDGE CRABB: So you're saying there's likely to be a smaller quantity of interest in a ward that size?

THE WITNESS: Well, so the issue is that if we

were interested in the distance between wards, that distance is going to depend on the size of the ward. So if I have two wards that are 10 by 10, two 100 square mile wards, the centroids of those wards, if they're perfect squares that are lined up, it's going to be ten miles irrespective of anything else. And as the wards grow larger, the distance between those centroids is also going to grow. And the way this is handled in the literature on political geography is that you control for it. You know, you might normalize the distances based on ward size or be aware of the fact that when we're looking at things like density or the underlying partisanship of a ward, we need to be aware of the fact that the wards are different size and partisanship is actually dependent on ward size.

JUDGE CRABB: Which way?

THE WITNESS: Larger wards are more Republican, smaller wards are more Democratic.

JUDGE CRABB: So it's not the extent of the partisanship, it's the nature of the partisanship.

THE WITNESS: That's correct. So I'm not making a claim that more Democratic wards are smaller than more Republican wards. What I went through, and I had the underlying LTSB shape files, the GAS files, and I was actually able to use that to calculate the area of every

ward in the state and I could also calculate vote percentages and I knew which wards were more than 50 percent Democrat and which wards were more than 50 percent Republican.

JUDGE RIPPLE: Mr. Poland, we're getting near the end of our time. Would this be a good place to stop or do you have a few questions you'd like to ask to bring us in for a soft landing?

MR. POLAND: I think I've got -- thank you, Your Honor. I think I've probably got about seven to ten minutes left on this topic and that would be a convenient breaking place.

JUDGE RIPPLE: Let's do that.

MR. POLAND: Thank you, Your Honor.

BY MR. POLAND:

Q Dr. Mayer, does -- what about adjacency? Does Mr. Trende's analysis take adjacency of wards into account?

A He does not. And the distance between wards tells us nothing about whether they are actually adjacent or whether they're separated by municipal boundary or how many wards are in between a ward and the nearest neighbor of the same partisan lean. So in that respect it doesn't -- it also doesn't tell us how feasible it would be to put these wards into the same district.

So again, it's not at all clear what this analysis at the ward level tells us about district-level analysis.

Q And contiguity is one of the requirements of drawing an Assembly district; correct?

A Absolutely.

Q Now, Dr. Mayer, have you done anything to check Mr. Trende's analysis?

A Well, I did. And so I want to make two other points about his analysis. The last two lines in this chart --

Q I'm sorry, what chart are you referring to?

A Table A. Show that Republican wards are twice the size of Democratic wards. So we know that Mr. Trende did not correct for ward size. Mr. Trende -- so he's putting his thumb on the scale.

He actually does it a second time where in calculating the distances between wards he doesn't use the mean. He uses the median and does not have an adequate justification for using the median. And the reason that's important is that on average, the average size of a Republican ward is twice the size of a Democratic ward.

If we look at the median, the median Republican ward is more than six times as large as a Democratic ward. So basically the punch line here is that Mr. Trende's method of analyzing this is guaranteed to show that Republican

wards are farther apart than Democratic wards. So on a baseline measure, we can't have any confidence that this is actually a valid underlying measure and I was actually able to replicate his analysis using mean distance between wards rather than median distances between wards, and the conclusions that we draw are completely different.

MR. POLAND: Could we bring up Exhibit 106, please.

Q And Dr. Mayer, do you see Figure B which is Exhibit 106 in front of you?

A I do.

Q And does this set out the analysis that you had conducted?

A It does.

Q What did you find?

A So the dotted lines here are actually a replication of Mr. Trende's analysis for 2012 and actually the shape of these curves is exactly what the shape of his curves in paragraph 98 and 99 of his report are. And so this is the basis of Mr. Trende's claim that as again moving from right to left is when wards become more partisan that Republican wards get farther apart, Democrat wards get closer together. The solid lines red and blue shows what happened if you replicate his analysis, not using the

median distance, but the average distance, the mean distance. And what it shows is the pattern is not only completely the reverse of what he finds, it's identical for Democrats and Republicans. And again, the reason Republican wards -- the reason the red line is above the Democratic line, that is solely a function of average ward area.

