In The Matter Of:

William Whitford, et al., vs.

Gerald Nichol, et al.

Deposition of KENNETH R. MAYER, Ph.D.

March 30, 2016

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IN THE DISTRICT COURT OF THE UNITED STATES
FOR THE WESTERN DISTRICT OF WISCONSIN

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WILLIAM WHITFORD, ET AL.,

Plaintiffs,

-vs- Case No. 15-cv-421-bbc

GERALD NICHOL, ET AL.,

Defendants.

= =

Deposition of:

KENNETH R. MAYER, PhD

Madison, Wisconsin
March 30, 2016

Reported by: Taunia Northouse, RDR, CRR, CCP

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(Original transcript filed with Attorney Keenan, copies provided to Attorneys Keenan, Strauss and Greenwood)

DEPOSITION of KENNETH R. MAYER, PhD, a witness of lawful age, taken on behalf of the Defendants, wherein William Whitford, et al., are Plaintiffs, and Gerald Nichol, et al., are Defendants, pending in the United States District Court for the Western District of Wisconsin, pursuant to notice and subpoena, before Taunia Northouse, a Registered Diplomate Reporter and Notary Public in and for the State of Wisconsin, at the offices of the State of Wisconsin Department of Justice, 17 West Main Street, in the City of Madison, County of Dane, and State of Wisconsin, on the 30th day of March 2016, commencing at 9:03 in the forenoon.

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KENNETH R. MAYER, PhD,
called as a witness, being first duly sworn, testified on oath as follows:

(Exhibit No. 64 marked for identification)

EXAMINATION

By Mr. Keenan:

Q Good morning, Mr. Mayer.
A Good morning.
Q You've been here before, so I'll be a little short on the intro, but you understand you're under oath today?
A I do.
Q And you understand you're swearing that all your answers are true and correct to the best of your abilities?
A I do.
Q Is there any reason you couldn't give truthful

testimony today?
A No.
Q I think the -- one reminder would be that if you don't understand a question I'm asking, I'll ask you to let me know so that I can repeat it or rephrase it and then we can get a clear record. Do you understand?
A I understand.
Q And you're doing a good job of making verbal answers, so we'll just try to continue that. And then also try to let me finish my question. I'll try to let you finish your answer.
What did you do to prepare for your deposition today?
A I reviewed my report. I reviewed the expert reports of Goedert and Trende, reviewed the materials that underwent -- that went into my report, reviewed some other materials and depositions. That's what I did.
Q Did you meet with anyone to prepare?
A I did.
Q Who did you meet with?
A I met with counsel.
Q And when was that?
A Yesterday and last Wednesday.

Q And how long were those meetings?
A One was about an hour and a half, and one was about three hours.
Q And just specifically which counsel was there?
A It was --
Q If it differs between the two meetings --
A It was the people here today. Yesterday Doug Poland was present, and last week Nick Stephanopolous was there.
Q Okay. And then prior to the deposition, you were aware that you had to -- you were subpoenaed for some documents related to your report; is that correct?
A That's correct.
Q And what did you do to gather the documents and provide them to your counsel?
A I searched on my computer locations where I kept the files, went through my report, table by table and footnote by footnote, and correlated the two. So any data or any information that I used to form my opinion I disclosed.
Q So let's get into your report. We've marked Exhibit 64, and I've put a copy before you -- and for the record I've also -- there's also a copy of your initial report in this case here for

reference in case you want to refer to it that I think was marked as Exhibit 1, although the one I put here doesn't actually have the exhibit sticker because I didn't have a color version. So we can just start on your report, and I was going to skip over the summary because you get into more detail later in the report, and start with Roman numeral II which is on page 3.
I was going to direct your attention to the second paragraph that starts, "I begin by noting." And direct your attention to the sentence that says, "Similarly, under the test third prong, if the state would have to show that its plan's large efficiency gap was necessitated by the geographic distribution of the state's voters, then the plan would be upheld."
What is your understanding of what that means, "the state would have to show"?
A My understanding of the test is that it has three parts. The first is intent. The second is effect. And the third is whether it was possible to draw an unbiased map.
Again, I'm not a lawyer, and this is my understanding as a social scientist looking at this.

Q And in your understanding, is your demonstration plan what you term an unbiased map?
A I just want to be clear about my terminology. I would describe the demonstration plan as a map that treats members of the political parties similarly.
Q Is it your understanding that your demonstration plan shows that the large efficiency gap in the actual plan is not necessitated by the geographic distribution of the state's voters?
A That's correct.
Q Now, your demonstration plan does show a pro-Republican efficiency gap both in the baseline model and in the incumbent model; correct?
A That's correct.
Q Is it your position that that's unbiased because it's just the magnitude of the efficiency gap?
A To be clear, I did not draw the demonstration plan with the goal of driving the efficiency gap to zero, which I suspect I would have been able to do, but it was to treat members of the political party fairly. And I regarded an efficiency gap of -- I think it was 2.2 percent as acceptable.
Q And --
A Or actually, let me clarify. As an indication

that the large efficiency gap in Act 43 was not necessary; that it was possible to draw a map that comported with population equality, the constitutional and statutory requirements, and the traditional redistricting principles.

Q And you mentioned the 2.2 percent gap, and that's the gap under the no incumbent, all season tested baseline; correct?

A Correct.

Q And while drawing the demonstration plan, did you consider the residences of incumbents and where they would be districted under the demonstration plan?

A I did not.

Q And that would go to both Assembly members and State Senate members as well?

A That's correct.

Q Now, in this report, you've added some calculations based on incumbency; correct?

A That's correct.

Q And so those numbers have been calculated based on an after-the-fact realization of whether an incumbent was living in a particular demonstration plan district?

A That's correct.

Q And moving to the next paragraph, you say that -- the second sentence says, "First, the geographic concentration argument is predicated on the foundational assumption that a neutrally drawn map would have produced a pro-Republican bias." Do you have an opinion on what the efficiency gap would have been in a neutrally drawn map for the 2012 elections?

A That's a hypothetical that I did not consider; although I know that, for example, Professor Chen did an analysis where he did do a number of simulated maps under the neutral principles and found that the efficiency gap in those plans was much smaller than the one in Act 43, which I take as evidence that a neutrally drawn map would tend to produce a much lower efficiency gap.

Q A lower efficiency gap than the one seen in Act 43?

A Yes.

Q But do you have an opinion on whether it would still be a pro-Republican efficiency gap?

A Well, again using his analysis, there was a small -- a small efficiency gap, but again the issue is not whether the efficiency gap has to be zero. It's whether a map is drawn in a way that

treats members of the political parties fairly. And there's a difference between a 2 percent efficiency gap and a 14 percent efficiency gap.

Q Sure. And are you aware of Simon Jackman's reports in this case?

A Generally.

Q Have you read them?

A I -- I've read his first report. I did not give his rebuttal report a very close read.

Q Are you aware of what his calculations of the efficiency gap were for Wisconsin under the 2000 plan that was enacted by a federal court?

A I'd have to look at the report. I don't remember off the top of my head.

Q Are you aware that the average efficiency gap was negative 7.5?

A That sounds -- that sounds roughly correct; although I'm not certain.

Q And you aren't opining that the federal court in the Baumgart case was intending to treat members of the different political parties differently, are you?

A No, not at all. In fact, the political science literature on redistricting is quite clear that in a neutral process can produce a nonneutral

outcome.

Q And so do you have any opinions on why Wisconsin saw such a nonneutral outcome in favor of Republicans even under a neutral plan in the 2000s decade?

A As I recall describing in my first deposition, I was retained as an expert in that case. And my understanding of how that process evolved is that both the parties to that lawsuit submitted their own plans to the court, which then presumably -- although I'm not certain because I don't know for a fact how they went about drawing their maps -- incorporated those plans into the judicially drawn map. So I don't know why. I don't know specifically what specific decisions they made. But again, I'm not contesting that a neutral process can produce a nonneutral outcome.

Q And are you aware that the neutral process produced efficiency gaps of negative 12 and negative 10 in two different elections?

A I couldn't say without looking at the report.

Q So you also wouldn't contest that a neutral process could lead to even large efficiency gaps in favor of one party?

A Again, I would want to look at the report before I

would render an opinion on that.

Q Continuing on in the paragraph we were looking at, you say the record in the federal redistricting trial clearly shows that Act 43 was designed with a predominant purpose of benefitting Republicans and disadvantaging Democrats. Okay. And that sentence continues on, but I want to focus on that.

So when you say the federal redistricting trial, you're referring to the Baldus case?

A Correct.

Q And what in the Baldus record shows that Act 43 was designed with a predominant purpose of benefitting Republicans?

A Well, there was a line in the decision where -- I think it was Judge Stadtmueller who wrote the opinion -- he said that he found the claims of the experts who drew the map that partisanship played no role in their decision, I think the term is "almost laughable."

Q Now, he said that alleged testimony that partisanship played no role was laughable, but was there a finding that the purpose was -- the predominant purpose was benefitting Republicans?

A Well, I don't know that that was a fact issue

before the trial. But I think the record is quite clear that the sequence of events and subsequent depositions, if you looked -- I've looked at Professor Gaddie's recent deposition, the denials that this was -- the denials of the people who drew the map that this was not done with partisan intent I simply don't find remotely credible.

Q And I'm trying to get at what the evidence is that the predominant purpose was benefiting the Republicans, not just that there was some purpose of benefiting Republicans? Do you have evidence of that?

A Well, you can look at the evidence of evolution of the maps, the kinds of partisan analysis that they did, the way in which they assessed the consequences of their maps. And again this is all -- these are all issues that have been established. The secrecy of it, the fact that it was, you know, so tightly controlled, and the examples that I found in my own analysis of packing and cracking.

I mean, I think if you lined up a thousand political scientists and look at this map, you'd probably get pretty close to unanimous agreement that this was -- that no one would believe that

this was not done in a manner that was designed to maximize the Republican advantage.

Q So you think Act 43 is the most advantageous Republican plan that could have been enacted?

A I don't know if it's the most Republican plan, but it's --

Q Isn't that what "maximize" means?

A Well, again, I don't know what the -- I'm using "maximum" is that it was not possible to draw a map with more of an efficiency gap, but it's pretty clear that this was about as good as it was going to get.

Q Do you consider yourself an expert in interpreting the records of lawsuits?

A Can you define what you mean, "records of lawsuits"?

Q Well, you're the one making an opinion about the record of the federal redistricting trial and what it shows. I'm wondering where you get your expertise to make that opinion.

A I can read. I can read a judicial opinion. I know what judges say.

I have enough experience participating in these trials to know what other social scientists and experts do.

Q So it's just based on your own reading of the record and the legal decision?

A The -- so, you know, it's not based on any statutory or issues of judicial philosophy, the sorts of things -- Rules of Civil Procedure or anything else. You have the fact record. You have the maps. You have what they did. You have what the judges said about what they did. And I think that's pretty clear.

Q And is there any recognized test or method by which political scientists go about examining the intent of legislatures in designing districting plans to determine whether -- what their purpose of the plan was?

A So the -- there are a couple of ways that political scientists do this. Take Professor Goedert, for example. He defines a partisan gerrymander as whenever you have unified control of government which you had here. And my analysis of the plan was based largely on the effects. And this is not an issue of statutory interpretation or legislative intent. This is looking at what the experts and what the people who drew the map actually did in terms of the progression of the maps, how they describe them,

the files, the way that they analyzed them.

And based on my experience with 30 years of experience in quantitative analysis and social science, this was a clear indication to me that they were trying out different permutations with the intent of maximizing, if not in a sense of they couldn't do better but getting a very large partisan benefit for their side.

Q And you mentioned trying out the different maps. Do you have specific documents or pieces of evidence in mind about that?

A Well, not sitting in front of me. But we -- both in the federal trial and also in the recent files that Professor Gaddie talked about and in the Lanterman files, it shows sequences of maps and different names, aggressive and chronological sequence. So that's what I'm referring to in that regard. But I don't have the actual names in my head sitting here.

Q In that chronological sequence, are you offering an opinion that they tried many different maps and then in the end picked the one that was most advantageous to the Republicans?

A I don't know that I can say that based on that chronology, but it has -- certainly has all the

hallmarks of that kind of activity. And again, the primary focus of my report is not on intent. The primary focus of my report is on the effects.

Q So we can go to the effects. You say that -- continuing in the next paragraph in your record -- that "Trende and Goedert don't quantify how much an effect geography has on the efficiency gap." Do you have an opinion on how much effect geography has on the efficiency gap in your demonstration plan?

A Well, there are two things going on in your question. This paragraph is a response to the claim that natural political geography produces a pro-Republican efficiency gap and is an explanation for the efficiency gap that we observe. I noted in this paragraph that they have done no analysis that actually shows that -- either that there is a large Republican bias in the political geography or of the state. And even if there was, they had done no analysis that would demonstrate how much of an effect it would have on the efficiency gap. It's simply an assertion without any evidence that because of an asserted -- incorrectly asserted pro-Republican political geography, that that's why you see an

efficiency gap. And I disputed both the fact of a pro -- pro-Republican, a large pro-Republican efficiency gap and the political geography and the fact that even if that's true, which it isn't, they were not able to, and did no analysis to quantify how much of an effect that would have on the efficiency gap. It's -- I mean, we simply are supposed to take their word that this is why we see the efficiency gap that we do.

Q And we did see large efficiency gaps under the core plan in favor of Republicans based on Simon Jackman's work. You'd agree with that; correct?

A I would prefer actually to see the report before making a judgment on that.

Q But you would agree that whatever those efficiency gaps Jackman calculated, none of the cause was partisan gerrymandering?

A It was a judicially drawn map, so --

Q And you haven't offered any opinion on why those large efficiency gaps presented themselves under neutral plans with no partisan intent at all?

A No.

Q And do you think that -- is it your opinion that the Republican legislature, when they took over in

2010, should have then enacted a plan that had -- was less advantageous to them than the one that had previously been enacted by the federal court?

