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

WILLIAM WHITFORD, *et al*.,

Plaintiffs,

v. Case No. 15-CV-0421

GERALD NICHOL, *et al*.,

Defendants.

DECLARATION OF BRIAN P. KEENAN

I, Brian P. Keenan, pursuant to 28 U.S.C. § 1746, hereby declare as follows:

1. I am one of the attorneys representing Defendants in the above captioned action. I make this declaration based upon my personal knowledge and in support of the State Defendants' Motion for Summary Judgment.

2. Attached as Exhibit 100 is a true and correct copy of the deposition transcript of Kenneth Mayer.

3. Attached as Exhibit 101 is a true and correct copy of the deposition transcript of Simon Jackman.

4. Attached as Exhibit 102 is a true and correct copy of the Government Accountability Board's 2012 Fall General Election Results.

5. Attached as Exhibit 103 is a true and correct copy of the document marked as Exhibit 5 at the deposition of Kenneth Mayer.

6. Attached as Exhibit 104 is a true and correct copy of the document marked as exhibit 7 at the Mayer deposition.

7. Attached as Exhibit 105 is a true and correct copy of the document marked as exhibit 8 at the Mayer deposition.

8. Attached as Exhibit 106 is a true and correct copy of the GAB's 2014 Fall General Election Results.

9. Attached as exhibit 107 is a true and correct copy of the document marked as exhibit 10 at the Mayer deposition.

10. Attached as exhibit 108 is a true and correct copy of the GAB's 2008 Fall General Election Results.

11. Attached as exhibit 109 is a true and correct copy of the GAB's 2010 Fall General Election Results.

12. Attached as exhibit 110 is a true and correct copy of the GAB's 2012 Recall Election Results.

13. Attached as exhibit 111 is a true and correct copy of the expert report of Kenneth Mayer. This report is identical to the one filed with the court on July 8, 2014 (Dkt. 1-2) except it contains an Annex that was referenced in, but not attached to, the version filed with the Court.

14. Attached as exhibit 112 is a true and correct copy of the article Jowei Chen and Jonathan Rodden, *Unintentional Gerrymandering: Political Geography and Electoral Bias in Legislatures*, 57 Quarterly Journal of Poli. Sci. 239 (2013).

15. Attached as exhibit 113 is a true and correct copy of page 203 of the book by Michael J. Dubin, *Party Affiliations in the State Legislatures: A Year by Year Summary, 1796-2006.*

I declare under penalty of perjury that the foregoing is true and correct.

Dated this 4 day of January, 2016

/s/Brian P. Keenan
BRIAN P. KEENAN

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

* *

WILLIAM WHITFORD, et al.,

Plaintiffs,

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

GERALD NICHOL, et al.,

Defendants.

* *

DEPOSITION OF KENNETH MAYER, Ph.D.

Monday, November 9, 2015

8:57 a.m.

Reported by: Lisa A. Creeron, RPR

DEPOSITION of KENNETH MAYER, Ph.D., a witness in the above-entitled action, taken at the instance of the defendants, under the provisions of the Federal Rules of Civil Procedure, taken pursuant to notice, before LISA A. CREERON, a Registered Professional Reporter and Notary Public in and for the State of Wisconsin, at the Wisconsin Department of Justice, 17 West Main Street, in the City of Madison, County of Dane, and State of Wisconsin, on the 9th day of November, 2015, commencing at 8:57 a.m.

A P P E A R A N C E S

PAUL STRAUSS, RUTH GREENWOOD and ANNABELLE HARLESS,
CHICAGO LAWYERS' COMMITTEE FOR CIVIL RIGHTS
UNDER LAW, INC.,
Attorneys at Law,
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behalf of the plaintiffs;

BRIAN P. KEENAN,
Attorneys at Law,
WISCONSIN DEPARTMENT OF JUSTICE,
17 West Main Street,
Madison, Wisconsin 53703, appearing on
behalf of the defendants.

* * * * *

(Original transcript is filed with Attorney Keenan)

I N D E X

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KENNETH MAYER, Ph.D.,
called as a witness, being first duly sworn in the above cause, testified under oath as follows:

EXAMINATION

BY MR. KEENAN:

Q We met at the hearing on Monday, but I just introduced myself. My name is Brian Keenan. I'm an attorney representing the defendants in this case. We're here for your deposition. Have you been deposed before?

A Yes.

Q Okay. So I suppose you know some of the rules, but I'm just going to go over a few of the ground rules just to refresh your memory. We have a court reporter here, and she's taking down the testimony and so it's important we get a clear transcript. So if you'd please let me finish my question before you say your answer, I'll try to let you say your answer before I start a next question so that we make it easy for her.

You understand that you've sworn to tell the truth?

A Yes.

Q Okay. Now, if at any time during the deposition if

you don't understand my question, just let me know. We want to make sure you understood the question and give a truthful answer. So if you don't understand, just tell me. I'll try to rephrase the question or we can have her repeat it back. Do you understand?
A Yes.
Q Okay. Maybe I could just get your educational background. I know some of it's in your report, but maybe just the schools that you got, the degrees -- the schools you went to, the degrees you obtained and the years.
A My undergraduate degree is from the University of California-San Diego, and that was 1982. My Ph.D. is from Yale University, and I received that in 1988. And there are subsidiary degrees you get along the way, master's and master's of philosophy, which I think the dates were '86 and '87.
Q And the Ph.D. was from where?
A Yale.
Q Yale. And then what was the Ph.D. in?
A Political science.
Q And then you are now a professor at the University of Wisconsin-Madison, correct?
A Correct.
Q Okay. How long have you been a professor there?

A Since 1989.
Q So right after you got your Ph.D. at Yale?
A I spent a year after I received my degree working for the RAND Corporation in Washington, DC.
Q And what's your current title, so to speak, as a professor at Madison?
A Professor of political science and affiliate faculty of LaFollette School of Public Affairs.
Q And what are your research areas?
A Research interests are American politics, the presidency, elections, elections administration, some interest in Australian politics, but mostly American politics.
I teach courses in the undergraduate course, courses in the presidency, a course on campaign finance, various seminars, but all of them are focused on either elections, elections administration, the American presidency, and I taught one course on comparative electoral systems.
Q Do you teach any classes that relate to districting or redistricting like that's at issue in this case?
A Not specifically. I have taught courses that deal with various issues relating to election administration and that plays a role, but no courses specifically on redistricting.

Q You're an expert -- serving as an expert witness for the plaintiffs in this case. Have you served as an expert witness in other cases?
A Yes.
Q And how many other times?
A They are in my report. I think it is six or seven times. I'd have to go back and look to be sure.
Q And how many of those deal with -- have dealt with districting situations as opposed to perhaps campaign finance or something else?
A Well, let me think for a minute. Can I look at my report?
Q Yeah. Actually why don't we mark that as Exhibit 1.
A I just want to make sure I get this correctly.
Q And then you can refer to that.
MR. KEENAN: Here's a copy for Exhibit 1.
MR. STRAUSS: Thank you.
(Exhibit 1 is marked for identification)
Q And just for the record, this is the Exhibit 1 that was provided by your counsel that has the -- I had a copy that didn't have the appendix with some data error -- or an annex, sorry. This one has the annex to it.

A So this covers the last eight years, Baldus vs. Brennan was a redistricting case. Kenosha County vs. City of Kenosha was a redistricting case. I was an expert in 2001, and I think that was Baumgart vs. Wendelberger. Those are the -- as best I can recall, those are the only cases where I have testified as an expert on a redistricting matter.
Q Okay. I'm familiar with the Baldus and the Baumgart case, but what was the Kenosha one about?
A The Kenosha case involved a dispute between the City of Kenosha and the County of Kenosha over the drawing of wards and districts and it -- as I remember, it involved disputes over whether the -- how the city and county resolve discrepancies or disagreements over wards and as they affect county supervisory district lines and city aldermanic lines.
Q Okay. That was going to be my next question. So it involved local election lines, not state assembly lines?
A Correct.
Q Okay. And which party did you represent in that -- or not represent but provide an expert report for?
A I provided an expert report on behalf of the city.
Q Do you know what the end result of that case was?
A The end result of the case -- again I'd have to go

back and look at the record. The end result was that the city was able to reconfigure its wards so that they were in compliance with the -- again I'm operating -- it's been a long time, it's been four years since I've looked at this, that the city was able to reconfigure its wards to address some of the disagreement.

Q Okay. And do you know if there was a judicial decision that allowed that or was it a settlement or agreement or do you know?

A I don't know.

Q Okay. And then it says you have testified as an expert witness at trial or deposition. Which -- did you testify in a deposition, trial or both in that case?

A Baldus was deposition and at trial. NAACP vs. Walker, both deposition and trial. The one case where I testified in deposition but not in trial was McComish vs. Brewer.

Q Okay. So there was a trial in the Kenosha County one?

A There was.

Q In the Baldus vs. Brennan case, on behalf of which party did you submit an expert report -- or parties?

A I'm pretty sure it was on behalf of Baldus because

Brennan was on the GAB.

Q Okay. And what was your understanding of who the plaintiffs were in that case?

A People who were challenging the constitutionality of Act 43.

Q And then in the Baumgart case from the 2000 round of redistricting, on which side did you -- on behalf of which -- sorry, on behalf of which parties did you submit an expert report?

A That case I recall I worked -- one of the parties was the Senate Democratic Caucus I believe was the party that -- I worked for or provided the report for.

Q And what were the issues you offered an opinion on in Baumgart to the extent you can remember?

A In that case my role involved assessing the partisan consequences of the proposed plans submitted by all of the parties.

Q And did you offer an opinion on perhaps which parties under the map that was the best in that case?

A I would have to go back and look at my report, but my recollection is that both the party I was working for and the other party, which I believe was the Assembly Republicans, had submitted multiple maps and I analyzed those maps and provided analysis about the estimated consequences that those maps would have.

But I would have to go back and look at the report to be more specific.
Q And what's your understanding of the district that came into being as a result of the Baumgart case? Did the court accept either of the maps that were drawn by the parties, or did it draw its own map?
A So are we back in 2001?
Q 2001, yeah.
A So my understanding is that the court took the submissions from both parties and produced its own map.
Q Okay. Well, let's switch to this case. When did you first get approached about potentially being an expert in this case?
A I believe it was somewhere around -- it was over the summer. Somewhere around July. I don't remember precisely.
Q July of this -- 2015?
A 2014.
Q 2014. And who did you talk to about it?
A I believe the initial conversations were with Peter Earl and Ruth, Ruth Greenwood.
Q And after that initial contact, when did you officially become involved with the case?
A I would have to look at the agreement letter. I'm

not sure when I actually signed that.

MR. KEENAN: Let's mark that then as No. 2.

(Exhibit 2 is marked for identification)

Q And you mentioned an agreement letter and we put before you Exhibit 2, and is this the agreement letter that you're referring to?

A I believe it is, yes.

Q And it's dated November 5th, 2014. Does that refresh your recollection about the time you were retained about?

A I would say November.

Q And it's your understanding that this letter contains the scope of work that you were asked to do on behalf of the plaintiffs in this case?

A That's correct.

Q And it says that your rate is $300 an hour. That is your rate, correct?

A Correct.

Q Looking at your report, did anyone else assist you in doing the work that went into the production of your report?

A In terms of the report, no.

Q Okay. And when you said in terms of the report, that indicates that perhaps someone else assisted you in

some other ways?
A I had a graduate student whom I've worked with before do some of the data issues, particularly regarding the -- I guess the proper term would be preparing the data for subsequent analysis.
Q Okay. And what type of data is that?
A It was, as I explained in the report, that I obtained data from the LTSB and GAB, primarily ward level election and demographic election returns and demographic data.
Q And what's your understanding of what -- first who was the grad student?
A His name is Brad Jones.
Q What did Mr. Jones do to the data in order to prepare it for the subsequent use by you?
A His responsibilities or his tasks were to do some -- I'll call it cleanup to making sure that the different fields and the data conformed so that we could put them together, and I also instructed him and used him to do some disaggregation. At one of the points we took ward level estimates and disaggregated them down to the block level using voting eligible populations. So it was essentially -- I wouldn't say data analysis, but data processing to put the data in a form that was

suitable for the actual analysis.

Q You used a couple terms there that I just want to get on the record what they are. You mentioned ward level data and block level data. Could you just explain what those are?

A Sure. The data on elections and the redistricting data that the Legislative Technology Services Bureau produced were largely at the ward level or the voting tabulation district level. But I also used census data or the actual redistricting files, the map files that the Legislative Technology Services Bureau produced. And those include block level data, the 250,000 or so blocks, census blocks that are defined by the Census Bureau, and in doing the analysis and preparing the maps, I did that at the block level. So it was necessary to take the ward level results and disaggregate them down to the census block level.

Q Okay. So maybe if I could just also get you to define what disaggregate means when you're talking about the ward level down to the block level.

A Sure. In this case it means assigning values to census blocks based on the percentage of the ward population, the voting eligible population that existed in each census block. And I explained a couple of examples in the report of how I did that.

Q How big is a census block? Are they uniform in size or are they -- do they differ in terms of the number of people in them?
A They vary.
Q Okay. And then I take it that a ward is made up of several different census blocks?
A Usually.
Q Usually, okay. And does that vary from ward to ward, I guess?
A Well, in terms -- vary in terms of what?
Q Like, for example, like a ward could be five census blocks or one or 10, it depends on the ward, or do wards tend to have a certain number of census blocks that are in them?
A The number of census blocks in each ward varies.
Q Okay. And so when you're disaggregating, are you attempting to -- you're taking a larger data set made up of several census blocks and trying to establish the number of votes from the ward totals that are assigned to each different census block? Perhaps that's a bad question.
A Can you -- I mean --
Q Sure.
A -- the methodology of doing this is actually pretty standard. It's common and disciplined, but I want to

make sure that I understand what I mean based on -- match it up.

Q Sure. Well, maybe you could explain what you're doing when you take -- I take from your testimony that you're taking ward level information then and it's a bigger number than trying to break it down into smaller numbers that go into each census block?

A Correct. When you're working with GIS data or geographic data, it's very common to apply or to transfer information at one level to another level. And a common way to do that is that you assign or distribute values at a higher level to a lower level based on the distribution of population.

So in my report, I developed estimates of partisanship, the number of people who I estimate will vote Democratic or Republican, and I broke those down or distributed those ward level totals to the various blocks in that ward based on the proportion of each block or the proportion of a ward that was made up in that block.

Q Okay. And when the data disaggregated from the ward level to the block level, is it a straight population, for example, like one block has 30 percent of the people of this ward, so, therefore, 30 percent of the totals get assigned to that block, or do you actually go into the demographic data and adjust for different types of populations that vary block to block?

A I did do adjustments -- I made two adjustments. One is that we adjusted for citizenship using data that is data on people who are of voting age but are not eligible to vote because they're not citizens. And I also controlled for institutional -- prison populations which are similarly -- these are typically voting age, but they can't vote in Wisconsin and so it was -- I made a calculation of the voting eligible population in each ward and block.

Q But after you accounted for those two issues, then were the votes assigned from the ward level to the block level based on just the percentage of voters that -- eligible voters that were in that block compared to the whole ward?

A That's correct. And that's very common in both GIS and in political science as a way of doing that.

Q Sure. And I'm just trying to make sure that I understand it correctly.

A Sure.

Q Okay. I've got a couple of documents here.

(Exhibit 3 is marked for identification)

Q And I guess first I should maybe back up a little bit. So you understand that there's a subpoena issued for documents related to this case, correct?
A Yes.
Q You turned over documents that were in your possession to your attorneys who then turned them over to me, do you understand that?
A Correct.
Q And so what was your understanding of the documents that you were supposed to give to your attorneys that they could provide to me?
A My understanding was that I was to turn over documents that reflected the things that I took into account, all of the data sources that I took into account in preparing my report.
Q Okay. And so there weren't any documents that you took into account in your report that you failed to give to your attorneys?
A There were some things in the bibliography, I suppose, the publicly available things that I relied on, but there was nothing that I relied on in making my report that I did not turn over.
Q So getting back to No. 3, I'll just tell you what I did. This is several different documents that were in your production that I put together. These were

the invoices that listed Brad Jones on them.
A Um-hum.
Q And I tried to put them in chronological order. And you mentioned Brad Jones before. So are these the invoices for Mr. Jones' work on this case?
A These look -- these are the invoice that he submitted, so reflecting the work that he did.
Q And then do you know if he's been paid for his work?
A He has.
Q Okay. And who has paid him for the work?
A I believe the same people who paid me.
Q And who is that?
A The Chicago Lawyers' Committee, and I did receive one check or a couple of checks from the national ACLU.
Q And then I also --
MR. KEENAN: We'll mark this as No. 4.
(Exhibit 4 is marked for identification)
Q Exhibit 4 is similar to what I did with Exhibit 3 was I took the invoices that had Kenneth Mayer Consulting, LLC on it and put them in chronological order and just grouped them together here. So if you want to take a look at that, and I'm just going to ask you if these invoices constitute all of the invoices that you've submitted for your work in this case.

A So this looks like -- it looks like there's one error. The invoice I submitted in February was for January, but it says the dates of services were December. So that looks like it's incorrect.
Q Okay. But that's just a typographical error?
A Right.
Q Okay. It says Kenneth Mayer Consulting, LLC. What is that LLC?
A That's a limited liability corporation that I set up in the State of Wisconsin.
Q And is that the -- I guess the business forum for which you do the consulting work on these when you're an expert witness?
A Correct.
Q Looking at Exhibit 4, I noticed that there's one bill for a computer. Why did you submit a bill for what looks to be a computer to the plaintiffs' attorneys?
A The software that I use to -- the GIS software only runs on Windows machines and all of my computers are Macs, so it was necessary to get a machine that could run the program.
Q So if we add up all the total of these invoices, we could get the total amount you've billed to the plaintiffs in this case, correct?
A Through these dates, correct.

Q Yeah. And has all that money been -- have you been paid for all those invoices?
A I don't know.
Q Okay. And you mentioned that some of the checks came from the Chicago Committee and others came from the national ACLU. Do you know what percentage of your invoices were paid by either entity?
A No.
Q What's your understanding of why the national ACLU paid some of the bills?
A I don't know.
Q Perfectly fine answer. I think we can put -- like 2, 3 and 4 we probably won't refer much to again, so you can probably just put somewhere. Exhibit 1 we will refer to, so you might want to keep that handy.
Another thing I didn't say is that since we do have documents and if I put a document in front of you, feel free to read it over and refresh your memory and look at it to the extent you need to to answer a question when it relates to a document.
A Okay, thank you.
Q And also I forgot to mention we can take breaks when you want, so if you're feeling like you have to go to the bathroom or anything like that, just let us know and we can take a break. I will add if there's a

question pending, I'll ask you to answer the question that's pending, but then we can take a break if you need to.

A Okay.

Q Okay. Maybe we could just go to the back of the report, the annex. You mentioned in the report that there were some data errors in Wisconsin election data, and I just wanted to ask you about what -- as I understand it, there were some errors in the ward level data not matching up between the GAB and the LTSB, is that correct?

A Correct.

Q Okay. And so how did you go about resolving any of those data errors?

A The process is that whenever I am provided or begin working with a large data set, it's always important to go through and check the validity of the data. And so in this case we had -- I had -- I'm using the royal we meaning I had the LTSB data which was an individual ward level data on demographics, population, information on the municipality, the jurisdictions in terms of assembly, senate, congressional districts that that ward was in. And it had voting data going back, depending on the file that you used, sometimes it would go back a number of election cycles.

And so the first thing that I did is took that data file, which had 6,500 or so records, however many populated wards there are in Wisconsin, 6,592, and calculated -- used that data to calculate district level totals for assembly races, which will tell me whether or not those totals are accurate, and I compared them to the GAB, the Government Accountability Board totals and the Blue Book, the State of Wisconsin Blue Book and I took that to be authoritative.