And so this, when you replicate -- there are two issues going on here. One, I think the mean is a much more accurate measure of the underlying patterns rather than median. But this also shows that the conclusions that Mr. Trende draws are entirely dependent on his underlying measures. They're not robust at all, and so we can't have any confidence that he's actually generating reliable inferences from this method.

Q And does the analysis that you conducted lead you to any conclusions about Mr. Trende's methodology?

A It's completely unreliable.

Q And does it inform you about conclusions you've drawn about what Mr. Trende says it means?

A It means he's wrong when he's making the claim that there is a packing of Democrats and Republicans and that it's not the case; that as wards become more Democratic, they move closer together and Republicans more farther apart. It shows the distance between wards of similar

partisanship are exactly parallel.

Q Does Mr. Trende's analysis meet the standards that the University of Wisconsin Political Science Department uses to evaluate its graduate students' work?

A Not in my view. If I had a graduate student who turned in this work, I would make them redo it to account for these factors.

Q Have you reached any conclusions about Professor Goedert's and Mr. Trende's argument that there is a natural pro-Republican bias in Wisconsin?

A Based on the arguments that they present, they haven't made the case. Their methods that they use don't show at all that there is a natural pro-Republican bias in Wisconsin's political geography.

Q Do they show that there's any kind of a natural political bias that explains the large efficiency gaps that you found?

A Not at all.

MR. POLAND: Your Honors, this would be a very convenient place to break.

JUDGE RIPPLE: Thank you. We will break our examination of the witness at this point. Before we recess, Mr. Poland, may I ask you on behalf of your team could you give me an estimate of how we're -- of our pace, how we're doing?

MR. POLAND: I have about 15 to 20 minutes left with Dr. Mayer. Depend on how long the cross-examination is, I'm guessing probably a short redirect and then the final witness that we'll be calling to the stand, we estimate about two-and-a-half hours for Professor Jackman, who will be the plaintiffs' final witness.

JUDGE CRABB: So you're thinking possibly by the end of the morning? Or is that unrealistic?

MR. POLAND: Possibly, but it depends, Your Honor, on the extent of the cross-examination of Dr. Mayer.

JUDGE CRABB: But I'm just concerned is that going to leave enough time for the defendants?

MR. POLAND: I know the defendants have two witnesses that they intend to present: Mr. Trend and Professor Goedert.

JUDGE RIPPLE: Mr. Keenan, let's get your perspective on this.

MR. KEENAN: My case is half over and I have two witnesses left, and this has been going longer than I thought it would. I was hoping I would get to my cross-examination of Mr. Mayer today. So I am worried that I'm not going to have enough time. I think I can get both of my witnesses in like one in the morning and one in the afternoon, but I know Dr. Goedert has a flight

scheduled on Friday evening and so at this point I'm a little bit concerned but...

JUDGE RIPPLE: Okay. We'll get another reading as the day goes on tomorrow for where we are at this point. Thanks to both the parties and we'll recess then until tomorrow morning at nine o'clock.

MR. POLAND: Thank you, Your Honor.

JUDGE RIPPLE: How would the parties feel about starting at 8:30?

MR. POLAND: That would certainly be fine with the plaintiffs, Your Honor.

MR. KEENAN: That would be fine with the defendants as well.

JUDGE RIPPLE: All right. We'll start at 8:30.

(Recess 5:40 p.m.)

I, LYNETTE SWENSON, Certified Realtime and Merit Reporter in and for the State of Wisconsin, certify that the foregoing is a true and accurate record of the proceedings held on the 25th day of June 2016 before the Honorables Circuit Judge Kenneth Ripple, District Judge Barbara B. Crabb, and District Judge William Griesbach, in my presence and reduced to writing in accordance with my stenographic notes made at said time and place.

Dated this 6th day of June 2016.

/s/_____

Lynette Swenson, RMR, CRR, CRC
Federal Court Reporter