A That's a question that I'm not in a position to answer. I was not advising the legislature, so --

Q But the demonstration plan you draw is less advantageous to Republicans than the federal court plan was; correct?

A That's correct. I mean, I'm hesitating because the federal court plan was drawn in 2002. My demonstration plan was done based on the 2010 census; so there are some differences there but --

Q We can move on to the next page and go to the subheading A for Sean Trende's report. And in the first paragraph right underneath sub-A, you discount Trende's analysis about other areas of the United States like the south and Virginia as irrelevant to Wisconsin. Can you explain what you mean by that?

A Simply that the political geography of Virginia is not relevant to the political geography of Wisconsin. And it just -- I mean, it has no real relevance to understanding what's happening in this state.

In addition, I recall that he also spent

almost all of his time talking about congressional districts, which again does not necessarily give you any insight to state legislative redistricting. So I regarded that as an argument that is just irrelevant to what I did.

Q Because the political geography of other states isn't relevant to the political geography of Wisconsin?

A I mean, if you're interested in the political geography of Wisconsin, you need to look at Wisconsin. I mean, as a social scientist you would never try to make an inference about Wisconsin by looking at a state like Virginia. You would want to look at Wisconsin.

Q Do you think it's appropriate to judge the efficiency gap that Wisconsin sees in reference to the average efficiency gap seen in other states?

MR. STRAUSS: Object to the form.

A Well, you're talking about two different things. So in one case we have a measure of something as a quantity of interest. And we can compare that quantity of interest to see how it varies across the state -- across the states. And those kind of interstate analyses are done all the time when you're looking at data on a wide variety of

states. But the way that Mr. Trende does it is to make an assertion that Republicans are more favorably dispersed than Democrats in Wisconsin. And to use that to -- to make that argument he looks at other states. And that's an inappropriate -- he's not comparing the distribution of partisans in Virginia and Wisconsin. He is making the claim that because he asserts partisans are distributed in a particular way in Virginia, that that tells you how they are distributed in Wisconsin. Where the proper technique would be to look at the differences between the two states and try to make inferences from that. But even that would require you to have an accurate measure of those distributions, which he does not.

Q Would you say that analysis of other states in areas of the country would be relevant to analyzing trends in the efficiency gap nationally?

A I'm not sure what you mean by nationally. Do you mean coming up with a national efficiency gap or --

Q Sure. Like trends that show the efficiency gap is -- the average efficiency gap is moving towards the Republican favor across all states.

A Well, you can't necessarily make that inference because there are several moving parts. You might observe a change because of political geography. You might also observe that change because of gerrymandering. So I don't know, based solely on looking at the efficiency gap in other states over time, whether you can -- again the issue is drawing an inference about what's happening in Wisconsin. And you can get some information about what is happening or what the characteristics of the quantity you're interested in measuring are. But you would -- you would not, I don't think, be able to, or would want to make the argument that because something is happening in another state it must be happening in Wisconsin. And that's essentially what Trende did.

Q You also took issue with his use of the county votes. How far back does ward-level vote data go in Wisconsin?

A I think if you went to the Blue Book, you could go back many decades. I think --

Q And the Blue Book data by county?

A Well, Blue Book contains -- I'm working from memory here, but my recollection is the previous editions of the Blue Book contain presidential

vote by ward, and they may also have in some years the Assembly vote by ward. So the ward-level data goes back quite a ways.

Q Do you know how far back?

A I don't.

Q But you're referring to the Blue Book. So we could look at the Blue Books and whatever is there would be what's there; correct? You're basing your memory of what you think the Blue Book contains; is that correct?

A That's correct.

Q So we would have to actually look at the Blue Books and that would resolve our question; correct?

A Yes.

Q You agree that the partisan index shows which areas of the state are more Democrat or more Republican than the state as a whole; is that correct?

A I just want to be precise that the way that Trende uses the partisan vote index is that it shows you how a particular geographic area compares to the state as a whole. So, you know, area needs to be specified or region needs to be specified in order to make that statement.

Q So a partisan index done on the ward level shows you how much more Democratic or Republican that ward is in the state as a whole?
A Again, there are a number of assumptions that are built into that depending on what election you're looking at. But in a particular election it will tell you what the PVI does is it simply renormalizes the distribution of ward-level votes around the statewide average.
Q And if you would do that for a county, it would be the same concept, just at a different geographic level?
A As he calculated it, that's correct.
Q And you could also use that for, like, a congressional district or a state legislative district; is that correct?
A Yes.
Q You say "PVI" -- moving to page 5 -- "is almost exclusively used by political commentators to describe congressional districts. And you say "it's not used in the context of state legislative redistricting."
Why would a measure that's used for congressional districts not be applicable to state legislative redistricting?

A The primary problem is that the PVI is not really used in redistricting at all. What the PVI is generally used for is simply as a metric of how a particular area or congressional district, which is the Cook PVI, which is how it was originally developed to talk about the competitiveness of a congressional district. It doesn't give you any purchase in evaluating hypothetical plans. It doesn't give you any way of evaluating or transferring from one level of geography to another. And the only references that I found in the academic literature were as a purely descriptive variable or a descriptive measure of the level of the competitiveness of congressional districts. I have never seen it used in the context of analyzing state legislative redistricting plans. And I note that Trende didn't cite any studies, and he could not identify any studies where it was so used.
Q Is it your opinion that if something's not used in a study, then it's not helpful at all in analyzing a particular issue?
A My view is that a metric that is used almost exclusively by political commentators and for a very narrow purpose does not give you a way to

make reliable inferences, particularly when there are much more widely accepted and accurate measures of analyzing redistrictings.
So the short answer is yes, the fact that it hasn't been used in academic study means that it doesn't give you much purchase. The longer answer is that there's a reason for that that political commentators are trying to describe. They are using shorthand. Whereas, in the scholarly literature people are trying to make reliable inferences about empirical effects. And the PVI is simply not useful in that regard.
Q Is it your understanding that Trende was using the PVI to analyze the Wisconsin districting plan?
A He was using the PVI as a way of describing geographic clustering, which is also incorrect because things like the PVI are not used in the literature on spatial analysis in geography. So again, it's a metric that is used in one context. And in my view, Trende was inappropriately applying it to other contexts where it is not applicable.
Q Do you think it's not even helpful to look at the change over time in the state to see which areas have become more Republican or more Democratic

over time?
A I don't think it's useful for that. There are much better indicators that will give you much more reliable information about what's actually going on.
Q And what are those indicators?
A The indicators that -- the indicators that I use which are among the measures used by geographers, the Moran's I and the Isolation Index, just to give two.
Q And we'll get to that. Moving down to the next paragraph, you mention two errors, and one of them is the top-of-the-ticket race in 2006. You said it was used -- using the Senate race instead of the governor's race. So if you redid that analysis in the 2006 race using the governor's race, would that correct that error?
A I don't know. I took that as an indicator of methodological carelessness because, as I noted in my report, there are different views about what constitutes the correct top-of-the-ticket race when we're in a midterm year. Some people argue that the gubernatorial race is better, others that the Senate is better. My objection is that he switched. He used gubernatorial election in some

years and the Senate election in 2006. And given the fact that those two elections were significantly different in terms of their competitiveness, I think 2006 was 53 or 52 percent, looking at my report 53.8 percent Democratic, and the Democratic Senate race was 60.5, that's a material difference.

Q Do you know how that difference affected any of his calculations?

A I don't.

Q And then you note an error in the code. Do you know between 2004 and 2012, moving on to the next set of paragraphs, do you know how that error affected Trende's analysis?

A Again, I took it as a sign that he was not doing reliable analysis because these are not the sorts of errors that a careful social scientist would make. I mean, it was just -- I don't know whether it was carelessness or what, but I take this as an indicator that he was not going about the process of doing this analysis correctly.

Q Turning to the next page, look at figure A. And I'll get my color copy out since this one is in color. Could you explain what this figure shows?

A This figure is a graph of the average Democratic

vote in Democratic wards, meaning it's the average Democratic vote in a ward where the Democrats receive more than 50 percent of the vote in the top ticket race as well as the Republican -- average Republican vote share in pro-Republican wards. And this is a more direct measure of partisanship. And it shows that between 2002 and 2014, that Democratic wards and Republican wards both became more Republican or Democratic over time. And this in my view contradicts Trende's assertion that Democratic wards have become more Democratic while Republican wards have not become more Republican.

Q Now, does this graph tell you how many democratic wards there were in a particular year?

A No.

Q Or republican wards? It's just the average of all wards?

A That's correct.

Q Now, when I look at this graph, I see it goes from 2002 to 2014. Why did you start at 2002?

A I could have started earlier. That was just -- it may have been because that's when Trende started his.

Give me a second here. I think I used 2002

because -- to 2014 because that's what Trende did. So I was simply trying to replicate over a similar time period.

Q And in looking at this graph, in 2002 the Republican average ward is 60 and a half percent; is that about right?

A That looks about right.

Q And then in 2004 for the Republicans, following the red line, it's actually less than that. Goes down to about 60 percent?

A That's about right.

Q And then in 2006, it goes down to 59 percent?

A That's correct.

Q And then in 2008, it goes down to 58 and a half percent about?

A Roughly.

Q And then 2010, it jumps up to 62 and a half percent or so?

A Yes.

Q And then 2012, which is the year you had calculated the efficiency gap for, it goes back down to about 60, maybe a little bit higher than 60 percent; correct?

A Correct.

Q So if I'm reading this correctly, from 2002 to

2012, there's no change in the Republican -- the average Republican vote in a Republican ward other than in the 2010 election?

A Well, I mean, you can look at a graph like this and cherry-pick your starting and stopping point. The point I was trying to demonstrate is that over the range of time that Trende was doing his analysis, that he was insisting that the Democrats had become far more concentrated. And this is a graph that shows over that period that that's not so. And it's also to keep in mind that this is not a graph that goes with the X axis from zero to 100. So even at the maximum difference we're talking about a little over 2 percentage points or 3 percentage points.

Q And I'm just going to go through the same exercise with the Democrats. They start out at 61 maybe .25 or something like that in 2002?

A Roughly.

Q And then they go down in 2004 to about maybe 1 percentage point or so to 60.25 about?

A Correct.

Q And then they go back up in 2006 to 61 percent?

A Correct.

Q And then in 2008, it's 62 and a half

maybe percent?
A Roughly.
Q And then 2010 maybe -- it goes down a little bit but maybe 60.25 or something; is that correct?
A Roughly.
Q And then 2012, it's up a little bit again to 62 and a half or so?
A Correct.
Q And then 2014, it's about 63 -- I don't know, probably doesn't get up to a half but over 63 percent; correct?
A That's correct.
Q And then Republicans are also over 63? They're about 63 and a half in 2014?
A Correct.
Q Now, the particular wards that fall into a Democratic or Republican ward in each year don't remain consistent across the years; is that correct?
A There's no requirement. They can change.
Q So, for example, a ward that was 51 percent Democratic in one year and then flipped to be 51 percent Republican in the next election would go from being a part of the blue line data to part of the red line data?

A That's correct.
Q But you would admit that from 2002 to 2014, the average Democratic vote in a Democratic ward has increased?
A I would look at this graph and say that the average Democratic vote in a Democratic ward increased, but the average Republican vote in a Republican ward increased over that same time period even more. So I look at this and see that movement is roughly equivalent over the full range of the time period.
Q And that's ending -- is that based on the ending point in 2014?
A Correct.
MR. KEENAN: Can we just take a short break right now?
THE WITNESS: Sure.
(Recess)
By Mr. Keenan:
Q We'll go back on the record and we'll move on to the Section 2 here about the nearest neighbor. I was going to flip forward to page 7. And I'm looking at the last full paragraph, the second to the bottom. And you say that, "Trende's method tells us nothing about which wards are actually

adjacent to wards of a certain PVI."
Is it your opinion that wards that are close together but not adjacent would likely not be districted together?
A My opinion is that the way in which Trende conducts this analysis does not lead to any reliable conclusions about levels of concentration because we have no information about how close wards are. And the way that he applies it is a methodology that I've never seen in the geography literature. And there's lots of people who do nearest neighbor analyses of populations, but I've never seen it done in this manner. And so my criticism of the method is that his -- this metric of the median distance of wards of a similar partisan lean tells us nothing useful with regard to either redistricting or concentration of different populations.
Q So absolutely nothing? Just because they're not adjacent to each other?
A Well, that's one problem. There are a number of others.
Q You say that, "Likewise, it's entirely possible that wards of the same partisan make-up are close together but quite difficult to combine in the

same district." It has in parentheses "think of a densely populated but politically heterogeneous area."
Do you have any particular area in mind there in the state of Wisconsin that would fit that criteria?
A Not off the top of my head, no.
Q In fact, in Wisconsin aren't the densely populated areas actually politically homogeneous?
A Well, I don't know that I'm prepared to make that statement. But to the degree that there are homogeneous areas, that they concentrate Democrats and Republicans in roughly equal measure.
Q The city of Milwaukee is a densely populated area, is it not?
A That's correct.
Q And that is politically homogeneous in favor of the Democrats; is that correct?
A I would say for the most part, yes.
Q And then the city of Madison is also a densely populated area; correct?
A Probably not as densely as Milwaukee.
Q Sure. But compared to the rest of the state, it's densely populated?
A Well, I mean, I haven't actually looked at the

specific density figures of number of people per square mile, but that's plausible certainly.

Q And then the city of Madison also is politically homogeneous, and it's in favor of the Democrats; is that correct?

A That's correct.

Q Are you aware of any similarly sized cities in Wisconsin that -- or even counties that are as strongly Republican as the city of Madison, city of Milwaukee are strongly Democratic?

A Well, that's not the only measure. There are areas that are -- have roughly equivalent concentrations: Waukesha County, Ozaukee County, Washington County. So again, using the accepted measures of political concentration and segregation, those measures show that Republicans and Democrats as a whole are concentrated in roughly equal measures.