And I found a number of cases where the totals were off, sometimes considerably. The totals were off. There were districts where according to the GAB, a candidate was running unopposed, but there were votes that showed up for both parties in the LTSB data and these were -- I found these to be significant and concluded that it required investigation. I had a conversation with a staffer at the LTSB asking them about this, and I suspected one of the problems and one of the reasons that this happened is that the GAB, the way that elections are administered in Wisconsin is that they are administered at the ward level but smaller municipalities, I think those that have fewer than

35,000 people are actually permitted to combine individual wards into reporting units, and that's done for administrative ease.

And so if you look at the official GAB totals, frequently they'll be City of Madison Ward 96, but in some areas, they'll be the City of Marshfield. It will be Wards 1, 3 and 5 and so they're combined and there is no -- that's how they received the data. And so if you looked at just the GAB, you would get data at the reporting unit level.

The LTSB has data at the ward level, and I was told by LTSB that they did their own allocation process, which is assigning reporting -- in cases where you had reporting units, to assigning those totals to individual wards, and I thought that that is one of the ways that the totals were wrong.

I have a chart in there, I believe it was the City of Mequon that shows what happened and so the City of Mequon, the LTSB data, when you take that data and recombine it into the reporting unit level, all the numbers are off. And so one of the steps that I conducted is to -- I went through in those places where there were errors, I fixed them and I fixed them by either correcting them to the totals in the GAB or I redid the -- I redid the steps that they performed and reallocated the reporting unit totals to the individual ward levels to get accurate -- an accurate representation of what those totals were.

Q Okay. A lot in that answer, so I'm just going to try to break it down a little bit and just try to figure out what -- so for an assembly race, if we go to the GAB election data that says Candidate A had 17,000 votes and Candidate B had 15,000 votes total throughout the district, you took that number as accurate, correct?

A I took that number as authoritative.

Q Authoritative might be a better word. And then if the GAB's ward level data didn't have an issue of combining certain wards into one reporting unit, would the GAB's ward level data be accurate or authoritative?

A So are you asking whether the GAB's individual ward level data is authoritative?

Q Yes.

A I took the GAB data as authoritative.

Q And at the ward level as well?

A Correct.

Q Okay. Now, some of the GAB data might be -- I think you said where there are several wards combined into one reporting unit, is that correct?

A Correct.
Q Okay. So I think you used the City of Marshfield example of like 1, 3 and 5? Or it's 1, 3 and 5 are combined into one reporting --
A Actually it might be better to use the Mequon because we actually have --
Q Okay, yeah. Maybe. Where is that?
A That's in the --
Q Page 3 of the annex. So we see there's three columns here on this page. One says GAB reports, one says LTSB data and one says difference. So the GAB reports, for example, it has Ward 1, there's only one ward there and a list of Romney and Obama votes and vote totals. Did you take that line, Ward 1 in Mequon, as authoritative?
A Yes.
Q Okay. But then the LTSB data, that had some different numbers there, and I take it when you looked at that data and compared it to GAB data, you noticed a discrepancy and thought that the LTSB data for Ward 1 needed to be corrected, so to speak?
A Well, there are two parts to that. I think it's more accurate to say that I looked at -- compared the LTSB data, ward level data to the GAB, so the LTSB was different and it required investigation as to why.

Q Okay. But just looking at these two, if I pulled up these two spreadsheets, so to speak, that had both of the ward units reporting here and GAB as Ward 1 and then LTSB as Ward 1, if I wanted to know which one had the authoritative vote totals, that would be the GAB?

A Right. As I understand it, the LTSB data has no official status. It is simply the data that is presented and I think that it's -- I am not aware of anything that suggests that that has any official status as opposed to something that they release. It's the GAB which I took to be authoritative.

Q Okay. And then I guess we go to GAB like, for example, the GAB reports, there's reporting Units 3 and 4 together, Wards 3 and 4 are together and if I understand your testimony correctly, in a situation like that, that may cause some errors in the LTSB data because there's one reporting unit for multiple wards?

A Well, I'm not prepared to say that the second part of that is true.

Q Okay.

A But the -- correct to say that in the GAB data, Wards 3 and 4 produce results at the reporting unit level, and those numbers are off as well in the LTSB data.

Q Okay. And then so when you did any sort of calculation in Mequon here, there's Wards 3 and 4 report together, what did you do to disaggregate, so to speak, Ward 3 from Ward 4 based on the data in the GAB report?

A Well, the disaggregation was the second step in this because the first step was to try to determine why these individual ward or reporting unit totals are off in the LTSB data. My experience tells me that this is an allocation issue because if you look at the totals, the last row, the total number of votes cast for Romney and Obama were all accurate. They match up perfectly.

It's just the internal distribution of those votes in the LTSB data is incorrect, and that is why I concluded that this was a problem or there was an error in how the LTSB allocated those votes, and I don't know why that happened. I don't know why the LTSB when it had individual wards just didn't plug the GAB totals in there, I don't know why.

But it's clear this was an erroneous allocation of votes in this case at the reporting unit level, and if the reporting unit level is wrong, it's not going to get better when you further disaggregate into wards.

Q Sure.

A And so I was able to identify every case where there was what I considered to be a material discrepancy. There were some where it was a single vote or a small handful of votes that was too small to have any effect on subsequent analysis. And as I explained in the report, I went through and corrected those and there were -- this was only one of the errors.

There were other instances that I describe in here where a ward was simply assigned to the incorrect district in the LTSB data and I was able to identify and fix those.

Q Okay. But if I want to just look at the -- what were the results in a particular election by reporting unit, I can just go to the GAB spreadsheet that lists each reporting unit and that would be the authoritative source of the vote totals?

A That's correct.

Q Okay. I think that's enough on the data errors. If we just go get a little more general, what's your understanding of what partisan symmetry is?

A I understand partisan symmetry to mean that the political parties, the two major parties are treated equally in terms of their ability to translate the

votes that they receive into seats.
Q And when you say the votes they receive, what do you mean by that?
A The votes that they receive in a particular -- typically partisan symmetry is used in the context of legislative races where you have a set of elections and you --
Q So it will be the votes cast for all the candidates in a particular party?
A Generally. There are some exceptions to that, as I'm sure we'll get into.
Q And what's -- and maybe we can just get into it now. What's your opinion about the appropriate way to measure a party's share of the vote in a legislative -- a series of legislative elections, for example, like the 2012 election for Wisconsin Assembly?
A In the political science literature in the context of redistricting, the general -- what is in my view the generally accepted way of measuring that is looking at some measure of the underlying partisanship of a district. Frequently this is a function of the actual votes that are cast, but there are instances where that will not give you an accurate measure of the underlying partisanship, particularly when there

are uncontested races.

But there were also issues where incumbency can affect the vote and so the -- a common, I don't know if I would say it was the most common, but a common method of estimating the vote or partisanship in a district is you construct a measure of the partisanship of that district. And sometimes you can use the actual votes. In many cases you can't.

And that gives you an estimate of what the underlying partisanship of a district would be ideally. In some cases you would need to do that independent of the actual candidates who are running.

Q For legislative elections, would it be appropriate to look at that party's candidate for, for example, presidency in the state during the same election to determine the statewide vote share for that party?

MR. STRAUSS: Object to the form of the question. Appropriate for what purpose?

MR. KEENAN: Well, for determining the statewide vote share that we're using in determining partisanship symmetry.

A So can you restate?

Q Yeah.

A I'm kind of losing track here.

Q Sure. At some instances I see reference to the fact that President Obama won a certain percentage of the vote in Wisconsin in 2012. Other times there's a reference to the amount of votes perhaps adjusted that the Democratic candidates won in the 2012 assembly elections. Which one would be the appropriate one to use for measuring partisan symmetry of the assembly elections?

A It depends. My references to the presidential vote is -- the statewide presidential vote is a marker of an indication. It is a measure of statewide partisanship. But that is not the measure I used in constructing my analysis of the underlying partisanship of all of Act 43 and also the demonstration plan that I drew.

Q And when you calculated the Democrat statewide vote share in the 2012 assembly elections, was it higher or lower than the share of the vote that President Obama received in Wisconsin in 2012?

A So if I calculated referring to my measure of partisanship?

Q Yes. The way you -- you said you didn't look at the presidential vote as -- you did something else, you looked at your measure.

A Right.

Q And did your measure come up with a number that was higher or lower than President Obama's vote total in Wisconsin in 2012?
A Well, now we're starting to get apples and oranges. We're talking about percentages or numbers.
Q Well, we can do either or both.
A I don't recall sitting here. I would have to look at the data to be able to tell you whether -- I would have to look at the report. I don't remember what those numbers are or even if I did that calculation.
Q Okay. And then another question would be when calculating the statewide vote share of the Republicans and the Democrats, how do you account for votes that are cast for third parties or even just scattering votes for random candidates?
A So in doing the calculation, the accepted practice and the discipline is that you count the major parties. And the scattering will typically be a minuscule proportion, but it's the two-party vote that is the quantity of interest.
Q Okay. So just so I understand that, the two-party vote would be, for example, I'm just giving you some numbers, if there's 100 statewide votes and one party got 50 votes and one party got 48 votes and another like random people got two votes, you disregard those

two votes and now the vote total is 50 to 48, is that correct?
A Well, for the purposes of doing an analysis of a plan that you would look at the 50 and the 48.
Q And so then the percentage ends up being a little bit off where it's now the party that got 50 percent actually got a little more than 50 percent because it's --
A Well, I dispute the term off because that suggests that there is a true measure that this departs from.
Q Fair enough.
A The political scientists and people who study redistricting would say that the best measure of the partisanship in that scenario would be 50 divided by 98, which would be a small majority. We could do the math.
Q Yeah. That's just what I'm trying to get at.
A It would be 50 percent. It would be probably 51 percent.
Q So when you look at a GAB statewide election total, President Obama or Scott Walker or someone might have a total, but that's not quite exactly right because someone -- it's not the exact percentage of the two-party vote because there's some scattering of some less than one percent of votes that are out

there?
A There will be -- there are votes that are not counted in those percentages. They are almost always a trivial and immaterial number.
Q Okay. What is a wasted vote?
A So a wasted vote in the context of the efficiency gap is a vote that is cast by either the losing party in an election or for the party with -- that wins, the number in excess of what was necessary to win the seat.
Q Now, the losing party makes sense, that's pretty easy. You just take their vote total, right, and that counts -- all those are wasted votes, is that correct?
A Yes.
Q Okay. Now, for the winner, I just want to figure out how we just get to the exact number there. How do you determine the number of wasted votes for the winning candidate's party?
A So I recall it is the essentially one-half of the margin of victory in terms of number of votes.
Q Okay. So that would take the winning candidate's number, whatever it is, subtract the losing candidate's number and left with something and then I divide that by two and I got -- and that's the wasted

votes for the winning candidate?
A Say that again. I want to make sure --
Q Sure. Yeah. I may not have explained it very well. So I would take the vote total for the winning candidate and then subtract from that the vote total for the losing candidate and I'm left with the difference -- the margin of victory, correct?
A Correct.
Q And I would take the margin of victory and divide that by two and I have the wasted vote number for the winning party?
A Correct.
Q Okay. And if I just to make sure that that number is a two-party vote measure, it also kind of disregards any sort of stray votes that are cast for candidates outside of that two-party race?
A So it's correct that that quantity is calculated using the -- well, it will always be the Democratic and Republican candidate and -- but it counts only those votes.
Q What's your understanding of where the -- well, first maybe you mentioned that as part of the efficiency gap, we're talking about the wasted vote. What is the efficiency gap?
A It's a measure of the -- it is a measure of the total

number of wasted votes divided by the total number of votes cast and it gives you a measure of the relative number of wasted votes for the two parties.

Q What's your understanding of where this version of the efficiency gap first came into being in the political science world?

A Well, that's an ambiguous question because the method and quantity was explained in a University of Chicago Law Review article. I don't know exactly the publication date. It may have been October 2014 or something like that, but I can't tell you the history and evolution of the concept.

Q So did that article from you think maybe October of 2014 but may be off a little bit, did that article provide the basis for how you went about calculating the wasted votes in Wisconsin in 2012?

A So my method of calculating the wasted vote relied on the methods and formulas outlined in that article.

Q Okay. And then were there any other -- whether they're law reviews or political science articles or I don't want to limit it, but any other articles or maybe something else that you relied on in developing your method for calculating the wasted votes in Wisconsin?

A Well, in terms of the actual calculation of the

wasted votes or the method -- so in terms of the -- once I had my district level measures, my method of calculating the wasted votes, I did not rely on any other sources.
Q Okay. Yeah. I'm aiming more at the theoretical concept that you were using, where that came from. And so that came from this article in the Chicago Law Review?
A Yes.
Q Okay. How does this efficiency gap method of calculating partisan symmetry differ from other methods of calculating partisan symmetry?
A That you'd have to ask the author of the article. I'm really not in a position to answer that.
Q All right. Are you familiar with the term partisan bias as a measure of political or partisan symmetry?
A Well, the partisan bias is not really synonymous of partisan symmetry. It reflects something different.
Q Enlighten me, I guess. What does it reflect that's different?
A So the quickest definition of partisan bias would be in a 50-50 election what percentage of seats does the majority party have and so if the -- so if there was a 50-50 election and one -- in that election, one party had 55 percent of the seats, would you

calculate the partisan bias at five percent, and there are sort of roughly analogous methods of looking at it at different levels, but that's -- as I understand it, that's the most common way of measuring the partisan bias.

Q Have you ever performed a partisan bias calculation on Wisconsin or any other state's election?

MR. STRAUSS: Object to the form. In what year?

MR. KEENAN: Any year.

A It's possible that I may have done something similar in the Baumgart case. I don't remember.

Q Do you consider yourself an expert in calculating the partisan bias in this 50-50 election scenario?

A Well, can you define -- I mean I know how to do it.

Q Okay.

A And I'm familiar with the literature of how that's done.

Q All right. Well, I just didn't want to start asking you questions about something you had no idea what it was. So how does one go about determining how many seats a party would win in a 50-50 election?

A So normally the method would be to construct an underlying measure of election outcomes and then typically you would perturb -- you would apply frequently what would be a uniform swing and you would assume that the percentage of the vote that the one party gets goes up or down by a fixed amount around the state and you would adjust that to see what happens at 50, look at the numbers of seats and that's what you would use as the partisan bias, and there are lots of refinements in terms of how you calculate the winners, but that's -- my recollection is that that's the most common method of doing it.

Q So someone has to create a model that determines underlying partisanship of each and every district in the state?

A Well, you wouldn't necessarily need to -- you can do it just looking at the actual votes, but it ultimately relies on some measure of election outcomes at the district level that you can perturb or examine what happened under some alternative scenarios.

Q And then so, for example, in a 48-52 election, this many seats, and then eventually you get to 50-50 and then you have to see how many seats each party gets?

A Well, it's more complicated than that. In a 48 to 52 statewide election, the district level votes would be distributed, and so you would see what happens in the district where you perturb the percentage.

Q Okay. I guess to be clear, the method you used in this case isn't a measure of partisan bias in the 50-50 election?

A That's correct.

Q Why don't you explain the -- how you went about determining the underlying partisanship of each district in the Wisconsin Assembly? And feel free to refer to your report to the extent you need to do that.

A What I did in the report was construct the regression model that uses as the dependent variable the actual assembly vote in contested districts. And the independent variables, I'm going to refer to my report here just to make sure I get this correct.

Q Sure. And just identify, please, the page where you're at and we can follow along.

A Okay. So I'm on Page 10 and 11. So it explains -- it is a model that uses as a dependent variable the assembly vote in a particular ward. This is ward level analysis.

Q Maybe I could just stop you. In terms of the assembly vote just so -- I know they're small numbers, but is this the two-party vote or the total vote?

A I did a separate model for Democrats and Republicans in each district. So this is the actual number of votes received by in the first case the Democratic candidate and then I ran the model again for the Republican candidate.

Q For just the D's and R's, so if there was some candidate that gets 15 and I look at the results, I need to add the Republican and the Democratic actual votes to get the total votes in your model?

A Well, the way that you would use this to get a district level measure is that you would look at the Democratic and Republican totals.

Q All right. Continue, sorry.

A Then the dependent variables again for each ward are the demographics, the total voting eligible population and these are numbers, not percentages. The total Black voting eligible population, the Hispanic voting eligible population.

And on the next page, the Democratic and Republican presidential vote, again these are all absolute totals. A dummy variable, if there is a Democratic incumbent or a Republican incumbent and that's one, if it's a Democratic or Republican incumbent, zero otherwise. And then the last term of the county, that's what's called a fixed effect, there's a dummy variable for each county reflecting some possible geographic effects.

And I did this again for the underlying data with the actual vote totals in contested assembly districts in 2012.

Q Okay. One thing is just with political scientists, you guys like to use these equations, and I'm not sure exactly how to say the letters and numbers and things that are there. So when it says y and then like little i, I guess, how would I just like refer to that?

A That's Y i or Y, sub i.

Q Y, sub i, okay.

A But that's just sort of a symbolic representation sort of explaining the regression and just sort of as -- expresses the fact that this is a linear model.

Q And then the sub i is meant to refer to -- that's for one district?

A For each ward.

Q Each ward, okay, that's a ward. And then there's A, do we just call that, or alpha?

A Alpha.

Q And then is the next one beta?

A Beta.

Q Sub i or sub 1?

A Yeah.

Q Okay. And then there's the really fancy one at the end?
A Right. That's basically it reflects the fact there are 72 counties in Wisconsin. So rather than write out all 72 counties, it's a way that for each county, it's a 1 if it's in that county, a 0 if it's not and then I believe I excluded Dunn County because when you have a dummy variable that's exhaustive, you need to exclude at least one variable because otherwise you have a constant that makes it difficult to -- or makes it impossible to generate the estimates.
Q We've been going for like an hour. I don't know if you're fine still going or if you want a break.
A I could take a break.
MR. KEENAN: Okay. Let's take a break.
(Short recess is taken)
Q Mr. Mayer, before the break, we had just started to get into the model on Pages 10 and 11, so we can just go back there and I'd like to just go into each of the different pieces of the model and we can just talk about them individually. So I think we already talked about the assembly vote part of it. The total voting age population, why don't you explain that element of the formula?

A The census produces numbers for each block which the LTSB aggregates into wards, and one of the variables is the number of people 18 or over who are eligible to vote. I did two corrections. One is that I adjusted for estimates of noncitizenship rates using separate estimates that the census produces. I believe I used county level estimates of basically the percentage of adults for noncitizens and did that correction and also removed institutionalized felon populations using state and federal prisons.
Q Okay. So I think we talked about that earlier in the deposition.
A Okay. And so that gives me an estimate of the number of people who are eligible to vote in each ward, which is a better figure to use than the total number of people because there may be numbers of people who for whatever reason are not eligible to vote. Generally these numbers are going to be small enough that they are not likely to make a material effect on the outcome.
Q So just so I understand the county level issue with the noncitizenships, for like a ward that's in Dane County here, you just took the Dane County average for noncitizens and applied that to each ward in Dane County?

A Well, there are separate estimates for each ethnic and demographic group. So there's noncitizenship for Whites, African-Americans, Hispanics, Asians and so I applied the noncitizenship rates to each of those demographic groups.

Q So as they appear in Dane County, so if there's five percent Hispanics, then you needed to -- I'm sorry. Probably I think that's a bad question.

So you looked at the underlying demographic data of each county or did you look at the demographic data of each ward?

A Well, I applied the county level noncitizenship estimate to the wards and they don't differ that much from the municipality level estimates. One of the reasons I used the county estimates is because you have a slightly larger geographic jurisdiction. Those estimates are going to be more accurate because there are more people. But I strongly suspect that it would not change if I had applied the city level figures in any case. Those would have been -- there was a larger chance that those estimates were inaccurate or would be more likely to be a larger margin of error using the larger base population.

Q Sure. And I guess maybe I'm trying to figure out that's the percentage of noncitizenship used. What

did you apply that to?
A So I applied the voting age to the voting age population. Just to give a hypothetical example that in most parts of the state, the noncitizenship rate among White voting age, White non-Hispanic voting age, the noncitizenship rate is on the order of 1 to 1.2 percent and so would reduce the ward level populations by that much. They tend to be very small with the exception of Hispanics where you have a larger noncitizenship rate.
Q But you looked at each individual ward's demographic data to determine like how many Hispanics are in this ward and then applied the noncitizenship factor to that ward individually?
A Correct.
Q All right. I probably asked that poorly to get that simple answer, so I apologize.
Why don't we just -- I think you probably can address Black and Hispanic voting age population together. Like what do those elements mean?
A Those are again taken from census. The number of people identified in census as Black and Hispanic and again with the same adjustment made for voting eligible population.
Q Okay. And then why did you break out Black voting

age population, Hispanic voting age population separately from total voting age population?

A Well, the reason I did that was because the propensity to vote the partisanship of different demographic groups varies. Blacks are more likely to be democrats. Hispanics are slightly more likely to be democrats or vote Democratic is the proper way to phrase that. And so it was -- I considered it necessary to include a measure of that as a way of trying to estimate the number of people who vote for one party or the other.

Q When you eventually did the -- run the numbers for an individual ward, what -- I'm trying to think of the way to ask this. But, for example, like when you put in the Black voting age population, what percentage of that are you assigning to like the Democratic column, or is that --

A That's purely a function of what the data showed. I wasn't doing any prior assignment.

Q Okay.

A It was you run the regression, you will get a coefficient that tells you each additional Black voting age person will add a certain number -- in this case a fraction of votes for Democrats or Republicans, so it's not an assumption that I made.

It's driven by the results.

Q Sure. I didn't mean to like imply that, but you gave me the way to ask it to you, I think. How did you develop that coefficient that then goes into the formula?

A That's simply a function of the regression commands done in this data where you have the data and you tell it I want to use this as a dependent variable and here are my independent variables and it performs the calculations and it gives you the results and you show them -- give some of the results and the annex gives the full set of coefficients.

Q Okay. So if we just turn to the annex to --

A It would be Page 5.

Q Page 5, okay. So it says Black voting age population, coefficients negative .03, is that what you're referring to?

A Correct.

Q So for someone that doesn't have as much of a background in stats, what does that mean?

A So the way that you would interpret this result or that results, the coefficient is minus .03 which suggests that each -- and this is all linear -- the unit of analysis is the person.

So each additional -- as the Black population goes up, the Republican number -- number of Republican votes will tend to go down. You also need to look at the estimate of precision, which is the standard error, and that simply gives you a way of assessing how precise this estimate is and in particular use that further statistical test to see if the coefficient is different from zero. And the P-value, which is the last, that gives you the probability that the number is significantly different from zero.

The bottom line is that the Black voting age, this coefficient is not significant. And the reason it's not significant is that the bulk of that effect is going to be picked up through the Republican and Democratic presidential votes, that if I know how many Republicans vote, if people voted for Republicans, having the additional information of how many people in the ward were African-American doesn't give me much more information, which is a little different than for the Democratic vote. So that's why I ran different models.

Basically through -- in this table, the coefficients, the rows that are bolded, those are what would be defined as statistically significant coefficients.

Q Okay. So the ones that are not bolded, Black voting eligible population, Hispanic voting eligible population and Democratic presidential votes, are not significant?
A Correct.
Q Statistically significant?
A Correct.
Q And then maybe I can just get you to define what these columns are. You mentioned them, but the robust standard error, the t-statistic and P-value.
A So the standard error, again it's the calculation of the precision of the coefficient estimate that the coefficients will be drawn -- it will be a distribution and basically if you think of it as a curve, as the standard error goes down, that curve gets narrow and so you can have more confidence that that number is precisely where it is.
It's robust because there's an adjustment to be made when the -- each of the wards is clustered into a particular district and we know that you have one candidate running in a series of wards and so it's an adjustment that is made to the standard error to account for that. The t-statistic is simply the coefficients divided by the standard error, and generally the t-statistic is greater than plus or

minus -- it's greater than 1.96 or smaller than minus 1.96. That gives you a measure of the statistical significance. And the P-value is just an expression of the significance of the estimate.

Q Okay. I think you may have just done this, but it slipped out of my head. The P-value, what's the cutoff for showing what's significant or not significant?

A So the typical standard is using -- it's called a 95 percent confidence interval and that in a data set of this size, that cutoff will be 1.96.

So you can see just an example, the Republican presidential votes is .95, which means that each additional Republican presidential vote gives you .95 votes for the candidate. The standard error is .01. The t-statistic is 110, which is -- that means that the probability that that number is actually zero is zero.

Q Okay. Maybe you could explain why the Democratic Assembly incumbent and Republican Assembly incumbent are also significant.

A Generally when there's an incumbent in a race, that incumbent will do better. There's long literature in political science explaining why this is true. Better name recognition, better candidates, they tend to have more experience, more money. And so other things being equal, an incumbent will do better in a district than a non-incumbent of the same party would do.

Q Looking at the numbers, could you just explain what those numbers signify in terms of their significance?

A So generally a -- so we're looking at the number of votes that the Assembly Republican candidate would get. And the fact that the Democratic Assembly incumbent coefficient is negative, it's small, but it's negative, is that other things being equal in a race where the Democratic Assembly incumbent, the number of the votes for the Republican will go down.

Q Okay.

A And the reverse for the Republican incumbent, that in the case where you have a Republican incumbent, that will go up. And I need to make one correction. The Democrat -- the incumbency coefficients are weighted by the population of the ward.

Q Explain what that means.

A So if I just used -- typically you would just use a dummy variable. It's one in a ward where there's a Democratic incumbent and zero when there's not, but because the wards are unequal size and some of them they have populations ranging from a few hundred to a few thousand, that would bias the results because you would expect more votes for the Democratic candidate when you have a Democratic incumbent in a ward of 3,000 people as opposed to a ward of 100 people or 300 people.

And so this is -- you would have to multiply this number by the population of the ward to get the number of additional votes that the candidate would receive.

Q When you're calculating the raw like actual total numbers, but is the percentage effect the same? You know, like a 100-vote ward might get two more votes or something, but then you'd upscale that to 1,000 and it gets a load of 20 more votes or something? Or is there a difference added to that?

A Well, the coefficient is that the -- let me think here for a minute. The independent effect of incumbency would be -- as a theoretical quantity would be constant across wards, although the effects would not. So basically for each additional person, you would expect an effect based on incumbency and that effect -- that effect on that individual person or that individual level effect would be the same in a ward of 100 people as opposed to a ward of 3,000 people even though the total number of votes that the

Republican or Democrat would get would be different in those two.

Q Okay. So if I'm looking at just a district-wide vote total that isn't broken down into each individual ward, is there a way to take your number and just kind of like convert that into like a total percentage of the vote that's a bump due to incumbency, you know, like five percent, two percent, one percent just to kind of get an idea as to like the magnitude of that effect?

A I'm just trying to work out in my head whether you could do that. The way that this model expresses that is that you would get an increment in each ward based on the coefficient and the size of the ward, and I think it's possible that you could simply apply that to the district-wide total. But that's -- I would not be comfortable doing that.

The way that I would want to do that is to do the analysis and actually look at the incremental number of votes you get on a district by district basis. You might be able to get a first approximation of what that might look like, but it's -- there are reasons why you would want to interpret that with caution.

But the general rule holds is that -- the other issue here is that that coefficient exists after you have taken into account the Republican and presidential -- Republican and Democratic presidential vote. So you wouldn't be able to look at that number and say, ah, there were 50,000 votes or 40,000 votes cast in the assembly race, .02, that means that the Republican advantage was 800 votes.

You would have to look at that and say that would be after you take into account all of the other variables. So this is the independent effect of incumbency once you've controlled for the other variables. So in that sense, you wouldn't be able to take this coefficient and just apply it to a district to come up with an estimate of the total effect of incumbency.

Q So the effect of the incumbency, will it be different, for example, a ward that has 55 percent that voted for the Republican presidential candidate versus another ward that has 40 percent that voted for the Republican candidate? You know, how does the effect of this Republican Assembly incumbent differ there?

A This is a linear estimate and so that assumes that the effects would be the same at different levels of Republican support or Democratic support.

Q Okay.
A But again the number -- that that would be after you take into account the Republican and Democratic presidential votes, so you would not see the same presidential number of votes for Republicans and Democrats in the 55 percent Republican district as opposed to 55 percent Democratic district. So you need to keep that in mind that this is controlling for all of these factors, including population and counties and all of these things.
Q I think I understand it. So we've been talking about the Democratic and Republican incumbents. I think we've gone over those. And then the county, what exactly is the county effect?
A Well, there are different areas of the county that may have particular political dispositions that these don't capture and it was -- struck me as prudent to put this in. You can see most of the effects are actually not significant, and even the effects on which you would think of the most Republican and most Democratic districts, like the effect in Washington County, Waukesha County, Ozaukee County, Dane County, Milwaukee County, those are all not significant, but it gives me a little more analytical leverage to include those.

Q And what page?
A We're looking at the coefficients on Page 6 and 7.
Q It's the same that these ones that are bolded are the ones that have a significant -- statistically significant effect?
A Correct.
Q So then you mentioned Dane and Milwaukee and Washington. And those are not bolded, that's the way you reference it?
A Right. That means once you take into account all these other variables, being in Dane County does not have an independent effect on the Republican presidential vote.
Q So just going back to Page 10 and 11 -- 11, I guess, in this -- should I call it an equation?
A Sure. Or model.
Q Model. Which elements take the actual votes cast in -- for the assembly candidates in that district -- as maybe I should say you applied this model to several different -- to Act 43 actual elections and then to your demonstration plan. I'm kind of focusing on the Act 43 since there's no actual elections under your demonstration plan.
When looking at Act 43, which elements of this model take into account the actual votes cast for the

particular candidates in an assembly district?
A I would say they all do because the actual vote is the dependent variable. So these all reflect the estimate of the effect these variables have on the actual vote. So in that sense, they are all related to what actually occurred in the -- in contested districts.
Q But in terms of actually like plugging in the numbers of Candidate A in District 1 got 12,000 votes and Candidate B in District 1 got 15,000 votes, where do those numbers go into the equation?
A They go in on the left-hand side.
Q The assembly vote?
A Right.
Q Where you add up total votes Republican and total votes for Democrats?
A Well, again we'd need to be precise here that the dependent variable is the ward level totals. So I'm not adding anything up there. And that the model estimates the effect of all of these independent variables on the actual vote. So in that sense, they are all connected and they all are a function -- all of the estimates are a function of the actual vote.
Q Let's go to something else quick. Page 40, there's like Figures 10, 11 and 12. I'll just ask you some

questions on those, but you can look at them to familiarize yourself.
A Okay.
Q So we'll just start at Figure 10 and it says actual 2012 Republican Assembly vote in Act 43 districts. What did the numbers in Figure 10 represent?
A This is a histogram that shows the distribution of the actual results. And the way that you would look at -- so the X axis here is the Republican vote percentage in 2012 going from zero to 100 and what this shows is that the left-hand bar, the one with the 23, that is 23 districts in which there was no Republican running, so that Republican vote percentage shows up as zero.
You look at the right-hand side where there's the bar with the 4, that shows that there were four districts where there was a Republican on the ballot but no Democrat. And so the rest of these figures show that, for example, there was one -- this is just the Republican votes.
If you looked at the Democratic vote, it would be the mirror image of this. There was one district in which the Republican got between 25 and 30 percent of the vote, nine where the Republican got between 40 and 45 percent. The bold vertical line is 50

percent, so everything to the right the Republican won, everything to the left, the Republican lost. And this shows you that there were a large number of Republicans who won with between 50 and 60 or basically between 50 and 65 percent of the vote.

I counted 51 Republicans won with between 50 and 65 percent of the vote. So this shows the distribution of the actual results.

Q And the percentage of vote, is this like we'd been talking about before, the two-party vote, or is this just like the top line number?

A I believe this is the percentage of the two-party vote.

Q So someone might have got 47. -- or 49.8 percent, but they would actually be counted as above 50 percent because once you look at if they won the seat, they would have gotten more than 50 percent of the two-party vote? And it's like a hypothetical of a guy -- you know, a close race where there's 48 to 49.6 and then there's scattering.

A It is possible that if someone got 49.9 percent of the vote and the Democrat got 48 percent and there's someone else with that extra, it's possible that that could move someone over 50 percent, but I don't recall that there were any -- certainly not many examples of that.

Q And then going to Figure 11, it says Republican vote forecast in Act 43 districts-Gaddie measure. What does this represent?

A This is estimates that the expert that was hired in the 2012 redistricting case, he did an analysis for the -- I guess we'll call them the defendants. I don't know if that's the right term -- where he derived his own estimate of what the results would -- like what the partisanship would be and the projected Republican vote in the Act 43 districts and laid along the same axis. So you can visually compare them.

Q And then going to Figure 12, it says Act 43 baseline partisan measure. What does that recommend?

A This is the numbers that came out of the regression model. It gave me estimates of the number of votes that were cast, and from that, I extracted the incumbency advantage. So the baseline partisanship is an estimate of what the vote would be in an Act 43 district that was contested with no incumbent.

Q And this reminded me of something I forgot to ask on your model. What elections went into looking at the baseline for you to determine the baseline partisanship of the districts? Did you just look at

the 2012 election results, or did you look at past elections as well?
A I used the 2012 election results.
Q And so if we look at Figure 12, that's your calculation of the baseline partisan measure based on the 2012 election results?
A Correct.
Q I was going to get to Table 9, which is on Page 52 -- no, sorry. Table 8. Table 8 on Page -- how you calculated the efficiency gap for Act 43.
A We're on Page 50?
Q 50, yeah, sorry. I misspoke. Why don't you just generally explain what your -- what the calculations you did on Table 8.
A So this reflects my -- the results of the model which I used to produce estimates of the votes that -- the underlying partisanship of the votes. It's basically the model applied to Act 43 districts extracting the incumbency advantage.
The reason I did that is I wanted to have a uniform basis of comparison with my demonstration plan, the results produced by Professor Gaddie, and compared it to the underlying partisanship of the Act 43 districts. So the predicted Democratic and Republican votes are the model estimates of what the

votes would have been and if the race was contested and when there was no incumbent running.

So this is a way of correcting for the -- how to deal with uncontested races because we know in an uncontested race that even if there's no Republican on the ballot and the Republican gets zero votes, that doesn't mean there are no Republicans in the district. So it's necessary to correct for that. And so this is the -- each district from 1 to 99 has a predicted Democratic and Republican vote total which is produced by the model.

It predicts the winning party, which is simply which candidate gets the most votes, and then it goes through and calculates the efficiency gap for each district, the lost -- the votes for the losing candidate are lost, the surplus votes or the votes in excess of what is necessary. So the efficiency gap has two categories of wasted votes. There are lost votes and there are surplus votes, that the lost votes are the votes cast for the losing candidate. The surplus votes is one-half of the margin of victory for the winning candidate.

You would add up the surplus and wasted votes or the lost and surplus votes for Democrats and Republicans and you can -- and then you basically add those up across all districts and the difference between the wasted Democratic and wasted Republican votes gives you a net wasted votes which when divided by the total number of votes cast gives you the efficiency gap.

Q I'm going to mark a document.

(Exhibit 5 is marked for identification)

Q And I've put before you Exhibit 5. What this is is there was a document that your counsel provided called -- it was a spreadsheet called Efficiency Gap Calculations, and there were several tabs in that Excel spreadsheet, and then this was the one that was labeled Act 43 Direct. So it had a lot of columns, so I printed out on legal size paper here, but I think it matches up with the calculations done on Table 8 in terms of the -- you can check that over to make sure I gave you the right document.

A So this looks like the spreadsheet I used to generate this table.

Q Okay. So I was just going to ask you some questions on the spreadsheet and the columns and just what they are. So obviously district is the district and then there's Pop, what does that mean?

A That I believe is the population of the district, total population.

Q And then there's a column that says Dev, do you know what that --
A That's deviation, which is the difference between the population and the ideal population, which I believe is 57,444. Yeah, that's what it is.
Q Okay. And then percent?
A The percent deviation.
Q And then there's dhat_open. Do you know what that --
A So typically when you're dealing with an estimate, you use -- if you were to write it down, it would be a D with a caret over it, so dhat, rhat. So that was how I identified that it was a predicted value, and then open reflects the fact that it assumes -- it's an estimate after the incumbency advantage has been extracted. So it assumes that the seats are open.
Q So that -- you see that 16.235 is what's listed on the Table 8 as predicted Democratic votes?
A Correct.
Q And so that column is what your model predicts would be the Democratic votes in the Assembly District 1?
A Correct.
Q The Dem percent, what does that mean?
A That's the percentage of the Democratic vote of the two-party vote. Basically you add up the Democratic and Republican vote and you divide the Democratic

vote -- or you divide each party's side by that total and that gives you the percentage of the two-party vote.
Q And it says rhat_open. I think I know what that means, but you can explain it.
A That's the estimate of the number of votes that a Republican candidate would receive in a contested race with no incumbent.
Q And then I would think Republican percentage, that's the baseline --
A That's the Republican share of the two-party vote.
Q Okay. And then D Lost?
A So that's -- I think those just matched the lost Democratic, lost Republican, surplus Democratic, surplus Republican, the total of the Democratic and Republican wasted votes.
Q All right. And then Rep Win, it says 1, I take it that means the Republican would win that district?
A Correct.
Q How is the R surplus determined? I was trying to figure that out by just adding and subtracting these numbers, but I wasn't quite sure how it worked out.
A It should be that if you subtract the Republican vote from the Democratic vote in District 1, for example, that gives you 383 -- 393, I believe that's right.

So that gives you 393, the margin of victory, you divide that by two, which gives you 196.5, which I rounded.

Q Okay. To 197, all right. And so for every one of these districts, we can just do that same calculation and we'll get that R wasted or the D wasted if they're the winner?

A Correct.

Q Okay. Now, so if we look at the District 1, you can look at either the spreadsheet or the table, this is a pretty close election, correct, in that there's 197 surplus votes?

A That's a close election.

Q Okay. Then how would you characterize the seat as like a toss-up seat or a swing seat, or is there a name that you characterize kind of a 50-50 seat like this?

A It would be accurately characterized as a toss-up seat.

Q Okay. Now, I take it if the surplus Republican votes, it's only 197, if this election goes a little bit differently in real life rather than in the model and the Democratic candidate wins narrowly, then these numbers flip in the sense that the Republican is going to have 16,000-some wasted votes and the

Democrat is going to have a narrow number of surplus votes?

A Correct.

Q Okay.

(Exhibit 6 is marked for identification)

Q I put before you Exhibit 6, which is a printout from the Government Accountability Board website, and this is the 2012 fall general election final vote totals from the GAB website. So if you could flip to -- I printed out the entire thing because I just figured we should have the entire document, but the assembly districts start --

MS. GREENWOOD: Page 8.

Q 8, okay. So if we look at Assembly District 1, on the official results, the actual results were Gary Bies, I think the Republican won with 16,993 votes at 52.27 percent and then Patrick Veeser I believe is a Democrat. He lost at 48.65 percent. So I guess what I'm trying to say is the actual election results, the 69.83 is not the number that you have here for the Republican votes in Assembly District 1?

A That's correct.

Q And then also the 16,124 is different from your predicted Democratic votes?

A That's correct. Again this table is based on estimates of what the vote would be.

Q Okay. So why did you use estimates instead of the actual vote totals?

A Because in extracting the incumbent advantage, I concluded that it was best to use a consistent methodology rather than picking and choosing and applying one method in this district, one method in that district.

And again this is consistent with what Professor Gaddie did, and I wanted to make sure that I had a consistent methodology that I applied to Act 43 and the demonstration plan because in the demonstration plan, we -- that's based on a hypothetical set of results in a different plan and wanted to make sure that I was applying a consistent methodology and consistent judgment in making comparisons across the two plans.

Q And but Act 43 elections did take place with actual incumbents running, correct?

A That's true.

Q So when you look at the actual vote totals cast in the assembly districts, they reflect whatever measure of incumbent advantage any incumbent had?

A That's true.