Q Do Waukesha, Ozaukee, the other Republican counties you mentioned vote in favor of the Republican candidates at the same level that the city of Madison and the city of Milwaukee vote in favor of Democratic candidates?

A Not to the same degree.

Q They're slightly less -- they are less favorable

to Republicans; is that correct?

A That's correct.

Q So when districting, either strongly Republican or strongly Democratic areas -- for example, Waukesha County, when you district that the Assembly is likely to produce all Republican seats; is that correct?

A Sorry is, say that again.

Q When districting the Assembly and districting Waukesha County, that's likely to produce seats that are Republican seats; is that correct?

A Correct.

Q And then districting Milwaukee, you're likely to district -- whichever way you do it is likely to result in Democratic seats; is that correct?

A That's correct.

Q And then in doing that, you'll have safe seats for both parties; is that correct?

A Well, I'd say that probably, but I would want to do the analysis to make sure. But that certainly sounds reasonable.

Q And given that Milwaukee votes for the Democrats at higher levels than Waukesha votes for Republicans, aren't there going to be more wasted votes in Milwaukee for the Democratic legislative

candidates than there are in Waukesha for the Republican legislative candidates?

A Well, I'm going to take issue with the premise because the efficiency gap is not calculated based on a region of the state. The efficiency gap is calculated statewide. So the fact that there are more wasted votes in one area than another area by itself doesn't tell you what the statewide efficiency gap would be. So that's not a useful inferential method.

Q But those will be components of a statewide efficiency gap; correct?

A That's correct.

Q And then in districting the rest of the state, won't the legislatures have to make up the difference for the excessive wasted votes in the city of Milwaukee compared to the wasted votes in the county of Waukesha?

MR. STRAUSS: Object to the form of the question.

A I'm going to dispute the term "excessive."

Q They're larger, aren't they?

A Well, but there's a difference between larger and excessive.

Q That difference has to be made up somewhere to get

a balanced map across the state; correct?

A That's correct. Although based just on that, we don't know how -- you know, what the difference in wasted votes would be.

Q If we can go to page 9, and Table A shows that Democratic wards are of smaller square mileage than Republican wards; that's correct?

A That's correct.

Q And that is particularly true in the city of Milwaukee which has a mean square mileage per ward of only 0.29 square miles?

A Correct.

Q And the median is 0.20 miles; correct?

A Correct.

Q And so you say that his method will always show that Democratic wards are closer to Republican wards because Democratic wards are smaller; is that correct?

A Correct.

Q Then you take issue with his use of the mean and the median. Why don't I just have you explain what your problem is with using one or the other in what Trende did.

A So the issue with the way that he conducts his analysis is that he puts his thumb on the scale

twice in ways that guarantee that the analysis will show that Democrats are far more concentrated than Republicans. The first objection which we just talked about was the failing to account for the fact that wards have different areas. And in the geography literature it is unanimously agreed, I would say, that you have to be cognizant of different geographic. The areas of different aggregations, that you can't simply do an analysis of an area -- of a region with different areas because you will not get reliable results.

The objection for the use of the mean and the median is that Trende doesn't provide any real justification for why he uses the median as opposed to the mean; both of which are measures of central tendency. Trende argues that he uses the median to avoid having outside -- outlying areas have disproportionate influence, and he uses the example of Menominee County. And on its face that doesn't make any sense because when you say an area is outlying, you have to describe it as outlying in terms of what. Menominee County is not an outlying area if we're talking about Appleton. It's an outlying area if we're talking about one of the extreme areas of the state. So

that as a simple empirical statement it's a non sequitur.

The bigger problem is that by using the median and the fact that the -- we know that wards that vote Democratic are on average about -- are smaller than wards that vote Republican. If we look at the -- and that will have significant effect on any calculations of distance because, all other things being equal, two larger wards, their centroids will be farther apart than two small wards. And so that's one source of bias that's already in his analysis.

The second problem is that in using the median rather than the mean, what I show in Table A is that the average -- the mean Republican ward is a little less than twice as large as the mean Democratic ward, 10.96 as opposed to 5.91. The median ward, Republican ward, is almost seven times as large, or six times as large as the median Democratic ward, 0.56 square miles as opposed to 3.45 square miles for the median Republican ward. So not only is he introducing a crippling bias by failing to control for ward area; the fact that he uses the median rather than the mean simply compounds that to produce a result

that simply guarantees that he is going to find that Republican wards are farther apart than Democratic wards.

I mean, this is an analysis that would simply not be taken seriously by anybody who was familiar with the literature.

Q Because Democratic wards just are smaller to begin with?

A No. It doesn't have anything to do with Democratic and Republican wards. It has to do with the fact that he's failing to control for crucial variables that he needed to control for.

Q Why do you need to control for them?

A Because if you are looking at distances and distances between geographic areas, you need to account for the fact that those areas might be of different size.

Q Now, compactness is a factor in districting; right?

A It is a traditional redistricting principle.

Q Is there an adjustment or control done for compactness?

A Well, no. Because compactness is size and variant. You can have a small compact district. You can have a large compact district. You can

have a small noncompact district. You can have a small -- a large noncompact district. Compactness is not a measure of distance. Compactness is essentially a measure of area ratios. So the physical size of a district is not comparable to accounting for the physical size of wards because we're not interested in the distances between two districts. Compactness is a measure of their shape.

Q Are highly Democratic wards likely to be close to each other? Do you dispute that?

A On a statewide basis, what I will say is that accepted metrics of geographic concentration show that Democrats and Republicans are clustered in roughly equal measure.

Q And do you have an opinion how easily it would be to district heavily Democratic districts with -- or heavily Democratic wards with Republican-favoring wards?

A Can you say that again?

Q Sure. Is it difficult in Wisconsin to include in a same Assembly district very heavily Democratic wards along with Republican-tilting wards?

A Well, let me -- I'm going to ask you to be more precise here because are we talking about as a

whole or in some areas? Because I'd ask you to be more precise.

Q How about both. If you think there's a difference, you can answer it two different ways.

A So there will be some areas where you -- well, in some areas it would be relatively simpler to maintain partisan homogeneity. In other areas it would not be simple. And I was able to produce quite a number of districts that were balanced. So I don't regard the premise that in some places Democrats are concentrated as a barrier to producing a map that treats Democratic and Republican voters equally.

Q When you say treating them equally, what do you mean?

A That's the notion of partisan symmetry. In terms of redistricting, the idea is that Democrats and Republicans have an equal opportunity to see their votes translated into seats. They're treated equally in that regard.

Q And that's on a statewide basis?

A Correct.

Q And that might require, you know, some Democrats get districted in a district with Republicans where they would lose and then where they wouldn't

be able to vote for a Democratic candidate for themselves?

A Are you saying they wouldn't have an opportunity to vote for a Democratic candidate?

Q No. I mean, the important key here is the statewide impact, correct, on the legislature?

A That's what the efficiency gap measures. It's a statewide measure.

Q But district by district, that may result in different decisions being made about districting certain people in and out of districts where, for example, a Democratic voter might have to be placed in a district that would vote for Republicans in order to achieve a greater statewide balance?

A As an empirical matter, in drawing districts, there's no guarantee that you're going to be placed into a district that will always vote for the candidate that you like.

Q And let's go to figure B. As I understand it, so the dotted lines are the median nearest neighbors, and the solid lines are the mean nearest neighbors; is that correct?

A That's correct.

Q And the red lines represent Republicans and the

blue lines represent Democrats; is that correct?

A That's correct.

Q So when you redid it with the medians, you still found that Democratic wards are closer together than Republicans?

A Let me correct you. I didn't redo it with the medians. I redid it with the means.

Q You found with the means the Democratic wards were still closer together than the Republican wards?

A That's true. But that could well be because of the fact the Democratic wards tend to be smaller. We're dealing with a measure of distance here.

Q And the -- I mean, in comparing the two sets of lines so that the two dotted lines compare to each other and then the two solid lines compare to each other, is there anything about those shapes of those lines that you have an opinion on about changing from the median to the mean that results in a change in analysis?

A Sure. There are two differences here. The dotted lines, which is simply a replication of Trende's median analysis, is the basis for his opinion that as Democratic wards become more Democratic they get closer together, and as Republican wards become more Republican they move farther apart.

And that's the sort of hockey stick on the left side of the graph for Republican wards. I've noted my objections to both the foundation of this analysis and the fact that he used means rather than medians -- or medians rather than means. And when I redid the analysis with the means, the shapes of the line are essentially completely parallel. These are the same shapes that it shows for both Republicans and Democratic wards. As wards become more Republican and more Democratic they get farther apart in terms of their mean distance.

The fact that Republican wards, the distances between Republican wards of the same partisan lean are farther apart than Democratic wards of the same partisan lean I take as a function of the differences in ward areas. And again you can see the effect that the distance between Republican wards is about -- it's not quite two, maybe one and a half times larger than the mean Democratic distance. In terms of the median we're talking about a difference of about three. So both the pattern or the relationship between partisanship and distance becomes the same. The relative difference between the distances between

Republican wards and Democratic wards also shrinks. And so I took this as yet another indicator that what Mr. Trende did was not a reliable methodology that provides useful information about the geographic clustering of Democrats and Republicans.

Q Let's move on to Section B which is Goedert's report. Why don't you explain your criticism of Goedert's use of the wards and you reference the modified areal unit problem. Why don't you explain that criticism you made.

A So where are we?

Q Sure. On page 11, it's like the third paragraph under Section B.

A So we're talking about Goedert's analysis of the uniform swing?

Q Yes, in the wards.

A So like Trende, Goedert makes an argument that Democrats are clustered and Republicans are distributed in a way that's favorable for redistricting purposes. He didn't actually conduct any analysis that demonstrates that, but the example that he gives or the data that he uses is an attempt to show that in a tied election -- so he took the 2012 ward level vote for the

president, and subtracted the 3.5 percent, he conducted a uniform swing analysis. So in 2012, the Democratic vote for president statewide was 53.5 percent. And so in doing the uniform swing he subtracted that 3.5 percent from every ward. And then he did a histogram. And that's the red line in figure C. It's not really -- it's a kernel density graph, which is essentially a smooth histogram. And what Goedert argues is that this distribution of wards -- he argues -- I think the exact term that he uses is that in a tied election Republicans would win 60.2 percent of wards in a tied election. And that's the basis for his -- the shape of that graph.

So this graph, as you move right on this graph, wards become more Democratic. So anything below 50 percent is a ward that the Republicans would win in a tied election under this uniform swing analysis.

My objection to this is that elections are not determined at the ward level. Elections occur in wards that are aggregated into districts. And if you actually do the analysis at the district level, so you do his uniform swing analysis and use his results at the ward level and then

aggregate those wards into the Act 43 districts, you see a very different pattern, in that in a 50 percent election Democrats-only win, what is the -- I don't know if I actually calculated how many -- so what this shows is once you aggregate the wards into districts, the pattern completely changes. That you have the average, the mode, the skew, it changes. And this is a classic example of what geographers call the modified areal unit problem, which is that when you are dealing with different levels of geography, inferences that you draw at one level, in this case the wards, can often be very different when you aggregate those lower levels of geography into larger levels of geography as in districts.

And my argument here is that the ward-level analysis in terms of what Goedert did, that focusing on the wards is the wrong unit of analysis. You need to focus on the districts. And this is in fact precisely the pattern that you see in Act 43, which is you take a large number of Democratic votes and you aggregate them in a way that provides significant advantage to Republicans, so that in a 50 percent tied election, Democrats -- the mean Democratic vote,

or the mode -- modal Democratic vote would be about 40 percent at the district level.

Q And do you dispute that that's an identical result of what we saw under the 2000's core drawn plan?

A I haven't done the analysis. I can't say.

Q Now, you would agree that whoever is doing the districting is taking wards and then aggregating them into districts; that's correct?

A That's actually not what occurred in 2011. That had been the normal practice where the municipalities and counties would draw their wards and then those would be aggregated into districts. In 2011 and 2012, the pattern was that the districts were drawn first and then the wards were required to conform to the district lines. So that's not how it happened in 2012.

Q But when you drew your demonstration plan, did you select particular wards and then place them in your districts?

A I did not.

Q Okay. How did you do it then?

A I built my districts using essentially census blocks.

Q Eventually did you then use wards that go into your districts?

A I did not.
Q So is it possible that your districts don't line up with the wards that are in --
A In my demonstration plan?
Q Correct.
A I imagine they don't.
Q Now, are you offering an opinion on -- we see the red line, the distribution of wards -- how that should then translate into a distribution of districts?
A No. This was a critique of Goedert's argument. What I was trying to show, that the assertion that he makes that -- this is part of his argument that Republicans have a favorable geographic distribution around the state that produces a natural pro-Republican gerrymander. And this is a criticism of his analysis to say that this actually doesn't give you useful information that allows you to make reliable inferences about geographic concentration. I'm not -- this is not something that I used in terms of making my own criticisms of Act 43. This is a criticism of Goedert's analysis.
Q So are you -- and I take it your red line -- does your red line track when Goedert's analysis was?