Q Now, in your predicted Republican vote total, 16,628,

is that created just by looking at 16,993 and subtracting out an incumbent advantage?
A No.
Q So it is 16,628 is produced by that model we went through earlier that had the number of different variables --
A Correct.
Q -- on Page 10 and 11?
A Correct.
Q We don't need to go through them all again.
A But again after extracting the incumbent advantage. I actually don't know sitting here whether Gary Bies was the incumbent in District 1.
Q Yeah, perhaps he wasn't. Now, subtracting out the incumbent advantage, that ends up reducing the wasted votes for any incumbent who won, is that correct?
A It would -- extracting the incumbent advantage would reduce the number of votes for the incumbent, so it would have the effect of reducing the number of surplus votes.
Q And then this is like -- am I correct in saying that this is a zero sum gain with respect to the Democratic and Republican votes in the sense that by reducing the Republican incumbent vote, you would increase the Democratic losing vote?

A Well, not necessarily.

Q Why not?

A Because again working from the model estimates that if you reduce the number of Republican votes for the incumbent, that doesn't increase the number of votes that the Democrat gets.

Q Well, I thought that your model, though, used the total votes for Assembly District 1 would be the total two-party votes cast.

A Correct. But if I did that and extracted the incumbency advantage and basically moved from -- I'd have to double check this, but if I extracted the incumbency advantage, you only do that for the incumbent. You don't -- extracting the incumbency advantage reduces the number of votes that the incumbent would get. I would have to go back and look at the results, but --

Q But your model assumes -- or maybe I'm wrong. In Assembly District 1, for example, there's 16,993 votes for the winner and 16,124 votes for the loser. Is your total turnout model, so to speak, like total number of votes that are going to be cast in Assembly District 1 adding up 16,993 and 16,124?

A No.

Q Okay. What does the total turnout model mean?

A Well, the total turnout is the predicted number of votes that would be cast and it's going to be different than the actual total. It's going to be very close. I think in this one I was off by 350 votes, which that's pretty good. But so let's go back a step here. If we look at the regression results on -- I'm on Page 21.

So these are the substantive variables. So if you look at the effects of incumbency for the Democratic and Republican Assembly incumbent that you can see that those -- the coefficients are -- the coefficient for Democratic Assembly incumbent is positive for Democrats, .028, negative for Republican votes, minus .021.

Now, those numbers are different. They're not the mirror image of each other. They show that the number of votes that the Democratic Assembly candidate gets is higher when the Democrat is a Republican, they get more Democratic votes and fewer Republican votes. In extracting that advantage, you use this -- the results of the model to generate the results, but you set both of these equations, both of these coefficients to zero.

So that means that you are -- you are, in fact, when you subtract the incumbency advantage, it has the effect in a race with a Democratic incumbent, that reduces the number of votes that the Democratic candidate gets. It increases the number of votes that the Republican candidate gets, but those numbers are not equal. It's not like you take 100 votes.

It depends on what the coefficients are, and so it would affect both totals, but it's not you're taking marbles from one jar and transferring them to the other. It depends on what the underlying data show.

Q That makes sense.

A Okay.

Q But there would be some sort of, so to speak, like reduction for the incumbent and bump for the non-incumbent candidate, but we can't say that they're equivalently sized?

A Correct.

Q Do you have an opinion as to whether your baseline partisanship numbers for all of these districts would hold also for the 2014 election?

A I think that they would be similar. I don't know how they would line up exactly. The reason I have some confidence that they would be similar is that my -- if you look at my estimates using 2012 data to generate the estimate of underlying partisanship, that's based on the 2012 election and measures of underlying partisanship.

When Professor Gaddie did his underlying partisanship estimate in 2011, he did them -- he did not have the 2012 election results. He had previous election results, 2010, 2008, 2003. And he did it in a different way. It is analogous in terms of what he's trying to measure, but his methods were slightly different than mine. If you look at -- so you look at Page 30, which is Professor Gaddie's baseline partisan metric plotted against mine. You can see that there are some differences, but they are very strongly related in that the correlation, the R squared between these two measures are .96, which is almost perfect.

And my conclusion looking at this is that we are measuring the same thing in that the fundamentals of the districts do not change even when the actual votes that might be cast in an election do change. So it is likely that the -- well, these numbers would be different if you used 2014, but that's a separate problem. You could not -- you couldn't take this model and simply say we're going to plug in the 2014 numbers and get what the -- see what the results are.

But my conclusion is that this model is an accurate measure of the underlying partisanship of the districts that were created in Act 43.

Q So do you think the partisan gerrymandering should be based on underlying partisanship of the district or based on the votes that were actually cast in the legislative elections?

A It's hard to give a clear answer to that because it depends on what you're measuring. Now, looking at the actual results gives you one indication of what happened. But as I explained here and is well-known in the discipline that there are other things that you need to look at, in particular, trying to deal with the question of uncontested districts.

Q What's the margin of error for determining the baseline partisanship of the district?

A So my -- with the Act 43, I would have to go back and look at the standard error of the regression, but it's probably on the order of plus or minus one and a half percentage points. I'd have to look specifically, but these are very precise estimates. It's not a large margin of error.

Q Although for determining the efficiency gap for districts that are somewhere between 48 and 52 percent, that 1.5 percent margin of error could flip a district from one to the other, can't they?

A Possibly. But the margin of error is not a uniform thing that anything that's within the margin of error means that you don't know what the answer is. That the farther away you are, the less likely it is that the actual number is -- that as you move away from the point estimate, the likelihood that the number being that far away goes down considerably.

So in a 49 percent -- in a 51-49 percent district, the margin of error suggests that there is some likelihood that the actual number is different, and it is not impossible that that actually might be 51-49, but that's not equally likely. You can't say that, oh, the margin of error is 1.5 and the -- my estimate is a victory margin of 1.5 percent, so it's a coin flip. That's not how you calculate the probabilities.

Q Sure. But a district like that wouldn't be a guaranteed win for the party that had districted it to be 51-49 percent Republican, is that correct?

A That's correct. That would be a competitive district.

Q Now, you calculate the percentage of the districts out to like 49.402 percent.

A Um-hum.

Q Do you think that it is possible to get the partisanship down to like hundredths and thousandths of a percentage?

A Well, that's the results of the number, and as you will see, I rounded that to I think one or two significant digits. I'm not sure what the actual figures are. Now, that's not suggesting that I think you should measure that out to the 100,000th. That's a function of the way that Excel calculates the numbers and you look at that. So you clearly would have to round that.

MR. KEENAN: Off the record.

(Discussion off the record)

(Exhibit 7 is marked for identification)

Q Can you read it okay, Mr. Mayer?

A Yes.

Q All right. Because I think I can get an electronic copy up here if we need to blow it up, and I think the numbers are also somewhere else too here.

MR. KEENAN: I will also mark this right away as Exhibit 8.

(Exhibit 8 is marked for identification)

Q So my first question is going to be do you know what Exhibit 7 is? That's the color copy.

A Yes.

Q What is that?

A This is a chart, a table that was produced by Professor Gaddie which analyzed the projected partisanship of the districts in the map of -- the Act 43 districts.
Q Okay. And I'll explain what Exhibit 8, what I did is the same thing I did with Exhibit 5 is I printed out the tab of your spreadsheet that was titled Gaddie Metric that was at the top there on the wasted votes or maybe it was called Efficiency Gap spreadsheet and if I compare, I was just comparing -- if you look at Exhibit 7, the third column is the new and it has a list of percentages, like the first one is 51.22, and then if you look at the Gaddie Metric spreadsheet, there's a rep percentage column and that has .5122 and if I go down, it looks like it's matching up.
A Correct.
Q But let me know if you disagree. So maybe I could just have you explain what you did in the Gaddie metric wasted vote calculation.
A So if I recall, and I would have to look at the math, so what Professor Gaddie produced was a map of percentages, sort of his estimate of the underlying partisanship of the district. In order to generate an efficiency gap calculation that is consistent with what I did in the rest of my report, I needed a

method of converting those percentages to actual votes.

And so what I believe I did, and I would have to go back and double check, but I believe what I did is looked at the total number of votes for the Democratic and Republican candidates that my model generated. So that gives me a total. So we would add up the Republican and Democratic votes in District 1, that gives me the total number of votes, and then I applied the percentages in this chart to that number to give me a distribution of the number of votes. And I think that's what I did.

And then I used the predicted Democratic and Republican votes to replicate an efficiency gap calculation that I could then compare with my metric.

Q Okay. So if I understand correctly, the Republican percentage column is just taken straight from Professor Gaddie's numbers in Exhibit 7?

A I believe that's true.

Q Now, the corresponding Democratic percentage, is that -- would that just be 100 percent minus whatever the Republican percentage is?

A That's correct.

Q So this again is a straight two-party vote calculation?

A Right, which again is consistent with how the problem was handled in the literature.

Q And then in terms of the predicted number -- the total number of votes, obviously you needed to apply the 51.22 percent to a total vote number to get to the Republican vote total. How did you come up with like the total number of votes in this district?

A As I mentioned, I believe what I did is -- we can actually check this if you would like. I believe that the total number of Democratic and Republican votes is the same in this model. Or in here, I think I took that in the total that I generated in my model to come up with an estimate of the total number of votes, and we can check that if you'd like.

Q Okay. I can look at that, too, over the lunch break. Now, Professor Gaddie himself, though, to your understanding did not make projections of the expected turnout in the 2012 elections when he did this chart in Exhibit 7?

A I don't believe he did, but I don't know for sure.

Q Okay. And then how is -- you've gone into this a little bit before, but what's your understanding as to how Professor Gaddie arrived at his Republican percentage there?

A So my understanding as he described it is that he looked at past electoral performance in certain elections, and I don't recall precisely which ones that he looked at, and he concluded that that was an effective way to come up with an accurate estimate of the partisanship. So my understanding is that is how he generated these numbers.

Q Okay. And then where did your understanding of how he did this come from?

A From his deposition in which he described his methods and the different files that he produced that I was able to examine.

Q And that's the deposition from the Baldus litigation?

A See, the problem is that the Baldus vs. Brennan -- there's so many B's in these cases.

Q Baumgart, yeah.

A To be precise.

Q Okay. So here's your report. And in your report, the Gaddie metric calculation is at Table 9, I believe, which is on Page 52. And just to confirm, so the way that the wasted votes were calculated was the same way that we went over with respect to the Act 43 calculations?

A Yes.

Q All the losing candidate votes count as wasted and

then the surplus votes is the differential divided by two?
A Correct.
Q Now, it's not your testimony that Dr. Gaddie himself went ahead and performed any sort of calculation like this?
A Not that I'm aware of.
Q Okay. Basically what you did is you took his underlying baseline partisanship numbers and plugged them into -- I guess you didn't plug them into your model, but you applied them to the total votes produced by your model?
A Correct. I'm glad you rephrased that -- that was very nicely done.
MR. KEENAN: Actually I think I'm at a good stopping point to go to lunch and then come back.
(Lunch recess is taken)
(11:18 p.m. to 12:19 p.m.)
Q We're back on the record after lunch. Let's just go back to some of the stuff we were talking about before lunch. One was uncontested seats and we had talked a little bit about how those were handled. I just wanted to look at first maybe just generally explain for any of the Act 43 calculations that you

did how your model predicted the votes in an uncontested race.

A So the model itself utilized data from contested districts. I think there were 72 contested districts. And all of the independent variables, the incumbency, the presidential votes, demographics, the county fixed effects, those are all exogenous to the characteristics of any particular district.

And so I was able to use the relationships that the model produced in the 72 contested districts to create evidence of the uncontested districts because we still have a presidential vote, we still have the ballots cast for both the Republican and Democratic presidential candidates. We have the demographics. So I essentially developed a model using the contested districts and then applied the results of that model using the values of the independent variables in uncontested districts to generate the vote, the estimated vote totals for the uncontested districts.

Q Okay. So in terms of the total number of votes that would be cast in an uncontested race, how is that determined?

A It was a function of the number of votes cast in the presidential, so the turnout is related to that, but again the nature of that relationship was a function of the relationship that you observed in contested districts.

Q Okay. And so the number of total votes that you see -- that your model predicts between both of the parties' candidates, is that going to be greater than the total number of votes that the candidate received undefeated?

A So can we find --

Q Sure. I was thinking maybe we could look at your exhibit, Table 8, Page 50. And if you want to for reference go to Exhibit 6, I think District 8 is the first uncontested one. And then 9 and 10 I think are uncontested. And if I look at the votes for District 8, you know, Jocasta Zamarripa received 78-69 votes.

MR. STRAUSS: I'm sorry, I missed it. Where are you?

MR. KEENAN: Sure. It's Page 10 of Exhibit 6. So it's Assembly District 8.

MR. STRAUSS: Okay, thanks. Yes.

Q So there is 78-69 votes for the uncontested Democratic candidate and then I see that -- looks like there's about 9,000 estimated votes for your Act 43 calculation.

A Okay.
Q So maybe just explain like what -- how you end up with 9,000 votes here when there was 7,800-some cast.
A I don't see 9,000 votes. Where are we?
Q If I look at No. 8, I see predicted Democratic vote, 73-42, predicted Republican vote, 1,738.
A I see. So again the no incumbent baseline is the estimated partisanship of a contested race with no incumbent, and then in this District 8 is -- I believe Zamarripa was the incumbent. The reason that -- so basically the fact that there was no Republican on the ballot in District 8 doesn't mean that there were no Republicans in the district.

If you looked at the presidential vote, you would see that Romney did get some votes in that district and so the no incumbent baseline is an estimate of what the votes would have been had that race been contested and had there been no incumbent.

And so a couple of things are going on here. One is that turnout will go up in a contested race as opposed to in an uncontested race because those 1,700 people who would have voted Republican under my model, they have no Republican to vote for. And so the most common thing for them to do is simply to abstain, and that's one of the reasons why you see almost invariably lower turnout, sometimes much lower turnout in an uncontested race rather than a contested race.

So that explains the reason why my model estimates that there would be 9,000 votes cast in a contested race with no incumbent as opposed to the result which was an uncontested race with an incumbent.

Q Okay. And then when we go to the Gaddie calculation, did you take, for example, the total number of votes, you know, the 7,342 and 1,738 equals -- there's a certain amount of total turnout in that. Did you then just apply Gaddie's percentages to that number?

A I believe I did. I'd have to sit down and do the calculations. My recollection is that's the way that I calculated the total number of votes is using the estimates generated by my model and as for the totals in applying them to Professor Gaddie's calculations.

Q Did your calculations for the efficiency gap for Act 43 have any instances where the model predicted a winner from the wrong party?

A There were I believe two instances where the model picked the wrong winner and I explained -- there's a table and it shows -- I think those two races, it was, you know, the winner got between 50 and 51 percent, 52 percent. They were both very close.

Q So how was that handled? Did the wasted vote calculation proceed on the basis that your model was correct, or did it flip that, so to speak, to show who actually won the race?

A When my model -- I used the results from my model. I didn't go back and manually correct the errors. The results are what they are.

Q Did you do an efficiency gap calculation for the 2014 legislative elections?

A I did not.

Q Is there any reason why you did not?

A A couple of reasons. One is that I concluded that the presidential year was the -- was going to give you the most accurate estimate of the underlying partisanship. And that's what's typically done for trying to assess a redistricting plan.

I had Professor Gaddie's estimates that he produced of what he anticipated what the results would be. And doing -- repeating the results for 2014 was actually a very involved process. It's not sitting down and saying, oh, I'm going to just change this number and punch a button. It would take quite a bit of work to do that.

But I did 2012 because in my view that the first election after redistricting is going to give you the -- an accurate estimate of the effects of that redistricting plan.

Q Now, coming at the next redistricting in 2020, the first election is going to be a nonpresidential year, correct?

A Correct.

Q So if a court has to do this next time around, should it wait until a presidential year? Should it look at the 2022 year?

A Well, so in 2022 would be a nonpresidential year, so I would -- I mean it's hard to know precisely, but in that election, I would probably -- I don't know for sure but would be interested in what would happen in the first election after redistricting.

Q Now, the turnout -- the total turnout number is a lot different between the presidential year and a nonpresidential year, correct?

A That's correct.

Q Okay. Please explain how it differs.

A Well, it's well-known the empirical pattern is significant, that there are more people who vote in the presidential year than in a midterm election because without a president on the ballot, interest in the campaign is less and so there's no question that the number of people who vote in a midterm election year is going to be lower than the number who vote in the presidential election year.

Q Is the difference in turnout going to drive a difference in efficiency gap calculations?

A Probably.

Q And do you know how much?

A Judging -- I have to go back and look at Professor Jackman's report that the efficiency gap was lower in 2014 than it was in 2012.

Q That leads me to one question which is you're familiar with Professor Jackman's report, correct?

A I've read it, yes.

Q And he calculates the efficiency gap in a different way from you, correct?

A In some ways, yes. The underlying concepts are similar, but the precise methodologies were different.

Q Okay. So explain to your understanding what his methodology was.

A So my understanding of his method is that he used what is in terms of the formula for the efficiency gap an equivalent mechanism of calculating it, which is a formula which looks at the percentage of vote and the percentage of seats, and that's how he generated that, whereas I went through on a district by district basis looking at the actual number of votes.

Q Can you explain for me how those two different calculations yield basically the same end result?

A Because the reason they yield the same or very similar results is that they're both measuring the same thing, that the seat share and vote share calculation is the equivalent of what you would get if you did the district by district calculations with equal turnout. And my method was to look at district by district and actually counting the votes, and I did that for two reasons.

One is that I had the data available to do it. The second is that in the second step of my analysis, I was going to estimate what the partisan effect would be under an alternative district configuration. And if I was just looking at the percentage, there was no way to know what would happen if you have a district that's 47 percent-53 percent, if you changed the boundaries so the district is different, there's no way just looking at the percentages -- there's no way to calculate or estimate what the vote would be in the alternative district. For that you needed a measure of actual votes.

But that measure is not necessary if all you were interested in doing is calculating the efficiency gap, and that is why his estimate and my estimate are very close.

Q So you mentioned assuming equal turnout, I think was the phrase?

A Correct.

Q Could you just explain what that means?

A Well, so one way of doing the efficiency gap is that you just look at the percentages in each district without looking at the votes, and by looking just at the percentages, you are making an assumption that turnout is going to be equal in every district, and that way, that is mathematically identical to doing it as he did, which is using the seats and votes.

In looking at the actual votes or, more properly, the estimated votes, I'm able to take advantage of the fact that in this case, I can derive estimates of the numbers of votes that are cast in each district, and it gives me a method of calculating the efficiency gap that I can compare to an alternative district configuration such as my demonstration plan.

Q So if I'm understanding, equal turnout means it's assuming District 1 has the same number of voters as

District 2 and District 3 and District 4, all the way down the line?
A Correct.
Q Okay. And so then if you know that District 1 is 53 to 47 percent, you know that 47 percent of the vote is wasted on one side and 30 is on the other and then you can come up with a --
A Correct.
Q Okay.
A But having said that, the fact that our numbers are so close means that the fact that he did just looking at the percentages and I did it at the turnout, the fact that those numbers are so close means that they're both estimating the same underlying phenomenon.
Q Does he adjust for the incumbency effect?
A I don't believe so.
Q And the --
A Which is another reason why my efficiency gap calculation for Act 43 is going to be a little bit different because I've already extracted the incumbency advantage.
Q Do you know if Professor Jackman's total statewide vote share, is it actual -- is it the average share in each district, or is it the average of the total

statewide vote? Or is it the same?
A Well, these are questions you probably should direct to him because --
Q Yeah.
A -- I don't know that I'm in a position to get into the weeds about his specific methodologies.
Q Okay, that's fine. Now, out of every 10-year period, there's going to be either two or three elections that take place in a presidential election cycle and two or three that take place in a nonpresidential cycle depending on the decade. Do you think your efficiency gap model accounts for how there might be differences between the presidential election year and the nonpresidential election year?
A Well, the model that I developed was an estimate of the efficiency gap in 2012. And in that sense, you would expect to see similar results in presidential years and similar but somewhat different results in off year elections, and I think here I would defer to Professor Jackman in his estimates of how enduring efficiency gaps are over time.
Q Let's move on. Your report a few times refers to the fact that I believe the Democrats won 51 or so percent of the statewide assembly vote, is that correct?

A I don't think that number is correct, but I would have to check, but I --

Q Well, maybe I should just ask you like how do you in your Act 43 calculation, what would be the way to figure out the total statewide vote share for each respective party?

A Well, based on the model that I did, you would be able to look at the total number of votes cast for Democrats and Republicans and calculate the percentage that each party received.

Q So on Table 8, I guess is the right one, we have the total -- the total predicted Democratic votes, the total predicted Republican votes, we could add those two together to get the total votes and then we would figure out what the percentage was for each of them?

A Right. But again this is for the no incumbent baseline, so this is an estimate of what the vote -- what the baseline partisanship would be without taking incumbency into effect.

Q Now, in the differences between the presidential year and the nonpresidential year, is turnout affected equally in all parts of the state? Does it drop 30 percent everywhere or does it change in different areas?

A That I don't know.

Q The way you calculate the efficiency gap, for example, in districts, the turnout that has actually been seen in that district affects the total number of wasted votes for each party, is that correct?
A So, I'm sorry, say that again.
Q Sure. So like in -- the number of wasted votes in a district is partly a function of the total turnout in that district, correct, total number of votes cast?
A Not necessarily.
Q Why not?
A Because it's going to be more a function of what the distribution of the votes would be. If you had 100,000 votes cast in a district with a 51-49 split, the efficiency gap would be lower than it would be in an election with 20,000 votes that was 60-40. So it's not -- turnout can be one of the factors that explains it, but it is not the only one and it's probably not even the driving one.
It's the distribution of votes that makes the larger contribution to the efficiency gap calculations.
Q Sure. But in an individual district, if turnout in, for example, a district that is always going to be Republican, one of these uncontested races is very high in that district, that's going to increase the

wasted votes for that Republican candidate, correct, if that's higher than normal? Like, for example, in 2014 compared to 2012, if turnout increases in certain areas, there's going to be more wasted votes for all those winning candidates, correct?

A Well, in the specific example you gave in an uncontested district where the winning candidate gets 100 percent of the vote that if that -- the number of votes goes up, that would increase the number of surplus votes.

Q Okay. And similarly if the turnout is lower than normal in a district, that decreases the number of wasted votes for the winning candidate?

A Well, again in this specific example, yes, but again the dynamic will be very different in a contested race. I'm sorry, can we take a quick break?

Q Sure.

(Short recess is taken)

Q Back from the break, do you have any opinion on the baseline level of partisanship of a district that a party has a realistic chance of winning that seat?

A It's hard to make a definitive statement. The definition of the classification of districts into safe, leaning, tossup, I mean there are some generally used definitions, but they are not -- not everybody uses the same rule.

Q Okay. So maybe I could get what you think if there is a generally accepted definition, what those are and then what your opinion is on those.

A So in my own work on state legislatures, I had defined as competitive districts that where the incumbent wins with less than 60 percent of the vote, that other people used definitions of 55 percent.

So generally somewhere in the range of 50 to 55, 55 to 60 percent is what is one threshold for classifying a race that is conceivably competitive. It doesn't mean that you can easily have races where an incumbent wins with 57 percent of the vote and that's going to be considered generally safe.

Q Okay. Kind of switching topics a little bit, what factors would a legislature who is going about trying to do a redistricting plan after a census, what would they have to do in order to if they wanted to base a plan on your version of the efficiency gap, what would they have to do to do that?

A So if I understand the question is how would you go about devising a plan that would have a small efficiency gap.

Q Yeah.

A Essentially the way that you would do it is minimize the amount of packing and cracking that you do. So not excessively concentrating voters of one party into a small number of overwhelming districts, not splitting up voters, I mean so that you would essentially treat voters from the major parties equally.

Q What sort of like calculations do they have to make in order to figure out how well they're doing on that so that after the fact someone is going to come up with these calculations, what would they have to do?

A Well, I mean you would need information as the type that Professor Gaddie did with the likely partisan outcomes are -- that you expect to see in districts or you could use an alternative measure, which is what I did, and use that information in the course of creating the districts and measuring the results.

Q Now, would you have to make some sort of estimate as to how many votes are going to be cast in that next election?

A You could do it that way. It's not necessarily the way. Professor Gaddie did not. I did. So that's one way you could do it.

Q Looking at some -- your report, it mentions a specific example of packing and cracking on Page 41, I believe.

A 43.
Q It starts at 41 about Sheboygan, the City of Sheboygan and then it continues on, yeah, 43. So if I have it correctly, under the prior plan, the 26th Assembly District was -- it contained the City of Sheboygan itself in its entirety and also some of the surrounding areas?
A So in the 1992 and 2001 redistricting rounds, the city was entirely contained in a single assembly district.
Q And then in the most recent one, that was the 26th District?
A Well, the most recent was the 26th District entirely contained in the 26th in the 1992 and the 2001 rounds.
Q And then in the 2010 round, the 26th includes part of the City of Sheboygan, but you're saying it's cracked also into the 27th District?
A Correct.
Q Okay.
A So this is a classic example of cracking because you have a jurisdiction which was small enough to be included in a single assembly district, which it had been for 20 years. It's a Democratic city. I would classify it as reasonably strongly Democratic. My

calculation showed that if the entire city was in a single assembly district, it was very likely to result in a Democratic district, but you by splitting it, you take a portion of those Democrats or a portion of those -- that Democratic partisanship and you split it into two districts where they don't come close to forming a majority in either one.

So this is quite literally a textbook demonstration of the cracking phenomenon where you have a jurisdiction that you don't need to split and you split it for what appears to be no other reason than to crack a Democratic constituency into two separate constituencies to create two Republican districts.

Q In your version of the City of Sheboygan district, the 26th District under the demonstration plan, what's your baseline partisanship of the district you created?

A Well, I don't know that my baseline plan, that district is named the 26th because the numbering system was a little different, but I would have to go back and confirm, and that's just because what I call the 26th District in my plan may not be the plan -- I could go back and look, but it was -- actually we can even --

Q On 42 you say the result would have been a 54 to 56 percentile?

A Right, but I don't know that that is -- that's probably close to what happened, but -- what I did, but I would have to go back and actually look to get the precise numbers.

Q Okay. In the 26th District in the 2010 election, which party won that district?

A I'm not sure.

(Exhibit 9 is marked for identification)

Q I show you Exhibit 9, which this is the GAB printout for the fall election of 2010. Now, it says error on the first page because, I don't know, that's what it does when it prints out, but if you turn to the 26th District, I mean is it correct that the Republican won that district in the 2010 election?

A I'm looking at this, which is Page 15 of Exhibit 9. It shows that the Republican won by 151 votes if I'm calculating correctly.

Q So you're classifying that as a Democratic district, but under the prior plan, it wasn't impossible for a Republican to win that district, was it?

A Well, by definition that's true because a Republican won it just barely in 2010. But then the Republicans -- the vote percentage went up from 48.9

to 51.3 on the subsequent election.
Q Now, in a 51.3 percent race, it's not impossible for a Democrat to win that race either, is it?
A Not impossible.
Q And then in the 27th, you calculate the baseline open seat partisanship measure at 52.3 percent?
A Well, again I'm not sure that --
Q On Page 42 on your report.
A Let's take a look here. Correct, so my underlying partisanship estimate for the 27th was 52.3. That's the open seat baseline.
Q Okay. And so I mean would you characterize both of those seats as winnable for the democrats?
A I would classify the 26th as potentially winnable. I wouldn't classify the 27th as winnable for the Democrats. Not impossible, but extremely difficult.
Q Okay. At 52.3, it's extremely difficult for them to win that seat?
A As again this is the open seat baseline, I would classify this as difficult for the Democrats to win, not impossible.
Q Okay. Now, what your plan would do, though, it would make one safe Republican district and one safe Democratic district, correct?
A It would --

Q They would be safer, it would be having one district more Republican and one district more Democratic, right?
A I believe so, that's correct.
Q Have you tested any of your demonstration map districts that are narrow Democratic districts, how they would have fared in the 2014 election, whether the Democrats would have actually held onto those seats?
A No.
Q Let's transition into your demonstration plan.
A Okay.
Q How did you go about -- first let me just ask you what computer program did you use to do the demonstration plan?
A I used a GIS program called Maptitude, Maptitude for Redistricting.
Q Is that -- I just don't know, is that the program that the legislators used to draw the Act 43 map?
A I don't know.
Q Okay.
A There are -- the two most commonly used redistricting programs are Maptitude for Redistricting and another one called AutoBound. I don't know --
Q I believe the other one was AutoBound -- from reading

the deposition, I believe it was AutoBound. If there were two different -- if you used Maptitude and they used AutoBound, does that create -- is there any sort of like incompatibility where you can't compare a map drawn from one and a map drawn from the other?
A There shouldn't be, no.
Q How did you go about drawing the demonstration plan?
A So in drawing the plan, what I did was to draw -- to draw a plan that took into account the traditional redistricting requirements, which is population equality, contiguity, compactness, adherence to Section 2 of the Voting Rights Act, respect for political subdivisions, and then going through the map trying to draw it in a way that was balanced between the parties in terms of creating equal opportunities to elect the candidates so that there weren't a significantly different number of noncompetitive seats or a significantly different number of competitive seats. We're trying to treat the voters equally in terms of their creating districts that gave members of each party an equal opportunity to see their votes translated into -- converted into seats.
Q Did you start using a baseline of the prior districts that were in existence, or did you just start fresh?

A With one exception. I left the 8th District alone because that was a district created by the federal court in 2012, and I knew that that district was Voting Rights Act compliant.

The African-American majority-minority districts in Milwaukee I treated similarly to what they were under the plan, which we also knew was compliant. But other than those districts, I started with a blank slate.

Q I believe you said this before, but what's the ideal population of an assembly district?

A So I believe it's 57,444.

Q And is that 57,444 what?

A That is the ideal population as calculated by looking at the total population of the state, dividing it by the number of districts in a legislative body and that gives you the -- in a district plan with perfect population equality, that's the number that you would hit. So that's essentially 57,444 is the total population of Wisconsin after the 2010 census divided by 99.

Q But that includes children who aren't going to be able to vote, correct?

A Correct.

Q And I think you mentioned like felons who can't vote?

A Correct.
Q And then does the 57,444 include noncitizens?
A The way the census calculates it, it's everybody.
Q Okay. So it's just 57,444 people are the voting numbers, but the number of eligible voters will be different than that?
A Yes.
Q Okay. How many districts did you draw that contain any part of the City of Milwaukee?
A I would have to look at the map. I could tell you I don't know off the top of my head.
Q Do you know how many you did that concluded -- included any part of the City of Madison?
A I would have to check. I don't remember off the top of my head.
Q And do you know how those compared -- even if you don't know the number, do you know how it compared in terms of comparing it to Act 43?
A I suspect they were very close, if not identical, but again I can't be certain.
Q You mentioned compactness was one of the factors that you looked at, and I know you did a comparison of your plan to the Act 43 plan in terms of compactness?
A Correct.
Q What was the standard you used to measure compactness

of yours?
A I used something called the Roeck standard, which is R-o-e-c-k.
Q What is that?
A The way that the Roeck standard is calculated is you take a district and you place that district inside the smallest circumscribing circle. So you draw a circle that is the smallest circle that contains the entire district, and the Roeck value is the area of the district divided by the area of the smallest circumscribing circle, and it gives you a value between 0 -- you can't really have a value of 0 -- and 1 where 1 would be you actually have a perfectly circular district, but basically as districts with more irregular shapes that are longer will tend to have lower measures on this index.
Q So lower is good or bad in terms of compactness?
A Higher values indicate more compactness.
Q Are there other ways to measure compactness?
A Yes.
Q What are some of the other ways?
A Other ways look at -- there are probably 10 or 12 methods of doing that. There is no universal agreement on which method is the best. One of the reasons I used the method that I did is that in

the -- in 2012, I have the record of that case shows what the Roeck number, the average compactness on the Roeck index is for Act 43. So I was able to compare it directly to that.
Q That was going to be one of my questions. So you got the compactness, the Roeck compactness on Act 43 from the Baldus litigation?
A Correct.
Q Do you know specifically where in that litigation?
A I'm not sure. I think it may have been in the -- there was a report that both parties submitted. It may have been called the Joint Stipulation of Facts. I'm not sure. But it was somewhere in those documents.
Q Okay. Now, as I understood it, it's an average of all the districts?
A Correct.
Q So it would take like District 1 through 29, they each get their own individual scores and then you average those scores together?
A Correct.
Q How did you calculate the Roeck score for your map?
A There's a feature in Maptitude that allows you to generate compactness scores and it gives you an option on it and it was able to do a report that

listed the compactness scores, and I'm pretty sure I put the table in either the annex or the -- yeah, so Page 13 of my annex shows the Roeck scores, the smallest circle scores for the district.

Q Okay. And the average is -- I guess it doesn't say on that table, but it's earlier in there.

A I believe it's .41.

Q And then did you use any of the other manners of measuring compactness to measure your demonstration plan?

A I did not.

Q And why not?

A I had the point of comparison and I didn't see any reason to generate the other numbers because I had nothing to compare them to.

Q Was the Roeck test the only measure of compactness of the Act 43 districts that you recall seeing?

A It's the only one I recall seeing.

Q How did some of the other ways of measuring compactness differ from the Roeck test?

A Well, I'll give you a couple of examples. One measure is the difference between the ratio of the long axis to the short axis of a district. So if you have a district that's very, very long and thin, that would tend to give you a high number as opposed to a district that was more of a circle or a square.

There is something called the perimeter to area measure, which is you calculate the length of the perimeter of a district, which will be higher with highly irregularly shaped districts with lots of nooks and crannies, and you divide that by the area, and as the perimeter area gets -- or area to perimeter, as it gets smaller, it means the district is more irregularly shaped.

There are a variety of different ways to do this. Generally speaking, and there are lots of exceptions, generally these measures tend to move in the same direction, that if one measure shows a high degree of noncompactness or a high degree of compactness, that it is common -- it's not invariably true, but it's common for different measures to show similar results.

Q How does the Roeck test handle a district that's like, for example, in Wisconsin that's on Lake Michigan?

A So one of the issues of how you calculate the Roeck index for District 1, which is Door County, and you calculate that by looking at the circle and it just is a feature of the geography that there is no way to calculate a highly compact district in that part of the state.

Q And then would the same hold true, for example, of someone -- it's on a border of another state, Illinois or Iowa or Minnesota somewhere, the circle is going to extend out into the bordering state and there's just nothing you can do about it?

A That's correct.

Q Going to the municipal split, what counts as a municipal split?

A So my understanding of the way Wisconsin counts municipal splits, it's a simple determination is if a district border bisects a city or county, then that municipality is split. That is as best as I am aware and -- actually I can say that a little more definitively, but that is how Maptitude calculates the split. I will give you a report of the number of municipalities that are in more than one district.

Q So just in my head so I have this clear, Milwaukee is going to be too big to have one district, there's going to be like several districts within Milwaukee?

A Right. Correct.

Q But drawing two districts in that doesn't count as a split, right, or does it?

A Will, as I understand, it is a municipality that is split into more than one districts.

Q When you have a number that says there's this many -- I'm trying to find the table where you list the --
MS. GREENWOOD: Page 37.
MR. KEENAN: Which one?
MS. GREENWOOD: Page 37.
Q Okay. Yeah, so I'm just trying to figure out what goes into the 64 city, town, village splits and 55 county splits, and then Act 43 has 62 city, town, village splits.
So if Milwaukee, for example, has like seven districts or six districts, I don't know how many, but does that -- but you need to have that just because of the equal population, you know, like there's nothing wrong with having six districts in Milwaukee, does that count as six splits, or does it count as zero splits?
A No, it counts as one split.
Q One split?
A Yeah. At least that's how I understand how Maptitude does it. The dividing line is whether a municipality is split.
Q But that split is going to happen under anyone's plan, I guess, because you just can't draw Milwaukee into --
A Correct.

Q And the same with some of these bigger cities?
A It would be the same in any larger jurisdiction that exceeded the ideal of population.
Q And then Milwaukee County I guess would be the same thing, that would count as a county split?
A I believe so, yes.
Q And then, now, say that there's a bunch of districts in Milwaukee, but then now we have one district that loops between Milwaukee and Waukesha. Is that still just one split, or is it one county split, or is it now do we have two county splits?
A I believe -- I would have to go back and check -- that that would count as -- it would depend on how many other splits that there were. So if -- because my understanding is that it's not the number of splits that a jurisdiction is put into. It's whether or not it is split. So I believe that that would count as one split.
Q Okay. And then now that we've split Waukesha County at least once, it's now -- it can only count as one split, even once then you could split it with Jefferson -- I don't know what the border is, but some other county on the border, there's still one split?
A Well, but that could also count as a split in

Jefferson County. So Jefferson County, it was possible to place that in a single district and there was a little finger from Waukesha, that that would count as a split in Jefferson County.

Q Okay. And then what about, now going to the smaller levels, like dealing with the villages, if there's a village that can fit entirely within one district, maybe there's two of them even right next to each other and they're totally encircled in a district, that would be zero splits?

A Correct.

Q Okay. But then if -- I guess if one of those districts, half of it is in one district and half is in the other --

MR. STRAUSS: Object to the form. You said two districts. You mean two towns?

MR. KEENAN: Yeah, sorry.

Q Yeah, like two villages -- or, no, sorry. If there's like one village, but then it ends up getting cut in half between two districts, that counts as one split?

A Correct.

Q Okay. But then if that town or village had been carved into three -- instead of two, it had been like divided up into three different districts, would that still be one split?

A I believe that it would still count as one split.

Q Okay. Is there a list that was generated that shows like what are the splits in the demonstration plan like when you run the report or something that gives you that information?

A It does produce a report, yes.

Q But does it just have a number?

A And it shows the locations of the splits.

Q Okay. Do you know if you'd say there's a version of that document or report that would have been produced?

A So I don't know that that was -- I actually submitted that report because what I was interested in was just the number.

Q When you were districting, did you attempt to keep communities of interest together?

A As a rule, yes.

Q So how did you go about trying to do that?

A Well, the communities of interest standard is very subjective and -- but part of that is keeping subdivisions together, but I tried to not have too many divisions or districts that combined vastly different parts of the state to ensure that different regions of the state were kept together.

Q Are you offering an opinion that the demonstration plan keeps communities of interest together better than Act 43?

A I don't know that I would make the statement that it was better because I made an effort to keep that in mind. But that's a very loose and subjective standard that can be difficult to do.

Q Why don't you turn to Table 7, which is your calculation of the efficiency gap under the demonstration plan?

MS. HARLESS: What page is that?

MR. KEENAN: 48.

Q And I will mark a similar spreadsheet there which is the demonstration plan version.

(Exhibit 10 is marked for identification)

Q And Exhibit 10 is similar to what you've seen before, but I printed out the tab on the efficiency gap spreadsheet, and I think it was titled All Open Seat Data.

A Right.

Q Which I think is what I understood to be the demonstration plan calculations. Is that what it is?

A I believe so, yes.

Q So I guess we can look at either Exhibit 10 or the Table 7 in the report. How did you go about calculating the efficiency gap for the demonstration plan?

A The same way that I did for the Act 43, that I had essentially block level estimates of the number of Republican and Democratic votes, the demonstration plan was created out of those blocks and so that meant that each district had a predicted number of Democratic and Republican votes which formed the first two columns and then I calculated the efficiency gap in the same way as I did for Act 43, calculating the lost and surplus votes for both parties.

Q Now, for -- if I take it the -- your districts are made out of -- did you define your districts in the demonstration plan based on specific ward numbers in various municipalities?

A No.

Q What were they made up of?

A I made them -- I did not use wards, and the reason I didn't use wards is those wards were actually created after Act 43 went into effect and so if I built the new districts out of those wards, I would be building them using essentially a template for -- that was used for Act 43.

I constructed them where I could out of entire jurisdictions, whether it's counties, municipalities.