A I attempted to replicate what he did, which is his ward-level analysis weighted by population in a tied election.
MR. STRAUSS: Just to be clear, you're talking about the red line in Figure C on page 12 of Professor Mayer's report?
MR. KEENAN: Correct.
MR. STRAUSS: Okay.
Q Are you disputing that Goedert accurately calculated both the number of wards or the share of population in the population he did in his report?
A Can I look at the report?
Q Sure. I have a copy here. It was marked as Exhibit 17. And I believe it's on page 22.
A So I will profess to being agnostic as to whether Dr. Goedert did this analysis accurately. My view, it doesn't matter. Even if he did it accurately, it doesn't provide you with any reliable means for making inferences about the geographic distributions of partisans in Wisconsin.
Q Okay. Even the fact that there's more Democrats in wards with 80 percent or greater Democratic support than there are Republicans in wards with

80 percent or greater Republican support?
A Again, the point of Goedert's analysis is he's trying to make the argument that Democrats are more concentrated than Republicans. The way that he did that analysis doesn't show what he says it shows. In fact, I demonstrated that using reliable methods of measuring geographic concentration in isolation, they show that Democrats and Republicans are concentrated and clustered in the state in roughly equal measure.
So my overall argument is that both Goedert and Trende are simply incorrect in arguing that Democrats are more clustered than Republicans.
Q Let's go to sub-1 about Goedert's published work. What's your understanding of what Goedert's model was intended to do, the one that you're using in this section of your rebuttal report?
A Let me refresh my memory here. So my understanding of what Goedert did in these two articles was to assess the effect of different underlying factors such as gerrymandering, and what he says is urbanization, which in this regard is a proxy for concentration. And in 2014, he found that in states with unified Republican control, which he took as the definition of a

gerrymander, a Republican gerrymander, even after controlling for urbanization, which in this context urbanization is largely considered in this context to be a proxy for Democratic concentration, he finds that even after controlling for urbanization, Republican-drawn maps have a larger pro-Republican bias, significantly larger pro-Republican bias.
He then updated that model. The original model was based on 2012 data. He updated his model after 2014. And in 2015, he found that using essentially the same model for congressional districts, that urbanization no longer has a significant effect on the bias, which it's not quite the same thing as the efficiency gap, but it's the same -- more or less the same idea. And so I used this to point out that his own work comes to different conclusions about the fact of urbanization, sometimes it matters, sometimes it doesn't. But that even when you take urbanization into account, using that as a control variable in his regression model, he still finds that pro-Republican gerrymanders produce significant pro-Republican bias. So that's my understanding of -- and my interpretation of what he did.

Q And then that was directed at congressional seats; correct?
A Correct.
Q It wasn't state legislative seats?
A Correct.
Q Now, do you understand that he also found that Democrats did not achieve the advantage one would expect from controlling the districting process and that they underperformed what one would expect in terms of getting seats?
A I would have to go look at the report. I don't recall that off the top of my head.
Q I have both of these here. They were previously marked as Exhibit 20 and 21. Exhibit 20 is his 2012 article.
A Actually it's 2014, I think.
Q And then 21 is the 2014 -- or I mean, it may have been published in 2014, but it was about the 2012 elections.
A I have 20. I don't have 21.
Q It's right here.
A Oh, here we go.
MR. STRAUSS: And what's the pending question?
Q So if you can turn to the first page of text --

MR. STRAUSS: In which exhibit?
MR. KEENAN: 20.
MR. STRAUSS: Okay.
Q And if you go to the third paragraph in the text, it says, "However, the problem for Democrats might actually be more fundamental. The current geographic distribution of partisans now leaves Democrats at a disadvantage as long as congressional representation is based on contiguous geographic districts. It is unsurprising that Republicans won more than their fair share of seats where they drew the maps. However, Democrats also underperformed in their bipartisan maps and gained only small advantages from their own maps, suggesting the main issue is not gerrymandering but districting itself." Are you saying that that conclusion is wrong?
A I'm saying that that conclusion doesn't necessarily apply to Wisconsin because, again, when you are looking at actual measures of geographic concentration in isolation in Wisconsin, you find that the partisans, Democrats and Republicans, are concentrated and isolated in roughly equal measure. And I don't know that I would draw that inference as he did it.

Q And then you go on to use his model and plug in Wisconsin's information in that; correct?
A Correct.
Q Now, are you offering an opinion that the model for the congressional seats applies to the Assembly seats in Wisconsin?
A Not in this context, no.
Q So then what is your opinion -- what inference can we draw about Goedert's model for the 2012 congressional elections in using Wisconsin's data?
A My inference is that when you take his actual model that he developed and you apply it to Wisconsin, you get an anomalous result. If you take the values of the independent variables as they exist in Wisconsin and you generate the predicted bias using that model in Wisconsin, his model predicts that you would get a pro-Democratic bias. And so I take this as an indication that his model does not provide much of a foothold in explaining or supporting the assertion that there is a pro-Republican natural geographic bias in Wisconsin.
Q And do you think that would apply to the Assembly districts?
A I would have to -- I would have to do the

analysis. But again, my position is that this method that he uses does not give you reliable information about the scope of geographic concentration in Wisconsin. And there are accepted ways of doing that analysis which I did.
Q And you understand we're not -- the congressional map here is not under challenge, is it?
A I understand.
Q And the congressional map has swung between like three, four, and five seats for each party over the last 15 years or so; is that correct?
A I don't know.
Q So is there anything at all we can take from a model that is designed to describe how districts of 700,000 people might perform and compare it to 99 districts of about 57,000 people would perform?
A Well, no. But the reason I cited this article is to say that Goedert's argument about geographic concentration is actually not consistent with his own work.
Q But how is it inconsistent when he's talking in one instance about Assembly seats and then another about congressional districts?
A Well, it is that when he has looked at gerrymandering, that the effect of urbanization --

it's an argument by analogy. And again, I'm not using this as a way -- it forms no part of my analysis that there is or is not geographic clustering in Wisconsin. It's simply a criticism of Goedert who is simply asserting, in the absence of any actual reliable evidence, that there is a pro-Republican geographic bias. The argument is that this is an argument that is inconsistent with what he has made in other contexts.

Q I still don't see how it's inconsistent, though, if one method is dealing with congressional seats and the other method is dealing with Assembly seats, but -- then you also perform an analysis using Goedert's regression model and putting in the information for a state resembling the United States as a whole. Do you recall that?

A Yes.

Q What are we supposed to take from that analysis?

A Again, it's essentially a critique of the argument as applied to Wisconsin. Because the general argument is that pro -- the argument is that there is a pro-Democratic or pro-Republican concentration or distribution of voters in Wisconsin. And I am arguing that that's incorrect.

Q Now, I'll just say that the state -- hypothetical state you were using -- and I'm on page 15 here -- was 13.2 percent black, African-Americans, 17.4 percent Hispanic, 80.7 percent urbanized, and 51 percent Democratic; is that correct?

A Correct.

Q And Wisconsin does not have those criteria, does it?

A No.

Q And is there any seat in the country that has these -- or any state in the country that meets these demographic numbers?

A No.

Q They are the numbers for the country as a whole, but each state is different in those regards; is that correct?

A That's correct.

Q And then the congressional districts -- congressional elections take place on a state-by-state and district-by-district basis?

A That's correct.

Q And is it your understanding that Goedert's model does not apply to smaller states that are fewer -- that have like seven or fewer congressional seats?

A I think it's fewer than six, but I'm not sure.

Q But it doesn't apply to a certain set of smaller states that doesn't have enough congressional districts?

A That's correct.

Q And do you know how many of the 435 congressional seats come from states that aren't included in his model?

A No.

MR. KEENAN: You know, we haven't been going quite an hour, but we're moving into the isolation and index, so I think it might be a good time to just take a break.

MR. STRAUSS: That's fine.

(Recess)

MR. KEENAN: We're back on the record.

By Mr. Keenan:

Q Mr. Mayer, we've talked a little bit before about your measures of geographic concentration, so now we're going to get to your report where you get into those. And then on page 16 of your report, why don't I just have you explain what Global Moran's I is.

A Global Moran's I is a measure of spatial auto correlation. It measures the degree to which the

variants or the values that a variable takes in a point in space correlates with values that that variable takes in adjacent space. And it is the -- a number which captures the average spatial auto correlation at any unit of geography; in this case the ward level.

Q Prior to your work on this case, had you been aware of the Global Moran's I test?

A I was.

Q And had you ever performed a Global Moran's I analysis on any geographic area?

A No.

Q And how were you aware of this particular measure of concentration?

A Many years ago, I had done -- in my own research done work on the geographic distribution of defense contracts. And in the course of doing that work, one of the issues that arises is looking at different measures of spatial association. So that's the first time that I had come across it.

Q And prior to your work on this case, had you ever seen it applied to any sort of analysis of political partisans in a geographic area?

A Yes.

Q What was that?
A That was the article on -- by Joey Chen and Jonathan Rodden which they talk about -- it's their automated redistricting program. And they talk about Moran's I is an issue of -- a measure of concentration or -- more properly it's a measure of spatial association.
Q And then other than the Chen and Rodden article, have you seen it applied to political partisans at all?
A No.
Q Now to the time period of working on this case, are there other instances now that you're aware of where the Global Moran's I has been applied to analyze political partisans?
A I've seen it used in studies of patterns of campaign contributions which is analogous to partisans. But again, it's a generalized measure of spatial association that can apply to any underlying measure.
Q And have you seen any analysis where Global Moran's I scores are generated and then used to determine how the spatial correlation should translate into legislative seats?
A I think Chen and Rodden might have done that, but

I would want to take the -- I'd want to take a look at that article to be sure.
Q And other than that, have you ever seen anything like that in the literature?
A Not that I can recall.
Q And then let's just focus on the Isolation Index then. What is the Isolation Index?
A The Isolation Index is a measure of exposure, and it measures the likelihood that a member of a particular group will be exposed to other members of that group in a particular geographic area. As it is calculated, it is the weighted average of the percentage of whatever group we are examining in whatever subunit of geography or we are examining on a larger aggregation. So in this context it's the percentage of Democrats and Republicans, the average percentage weighted by population or the total population of Republicans and Democrats.
Q Now I'll get into the specifics of how you did it in this case for each of them. But just kind of on a general level, prior to your work on this case had you been aware of the Isolation Index?
A No.
Q How did you become aware of the Isolation Index?

A I was sent an email by counsel suggesting that I take a look at it.
MR. KEENAN: Why don't we just mark this as 65.
(Exhibit No. 65 marked for identification)
Q Could you identify what Exhibit 65 is?
A This is an email to me from Nick Stephanopolous offering some sources that I might consult as I did a spatial clustering analysis.
Q And you had previously mentioned an email from counsel about possible sources. Is Exhibit 65 the email that you were referring to?
A Yes, it is.
Q So I take it that on December 8th, 2015, was the first time you had heard of the Isolation Index?
A I think that's correct.
Q And I also take it that because you first became aware of this measure in this case, that prior to your attention in this case you had never performed an Isolation Index calculation before?
A That's correct.
Q Your report references -- I guess maybe I should just ask you. What sources in academic literature have used the Isolation Index to measure the

segregation of political partisans?
A Sitting here, I can't think of any, but I would say it doesn't matter because this is a generalizable metric that can apply to any population. It's used in a huge variety of contexts that is not limited to demographics. So my experience as a social scientist in the literature review that I conducted led me to the conclusion that this was a reliable method for assessing the degree of concentration of partisans.
Q And I note in your report on page 16 it says it has been used to assess political geography by a Glaeser and Ward article? I'm in the second to last paragraph. It's the end of that paragraph.
A Let me look at that. So that's right. It was used in that study. I was mistaken.
Q Although you were not aware of that study until you were retained to work on this case; is that correct?
A I think that's correct.
(Exhibit 66 marked for identification)
Q I show you Exhibit 66 and then ask you to identify it.

A This is the article, paper, "Myths and Realities of American Political Geography."
Q And this is the same document that's referenced on page 16 of your report?
A Yes.
Q Who's Edward Glaeser?
A I'm not personally familiar with him, but the indication is that he is on the faculty at Harvard. And NBER stands for National Bureau of Economic Research.
Q So you don't know whether he's a political scientist or not?
A I don't.
Q And do you know if this article has been published in any journal?
A I do not.
Q Do you know if it was peer-reviewed at all?
A I do not.
Q And I marked the exhibit. It's docket 593 which was filed attached to a declaration you filed in this case. Do you recall that?
MR. STRAUSS: I'm sorry, what's the question?
Q Do you recall filing a declaration in this case with the court -- or an affidavit?

A I probably filed several. I don't know what specifically you're referring to.
Q Okay. Do you recall filing one that was filed on January 22, '16?
A I don't remember.
Q I guess we'll take this in pieces for Global Moran's I. Why don't you explain how you calculated that specifically in this case.
A So there is a module in R that I think it was developed by a political geographer. I think his name was Roger Bevins. And it accepts as input a shape file, allows the user to specify how it calculates it, how it treats adjacent areas, and then does the calculation.
Q You say a shape file. What is that?
A A shape file is a standard GIS, or geographic information system, file that captures the spatial attributes of a particular unit of geography and also incorporates underlying data for that geography.
Q And then what was the specific shape file you put into this R module?
A It was a shape file of wards that was created by the Legislative Technology Services Bureau of the 2012 wards. And I believe that I had attached my

own underlying partisan baseline data, although I might have used the Republican -- I used the presidential data, and that formed the inputs into this.
Q So there was an LTSB file that showed the geographic location of each ward; is that correct?
A Well, it doesn't show the location, but it's a shape file that if you import it into a GIS program, it will give you a map of the state and show you the boundaries of each ward in the state.
Q Okay. Sort of what I was thinking, but I phrased it poorly, so thanks for the clarification. And then obviously this analysis also required knowing which wards were Democratic or Republican; correct?
A That's incorrect. It doesn't matter what -- whether a ward is Democratic or Republican. What matters is the percentage of people in the ward who are Democratic or Republican.
Q It does require knowledge of that fact, though, for each ward; correct?
A Correct.
Q And then how did you provide that information to the R module?
A So there's -- there are several commands. I'd

have to go back and look at the code that you input the -- the first step is you tell R what the shape file is that you're looking at. There's a secondary command that tells R -- tells the program how you want to treat the adjacent wards. And it basically allows you -- the way that I did it is specify that it was only the adjacent wards that counted and specify that those wards had to be more than point contiguous. They had to have a shared boundary, that they couldn't just be -- you know, if you had two squares that were connected just at a vertex, that wouldn't count. They would have to share a side. And so it measures the spatial correlation for each ward with all of the adjacent wards.
Q And then how does the R program know that ward -- the relevant ward it's looking at is a ward with more Democratic voters or more Republican voters?
A It doesn't know. It uses -- the underlying data in the shape file tell it how many Democratic voters and how many Republican voters are in each unit of geographic space.
Q So in the shape file, what data was used to show partisanship?
A As I said, I think it was my partisan baseline,

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but I don't remember. It might have been the actual presidential vote. I'm not sure.
Q And for 2012, that would have been the 2012 presidential vote?
A Correct.
Q And then would that have been a two-party vote share?
A It would have been just the two parties.
Q And then you also did analysis for the 2014 election. Do you know what the partisanship of the ward, how that was determined for the 2014 analysis?
A That, I used the gubernatorial election.
Q And so that would be just the two-party vote share for Walker and Burke in the 2014 governor's election?
A Correct. Although -- it wouldn't make any difference if you used the share or the actual numbers, so it is the vote share.
Q And then you've talked about how then -- and just to be clear, this is the first time you had run this particular R module?
A That's correct.
Q And this is the module that's listed in footnote 11 on page 17 of your report?

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A Yes. Spatial dependent -- yes.
Q So I'm just trying to understand how then this works. The R module looks at a ward, and then what does it do about the neighboring wards?
A So you're getting into the guts of the program. The way that it works is that part of the underlying data is both the boundaries of each shape and the location of each shape. And so it is able -- the underlying GIS data provides information that essentially tells the programmer or -- that the program uses to determine what are the adjacent wards, what are the values of the variable in the adjacent wards, and how the -- essentially how those values correlate, how those -- how the variation in those values correlate across the state. But I did not write the program. I don't know specifically what the precise steps are. But R is a universally used open-source software program.
Q And I'm just trying to understand, though, the conceptual frame for how this is calculated -- so like I have a ward X, and then the program of, you know, 52 percent Republican, and then what is it analyzing about the partisanship of the adjacent wards?

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A It's essentially analyzing the correlation of that number with the percent Democratic and the adjacent wards.
Q And then is there a value created for each individual ward?
A There is.
Q And then is that then -- what happens with, like, each individual calculation? Is there an average?
A It's an average.
Q Okay. And so does -- I'm just looking at the Table D on page 18. And so there's a call for Democrats and Republicans. Did you have to run separate analyses for each party?
A Yes. Both the Global Moran's I and the Isolation Index are asymmetrical, so you have to run it for each individual group that you're looking at.
Q And every ward in Wisconsin would have fallen into one of the buckets or the other?
A Well, it's not a bucket because you run -- so you run on the first pass, you're looking at the Democratic concentration in each ward. Then you run it again with the Republican concentration in each ward.
Q So every ward is analyzed under each analysis?

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A Correct.
Q So sorry if this is just basic stuff.
A No, no.
Q I'm not understanding. So like a ward that has hypothetically 60 percent Democrat and then 40 percent Republican, on the Democratic side it gets analyzed once, and then on the Republican side that same ward also gets analyzed with its neighbors?
A Correct.
Q And the neighbors are going to be the same in each analysis; correct?
A No.
Q Aren't they just inverses of each other?
A No.
Q Why is that?
A Because they don't -- you are looking at Democrats to Democrats and Republicans to Republicans, and those will not correlate perfectly.
Q Now, if we're using just two-party vote share, I'm trying to understand why that wouldn't quite work, you know, if it's 60 percent on one hand and then 40 percent on the other.
A I imagine because it's probably nonlinear. It's doing it when you're at 60 and doing it when

you're at 40 probably gives you different values, although I haven't actually gone through and worked through the math.

Q And so what does the -- looking at Table D, the .75 for the Democrats in 2014, what does that number mean?

A So that number is equivalent to a correlation coefficient which ranges between zero to 1. A number of zeros would mean that there is no auto correlation, that there is basically no relationship between being a Democrat in ward I and being a Democrat in adjacent wards. So you basically get random distribution. And as that number goes towards one, it means that Democrats and Republicans -- a Republican in ward I is likely to live in a ward that is surrounded -- that is adjacent to other Republican wards. So as that number goes towards one, it's a measure of how likely a Republican ward or a Republican living in a ward is likely to be living next to an equivalent Republican ward. And because the numbers are very similar, that is an indication that Republicans and Democrats are distributed in roughly equal measure as determined by the wards compared to adjacent wards.

Q And the correlation is that -- does that relate to the strength of the partisanship of the ward? It's not just that a Republican ward happens to be next to another Republican ward? It's like a 75 percent Republican ward is next to a 74 percent?

A Correct. It's not even a measure of Republican strength or Democratic strength. It's a measure of how those values co-vary. So in a ward with high Republican percentage, does that tend to exist in areas where the adjacent wards are also highly Republican? And as that is true, the number will go towards one.

Q And you only did this for 2014 and 2012. Why did you pick just those two years?

A Because I was not able to get shape files from -- I recall that I had difficulty finding the shape files from 2008. I had a tougher time finding the data.

Q Going backwards a little bit, we'll go to the Isolation Index which is talked about on page 17. How did you calculate the Isolation Index specifically in this case?

A There is a -- it's a module. The nomenclature is slightly different. In R they're just called R

files. In Stata the command files are called ADO files, .ADO. And the Isolation Index is essentially a -- the formula is essentially how likely a Republican in a ward -- so the Isolation Index is nonspatial, so you don't need to know where things are in space. All you need to do is know what the values are in each record. And it calculates the likelihood that a Republican in a given ward lives -- the probability that a Republican in a ward lives next to another Republican or at the ward level.

So the Moran's I is a measure of spatial auto correlation between wards. The Isolation Index is a measure of geographic concentration within a ward.

Q And you mentioned a Stata module. And I see is that also listed on page 17, footnote 11 of your report?

A Correct.

Q How did you become aware of that Stata module?

A Counsel made me aware of it.

Q And the R module, how did you become aware of the R module that is used to calculate Global Moran's I?

A I believe I found that myself. I'm not sure. I

think I was able to find that. The R modules are found in a general area that's open source. And so you go there and you can search for -- I mean, there are thousands and thousands of them.

Q And then -- so getting back to the Isolation Index, how did you do the -- how did you do the Stata module? Like what data did you input into it?

A So the Stata module just looks at the data, the ward-level data on the number of Democrats and Republicans. Again, I believe it was using a baseline open-seat partisanship model. But I might have used the -- no. So if you look at the top of 17, just refreshing my memory, I used the actual Assembly votes to get an accurate measure of what actually happened.

Q So that applies to the prior testimony with the Global Moran's I as well?

A Correct. I misspoke.

Q So actual Assembly votes for these -- in using -- for both of these, did you account for uncontested races?

A No. I believe it was just the raw data.

Q Do you have any opinion on -- in some instances you do make adjustments for uncontested races and

adjusting the vote share to reflect what a partisan candidate might expect to receive in that district had it been contested. Do you have an opinion on how not doing that for these clustering analyses would have affected your numbers?

A I suspect they would actually be lower for both Democrats and Republicans, but I'm not sure.

Q Because it would make wards in which there was an uncontested race seem either more Republican or more Democrat?

A Well, it would tend to drive -- when an uncontested race goes to a contested race, it drives both percentages towards 50 percent.

Q And then how does the Stata module then take those Assembly votes in each ward and come up with an Isolation Index?

A Well, the calculation is actually fairly simple. It calculates the percentage for the Democrats. It calculates the percentage Democrat -- Democratic vote in each ward and then weights that quantity by that ward's percentage -- or the fraction of the total Democratic population found in that ward.

So the easiest way to describe it is it is the weighted average of the Democratic vote

percentage in each ward, and for the Republican equivalent it's the weighted average of the Republican vote in each ward.

Q And for these, is the vote percentage done across all wards for both parties like it was done in the Global Moran's, or are we just looking at over 50 percent Democratic wards?

A No. It's all wards.

Q And when you say "weighted average," I know that's probably easy for you, but I'm trying to figure out like how it's weighted. How is the share of that ward's total vote figured into a weighting?

A Well, essentially it means that an individual ward's contribution to the overall average is going to be slightly larger -- slightly higher for larger wards. So if you have 10 wards each with equal population, each ward would count one-tenth. But if you had one ward that was twice the population, you would have nine wards making up 80 percent and then one larger ward would be 20 percent. So it's basically based on the population. The larger the population, the more an individual ward contributes to the average.

Q Is it weighted towards the total Assembly vote in the state or the total Assembly vote for one party?

A Total Assembly vote for one party.

Q So the Democratic column is weighted towards the total Democratic vote in the state and the Republican column is weighted towards the total Republican vote in the state?

A Correct.

Q And then you did that one back to -- from 2014 to 2004. Is there a reason you went back to 2004 as your beginning point?

A Because the Isolation Index is a spatial, I don't need any GIS. All I need is the ward-level totals. I was able to do that farther back because I didn't need the more complicated data.

Q Was that -- is 2004 as far back as the ward-level data went?

A I don't -- I don't recall.

Q And then just to get kind of a -- for my layperson's understanding, the .23 that's in the 2014 Dem-Rep column, first what does Dem-Rep stand for?

A So the Isolation Index as I mentioned was a spatial. So the first column is the isolation of Democrats from Republicans. And then the second column is the isolation of Republicans from

Democrats. And again, you need to do it for both -- both parties separately.

Q And so then the .23 number in the Dem-Rep column for 2014, what does that mean?

A So that's the overall Isolation Index. And from that I subtracted the statewide vote because other things being equal in a state with more Democrats or Republicans, the relative statewide distribution is going to have an effect on the Isolation Index. If you have a state with 90 percent Democrats and 10 percent Republicans, that's going to exaggerate the extent of the isolation of Democrats because there are more of them; and the same thing for the Republicans. So what I did is I subtracted the statewide vote totals so that I could have a baseline that controlled for the overall percentage. And this is a -- the Isolation Index ranges from zero to one.

Sorry, can we take a five-minute break?

Q Sure.

(Recess)

By Mr. Keenan:

Q We're back on the record after a short break, and we were talking about Table C, the

Isolation Index. And you had -- you were explaining how you had subtracted out a statewide vote total to get to the number here. And so maybe just building on that, before subtracting out the statewide vote total, what type of number were you getting? What was that showing?

A My recollection is that those numbers tended to be in the -- in the 65 to 75 percent range. Again, you know, indicating that Democrats and Republicans are concentrated in roughly equal measure on a statewide basis. But I don't remember what they are off the top of my head.

Q And then that would be -- before subtracting any state vote total, it would be that a particular ward was -- it would be like the weighted average Democratic ward was 65 percent? I'm trying to figure out what that is.

A Sorry. This is a technique that the census uses again to control for the fact that populations comprise different shares -- or different population groups, subgroups comprise different shares of the population. So it's a way of controlling for the fact that when you have more members of a group, you're going to see, all other things being equal, higher population isolation

in a way that doesn't redound to the advantage of each party. You know, in 2012 the Democratic isolation is marginally higher than the Republican population. But in 2010, which was an overwhelmingly Republican year, the Republican isolation was marginally higher than the Democratic population. So it's just a way of accounting for these differences in the statewide vote or the statewide composition that each group makes.

Q And so -- so the vote share you subtracted, was that that party's vote share for the --

A Correct.

Q So the Dem-Rep column there was a number and then there was a subtraction of the Democratic vote share?

A Right. So if you take 2010 where I believe the Republicans got 52 percent of the statewide vote, that would show that the Republican isolation was 69 and the Democratic isolation was 62. So -- it will tend to -- but again that's because there were more Republicans than Democrats, you control for that. It tends to be a more comparable measure across time.

Q And where did you get the vote share information

that you were using to adjust the number?

A I believe I just added up the vote share data in the individual wards.

Q Okay. So if the -- the actual Assembly vote share based on your ward data?

A I believe so.

Q So it wasn't Professor Jackman's numbers which are adjusted for uncontested seats?

A I don't believe so. Oh, it definitely would not be, because as a statewide number -- it was the statewide number.

Q And then -- and you were using the percent. So like 52 percent you'd subtract .52; is that how it worked?

A Correct.

Q And then going back to this .23 now after the adjustment, what is that .23 telling us about the average Democratic --

A My interpretation is that the -- an average Democrat, sort of a typical Democrat lives in a ward that is 23 percent more Democratic than the state. And a typical Republican lives in a ward that is 20 percent more Republican than the state.

Q When you say average Democrat or average Republican, this calculation is actually a

calculation about each ward; is that correct?

A There are different parts of that question.

Q Sure.

A Can you break them out?

Q So I'm wondering how you can say it's a typical Democrat or typical Republican lives in a ward.

A So maybe this is the way to phrase it. On a statewide basis, on average a Democrat will live in a ward that is 23 percent more Democratic than the state, on average. So don't think of it in terms of a notional typical Republican, but on a statewide basis any Republican -- an average Republican will live in a ward that is 20 percent more Republican than the state as a whole. So it's not as if we are looking at sort of a demographically typical Republican or Democrat and figuring out. That's just sort of looking at the state as a whole.

Q Okay. And then if we can just move to the next section, we can go a little bit on that and then we'll take a break for lunch. So this is Roman III. Did you understand Trende was claiming that your vote model was biased?

A I did. That was my reading of his criticism.

Q You didn't understand that he was saying that

Jackman's model might be biased based on the numbers generated from your model?

A I couldn't say anything about his criticism of Professor Jackman's model.

MR. KEENAN: Why don't we stop there.

THE WITNESS: Okay.

(Recess for lunch)

By Mr. Keenan:

Q We're back from lunch, Mr. Mayer, and we are -- go back to your report now to section Roman Numeral V. It's on page 22. And this is a discussion to Gaddie's Act 43 district-level estimates. We went over this in your last deposition, but just to refresh your memory that you relied on a table that had some percentages for each of the Assembly districts in terms of their Republican vote percentage. Do you recall that?

A Yes.