Where that was not possible or whether when I created a district that in order to achieve population equality, I couldn't do that, then I worked with census blocks.
Q And then each of your districts is made up of a certain subset of the census blocks and jurisdictions?
A Well, it's a combination of again you can select entire jurisdictions, which can be efficient, and you can also build a district or create the district by selecting individual census blocks.
Q And then for your demonstration, District 1 is obviously different from Act 43, District 1, correct?
A Correct.
Q And so for your District 1, how did you determine the predicted Democratic vote and the predicted Republican vote?
A Once I had generated the expected Republican and Democratic votes at the -- using the original model, I then disaggregated or allocated those ward level results to the blocks inside that ward using the percentage of the voting eligible population in that ward. And so once that was done, I had a file that for each block in the state of the 250,000, 252,000 or so blocks, each block had an expected number of

Democratic and Republican votes again for the no incumbent baseline, and that would allow me to draw a hypothetical demonstration plan and generate estimates of what the partisanship, what the voting would be in those districts.

Q How is the total number of votes in the district determined? For example, I'm just looking at District 1, and it looks like your predictions show about 32,000-some votes. I realize that's a function of some sort of your equation, but I'm just trying to figure out how does it get to that number?

A That's simply adding up the number of Democratic and Republican -- predicted Democratic and predicted Republican votes in each block as you build that block into the district. That's the number that results.

Q Okay. What's your definition of gerrymandering?

MR. STRAUSS: Object to the form of the question to the extent it calls for a legal conclusion. But you can answer.

A So there are a variety of different ways of defining that. As a political scientist, it's most commonly defined as the drawing of district lines in a manner that intentionally provides a political benefit to one party over the other.

Q Do you have an opinion of whether the plan that was in effect in the 2000s assembly districts, whether that was a gerrymander?

MR. STRAUSS: Again object to the extent it calls for a legal conclusion. If you understand the question.

A Yeah, I mean that one was produced by courts and courts generally do not take partisanship into account. At the same time, my understanding of the way that the 2001 plan was drawn is that the judges in that case accepted submissions from the parties.

There were a number of maps the Democrats submitted, there were a number of maps that Republicans submitted and that they incorporated that into their drawing of the map. So the -- I'll leave it at that.

Q Do you know how many times the Democrats have won the Wisconsin Assembly in the last 20 years?

A I could look. I don't know off the top of my head.

Q Does your demonstration plan, would it give them -- give Democrats an advantage in terms of attempting to like control the assembly?

A I would have to look at the results. I'm not sure what the expected -- I think there's a table in there somewhere. Let me look.

So on Page 46 there's a table that shows the summary statistics and it shows that my plan would be expected to produce a 51 to 48 Democratic majority in the assembly.

Q Okay. And that's based off of just looking at the 2012 election data, though, right, your calculations?

A I just want to make sure I give a precise answer. That that's based on the underlying model, which is based on the 2012 election results.

Q Yes, that's sort of what I meant to say. So yes.

A Okay.

Q But thank you for clarifying. And do you know if that baseline partisanship would then hold under an election that -- in like 2014 where a Republican won the highest office on the ballot that year?

A Well, I haven't done the numbers, but it's quite possible that if you did that result for 2014 that it would show a Republican majority, but I don't know.

Q And then just going back to your demonstration plan partisanship model, I'm looking at Exhibit 10, but I guess it's probably the same. The column D percent and R percent are PCT, but I think it's percent, it's about the seventh one in, it says D PCT?

A Okay.

Q And then the ninth one, it says R percent, do you see

those two columns?
A Yes.
Q If I wanted to look at a particular district under your demonstration plan and determine what your view of the underlying partisanship is, those are the two columns I'd look at?
A Correct, if you were interested in the percentages.
Q Yeah. So like, for example, when it says party split, 48 to 51 on Page 46 of your report, that's looking at those two columns and seeing where -- which party's over 50 percent?
A Correct.
Q And just doing this again, I think I know the answer, but those are two party percentages, so just the two-party vote?
A Correct.
Q So someone is going to be 50 percent over in each one of those races?
A Correct.
MR. KEENAN: I think I want to take a break.
(Short recess is taken)
Q Well, back on the record. I just have a few more follow-up questions. Where did you get the number of municipal splits that Act 43 had? Where did you get

that number from?
A I believe I got that from within Maptitude using the same method, but I'm not sure.
Q So you think you imported the Act 43 districts into your Maptitude program and ran a report like that?
A I think so.
Q So I guess if that's the case, Maptitude was using the same measurements?
A I believe so. I would have to go back and double check.
Q Are you expressing an opinion about the durability of the efficiency gap in Wisconsin over the course of --
A I think on that I will defer to Professor Jackman and his report.
Q Very good.
MR. KEENAN: That's all I have.
MR. STRAUSS: Just give us a minute and let us talk and see if we have any questions to ask.
(Short recess is taken)
MR. STRAUSS: So on the record.
EXAMINATION
BY MR. STRAUSS:
Q In your calculations of the efficiency gap, you used what you described as estimates. What do you mean by

estimates?

A So these were -- these estimates were generated by the underlying model, which looked at the relationship between the independent variables that I used in the actual assembly vote and then I used the results of that model to generate forecasts, estimates of what the underlying partisanship was in each of the 99 assembly districts and also used that to generate estimates in the demonstration plan that I drew.

But one thing to note about this model is that it was a highly accurate, you know, with very extraordinarily high R squares, which you rarely see in social science models, so I'm very confident that these are accurate estimates of the existing partisanship and what it would have been in my demonstration plan.

Q And do you consider -- when you use the word estimate, do you -- how would you compare that to using the word guess?

A I'm using the estimate in the statistical sense, that it is a number that is produced through analysis, that there is obviously going to be some degree of error, but I'm confident that that error is very small and in no sense is it a guess.

MR. STRAUSS: Okay. I don't have any further questions.

MR. KEENAN: No further questions.

MR. STRAUSS: We'll reserve signature.

(1:39 p.m.)

ERRATA SHEET

Witness Name: Kenneth Mayer, Ph.D.

Date Taken: November 9, 2015

Case Name: Whitford, et al., vs. Nichol, et al.

Page/Line	Reads	Should Read	Reason

____

Kenneth Mayer, Ph.D.

STATE OF WISCONSIN)
) ss.
COUNTY OF DANE)

I, LISA A. CREERON, a Registered Professional Reporter and Notary Public in and for the State of Wisconsin, do hereby certify that the foregoing is a true record of the deposition of KENNETH MAYER, Ph.D., who was first duly sworn by me; having been taken on the 9th day of November, 2015, at the Wisconsin Department of Justice, 17 West Main Street, in the City of Madison, County of Dane, and State of Wisconsin, in my presence, and reduced to writing in accordance with my stenographic notes made at said time and place.

I further certify that I am not a relative or employee or attorney or counsel for any of the parties, or a relative or employee of such attorney or counsel, or financially interested in said action.

In witness whereof, I have hereunto set my hand and affixed my seal of office this 14th day of November, 2015.

____
Notary Public, State of Wisconsin
My Commission Expires: 1/29/17

IN THE UNITED STATES DISTRICT COURT

FOR THE WESTERN DISTRICT OF WISCONSIN

* *

WILLIAM WHITFORD, et al.,

Plaintiffs,

v. Case No. 15-CV-421-bbc

GERALD NICHOL, et al.,

Defendants.

* *

DEPOSITION OF SIMON D. JACKMAN, Ph.D.

Friday, November 20, 2015

9:02 a.m.

Reported by: MARY L. MIXON

DEPOSITION of SIMON D. JACKMAN, Ph.D., a witness in the above-entitled action, taken at the instance of the Defendants, under the provisions of the Federal Rules of Civil Procedure, taken pursuant to notice, before MARY L. MIXON, a Court Reporter and Notary Public in and for the State of Wisconsin, at the Wisconsin Department of Justice, 17 West Main Street, in the City of Madison, County of Dane, and State of Wisconsin, on the 20th day of November 2015, commencing at 9:02 a.m.

* * * * *

A P P E A R A N C E S

PAUL STRAUSS, RUTH GREENWOOD and ANNABELLE HARLESS, CHICAGO LAWYERS' COMMITTEE FOR
CIVIL RIGHTS UNDER LAW, INC.,
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100 North La Salle Street, Suite 600,
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on behalf of the Plaintiffs.

BRIAN P. KEENAN,
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WISCONSIN DEPARTMENT OF JUSTICE,
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on behalf of the Defendants.

PETER G. EARLE,
LAW OFFICE OF PETER EARLE, LLC,
Attorneys at Law,
839 North Jefferson Street, Suite 300,
Milwaukee, Wisconsin 53202-3744,
appearing on behalf of the Witness.

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I N D E X

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E X H I B I T S

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(Attached to original transcript
and copies provided to counsel)

* * * * *

(Original transcript is filed with Attorney Keenan)

SIMON D. JACKMAN, Ph.D.,
called as a witness, being first duly sworn,
testified under oath as follows:

EXAMINATION

By Mr. Keenan:

Q Good morning, Professor Jackman. My name is Brian Keenan, I'm the attorney for the defendants in this case and we're here for your deposition. Have you ever been deposed before?

A No.

Q Okay. Well, it's the first time so I'll give you a few ground rules.

A Okay.

Q I'll be asking you questions and you'll be giving me answers. And do you understand that you're under oath?

A I do.

Q And another thing is you have to answer verbally so that the court reporter here can take down your answers. Another thing is to just let me get my whole question out and then you can give your answer, and I'll try to not talk over you before my next question. So you understand that you've sworn to tell the truth to my questions to the

best of your ability?
A Yes.
Q If ever you don't understand a question just let me know, and I'll be happy to rephrase it or we can have the court reporter read it out loud again. Do you understand?
A I do.
Q We can take some breaks, so if ever you feel like you have to go to the bathroom or something, just let me know and we'll take a break. I will say if there's a pending question, you'll have to answer the question and then you can take a break.
A I understand.
Q What did you do to prepare for the deposition today?
A In addition to writing the report, we did a few phone calls with the team here and we had a day-long meeting here yesterday.
Q And who all was at that meeting yesterday?
A Everybody you see to my right here with the exception of Emma down at the end of the table.
Q And how long do you think that meeting lasted?
A About four and a half hours.
Q Okay. I'm just going to mark some documents as exhibits and we'll refer to them.

A You bet.

MR. KEENAN: I was going to continuously mark exhibits. So we had left off at 10, so I was going to mark the first one as 11.

MR. STRAUSS: That's a great idea.

MR. EARLE: So we're going to do this consistently through the whole case?

MR. KEENAN: I'd be happy with that.

MR. EARLE: Okay, go ahead. Sometimes people do that, they start that way and then they switch, and things get complicated when that happens.

MR. KEENAN: Yeah. So we'll mark this as No. 11.

(Exhibit 11 is marked for identification)

Q So for Exhibit 11, perhaps you could just identify what Exhibit 11 is for us.

A It's the report I produced at the request of the plaintiffs.

Q Okay. And so keep that handy. I'm actually going to go on to some other things, but it made more sense to mark this as the first exhibit at this deposition. So I've got another one.

(Exhibit 12 is marked for identification)

Q And if you could identify what Exhibit 12 is for us?

A It's a copy of my curriculum vita dated May 11, 2015.

Q And is this a current version of your CV?

A Current as of May, but yeah, there are no substantial changes.

Q All right. So if I wanted to get your educational history and the jobs you've had, if I look at what's listed here in Exhibit 12, that would tell me all that information?

A That's correct.

Q Okay. So I don't think we need to have you repeat what's already on this page, so that's why I did that.

A Okay.

MR. EARLE: In deference to the snow, that's a good idea.

MR. KEENAN: Yeah.

Q What is your current position right now?

A I'm a professor of political science at Stanford University.

Q Okay. And what do you do in that position?

A I teach classes in the Department of Political

Science, I'm a researcher, and a reasonable amount of administrative responsibilities as well that accompany a professorial position.

Q What classes do you teach?

A Primarily statistical methods for master's and Ph.D. students in the Department of Political Science.

Q And then you said primarily; are there any other classes you teach outside of --

A Yeah, and American politics are the other classes I teach.

Q Any specific classes in American politics?

A Elections, public opinion are the topics in American politics that recent teaching has covered.

Q And you said you're a researcher; what are the topics that you've researched?

A Most recently I've been directing the American National Election Studies, but over my career I've done a lot of work on electoral systems, on the application of statistical methods in many realms of political science but again with a heavy emphasis on American politics.

Q You mentioned the American National Elections Studies.

A Uh-huh.
Q What is that organization?
A Okay, sure. That is a large survey-based study of American political attitudes. It is the single biggest piece of political science funded by the National Science Foundation. It's a study that has been in existence in one form or another since 1952 and is currently a co-production of Stanford University and the University of Michigan.
Q And then I see on your CV that it says principal investigator; is that your title?
A Yeah. For the purposes of that project, that is my title.
Q And then what are your responsibilities as the principal investigator?
A Stewardship of the NSF grant dollars, making decisions about the science that we're conducting, the design of given presidential cycles, survey work, the dissemination of the data, the extent to which we rely on our Advisory Board for assistance, directing a small staff at Stanford and partnering with our opposite numbers at the University of Michigan.
Q And then I see that there's a website listed here, www.electionstudies.org; is that the website for

the American National Election Studies?
A It is, yeah. That's hosted out of the University of Michigan.
Q Have you ever served as an expert witness in a legal case before?
A No.
Q All right. When did you start working as an expert in this case?
A Late last year.
Q And how did it come about that you ended up getting involved with this case?
A I don't exactly recall, but I believe it was I think Ruth Greenwood e-mailed me and asked me if I'd be interested in coming on board, either Ruth or Nick Stephanopoulos.
Q And during that initial contact with you, what was it suggested that you would do on behalf of the plaintiffs in this case?
A Would I look at the properties of this measure that McGhee and Stephanopoulos had written about in a Law Review article, examine its -- generate measures of the efficiency gap for a large set of state legislative elections, as many as we could possibly manage, examining the properties of that measure, examining some of the ways we might go

about computing it, examining the robustness of the resulting estimates of the efficiency gap and ultimately to produce an assessment of the extent to which recent values of the efficiency gap from Wisconsin, how they stacked up against that -- in light of that historical analysis.

Q You used the term "robustness" which is a term I've seen. Could you explain what you mean by that?

A Yeah. A simple definition might be the extent to which you get the same answer when you do different things and make different assumptions about the way you treat the data.

Q And you also mentioned a Law Review article by McGhee and Stephanopoulos. At the time you had first been --

MR. EARLE: Excuse me, did you say large?

MR. KEENAN: Law Review.

MR. EARLE: Oh, Law Review, okay. I thought you said large. I'm sorry, go ahead.

Q Law Review article by McGhee and Stephanopoulos. At the time you were approached to work on this case, were you already familiar with that Law

Review article?
A No, I was not.
Q Were you familiar with the, not the specific article, with the efficiency gap measure that was outlined in the article?
A No.
(Exhibit 13 is marked for identification)
Q Could you identify what Exhibit 13 is?
A It's my letter of engagement.
Q For your work in this case?
A Uh-huh.
Q All right. I think the copy that I received from your attorneys doesn't have your signature on it, but is this still the engagement letter even though it doesn't look like it has your signature on it?
A Yes.
Q You're not disputing that it's the engagement letter?
A No, no.
Q All right. And then looking at the engagement letter, is it your understanding that this encapsulates what you were asked to do in this case?
A Uh-huh.

Q And if you look at the second page, there's a series of numbers. The number 3 you can see, it's italicized, it says Partisan Gerrymandering and the Efficiency Gap, 82 U.Chi.L.Rev. Is that the Stephanopoulos and McGhee article you were referencing?
A Yes, that's right.
Q Okay, let's put that aside. And then your rate is $250 per hour; is that correct?
A That's correct.
(Exhibit 14 is marked for identification)
Q And perhaps I should back up. You understood that you were supposed to produce documents in your possession to your attorney that then would be produced to me, correct?
A Yes.
Q And you produced all the materials that you relied on in formulating your report to your attorneys, correct?
A Yes, I did.
Q All right. When I went through those materials, I found these two invoices which are contained in Exhibit 14.
A Uh-huh.
Q And my main question is are these the only two

invoices you've submitted to the plaintiffs in the
case?
A That's correct.
Q And the first invoice is dated June 8th, 2015.
And if I understand that correctly, that would
cover all of the work you did from whenever the
first engagement was up until that date?
A That's correct.
Q And then have the plaintiffs paid the invoices
that you submitted to them?
A Yes.
Q Are there any other outstanding invoices, not
invoices I guess, but any outstanding work that
you haven't billed yet to the plaintiffs?
A Yes.
Q Okay. And do you have any estimate of how much
that is?
A Ten to 12 hours.
Q Okay. But you will be submitting an invoice for
that to the plaintiffs?
A I will.
Q All right. So now we can get back to your report.
You can maybe have Exhibit 11 in front of you.
A Uh-huh.
Q And I thought I would just go through the report

and ask you questions about it.
A Okay.
Q And the way it's organized, it has an introduction section and then some more detail behind. So I thought maybe we could start with the introduction but then perhaps jump to the substance later and then we might have to jump back and forth.
MR. EARLE: Why don't we -- okay.
MS. GREENWOOD: Yeah, just let Simon look on his own copy there.
MR. EARLE: Okay.
Q So I understand you have your own copy.
A Yeah.
Q But I believe it's the same document.
A It is the same document, right.
Q All right. If you look at No. 3, Section 3 is the Summary.
A Uh-huh.
Q Start with Paragraph 1 there.
A Uh-huh.
MR. EARLE: Can we pause for a second?
MR. KEENAN: Sure.
(Discussion off the record)
Q So just looking at that first paragraph,

Paragraph 1, the second sentence says, "Wasted votes are votes for a party in excess of what the party needed to win a given district or votes cast for a party in districts that the party doesn't win."

Where did you get that definition of wasted votes from?

A From McGhee and Stephanopoulos.

Q And what's your understanding of -- did McGhee and Stephanopoulos, I guess for lack of a better word, create this wasted votes measure?

A I think the concept of wasted votes is well rehearsed in the literature. I think it's given an extremely precise definition here, but I think the concept itself is well known in the literature on partisan gerrymandering.

Q And then continue on, "Differences in wasted vote rates between political parties measure the extent of partisan gerrymandering."

Why is it your opinion that differences in wasted votes measure the extent of partisan gerrymandering?

A Because fundamentally differences in wasted vote rates between parties are measuring the extent to which district lines are systematically treating

voters of different parties unequally.
Q And is it your opinion that any districting system that systematically treats voters of different parties unequally is a product of gerrymandering?
A No. I think very specifically it's through the districting or it's the districting that generates that unequal treatment. You know, there are other ways an electoral system might treat voters unequally. But this is a very precise meaning in this context, and it's with respect to the districts and the district boundaries.
Q Okay. So any decision on districting that treats voters of different parties unequally would be considered gerrymandering?
MR. EARLE: I'm going to object to the form of the question and to the extent that you're asking him for a legal conclusion. Subject to that objection, you can answer the question if you understand it.
A Yeah. Could you repeat the question then?
Q Sure. Is it your opinion that any districting decision that results in districts that treat voters of different parties unequally constitutes gerrymandering?
MR. EARLE: Same objection, go

ahead.

A The word "treat" in that sentence is key and perhaps subject to a little ambiguity. I think if operationally the plan, the districting plan produces differences in wasted vote rates of the sort that I elaborate in this report, then we're on the road to establishing partisan gerrymandering.

Q And did you say you're on the road to establishing partisan gerrymandering?

A Uh-huh.

Q That's a yes?

A Yes.

Q Sorry. But does the just difference in wasted votes alone establish partisan gerrymandering?

MR. EARLE: Same objection. I'll just note that for the record without repeating and elaborating on it, but go ahead and answer the question if you understand the question.

A From my perspective, absent any data about the intent of people who were drawing the lines, that's why I got hung up on the word treat in your earlier question. But the data I observe and in particular the data I had at my disposal for this

report, differences in wasted vote rates was the
indicator that I relied on to measure partisan
gerrymandering.
Q I guess I'm just trying to figure out why rely on
that as your indicator?
A Because it's available in such a wide array of
states and years and made possible the analysis
that I did.
Q And your analysis, just kind of following up on
your prior answer, is based solely on the end
results of the various elections in the states you
measured?
MR. EARLE: I'm going to object to
the form of the question, ambiguous.
A Okay. Could you repeat the question?
Q Sure. You mentioned that you were just looking at
the results of the elections and didn't look at
the intent of any of the bodies that were doing
any of the districting; that's correct?
A Yes, in large effect. The one additional piece of
data that I did have at my disposal was, you know,
under which plan an election took place. But I
didn't take into account who drew the plan, and I
have no room to measure this to whatever was in
their minds when they draw the plan.

Q Yeah. And so your analysis just looks at what the results of those plans were in the various elections that took place under those plans?
A Yes.
Q Okay. I was just going to skip ahead to -- actually maybe we'll just go to No. 2, Paragraph 2 where it says, "The efficiency gap, EG, is a relative, wasted vote measure, the ratio of one party's wasted vote rate to the other party's wasted vote rate."
A Uh-huh.
Q And I think we've talked about this before, but you got this definition of the efficiency gap from the Stephanopoulos and McGhee article; is that correct?
A That's right.
Q Have you written any articles that were published about the efficiency gap?
A No.
Q And then you say in No. 3 that, "The efficiency gap is an excess seats measure reflecting the nature of a partisan gerrymander."
When you say excess seats, excess in comparison to what?
A An efficiency gap of zero and an assumption that

there's an equal number of voters in every district. Under those two assumptions, we have a very precise relationship between statewide vote share and seat share for a given party. And it's with respect to that very precise relationship that I'm using the term excess seats. So it's with reference to a world, hypothetical world in which the efficiency gap is zero, all right. Against that standard we can assess what happens in real world elections, the extent to which the seats won given the votes won is above or below the level that the zero efficiency gap standard would imply.

Q And you said that it assumes that there's equal voters in each district. Can you just explain what that means?

A Right. That's a simplification that generates a very simple representation of the mapping from votes to seats when the efficiency gap is zero. So if we were able or willing to make the assumption that there were equal number of voters in every district and if the efficiency gap was a preset value, let's say zero for the sake of argument, then we have an expectation as to how many seats we should see for a given level of vote

-- statewide vote. Now, the equal number of voters per seat means just that, that in every district we have the same number of people voting.
Q And the same number of people voting would be the total votes, not the number of people that live in the district?
A That's correct.
Q Okay. So it assumed that District 1, 20,000 people voted and District 2, 20,000 people voted, all the way down the line?
A That's right.
Q Okay. I'm just going to jump ahead a little bit and we can get into these things in a little more detail.
A Uh-huh.
Q Looking at Figure 1 which is on Page 7.
A Uh-huh.
Q The exhibit is in color, so if that's a little --
A Yeah, that is helpful.
Q I printed it in black and white and realized it didn't make much sense, so then I printed it in color.
MR. EARLE: We need to increase the budget of the AG's office and have a color printer.

MR. KEENAN: No, I have color.
MR. EARLE: Oh, this is my copy.
MR. KEENAN: Yeah, his is in black and white.
MR. EARLE: Oh, I see. Oh, it is.
MR. KEENAN: Yeah, the official one is in color. There's some of these graphs that --
MR. EARLE: Okay. Page 7, got it.
Q And now that we have the color version, the red, I take it the red line there is Wisconsin; is that correct?
A That is the average of the efficiency gap measures for Wisconsin 2012 and Wisconsin 2014.
Q And you say average, so that would be?
A It's just the average of two numbers.
Q Two numbers. And then the bar is there, there's a dot in the middle and then there's bars on the side. What does that line represent?
A In this graph the horizontal lines are 95 percent confidence intervals around each average.
Q Okay. So the right most, for example, line is the furthest -- I'm just trying to figure out if that's actually your calculation of the efficiency gap for I guess what would be the most favorable

democratic year in a plan or does that extend even further right based on some sort of confidence interval?

MR. EARLE: I'm going to object to the form of the question. I think I know what you're asking, but answer the question if you understand it.

A That's not the interpretation I would give --

Q Okay. Why don't you explain what you would give?

MR. EARLE: Let him finish his sentence.

MR. KEENAN: Sure.

MR. EARLE: There you go.

A The right most edge or the limit at the end there of the red horizontal line is the point at which there is only a 2.5 percent chance that the average efficiency gap lies to the right of that point. And similarly there is only a 2.5 percent chance that the average efficiency gap score for Wisconsin 2012, 2014 lies to the left of the left-hand end of the red line. So the single point estimate is the dot that is unknown -- our uncertainty about that point estimate is concentrated around that red dot, and the line is giving a graphical summary of how large that

uncertainty is.
Q And I'll just follow that up. So in Wisconsin in this red line, there's only two efficiency gap calculations, correct?
A That's right.
Q And so later on you give what those are for Wisconsin. And I guess I might be phrasing this poorly but, for example, if you put two dots at where your calculation for the efficiency gap for 2012 and 2014 --
A That's correct.
Q -- would those be inside the outermost edges there or would they be at the outermost edges there?
A The individual estimates for each year lie on either side of the average, right, so the average by definition will be in the middle. And since we only have two, the 2012 estimate will be on one side and the 2014 estimate will be on the other. In this case the 2012 estimate is to the left and the 2014 estimate is to the right. Just looking at my numbers, the individual point estimates for 2012 and 2014, the 2012 estimate would lie on that red line, and the 2014 estimate, yes, probably does as well, probably right up towards the right-hand edge, the right-hand end of that red

horizontal line.
Q Okay. And I guess I was trying to be a little bit simpler in that those two numbers, we have two and then we have an average. If we had bigger dots to represent the 2012 and 2014 numbers, would they lie at the very extreme of this red line or would they be somewhat inside of it?
A They'd be as I just said, one would be towards the left-hand end but still on that line, and the other would be towards the end but I think still -- it would still be on the red line.
MR. EARLE: Just so the record is clear, the deponent was referencing Figure 35.
A I was eyeballing, literally sort of doing the transposition, picking up those two estimates there at the end of Figure 35 and plunking them down on Figure 1.
MR. EARLE: And for the ease of anybody reading the transcript, Figure 35 is on Page 72.
Q And you said it's a long line. I guess I'm just trying to figure out if it's at the very end of the line or if the line you have depicted on Figure 1 accounts for some uncertainty that the

efficiency gap might actually be to the right of whatever the number was calculated for 2012?
A Okay. So the uncertainty in that average, that 95 percent confidence interval that's been drawn around the average, reflects the uncertainty in the estimate for 2012 and 2014. So to the extent we're uncertain about those point estimates, that uncertainty is reflected and that's what's generating the confidence interval that you see graphed for the average.
Q And this graph represents the average efficiency gap scores it says for 206 districting plans; is that correct?
A Uh-huh, that's correct.
Q Is that all of the districting plans you looked at?
A Yes.
Q And so I take it that Wisconsin obviously only has two elections under its plan, but some of these elections that are here have a full five elections under the plan?
A That's correct.
Q Okay. I guess we can move to 4.1, the Seats-Votes Curves. We had been talking about this a little bit before I believe, perhaps we can get into it a

little more here.
A Uh-huh.
Q I note that there's like a Footnote 1 that talks about the Cube Law. Can you just explain what the Cube Law is?
A Sure. The Cube Law really isn't a law. It's a law in the sense that social scientists sometimes use that term when talking about what might be better described as an apparent empirical regularity.
The Cube Law dates back to the very beginning of systematic study of electoral systems when turn of the 20th Century British statisticians started looking at the relationship between vote shares and seat shares in single-member district systems in the UK House of Commons in particular. And what was observed was a nonlinear relationship between vote shares and seat shares for a given party. And literally through fitting what might be the right curve to fit to that nonlinear relationship, it was speculated that that particular equation shown in Figure 1 would produce a good fit to the data that that group of early investigators of this topic were seeing in the UK House of Commons data.

And if I were to describe it to you, you get an S-shaped curve of the sort that I've graphed in Figure 2 on Page 10, and that appeared to fit those early data reasonably well. And it was speculated that maybe there was something about the nature of single-member district systems that would produce S-shaped curves and indeed maybe S-shaped curves where the right power function there is cubic; hence, the Cube Rule or the Cube Law. But over time as we've investigated many, many single-member district systems over the years, we've come to realize that sometimes we see values higher than three and sometimes we see values lower than three.

Proportional representation is a special case. It's not a district system at all, right, it's just allocated seats in proportion to vote shares. That gives you a 45-degree line. It's essentially taking the three you see there in the Cube Law and setting up to one. And then there are even more extreme versions. You know, districting plans that are extremely protective of incumbents, actually the value drops below one. And you get sort of an inverted S-shaped curve, a curve that is steep at the ends but largely flat over vote shares between say 25 to 75 percent, or if not quite flat then close to it.

And so the Cube Law lives on in the literature. It's a nice way to introduce people to the topic. And it still does express -- I think the thing to take away from it is that in single-member district systems you don't get 45-degree lines, you get a quite abrupt nonlinearity. Single-member district systems hand out harsh punishment to parties whose vote share falls into the teens or the twenties or the thirties. Seat shares tend to rapidly improve as your vote share moves up towards into the forties, fifties and then tends to plateau out once statewide, jurisdiction-wide vote shares get largely beyond 70, 80 percent. And that's a regularity that holds up, and the Cube Law lives on in the sense that it was one of the first attempts to formalize that empirical regularity.

MR. EARLE: Before you ask the next question, just for the record I think there was a misspeak at the beginning of that answer where you referred to Figure 1 as opposed to Footnote 1 as to the location of the formula.

THE WITNESS: Oh, pardon me.
Footnote 1, location of the formula, yes.
Q And then just digging into that answer a little bit, you mentioned that sometimes instead of a cube you get a three, you get something higher or lower. If you go higher, does that make the shape of the curve steeper?
A Exactly.
Q And lower is flatter?
A Flatter, exactly.
Q You mentioned that this Cube Law differs from system to system, some systems have higher or lower. Is there a study about like what the proportion is in United States state legislature elections?
A Yes, indeed. So just keep in mind it's not the Cube Law that varies; it's the Cube Law proposes three, that's where you empirically go about trying to estimate these curves. Jurisdiction to jurisdiction or context to context, we see variation in the number that belongs there. And there's a large literature, you know, offering ways of estimating that number in state legislative elections comparing state legislative elections to house elections to an institution

like the electoral college winner take all by
state with the exception of Maine and Nebraska.
So yeah, there are estimates like that out there.
Q Does your calculation of the efficiency gap rely
on a seats-votes curve?
A Strictly speaking, no, no, although a seats-votes
curve is implied by the efficiency gap. If you
assume the efficiency gap is zero, an underlying
seats-votes curve is implied.
Q What is the underlying seats-votes curve implied
that you're mentioning?
A Okay. Figure 4 of Page 18 of my report, I show in
orange the seats-votes curve that's implied by an
efficiency gap of zero. And it's what we would
call formally a piecewise linear function that is
flat, horizontal when vote shares lie between zero
and .25, has a slope of two between vote shares of
25 percent and 75 percent, and is again flat or
horizontal from the point at which vote share is
75 percent through to 100 percent.
Q Okay. So if I look at the orange line here on
Figure 4 and if a seats-votes result in a
particular election lies on that line, there'd be
a zero efficiency gap?
A Subject to some assumptions here, right, that that

would be subject to the equal votes in each district assumption, sure.

Q Okay. And then just to make sure I'm visualizing this correctly, is the vote share going to the right, that's the democratic vote share?

A It could be, it need not be. We're in a two-party system here is what all of this presumes, and those curves are perfectly symmetric, about 50/50. So it's just a point of convenience what you choose. But for sake of argument and the way I've done the analysis, I took it to be democratic vote share.

Q That's what I was going to ask. The way you did the analysis, was that the democratic votes -- V is democratic vote share?

A That's right.

Q And so if I wanted to plot out, you know, the democratic vote at 60 percent, I'd have to go to .6 on your map?

A That's right.

Q And just for example, if democrats had 60 percent of the vote, so I'd go to the 0.6?

A Uh-huh.

Q But they got 50 percent of the seats, I'd go up to .5?

A Uh-huh.
Q And I guess if I compare that to where the line is there, the line says it should be at .7 percent of the seats but they're at .5, what's the efficiency gap under that condition?
A Right. It's --
MR. EARLE: I'm going to object to the form of the question only because you were diagramming on your copy of the exhibit with your finger, and that's not going to appear on the transcript.
Q Did you understand the question?
A I did.
Q Okay.
A I did. Well, there's a very simple formula. So the scenario you sketched is that they won 50 percent of the seats with 60 percent of the vote. And so in such a case, the efficiency gap there would be negative .2.
Q Okay. And that's just the difference between where that orange line intersects with .6 and where the actual seats number is?
A Yeah, that's right. And that's the sense in which earlier I referred to the efficiency gap measure or as inducing excess seats, understanding what's

going on here, that conditional on winning 60 percent of the votes under the zero efficiency gap standard, we'd expect 70. Under your scenario they won 50; that difference is a deficit relative to what we would expect under a zero efficiency gap.

Q Okay. And then like just to view a different side of the coin, if they got 40 percent of the vote but got 50 percent of the seats, what would the efficiency gap be in that circumstance?

A If they won 50 percent of the seats with 40 percent of the vote, in that case the efficiency gap is -- that would be a positive .2.

Q And then if we were -- say we just flip this to look at it from the republican perspective, it would be just a mirror image. That would be --

A Yeah, one minus everything, right.

MR. EARLE: We're getting a little conversational here. One of the things about depositions is when you discuss something, you get conversational and you sometimes speak over each other a little bit. And there was a little bit of that there. So if you could try to keep the question separated from the answer, that would be great.

Q I think I understand that now, so I'm just going to go backwards in the report to Page 16, and there are some equations here.
A Uh-huh.
Q Could you just start with the first one there, it starts with EG.
A Uh-huh.
Q What does that equation represent?
A That's the definition of the efficiency gap as the difference of two wasted -- two numbers of wasted votes.
Q So is WB, that's the wasted votes for --
A For Party B, and WA are the wasted votes for Party A. And we've divided in both cases by the total number of in this case the jurisdictions, the number of jurisdictions in the -- actually I misspoke. In this particular formulation, these are proportions, these are not numbers, these are proportions.
Q Okay. So maybe just explain that then.
A Yeah, right. The constituent parts of WA and WB are these quantities S and V. V is a vote proportion, in particular a share of the two-party vote for Party A, I express those as proportion.
Q Okay. So some of these examples we've been using,

if Party A got 40 percent of the vote, is WA 40 percent?

A No, that's their wasted vote.

Q Oh, okay.

A Not the statewide vote.

Q Okay, I see. So the next equation down is WA equals a bunch of things that I don't understand, so maybe you could just --

MR. EARLE: Just so the transcript is clear, you're now discussing the second formula --

MR. KEENAN: On Page 16.

MR. EARLE: -- from the top of Page 16, okay.

Q What does this equation for WA mean?

A Okay. So there's a summation operator there, so over all districts we do the following: The vote share one -- okay, so these shares are defined with respect to Party A. So VI is the vote share of Party A in District I, and we're assuming it's a two-party system. So if VI exceeds .5, then Party A wins the district.

Q Right.

A So the wasted votes for Party A are in seats where it won the proportion of votes in excess of what it needed to win, so that's why we've got VI minus .5, all right, multiplied by SI. Now, SI takes the value one when the party wins the seat and takes the value zero when it doesn't. So when SI is one, we're talking about seats that Party A won.

And then the second piece of the second equation on Page 16, one minus SI, well, if SI is one, then one minus SI is only one when SI equals zero. And so now that part of the equation is picking up wasted votes and seats that Party A did not win, and in that case the VI in that case they're all below .5. And the definition of wasted votes is any votes you cast that are cast for a party in seats that it goes on to lose are wasted votes.

So we've essentially summed up all the districts now, right. Every district is won by either Party A or Party B. Wasted votes in the seats that Party A wins are the vote shares in excess of .5. And in the seats that Party A loses it's just the vote share, so it's just VI in those cases. And then we're just summing now of all districts. So every district is appearing somewhere in that equation, either a seat that

Party A won or a seat that Party A did not win.
Q Okay. So this is a calculation to determine the wasted votes in a particular district; is that correct?
A But summed over all districts.
Q Yeah, I'm sorry. WA is the wasted votes in a particular district --
A No, no, for the whole jurisdiction.
MR. EARLE: Hold on, we're getting conversational again. Why don't we start over with the next question and rephrase it.
MR. KEENAN: Okay.
Q So the sum means that you do this sigma, is that the correct --
A Correct, yes.
Q You do that calculation for each and every district; is that correct?
A Subscript I indexes districts, so the summation over I takes us across districts. So now we've got a jurisdiction-wide quantity; WA is jurisdiction wide or in this case statewide as is EG, the efficiency gap itself.
What's happening down at the district level are these vote shares, VI and SI which is just telling us where the VI is above .5, and not

telling us who won the district.
Q All right. And as I understand it, you did not actually perform this particular calculation in every district across every election that you looked at?
A Actually I used a very similar form of this after I was able to -- my version of the efficiency gap calculation, my calculations are extremely similar to this in that I substitute -- I have a vote share for each and every district. So I did come up with a VI for every district.
Q Okay. So maybe I should just ask you how you calculated the efficiency gap for a particular state in a particular year.
A Okay, sure. Well, why don't we take an easy case where every district is contested and so VI is observed for every district. And we're limiting ourselves or ignoring minor party candidates; we're focused on two-party competition. In that case, the efficiency gap calculations are identical under either the form given in the top half of Page 16 as we've just been discussing and unpacking the three equations in the top half of that page, or we could use the formulation given in Equation 1 on the lower half of Page 16 where

we can rely quite simply on the statewide aggregate numbers S -- the seat share for Party A in this case the way I set it up, the democrats -- and V, the average of the district vote shares.

Q So did you, in calculating the efficiency gap for all the various states that you looked at, did you use the equation here in 6.1 or the one above it in 6.0?

A Well, under the assumption of equal size districts, there's a strict correspondence between the two and so I assumed that. And so the distinction between the two forms is immaterial.

Q Yeah, and that may be. I'm just trying to figure out, though, like when you actually did the calculation, did you use the 6.1 equation or the one above it?

A Okay. To be perfectly clear, I used the equation labeled 1 on the bottom half of Page 16 but note that it has an input, to wit, V, which has these VI, V subscript I, quantities which are analogous to the VI quantities on the top half of the --

MR. EARLE: Just so the transcript is clear, you're referencing the sentence immediately below Formula 1 in 6.1 where V equals, and then you have a formula.

THE WITNESS: That's right.
MR. EARLE: Okay.
Q And you mentioned -- it says there's an assumption of equally-sized districts.
A Yes.
Q Other parts of the deposition you talked about we've assumed equal number of voters. Is this equal number of voters or is it a different assumption?
A No, equal number of voters.
Q Okay. Because the districts could be equally sized and have different numbers of voters.
A I understand.
MR. EARLE: You want to take a break now?
MR. KEENAN: Yeah, we can take a break.
(Recess)
Q We're back on the record. You were in the middle of explaining how you calculated the efficiency gap, and I think we're on Page 16 of your report.
A Sure.
Q Going back to something you had said, you mentioned that you were looking at the two-party vote. Just so I understand that correctly, in a

race where there happened to be a third party candidate perhaps even only getting two percent of the vote or some small amount, what did you do with that party candidate's vote?

MR. EARLE: I'm going to object to the form of the question. Go ahead and answer if you understand the question.

A In such a case, everything I did is defined by computing the democrats' share of the two-party vote. So it would be D over D plus R and putting votes for any other candidates out of the analysis.

Q Okay. And then looking at the bottom of Page 16 it says, "I operationalize V as the average over districts of the democratic share of the two-party vote, in seats won by either a democratic or republican candidate."

What did you do with a seat that wasn't won by a democratic or a republican candidate?

A And again, they're out of the analysis.

Q So, for example, if in Wisconsin there's 99 seats and one of them is won by some other party, then the analysis proceeds just looking at the 98 other seats?

A That's correct.

Q What does the average over districts of democratic share of the two-party vote mean?

A It means that you compute the democratic share of the two-party vote in every district, you sum that up over districts, and you divide by the number of districts.

Q So that will give you a number, a percentage?