Q And you've referred to that as the Gaddie percentages?

A Correct.

Q Okay. And you've assumed that those percentages were generated using a regression model created by

Professor Keith Gaddie?

A Not necessarily.

Q Okay.

A Because Gaddie in his deposition used two equivalent methods. One of them was a regression method. Another was a combination of races which he regarded as equivalent but much easier to calculate.

Q And would it change any of your opinions if the numbers that were -- that you used for the Gaddie Act 43 district estimates were calculated using an average of all statewide races from 2004 to 2010 rather than a regression model?

A I'm not sure what the exact composition was, but it was some combination of statewide races and previous election cycles.

Q But in your report here you reference in deposition testimony from Professor Gaddie, in the Baldus deposition, that with -- assuming all seats were contested, no incumbents would run. Do you see that?

A Are you referring to that block quote from Professor Gaddie's deposition? Yes.

Q And that was Professor Gaddie's deposition in the previous case, the Baldus case; correct?

A Yes.

Q Do you know whether the Act 43 district-level estimates that you've characterized as Gaddie's Act 43 estimates are actually generated from the regression model that's described in this quote on page 22 of your report?

A I don't.

Q Going to page 23 and then on to 24, there's a statement that says in the very last sentence on page 23 that continues on to 24, it says, "Either way, the same conclusion would follow that the map is an extreme Republican gerrymander and that the authors of Act 43 had information in their possession that predicted it."

What evidence do you have that the map is an extreme Republican gerrymander?

A That's based on the size of the efficiency gap and also the factual record of the -- of what the individuals who drew the map did in the process, the sequence that they went through.

Q And we had some testimony earlier this morning on that, so you're referencing back to that earlier testimony?

A Correct.

Q And then it's also just the size of the efficiency

gap seen in the first two elections?

A And also the examples that I found in analyzing Act 43 with packing and cracking.

Q And those are in your initial report?

A Correct.

Q In this report you take incumbency into account?

A I'm sorry, I was coughing.

Q In your rebuttal report you take incumbency into account, whereas you had not done that in your initial report. What's your opinion as to whether in evaluating a districting plan people should consider incumbency?

A In the political science literature the most common method is to use a baseline method which assumes no incumbents and that all races are contested. Because this gives you the best opportunity to evaluate alternative hypothetical plans, where you don't necessarily know where the incumbents are. And so that's the technique that I used.

So the reason I reran the analysis with incumbency is in response to the criticism that Goedert leveled at the fact that I didn't do that demonstrated that my methods were unreliable, and that in the absence of that, taking incumbency

into effect, that my analysis could not be trusted. I think that's incorrect.

But in response to that, I thought it was prudent to go ahead and do the analysis with incumbency, which demonstrates that even though the efficiency gap changes, it does not have a material effect on whether it's above or below the threshold. Under Act 43, the efficiency gap remains very large. Under the demonstration plan, the efficiency gap remains very low, even when you take incumbency into effect.

Q You've talked about using a baseline percentage that has no incumbents in a district that's contested, and you only used one set of election results to calculate the baselines, correct, for Act 43 in the demonstration plan?

A That's correct.

Q Would it be more accurate to take several different election results and then create partisan baselines?

A Not necessarily. The fact that Professor Gaddie and I used different methods and came up with what amount to the same answer suggests that it wouldn't have made any difference. And the predictive value of my model was so high that

there was probably nothing that could be added that would make it even more -- make it even more accurate.

Q But what was the -- did you do an analysis of the predictive power of what you're referring to as the Gaddie model or your own model on the 2014 elections?

A I'm sorry? Could you say that again?

Q Yes. Did you do an analysis of the predictive power of the Gaddie model on the 2014 elections, how well it did predicting those?

A I did not.

Q Now, if the 2014 elections had occurred first instead of the 2012 elections, would the correlation have been different? Or I'm sorry, the correlation between the Gaddie model in the 2012 election is different than the correlation between the Gaddie model and the 2014 election, wouldn't it be?

A Without looking at it, I don't know.

Q And Republicans won 63 seats in the 2014 election; is that correct?

A I don't know.

Q All right. So I'm looking at Table E here, and it shows that the demonstration plan based on

efficiency gap is 2.2 percent; correct?

A Correct.

Q And then you look at -- then when you factored in incumbency you come to a 3.71 percent efficiency gap; is that correct?

A That's correct.

Q So the effective incumbency increased the efficiency gap by 1.5 percent; correct?

A 1.51 percentage points.

Q Yes. And your 3.71 percent gap is over half the way to the 7 percent unconstitutional threshold?

A That's correct.

Q And looking at Act 43, the efficiency gap goes from 11.69 to 13.04; is that correct?

A That's correct.

Q So that the efficiency gap caused a jump of 1.35 is it?

MR. STRAUSS: Object to the form. You said the efficiency gap. You mean the adding incumbency, I think.

Q So Act 43, the baseline is 11.69; do you see that?

A Yes.

Q And then adding an incumbency we get to 13.04; do you see that?

A Yes.

Q So adding that incumbency, factoring an incumbency added 1.35 to the efficiency gap?

A That's correct.

Q And you say it doesn't make a difference in this case because both numbers are over the threshold; is that correct?

A It's not a material difference.

Q Okay. But what if a plan -- it did make a difference, which one do you think should be considered? Like on one of them it was at 6.5. Then it was at 8.

A I think it would depend on what you were trying to do. As I mentioned in my earlier deposition, the reason I did a baseline is that it is a crucial piece of information to know what the baseline partisanship was. And that's what you do in advance, which is what Professor Gaddie did before you know who the incumbents are, what the districts actually are. I would -- and the reason I did it that way is that I was trying to make a direct comparison between the actual districts in Act 43 and the hypothetical districts in the demonstration plan where the effect of incumbency would be rearranged because the district boundaries are different. And so that's a direct

point of comparison. And that's a vital piece of information.

Putting incumbency in as I demonstrated here is another piece of information once an election is actually -- putting an incumbency back in, that effect back in is another piece of information, but it did not change the results.

Q In this case, but in some cases it might, wouldn't it?

A It's possible.

Q And then what should a court look at in that instance, which number?

A You know, you're asking a hypothetical, and I would have to actually look at the situation to make a determination.

Q And so in looking at -- further down on page 24, you say that in 2012 there were 50 Republican incumbents running and then 24 Democratic incumbents; is that correct?

A Where are you?

Q Very last part of page 24 underneath the table but before the footnote.

A Correct. I see.

Q And that's based on the -- what actually happened in the 2012 elections? The incumbents that

actually chose to run for re-election?

A That is correct.

Q And in calculating -- in trying to account for incumbency under Act 43, what did you do with respect to those 74 incumbents?

A I was provided by counsel a list of addresses for every incumbent and their political party. I geocoded that, which means that I used an application that transforms an address -- a street address into a geographic coordinate of latitude and longitude, which then can be loaded into a GIS system, and that gives me the physical location of a -- of that address and that incumbent on the -- on a map. With that information and using the boundaries of demonstration plan, I was able to identify districts that had an incumbent. And I assigned the value of incumbency based on the rule that if there was no incumbent it was an open seat. If there was a Republican and Democratic incumbent, it was an open seat, which is how this is handled in the literature because the incumbency advantage cancels out.

Q I'll just stop you. So if there was a match-up between two incumbents of different parties, that's treated as open?

A That's correct. And in a situation where you had multiple members of one party in a seat, I counted that as the incumbent for that party. And that's standard how this is treated in the discipline.

And then for Act 43 I actually had the -- I knew who the incumbents were. I knew what districts they ran in, so I didn't need to geocode their addresses.

Q Sure. So if I understand it correctly, under both Act 43 and the demonstration plan, to the extent the seat was characterized as open, either because there was no incumbent at all or there was a match-up between incumbents of opposite party, there should have been no change from your open-seat baseline model?

A I believe that's correct.

Q Okay. And just -- maybe just to make sure we're on the same page, if a district had no incumbent on your demonstration plan, the vote total should have remained the same because there was no need to adjust for incumbency?

A That's correct.

Q And Act 43 the same thing as well; that if there was no incumbent, the partisan baseline would just have carried over from previously; is that

correct?

A That's correct.

Q I have this computer here because I'm going to be providing some printouts of Excel spreadsheets that were produced to me by counsel that you provided to them. To the extent that you want to look at an original one, I have that on here. You don't need to if you don't want to, but if you want to, let me know and I can move the computer over and you can look at the spreadsheet. Sometimes they're harder to see in person.

MR. KEENAN: I'm marking different tabs of the same spreadsheet files, so I'm wondering should we mark them different exhibit numbers or do them like 67-A, 67-B sort of thing.

MR. STRAUSS: Your choice.

MR. KEENAN: Let's just do separate numbers then.

(Exhibit No. 67 marked for identification)

Q I'll hand you Exhibit 67, and I will inform you that this is taken from a file produced to me that's called Efficiency Gap -- Incumbencies in my

Plan. It's an Excel spreadsheet file. This is from a tab that the title at the top of the first page says Act 43. That's the tab of the spreadsheet. Do you recognize this document?

A Can I look at it --

Q Sure.

A I just want to make sure. Okay.

Q So do you recognize what this document is?

A Yes.

Q And what is this document?

A This is a document that -- or this is a spreadsheet or a worksheet that shows for each Assembly District the predicted values of the Democratic and Republican Assembly vote for all of the different possible permutations where the seat is open, where the seat has a Democratic incumbent and where the seat has a Republican incumbent. And then the last two columns, J and K -- actually let me continue to describe this. Column A is the district number. Column B records the party of the incumbent, R for Republican, D for Democrat, O for open seat. And then the last two columns, J and K, take from the previous values the appropriate value of the vote prediction based on whether it was open, a Democratic incumbent, or a

Republican incumbent. And that gives you the forecast of the result of my baseline estimate once you factor in incumbency.

Q So looking at District 1, it's in Column B, the incumbent column, it has an R there. Does that mean there's a Republican incumbent in that district?

A Yes.

Q And then I see on District 7 there's an O in Column B. Does that mean it's an open seat?

A That's correct.

Q And then I guess down another one, District 8 there's a D in the incumbent column. Does that mean a Democratic incumbent was in that seat?

A That's correct.

Q I guess if we add all these up, we should have 50 Republican incumbents and then 24 Democratic incumbents?

A I imagine that's true.

Q And just to be clear, because there's an R incumbent, the vote total when taking incumbency into account would be the column that says -- Column H, R-Rinc; is that correct?

A I'm sorry, say that again.

Q Sure. In District 1 there's a Republican

incumbent, so would a correct vote total when you're trying to take incumbency into account be Column H which is R-Rinc?

A That's correct.

Q And then the Democratic vote in that instance would then be the column F, D-Rinc; is that correct?

A That's correct.

Q That stands for like a Democrat in an incumbent district?

A Exactly.

Q And then we go to open seat. The vote totals would be the R open and the D open; correct?

A Correct.

Q And then a Democrat seat like District 8 would be -- the Democratic vote total would be column E, D-Dinc; is that correct?

A That's correct.

Q And then the Republican vote would be the R-Dinc, Column G?

A Correct.

Q Okay. And then I guess we'll get to another document that does this more fully.

The columns J and K would be the Act 43 vote totals taking incumbency into account?

A The predicted Act 43 vote totals taking incumbency into account.

Q Sure. Based on your model?

A That's correct.

Q And then you might keep that handy to the extent we need to refer you.

MR. KEENAN: I will now mark this one as 68.

(Exhibit No. 68 marked for identification)

Q I'll hand this to you. And this is another tab of this same spreadsheet we've been looking at, a tab that's titled, as it says at the top of the document, Inc Calcs My Plan. And you can look at it on the machine as well.

A Okay.

Q Could you explain what this document is.

A This is a spreadsheet that does the equivalent calculation for the demonstration plan based on the baseline partisan predictions which assumes, as does the Act 43 calculation, that all races are contested. This, for the designation of the incumbent status of the race, uses the geocoded address of the incumbents with incumbency determined as I mentioned earlier. So it

replicates the predicted vote -- the predictive vote totals under the demonstration plan taking incumbency into effect.

Q And then we see some of the same headings in the Columns A, B, C, D, E, F, G, and H. Do the values in Exhibit 68, are those columns the same as they were in Exhibit 67?

A So are these values the same?

Q I'm sorry. That was a bad word. Not the values but what the categories, like what the column is representing. R-open, does that also mean a Republican open seat like it did in the prior spreadsheet we looked at?

A That's correct.

Q And so like the incumbent column, an R means a Republican incumbent is in that district?

A That -- well, that value is the predicted vote total if the incumbent is in that district or if that district has a Republican incumbent.

Q I'm sorry, I may have been -- just look at Column B, it says incumbent and then there's an R in District 1. Does that mean that your geocoding analysis shows that a Republican incumbent would be in your demonstration plan Exhibit 1 or District 1?

A That's correct.

Q And so the same with District 2, there's an R there, so that shows that a Republican incumbent would have been in your demonstration plan Exhibit 2 -- or District 2?

A That's correct.

Q And going through the Os would also represent an open seat like they did before; is that correct?

A That's correct.

Q And then a D would represent a Democratic incumbent is located in the relevant demonstration plan district?

A That's correct.

Q I saw on Districts 49 and 50, it's on page 2, there's a Y in that column. Do you know what that means?

A So based on the predicted Democratic and Republican vote, that is recorded as an open seat. That may have been one of the areas where you had an odd combination. So if it was two Republicans and two Democrats, it's an open seat. This may have been a case where you had three incumbent, three Republicans and two Democrats or two Democrats and one Republican. So I believe I counted that as an open seat. But I wanted to

designate that so if I had to, I'd go back and check that.

Q Okay. And then if we go up -- if we just would add all the Rs in column B, that would show how many Republican incumbents under the demonstration plan would be running in a district for re-election?

A Not precisely. That wouldn't count the number of incumbents. It would count the number of districts that were coded as Republican incumbents because remember you could have districts with more than one incumbent. So that wouldn't -- the number of Rs and Ds would not necessarily translate into the actual number of Republican and Democratic incumbents who ran under Act 43.

Q Do you know how many under your demonstration plan -- how many Republican Assemblymen incumbents were districted together in the same district?

A Not off the top of my head.

Q Is there a way -- is there a document that shows that?

A It would probably be on the actual GIS files on my desktop. I never did produce a written document with that.

Q And then do you know how many match-ups of

Republican and Democratic incumbents your plan resulted in?

A I don't recall sitting here.

Q Or how many Democratic incumbents were districted out of their prior district?

A I don't know sitting here.

Q And that wasn't something that you considered when you were drawing the demonstration plan initially?

A That's correct, I did not.

Q So in looking at Exhibit 68 to determine the vote totals under your plan, taking incumbency into account, if there is a -- in Column B, if Column B represents an R for Republican incumbent, then the Republican vote share should be the R-Rinc total; is that correct?

A That's correct.

Q And then the Democratic vote in that district would be the D-Rinc column; is that correct?

A That's correct.

Q And then for an open seat it would be the R open and D open vote totals; is that correct?

A That's correct.

Q And those numbers shouldn't change from your open-seat baseline from your initial report; is that correct?

A They shouldn't.
Q And then a D, if there's a D in the incumbent column, the Democratic vote total would be the D-Dinc column; is that correct?
A That's correct.
Q And then the Republican vote total in that district would be the R-Dinc column; is that correct?
A That's correct.
(Exhibit No. 69 marked for identification)
Q I'll give you Exhibit 69. This is a printout of another tab in the same Excel spreadsheet we've been looking at which was -- as shown at the top it's labeled EG Act 43 With INC?
A Okay. So this is from the -- this is just a different tab.
Q A different tab with a title that's on the top here. So I take it this relates to Act 43; correct?
A Correct.
Q And then why don't you explain what this document is?
A This is a spreadsheet template that I used to calculate the efficiency gap. It has the

districts, the population, the predicted votes from my model, and then the calculations of the lost and surplus Democratic and Republican votes, which go into calculating the efficiency gap.
Q And if you could pull up Exhibit 67 as well to look in conjunction with this. If I understand it correctly, if you look at Exhibit 67 it shows District 1 was a Republican incumbent, and therefore the vote total is, Column H, 16,908; is that correct?
A That's correct.
Q And so then we look at Exhibit 69. It shows predicted Republican vote in Column H of 16,908. Do you see that?
A I do.
Q So should the numbers on Exhibit 69 match up with the numbers on Exhibit 67 when you look at the predicted Dem and predicted Republican votes?
A They should.
Q Now if we go to the last page of this.
MR. STRAUSS: Which, Exhibit 69?
MR. KEENAN: Yes, Exhibit 69. Sorry.
Q It shows Republicans winning 60 total seats; is that correct? Down on the bottom.

A That's correct.
Q And I see a number in Column P, the very bottom, it says 14.1422 percent. Do you see that?
A Yes.
Q Is that the efficiency gap of Act 43 with incumbents?
A I'm not sure. I'd have to look at what that number refers to.
Q Well, I'll give you the time to look because in your report it says that the efficiency gap for Act 43 with incumbents taken into account is 13.04 and this shows 14.14, so I'm wondering what the discrepancy is.
A Now, I'm not sure what's going on here. The actual table that has the efficiency gap calculations is in a different file.
Q And if you can find that file, I'd -- I didn't see one in the production that had a spreadsheet with Act 43 calculations.
A Okay. Can you bring up the directory?
Q So Mayer production 2, correct, is what was -- that's how we saved the corrected production that was made to us, and then these are the folders that were given to us.
A I don't know why that number is different. It

could just be a typo. I would have to -- because that's the correct formula. But that's an error. Actually, it's an error in your favor.
Q And then a question on Exhibit 69, just technically how -- there's listed predicted Dem votes and then predicted Republican votes, and that number will change depending on whether there's an incumbent or not. How did you get the number that's listed in Column F or Column H? Was it manually input, or did you have some sort of automatic way of populating those fields?
A My recollection is that I did it as a copy-and-paste with the districts sorted.
Q Would that have been a copy-and-paste from Exhibit 67?
A It's possible.
MR. KEENAN: We'll mark this next one as Exhibit 70.
(Exhibit No. 70 marked for identification)
Q I'll put that before you. And this is yet another tab from the same spreadsheet titled, as reflected on the top, EG with INC. And I think it might be helpful to look at this one in conjunction with Exhibit 68. Can you identify what Exhibit 70 is?

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A This is the -- looks like the template for calculating the efficiency gap with what looks to be the demonstration plan, but I can't be certain because it does not say.
Q And feel free to look at the spreadsheet, and I was going to compare numbers in Exhibit 68 with Exhibit 70.
A Okay.
Q And if you look at, for example, District 1 on Exhibit 68 shows there's a Republican incumbent, that the Democratic vote with a Republican incumbent Column F should be 15,632.83, and Column J says D vote 15,632.83. And then if we look at Exhibit 70, Column F, predicted Dem it says 15,632.8269. Do you see that?
A Yes.
Q Okay. And then looking down at District 2, I see it also matches up with the D-Rinc, Column F, 11,254.58. Do you see that?
A Yes.
Q So does Exhibit 70 represent the predicted vote totals under the demonstration plan taking incumbency into account?
A It should.
Q And then it also contains a list, as we've seen in

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some other spreadsheets, of the wasted votes. And then we look at the bottom at the very last page, it has total numbers of wasted votes across all districts. Do you see that?
A Yes.
Q And here I believe it indicates that there's an efficiency gap of 3.8855 percent; is that correct?
A That's correct.
Q In your report it says that the efficiency gap with incumbency taken into account is 3.71 percent, I believe. Do you know why there's a discrepancy?
A Sitting here, I don't.
Q And looking at -- here's a Column Q that says "Rep win." I take it that means Republican win?
A Uh-huh.
Q And at the bottom totaling them all up it shows 50 Republican wins. Do you see that?
A Yes.
Q So does that show that taking incumbents into account under the demonstration plan, the Republicans would be expected to win 50 of the 99 seats in the Wisconsin Assembly?
A That's correct.
Q Now, you also did some uniform swing calculations;

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is that correct?
A I did.
Q And you did that to both the demonstration plan and Act 43; right?
A That's correct.
Q Could you explain how you performed a uniform swing?
A So the way that a uniform swing is done is that you subtract or add a constant vote share change to each district in a plan. So D minus 5 would be looking at the percent Democratic vote in each district and subtract -- it's actually to get it right you don't subtract 5 percent. You subtract 2 and a half percent because you're subtracting and increasing the other side, which amounts to a 5 percent swing. And then you look at the results and you can -- it's a standard technique that allows you to examine the effects of a plan in a variety of different electoral settings.
Q Now, in your model -- in looking at your model, did you swing the vote totals, or did you swing the two-party vote percentage?
A In doing the calculations I swung the vote totals.
Q And did you swing the total Assembly vote, or did you swing the input that generated that, like the

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presidential vote total?
A No. I applied the constant to the predicted vote totals.
Q So maybe we could just look at Exhibit 70 was the last one we were looking at. We could get a sense of this like District 2 maybe has D, predicted Dem vote of 11,255, rounding to the nearest whole number. Do you see that?
A Say that again.
Q Yes. District 2 I'm looking at.
A Uh-huh.
Q Has a Column F, predicted Dem vote, 11,254, which I guess we'd arrive to 255 to the nearest whole number?
A That's correct.
Q And that equals 51.8 percent of the two-party vote; is that correct?
A Correct.
Q Then there's a corresponding Republican vote share of 10,457 rounding to the nearest whole number. Do you see that?
A Right.
Q And that's 40.2 percent of the two-party vote?
A Correct.
Q A uniform swing of minus 5 percent, how would

those numbers change?
A. A uniform swing of 5 percent, that would turn into a Republican district.
Q. And how did you -- what would the Dem vote total be? And I guess I don't need you to actually give me a number, but how would you modify the number that's in Column F to get to the new number?
A. I would want to look at the spreadsheet I used to do those calculations. I believe I subtracted just a percentage from the vote totals.
Q. Okay. And then would the two-party vote shares, would you be able to just subtract 5 from 51.8 and that would end up being the new two-party vote share?
A. I'd have to look at the calculation because I think algebraically it's a little different. You don't swing that up or down by 5 percentage points because the math -- I think you swing it up or down by -- because we're dealing with vote totals instead of vote percentages. To get the percentages right, you have to change the vote totals by half that, which actually gets you to the plus or minus 5. Because if we were applying the swing analysis just to the vote percentage, you could do it. But when you're looking at the

raw numbers, I think you have to add and subtract half of the swing.
Q. I'll open up another spreadsheet here which is the swing ratio report calculations. You can look at that, but I'm going to go to some spreadsheets from that document, which I believe is your swing ratio document you were referring to.
(Exhibit No. 71 marked for identification)
Q. I set before you what's been marked as Exhibit 71, which is a tab, and I believe it's the leftward most tab on the spreadsheet we were looking at called Incumbents.
A. Okay.
Q. And can you identify what this document is?
A. This looks like it is a set of efficiency gap calculations for what appears to be the demonstration plan.
Q. Then if we go to the last page, in Column T it shows an efficiency gap of 3.71. Do you see that?
A. I do.
Q. And that matches up with what's in your report?
A. It does.
Q. And so -- and if we look at the other tabs on the spreadsheet there, I think there's one called

minus 5 and plus 3. Do you see that?
A. Yes.
Q. So are those -- does Exhibit 71 provide the baseline from which you performed uniform swings of minus 5 and plus 3?
A. That's correct.
Q. Now, should Exhibit 71 contain the same numbers that we saw in Exhibit 70, which was your efficiency gap calculation for the demonstration plan with incumbents?
A. So I'm going to say no. Because I think what occurred here is that the Exhibit 70 is an earlier version that I would have to go back and check. But I must have made some corrections to that. And I don't know why that was included. But what was -- the report used this number. Then this is the accurate number. And this must have been a preliminary version for one reason or another. I don't know why.
Q. So if we look at Exhibit 71, it shows -- what does the Column J predicted Dem mean?
A. That is the forecast number of Democratic votes in the demonstration plan district with incumbency taken into effect.
Q. And what does the predicted Rep Column L mean?

A. It's the same value for the predicted Republican vote in the demonstration plan Assembly District after taking incumbency into effect.
Q. If we look at District 2, I see the predicted Dem vote in Column J is 12,899. Do you see that?
A. So we're looking at Assembly District 2?
Q. Yes.
A. The predicted Democratic vote.
Q. Is 12,899?
A. Yes.
Q. And that's 58.4 percent then, the next Column over?
A. That's correct.
Q. And then if I look back at Column F, it's showing me that the predicted Dem vote total is equivalent to what you would expect in a Dem -- Democratic incumbent district; is that correct?
A. That's correct.
Q. Now, Exhibit 68 shows that there was a Republican incumbent in District 2.
A. So I think what happened -- this is a preliminary -- this was a preliminary version of that that must have -- there must have been some corrections I made. And I do recall a number of situations where it was sometimes difficult to

determine where an incumbent was because even the resolution of the markers was not necessarily clear. So I'm comfortable relying on the numbers in Exhibit 71 as the accurate ones. So what is in Exhibit 68 appears to be a preliminary version.

Q Are there any open seats in Exhibit 71? Any predicted vote totals you can see that are generated from open seats?

A Looking at this, it would be difficult to tell because there is no designation about whether it's open or not.

Q As I look at them, all the vote totals seem to indicate that there's either a Democratic or Republican incumbent; is that correct?

A I mean, I don't know. I'd have to go through and check this line by line.

Q Well, looking at Exhibit 68, it shows four is an open seat. I'm looking at District 4. The predicted Dem vote is 10,276, which is what's listed in the Dem Rinc Column affecting a Republican incumbent.

A That's what it shows.

Q Now, there were some open seats in your demonstration plan; that's correct? They weren't all held by incumbents?

A That's correct.

Q I'll show you what was previously marked as Exhibit 10. This was a similar spreadsheet that was done on your no incumbents all contested seat baseline. Now, for open seats in -- with taking incumbency into account, the numbers should be the same as they were in Exhibit 10; is that correct?

A So I'm not sure what this is referring to, whether it's Act 43 or the demonstration plan.

Q This is the demonstration plan, Exhibit 10. I'm not seeing any of the districts from Exhibit 10 matching up with Exhibit 71.

A This is -- it's open seat data in Exhibit 10.

Q But some of the seats with your incumbents would have still been open seats; correct? So some of the numbers should be the same if I'm understanding this correctly.

A It should be.

Q And as a general matter, an open seat -- a seat that in your open seat calculation, not factoring incumbency into account that is for a Democrat that shows up as being won by a Democrat, if you then assume that a Democratic incumbent's in the district, the Democratic vote totals will be larger; is that correct?

A Say that again.

Q Sure. If we look at Exhibit 10 and this is all open seats, and we see a district and it has a particular Democratic vote total, and then if we are going to assume that an incumbent is running in that district, the Democrat's vote total will increase; is that correct?

A It should be.

Q And the same thing as a Republican. A Republican incumbent will increase the vote totals off of the open seat baseline?

A It should be.

Q And if we look at -- I'll just compare Exhibit 2 -- sorry, District 2 on Exhibit 10, I see that the Democratic predicted vote is 11,805 votes and that's 54.1 percent. Do you see that?

A Uh-huh, yes.

Q And then if we look at Exhibit 71, District 2 now has 12,899 votes and a 58.4 percent Democratic vote share; is that correct?

A That's what it shows.

Q So that indicates that Exhibit 71 is reflecting that there's a Democratic incumbent in that district?

A That appears to be what it shows.

Q And then if we look at Exhibit 70, if you look at Exhibit -- District 2, it shows 11,255 Democratic votes and a 51.8 percent Democratic vote share; correct?

A So what are we comparing here?

Q District 2 across all these documents.

A Okay.

Q And so Exhibit 70 was a reflection that there was a Republican incumbent in District 2; is that correct? If you refer to Exhibit 67. Or sorry.

A I've got too many exhibits.

Q Too many documents. I was referring to the wrong one. It's Exhibit 68. It shows a Republican incumbent in District 2.

A That's correct.

Q And then when we look at Exhibit 70 which is based off of Exhibit 68, we see the Democratic votes are 11,255 and a vote share of 51.8 percent; is that correct?

A That's correct.

Q Now, that has decreased from the open seat baseline because there's a Republican incumbent running in that district?

A I believe so.

Q And what these numbers show, that it makes a

difference depending on whether you assume there's a Democratic or Republican incumbent running in each of these districts; isn't that right?

A That's correct.

Q If we wanted to get an accurate picture of what the efficiency gap was under the demonstration plan taking incumbency into account, we'd have to correctly designate the incumbents that were in each district?

A That's correct.

MS. GREENWOOD: Are we able to take a break for a moment?

MR. KEENAN: Sure.

MS. GREENWOOD: Thanks.

(Recess)

MR. STRAUSS: There are some discrepancies between what's on the spreadsheets and what's in the rebuttal report. Professor Mayer believes he can explain what the cause is of those discrepancies and can explain to you which he believes are the correct numbers. He needs to do some corrected calculations to provide corrected spreadsheets. He would have to -- what we suggest is that you take this

opportunity to ask him what he believes is the reason for the discrepancy, what he believes are the correct numbers, whether he believes the differences make any material difference to his opinion, and that he issue a revised rebuttal report with the corrected numbers in it. Is that agreeable to you to proceed that way?

MR. KEENAN: It might be. I'd like to ask him the questions.

MR. STRAUSS: Go ahead.

MR. KEENAN: And then I think I'm not against providing a revised rebuttal report, whether that's something he can use in court or whatever, that -- whether that's admissible in the trial or permissible, I just don't know. I've never dealt with that situation before. I don't want to commit to, like, agreeing to that if it's not provided for under the rules and things like that. I just don't know how that works. So I'm not saying you can't do it, but I don't know, like, what the effect of it is.

MR. STRAUSS: Go ahead and continue with your questioning then.

Q Okay. So we had a colloquy with counsel about some potential errors.

MR. STRAUSS: Let me say this. The alternative is for him to go home and for us to adjourn the deposition now and for him to go home and provide corrected spreadsheets for you this afternoon, to do the calculations at home and bring them back and have you be able to question him about them this afternoon. And we could do that if that's what you would prefer.

MR. KEENAN: How long do you think that would take?

THE WITNESS: Well, it would take me 20 minutes to get home. I don't think it would take me long. We're not talking about hours. It might be a half hour or 40 minutes of work just to do it and confirm it and come back.

(Discussion off the record)

MR. KEENAN: I appreciate that offer. I don't know if that just works with my schedule today depending on how long it takes in traffic and things. So I think I'd like to continue asking questions at this

point. I am open to a revised -- some sort of revision to the report with corrected calculations. I think we might have to reserve the right to do a further limited deposition about a revision. Would you be agreeable to that?

MR. STRAUSS: Yes.

MR. KEENAN: I haven't confronted this before with a rebuttal report and then a correction, so I just don't know the legal effect of that. So I just don't want to commit one way or the other about what the effect of that is.

MR. STRAUSS: Yes.

By Mr. Keenan:

Q Dr. Mayer, we have been talking about some colloquy with counsel, and so I believe there may be some errors in these spreadsheets and in the report. So why don't you explain what you think those are.

A So it looks like what happened is for some reason in the spreadsheet in Exhibit 71, which I originally had taken to be the correct numbers, I had made an error in calculating every district as having an incumbent. And I don't know why that

happened. And after reviewing that, it now looks to me, although I would want to confirm it, that the numbers in Exhibit 69 and 70 are the correct ones. So this would make a small difference in the efficiency gap calculations and with the correct identification of the seats that were open and with the -- with incumbents.

Q And would the mistake in Exhibit 71 then also mean that the swing calculations that you performed of plus 3 and minus 5 would be -- need to be corrected because those were based on Exhibit 71?

A Those numbers would likely change.

Q But it's your understanding that Exhibits 68 and 70 would provide -- or what you think would provide the correct information for the demonstration plan with incumbents?

A 69 and 70.

Q Oh, 69.

A I believe so.

Q And then what you're proposing to do is provide -- you would generate a document similar to Exhibit 71 but with corrected vote totals and vote percentages?

A What I would do is repeat the swing analysis with confirming that I have the correct numbers.

Q And then -- so I would say that I agree that you should do that.

A Okay.

Q And then doing it today just didn't seem feasible to me. I appreciate the offer. If we would have run into this earlier in the day, maybe it would have worked. I'd appreciate that as quick as we could get it.

And then I also wanted to get into your -- you did some swing calculations on Act 43, and I didn't see a spreadsheet that showed how you arrived at those calculations. Would you be able to produce -- it sort of would be the equivalent to what Exhibit 71 -- I guess we're changing Exhibit 71, but a similar type of document and then with the swing analysis for Act 43 --

A I believe so.

Q And I would have raised that earlier with counsel, but I just didn't realize it until too late.

MR. KEENAN: You mind if I take a break?

MR. STRAUSS: That's fine.

(Recess)

MR. KEENAN: We're back on the record. I just had a colloquy off the record

with counsel about some interrogatories and requests to admit that we served on the plaintiffs which were objected to by plaintiffs' counsel. I guess I can let plaintiffs' counsel state the basis for the objection which he just stated off the record but get it on the record.

MR. STRAUSS: Well, if defense counsel intends to ask the same questions from the interrogatories to this witness, we object to this question because it calls for plaintiffs' expert to perform a calculation at plaintiffs' expense that can equally be performed by defendants paying their own experts to do the calculation. Professor Mayer has provided all the data necessary to do the calculations. Defense counsel can question him about how to do the calculations, but we don't believe it's appropriate or a proper use of the procedures for expert discovery to shift the expense of defendants' experts' work to plaintiffs, making plaintiffs having to pay their expert to do the work of defense experts for the defendant. So we object to this witness

being asked to do calculations at this deposition for defense counsel.

MR. KEENAN: And I'm not conceding that objection, but I will ask Professor Mayer some questions about how he would do that.

MR. STRAUSS: That's fine.

MR. KEENAN: So reserving we'll possibly move to compel to get answers. But I'll talk to Professor Mayer here.

By Mr. Keenan:

Q So I served a number of interrogatories upon the plaintiffs which have the same basic form but cover different geographic areas. And they asked for using your baseline partisanship model to identify the total number of votes that would be predicted to be cast for Republican and then Democratic candidates in particular --

MR. STRAUSS: Why don't you take Interrogatory No. 1 and use it as an example.

MR. KEENAN: Sure.

Q So I just wanted to know how do I identify the total number of votes --

MR. STRAUSS: Let's just read Interrogatory No. 1 into the record.

MR. KEENAN: Sure.

Q "Using Mayer's baseline partisanship model, identify the total number of votes predicted to be cast for Democratic candidates for the Assembly in all wards in the city of Milwaukee."

I understand that there was some objection to the use of the term "all wards" that your model used census blocks I believe, not wards. But the point of this question is just to get the total Assembly vote in the city of Milwaukee for Democratic candidates. The plaintiffs have responded that the data -- that defendants have the data to run this calculation themselves.

How would the defendants and/or their experts be able to determine the answer to Interrogatory No. 1?

A I believe in the original discovery phase for my original report, one of the files that was disclosed was either a spreadsheet or an Excel -- or a Stata file that had the results for -- of the baseline partisanship model for every ward in the state.

Q And I'm going to go to the computer and we have the -- okay. There's a file on this computer which says "Mayer Discovery," and this is the

Dropbox that was provided last time around for your first deposition, and there are folders. One's called Correspondence and one called Data. I'm going to open the data file because I think that's probably where this is. But if you could identify on this computer what file you believe could provide the answers to the interrogatories.

A It is -- I believe it's the file Ward Level Election Data for Merge with Block File.

Q And then using that --

A No. I clicked on the wrong file. I'm an Apple person.

So what I'm looking at is a spreadsheet that has a number of columns. Can I just pull this closer so I can sit down?

Q Sure.

A And it shows the ward-level results, both the inputs and the outputs of my underlying baseline partisanship model. And the first Column, Column A, is called the Ward FIPS, F-I-P-S. FIPS stands for Federal Information Processing Standard. And that is a -- I believe it's a 13 or 15-digit number which is used to uniquely identify different geographic areas. And so what you would need -- what you would need is a file that the

LTSB has for each ward that has the -- you would have to link the file to that file using the FIPS number.

And the reason that the ward names are not included here is that I used this file to load data into Maptitude. I used the FIPS number to match up this file with other files that allowed me to disaggregate the ward-level results down to the block level. And I did that by the FIPS rather than the name because the naming conventions -- you're dealing with strings, and those can also be nonstandard, whereas the FIPS is a numerical -- unambiguous numerical indicator.

So what you would do after linking this to the -- another file that lists the names, and also -- you could also identify the county and the municipality from the FIPS code because it's a combination of the state FIPS, the county FIPS, the municipality FIPS, and then the ward FIPS code. So you could extract the -- there's a -- extract the FIPS code for Milwaukee and then identify which of the wards were in Milwaukee and then just do a summary, or a sum.

Q And then what computer program would I use --

MR. STRAUSS: We can provide you

with a spreadsheet matching the ward names to the FIPS codes.

MR. KEENAN: Okay.

Q Does this work just in Excel itself, or do you have to, like, import it into something else?

A I did most of the statistical work in Stata just because it's easier for me and there are functions that allow you to collapse. But you could -- I imagine you could do it in Excel. I'm not familiar with how you do that. But you would just need to aggregate the data to whatever level you wanted, whether it was a city or county or some other aggregation of different wards.

Q And if we're able to pull out the proper municipality FIPS code, then that will tell us the votes in Racine or Milwaukee or Madison or whatever city we're looking for?

A That's correct.

Q All right. Well, I might be able to then handle that, so we'll see. Basically I want to have a way that I can give this number and not have it be questioned as somehow doing it wrong. So that's why I wanted plaintiffs on the record as to how to do this the right way.

I have one small thing and I think everything

else I would have would be related to this changing numbers, so it's not really worth getting into right now.

MR. KEENAN: Mark one more exhibit.

(Exhibit No. 72 marked for identification)

Q I'll show you Exhibit 72 and if you could identify that document for me. It's a few documents connected together.

A These are invoices that I submitted to counsel for October, November, and December of 2015.

Q And have you been paid for the invoices that are in Exhibit 72?

A Yes.

Q And we had another set of invoices that we went over the first time around and now we have this set. Are those all the invoices you've submitted to plaintiffs' counsel?

A Yes.

MR. KEENAN: All right. So that's all I have for now.

MR. STRAUSS: I have a question or two.

EXAMINATION

By Mr. Strauss:

Q Dr. Mayer, subsequent to you preparing your rebuttal report, did you receive and did you review a document entitled Dr. Joey Chen's Analysis of Wisconsin's Act 43?

A I did.

Q And reading and reviewing that, does that inform any of your opinions with respect to this case?

A It does.

Q And how does it?

A It is additional confirmation of my own analysis that indicated that there was no geographic clustering of -- differential geographic clustering of Democrats and Republicans that would produce a natural pro-Republican gerrymander. Indicating that based on the calculations that I had done with the Moran's I and the Isolation Index, that there is no material difference in how Democrats and Republicans are distributed geographically around the state.

Q Okay.

MR. STRAUSS: That's all I have.

RE-EXAMINATION

By Mr. Keenan:

Q Attorney Strauss mentioned the Joey Chen amicus papers that were denied filing by the court. What did you do to analyze the Chen report?

A I read it.

Q Is that all?

A That's the extent, yes.

Q Did you analyze his method of doing the randomized districting at all?

A I'm familiar with it. I was familiar with it prior to this, but I did not do any particular analysis of this report.

Q So how much time did you spend reading Mr. Chen's report?

A Between the report and the declaration, probably an hour and a half.

Q And did you speak with Mr. Chen at all about it?

A I did not.

MR. KEENAN: And I don't know if I need to put it on the record, but I think I would object to Mr. Mayer at trial offering additional opinions on either of his reports about Mr. Chen's reports, but that's all the questions I have.

MR. STRAUSS: All right. That concludes the deposition for today.

(adjourning at 2:11 p.m.)

STATE OF WISCONSIN)
) ss.
COUNTY OF DANE)

I, Taunia Northouse, a Registered Diplomate Reporter and Notary Public duly commissioned and qualified in and for the State of Wisconsin, do hereby certify that pursuant to notice and subpoena, there came before me on the 30th day of March 2016, at 9:03 in the forenoon, at the offices of the State of Wisconsin Department of Justice, 17 West Main Street, the City of Madison, County of Dane, and State of Wisconsin, the following named person, to wit: KENNETH R. MAYER, PhD, who was by me duly sworn to testify to the truth and nothing but the truth of his knowledge touching and concerning the matters in controversy in this cause; that he was thereupon carefully examined upon his oath and his examination reduced to typewriting with computer-aided transcription; that the deposition is a true record of the testimony given by the witness; and that reading and signing was waived.

I further certify that I am neither attorney or counsel for, nor related to or employed by any of the parties to the action in which this deposition is taken and further that I am not a relative or employee of any attorney or counsel employed by the parties hereto or financially interested in the action.

In witness whereof I have hereunto set my hand and affixed my notarial seal this 6th day of April 2016.

Registered Diplomate Reporter
Notary Public, State of Wisconsin

My commission expires
May 17, 2019

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