A Yeah.

Q And then you say, "If districts are of equal size and ignoring seats won by independents and minor party candidates, then this average over districts will correspond to the democratic share of the statewide, two-party vote."

Okay. I think I understand that, so I don't need to ask more about it.

MR. EARLE: So there's no question?

MR. KEENAN: No.

MR. EARLE: All right.

Q We already went over the seats-votes curve, so I guess we can pass over that.

A Uh-huh.

Q Why don't you explain the set of legislative elections that you analyzed for your report?

A Sure. So the data -- well, the set of state elections I rely on span 1972 to 2014. I looked at general election contests for State Lower House elections held under single-member district electoral systems. Or there are also a small number of districts and races in there that are multimember districts, but multimember districts with slots or positions. So we're able to identify which candidates were running for which slot and in effect treat them as if they were the functional equivalent of single-member districts.

Q Okay. So you only looked at elections that were the State Lower House; that's correct?

A That's correct.

Q So the Wisconsin State Senate, for example, that wasn't considered?

A Not in this analysis.

Q And then if there was any elections that had multimember, any multimember districts?

A There are some multimember districts in the analysis, but as I said earlier in answer to the previous question, only of a particular type.

MR. EARLE: Pause a little bit before answering the question so I can insert an objection if necessary. And I will, post hoc, make an objection to the form of that last question.

Q So just so I understand, if there was like a State Lower House that had most of its seats were single-member but there was a few that were multimember but not of this slotted type, then that election was not considered?

A There are a couple of cases in the data where I did keep elections of that type. There aren't many, but I put the multimember districts to one side that were not of that slotted position type.

Q But you could still run an efficiency gap on the remaining --

A That's right, yeah.

Q If you look at Figure 5 on Page 21, I just want to make sure that I'm understanding correctly that if there's an orange dot for the state in a particular year, that's an election that you did consider in your analysis?

A That's correct.

Q And if there's not a dot, then that election was not considered?

A Or there was not an election in that year, that's right.

Q Fair enough. Who is Karl Klarner?

A He's a political scientist.

Q And what role did he have in the data that you

used in your study?
A He is the current steward of this large canonical, in political science at least, canonical collection of data on state legislative election returns. And he supplied me with the data for up through 2014 which was the current append to the longer historical data collection that runs 1967 to 2012.
Q Was Mr. Klarner the only source of your election data or did you go to some other sources as well?
A On the state legislative election returns, the collection that he is currently the steward of and the append for 2014 he gave me, that's where that data came from. There are of course other data used in the analysis that came from other sources. But in terms of the state legislative election outcomes, that data collection is the only source for those data.
Q Okay. So I see here 786 elections across 41 states.
A Could you tell me --
Q Page 20 at the very bottom.
MR. EARLE: It's the last sentence on Page 20.
A Correct.

Q And then are all those 786 elections reflected on Figure 5?

A Yes.

Q Moving to 7.2, the uncontested races, you mentioned this a little bit before but why don't you explain how you accounted for uncontested races in your analysis?

A Okay. So in the what is an uncontested race, it's where we do not have a democrat facing off against a republican, and so we don't have votes from both a democrat and republican. In such a case, in order to come up with a vote share for that district, I relied on a modeling procedure that used presidential vote tabulated by state legislative district from the most temporally proximate presidential election. And I also took into account if the candidate who did -- the only candidate who did show up and was returned unopposed was an incumbent or not and of which party. So was it a republican incumbent, was it a democratic incumbent or was there no incumbent.

Now, what I did was to run regression analysis of the relationship between vote shares and the state legislative elections against presidential vote in districts where we did have a contested race, so we get to observe both of these things in those cases. Then on the basis of what that analysis tells us about the relationship between those two variables taking into account incumbency, we're able then to make a prediction as to the vote share in an uncontested race because even in the uncontested races, races that aren't contested in the state legislative election, nonetheless we do have presidential vote share available in that district. And so the regression procedure is able to produce a prediction for those cases.

Q Okay. Let's just get into some specifics there. So you said the presidential vote in the most recent or proximate presidential election.

A Typically the preceding one.

Q Preceding one. For example 2014, would you have looked at the 2012 presidential election?

A Exactly, yes.

MR. EARLE: Slipping into conversation again, but --

THE WITNESS: Sure.

MR. EARLE: -- that's fine.

Q And then for the 2012 election where there was a presidential election that year, would you have

just used the 2012 presidential election?
A Yes.
Q Okay. And then the regression analysis, was that done -- I guess against which unit is that done? Was that done for each state in each election or is it a nationwide thing?
A No. That regression analysis is run in each election -- each state, each election.
Q So there's a separate calculation for Wisconsin 2012 from Michigan 2012?
A Yeah. And moreover, there's a separate calculation for Wisconsin 2012 republican incumbents versus Wisconsin 2012 democratic incumbents versus Wisconsin 2012 open seats.
Q So when you say an incumbent, does that refer to the candidate that's running unopposed whether they're an incumbent or not?
A That's right.
Q Okay. So you're trying to or what you're trying to do is model the share of votes that incumbent running would have received if there was an actual opponent?
A If in fact they had attracted a challenger, that's right.
Q Okay. And you're running a separate calculation

if the unopposed candidate is not actually an incumbent?

A The same type of calculation but leveraging off a different set of data.

Q Is the vote total that you're trying to find, is it just a percentage or is it an actual like number of votes?

A It's actually -- I'm trying to model a percentage, not a count.

Q So in the report on Page 26 through 29, it mentions two different imputation models?

A Right.

Q What are the two different imputation models?

A For prior to the 2000s, we don't have presidential vote share tabulated at the level of state legislative districts or at least that's not widely available. So there I relied on a different procedure, one that attempted to build an over time sequence. So inside a districting plan if we take a given district, suppose it was contested in one year and then it was uncontested in the following year but contested in the year after, in the election after that, then we had a basis for interpolating what the missing vote share would have been. Again taking into account incumbency and also statewide factors, you could say it was a particularly good year or not so good year for the party in that state in that year. So that was the procedure I relied on in that case.

I engaged in some comparisons of how that method performed against the method I was able to use and I prefer to use for the period 2000 forward where presidential vote shares were available and was reasonably satisfied that I was getting similar results. And although while I would much prefer to rely on presidential vote when I've got it as a basis for imputation, I was reasonably satisfied with the performance of that ultimate procedure based on the time periods where I had both methods so I could perform both methods. So I did a check of the performance of the two methods.

Q Under the imputation model that didn't have presidential vote share available, how were you able to determine the share of votes when a district was always uncontested?

A Right. That poses a real challenge. And at that point you're only able to rely on the identity of the incumbent and your estimate of the statewide vote share. And so in those cases, the estimates

of vote shares in such a district are relatively imprecise.
Q Okay. So if I understand, 8.1, Imputation model deals with the 2000 through the post 2000s that we have presidential vote share data?
A Well, you're actually also able to do a lot of the nineties as well because the 2000 presidential election takes place with the same districting plan in place for a lot of the elections of the nineties in a lot of jurisdictions.
Q Okay. So you actually used the 2000 presidential election and went backwards so to speak to impute election results into the nineties?
A Yeah.
Q Okay.
A Only in cases where the same plan's in place obviously.
Q Understood. I guess now we'll get in to your actual calculations of the efficiency gap by the state in each election.
A Sure.
MR. EARLE: Which page do we move to?
MR. KEENAN: 32.
Q Did you use some sort of computer program to run

the -- or programs to run the calculations?
A Yes.
Q And can you just explain what you did to get the efficiency gaps in terms of, you know, running through computer programs?
MR. EARLE: I'm going to object to the form of that question.
MR. KEENAN: Sure.
MR. EARLE: Do you understand the question?
THE WITNESS: No.
A I need you to be a bit more specific for me.
Q I understand that obviously you have a lot of data and I know that there's like -- I've seen some document production of a program called R?
A Uh-huh.
Q Could you explain how you used R in calculating the efficiency gap? On a general level; I don't need you to get into the --
A Okay. R is a widely used statistical data processing program used widely in the social and -- in science and in industry. I wrote programs in R that took the original data from the, as we were discussing earlier, the Karl Klarner collection. There's a lot of preprocessing

getting the data down to one record per district per election per state. Then at the level of each election, we then compute those quantities that go into the computation of the efficiency gap. So referring to my report, and I think we were discussing those equations earlier.

MS. GREENWOOD: Page 16.

THE WITNESS: Thank you.

A So for instance, Equation 1 on Page 16 then is computed for every election in this data set. And so in this instance, this analysis, 786 separate calculations of Equation 1. And again a program like R, this is rather straightforward, looping over the states and the years and keeping states grouped, you know, according to tagging them with a redistricting plan. That's precisely the sort of task that a computing environment like R is extremely well suited for, along with producing the graphs that appear throughout the report.

Q Yeah. And there are a lot of graphs, and I was just wondering if there was a -- do you have a master list anywhere, or perhaps it could be generated, that lists the efficiency gap as calculated by you for each state and each election that you analyzed?

MR. EARLE: Okay, that's a request.

MR. KEENAN: Well, I was just wondering if -- it doesn't exist in the documents.

MR. EARLE: Well, let's break it down into two things. You have a request and you have a question.

MR. KEENAN: Yeah.

MR. EARLE: Do the question first and then we'll respond to the request.

MR. KEENAN: Sure.

Q Have you generated such a report, a spreadsheet or something that contains that information?

A Yes.

Q And was it provided to your attorneys do you know?

A Yes.

Q Okay. So it should be in the data set that has been provided to me?

MS. GREENWOOD: We can talk about that. I don't think it's in the data set provided to you.

MR. KEENAN: Okay.

MS. GREENWOOD: Because of what was -- we can take about that.

MR. KEENAN: Okay. I think I would

like to have something like that, just like a spreadsheet or something.

MR. EARLE: Okay. So you want a copy -- to the extent that it exists, you want a copy of the spreadsheet that includes the analysis from 1972 for the entire, all 786 --

MS. GREENWOOD: The efficiency gap.

MR. EARLE: All 786 efficiency gap?

MR. KEENAN: Yeah. I mean, there are data points on various graphs and things, but you don't actually know what the specific number is and like which state is this one and things like that.

MR. EARLE: We'll get back to you on that.

MS. GREENWOOD: Yeah.

MR. KEENAN: All right.

Q Looking at Figure 11 on Page 33, what does the orange line represent?

A That is the seats-votes curve corresponding to an efficiency gap of zero.

Q Okay. And then if we see a -- it looks like they're represented by boxes?

A Uh-huh.

Q What does each little box represent?
A A plotted square is the particular vote share and seat share, all right -- so a vote share on the horizontal axis, seat share on the vertical axis -- from each of the 786 elections in the analysis.
Q And then elections that are I guess I want to say above and to the left of the orange line, would those be positive or negative efficiency gaps?
A Right. The vertical distance of a plotted square, if you project up or down to the orange line, gives you the efficiency gap. And so a data point that lies vertically above the orange line indicates a positive efficiency gap and a data point that lies below in a vertical distance, and vertical distance vertically below the orange line, indicates a negative estimate of the efficiency gap -- would correspond to a negative estimate of the efficiency gap.
Q Just turning to the next page, Figure 12, looking at that, can you explain what Figure 12 represents?
A Figure 12 represents the individual election-by-election efficiency gap estimates ordered by time left to right, and with the box indicating the point estimate of each efficiency

gap and the vertical bars extending outward from each box indicating length of a 95 percent confidence interval around each election-by-election estimate. And the data of course are grouped by state and ordered by time.
Q Is there a reason Vermont is listed at the top left?
MR. EARLE: Were you finished with your question?
MR. KEENAN: Yes.
MR. EARLE: Okay.
A That's a peculiarity of R. If you look, it's a reverse alphabetical order going from bottom left through to the top right.
Q Okay.
A That's all that is.
Q It confused me so --
A Yeah.
Q I was just going to go through the -- on the next page on 35 there's numbers with some points here.
A Uh-huh.
MR. EARLE: When you say numbers, you mean numbered paragraphs?
MR. KEENAN: Yeah, numbered paragraphs.

MR. EARLE: Okay.
Q So in Paragraph 4, is it true that New York had the lowest median efficiency gap estimates in your study?
A Yes.
Q And what is -- maybe just explain what a median estimate gap is.
A The plural in estimates there may be misleading. The lowest median -- if you took the median of all of New York's efficiency gap estimates, right, and then you did that for each state, New York has the lowest of those medians across the states. That's what I'm trying to say in the opening of Paragraph 4 on Page 35.
Q Okay, that makes sense. And for a low efficiency gap, that means favorable to republicans and unfavorable to democrats?
A That's right.
Q And No. 5 says Arkansas has the highest median efficiency gap score?
A That's right.
Q So that would be the highest median that's favorable to democrats?
A That's right.
Q And I believe you found Michigan was the third

lowest median efficiency gap score by state. Is there a list in here of each state's median?
A Not that I'm aware of.
Q Okay. No. 8 on the next page deals with Wisconsin specifically. It says Wisconsin's EG estimates range from negative .14 to .02. So is .02 the most favorable efficiency gap to democrats that you observed in Wisconsin?
A Yes.
Q Okay. And when you say efficiency gap estimates, what do you mean by that?
A Okay. I used the language of estimate; the word "estimate" appears because of the modeling that went into handling uncontested seats. And that's just the way I think any social scientist would refer to a calculation that came out of a procedure like that. In three cases we could drop the word estimate, in three cases where every seat was contested, but there are only three out of 786. So for the rest of the time, I prefer the word estimate.
Q And are those three elections that are not estimates, is that because they had no uncontested seats at all?
A That's right. And hence nothing had to be done,

yeah, for the uncontested seats.
Q Is the level of confidence in a particular efficiency gap estimate -- sorry, I'll start over again. Does the level of confidence in a particular efficiency gap estimate change from election to election and state to state?
A Yes.
Q And what factors affect that?
A The proportion of seats that are uncontested.
Q Okay. And I would take it that a lower proportion of uncontested seats would give you more confidence in your calculation?
A And the limiting case is of course zero uncontested seats in which case the confidence interval around an estimate collapses onto a point estimate itself. And in such a case, we could dispense with the word estimate.
Q And you looked at Wisconsin's election results for every year from 1972 to 2014?
A That's correct.
Q And among that whole time, the most favorable efficiency gap to democrats was .02; is that correct?
A That's correct.
Q And you found that Wisconsin has recorded an

unbroken run of negative EG estimates from 1998 to 2014; is that correct?
A That's correct.
Q Looking at Figure 13 on Page 37, there's a series of plotted squares -- is that the correct term?
A That will work.
Q -- that are connected by a line. I was just, my question was whether that line -- does that line move temporally from, for example, 1972 to 1974 or is it just the nearest dot?
A No. It's difficult to see in this case but what I -- I was indeed trying to demonstrate the temporal sequence, and I used a solid box to indicate the end of the sequence so that's 2014. And you can kind of make out backward through time the way that sequence of efficiency gap estimates in Georgia in this case, in Figure 13 we're looking at Georgia, the evolution that the sequence of efficiency gap estimates can literally be read off that graph, you know, regard from being below the orange line in recent elections to earlier in time to be considerably above the orange line in an earlier phase in Georgia.
Q Okay. So I noticed that there's a similar type of graph, looks like every page, 37 through 42; do

you see that?
A Indeed, yeah.
Q For each of these, did you use the same procedure of having a solid box for the most recent election and then connecting the line to the --
A Yeah, that's correct.
Q Okay. So for each of these if I start at the solid box, then I go from there and work my way backwards through time?
A Well, it can be difficult when the lines overlap, but absent that problem, that would be correct, yeah.
Q And again looking at each of these plotted squares, the ones that are below on the vertical axis from the orange line are negative efficiency gaps?
A That's correct.
Q And the ones that are above are positive efficiency gaps?
A That's correct.
Q And then going to 42 is Figure 18, Wisconsin, so this shows graphical plot of all the efficiency gaps you calculated in Wisconsin from 1972 to 2014?
A Well, one can figure out what the efficiency gap

estimates are in the sense I was talking about earlier in that they're the vertical distance of each plotted square from the orange line with the last two, 2014, being the solid point there in the lower left quadrant of the graph. And you can see the line taking us back in time to the immediately preceding election in 2012.

Q Going on to Page 44 now, Section 9.2.

A Uh-huh.

Q It's titled Over-time change in the efficiency gap.

A Uh-huh.

Q What did you find with respect to any changes in the efficiency gap over time from the beginning of the 1972 period that you looked at till today?

A At a high level of generality, the general trend in the distribution of efficiency gap estimates across states is for a roughly -- we see plans more favorable to democrats, at least as measured by the efficiency gap, in the earlier decades of this analysis. But in the late nineties and particularly 2000s onwards, that shifts and on average, efficiency gap estimates from the mid nineties onwards on average are indicative of plans that are favoring republicans. So negative efficiency gap estimates are tending to be the norm although there's considerable -- I think it's important to note that at any given time point, there's considerable spread in the distribution. So that's sort of a weak trend in the overall distribution.

Q Yeah, let's look at Figure 20 which I believe you're referring to.

A Uh-huh.

Q Could you explain what the -- to look at it, the bottom, I guess the horizontal axis has time, 1970, 1980, 1990, 2000, 2010, vertical is the efficiency gap, and there's a series of black dots.

A Uh-huh.

Q What does each black dot represent?

A Each black dot is an efficiency gap estimate from a specific election. So they're grouped by the year of the election. Typically most of these states, the elections have been held in even-numbered years.

Q Okay. And then so if you look at any one particular year, the highest dot would be the plan that's the most -- or the election that's the most favorable to democrats as measured by the

efficiency gap?
A That's right. Positive values of the efficiency gap are indicative of plans favorable to democrats. And so as you go vertically up the graph, you're in positive territory up in the very, all right, above zero there in the top half of the graph. And for the contrary, for negative territory on the vertical axis, the bottom half of the graph, negative estimates of the efficiency gap indicative of plans that are not advantageous to democrats.
Q So the lower most dot would be the plan that's most favorable to republicans as measured by the efficiency gap?
A That's right.
Q And there's three blue lines on the graph; could you explain what those are?
A Yeah. That's estimating -- the middle blue line is an estimate of the median across states, all right. So in any given year, looking at that spread of points in the vertical dimension estimating where the median is but performing a little bit of what we call smoothing so to produce a trend over time in both. So the middle line is the smoothed over time estimate of the median

efficiency gap.

The upper blue line is a smooth estimate of the 75th percentile, the point at which only one-quarter of elections are producing efficiency gap estimates more extreme than that. And the lower blue line is the smooth estimate of the 25th percentile of the distribution of efficiency gap estimates, the point at which only 25 percent of elections are producing efficiency gap estimates more advantageous to republicans than where the blue line is, the lower blue line.

Q So looking at just like one election --

A Uh-huh.

Q -- you plotted each, or plotted might not be the best word, but plotted each efficiency gap that you calculated on that line, and then the median is the one that's in the middle when you line them up lowest to highest?

A Yeah. The median is the middle of the efficiency gap estimates arrayed from lower to high, and the only qualification is that we've smoothed -- there's a little bit of smoothing going on. Otherwise the estimate of that median would be quite jagged if we did it with respect to every two years. So we employed a little statistical technique called smoothing to just make that less jagged and easier to visualize than it would be otherwise.

MR. EARLE: And just for the record to make it clear, the deponent was using his hands to symbolize a sawtooth pattern as he was describing the word "jagged."

Q So if I'm reading this correctly, since about it looks like as you said the mid nineties, the median plan has been an efficiency gap that's favorable to republicans?

A That's right. Well, strictly speaking, the median efficiency gap estimate, right, so plans span multiple elections. But substantially the characterization that plans is correct, but technically the graph is displaying election-by-election estimates of the efficiency gap.

Q Yeah. So the median efficiency gap that you calculated for that particular election year?

A Election year, correct.

MR. EARLE: That's fine. The question wasn't complete, he was referencing the prior question. But that's okay, the transcript will reflect that.

Q Turning to Figure 21 on the next page, could you explain what Figure 21 represents?

A Right. So for each efficiency gap estimate, each one comes equipped with some uncertainty. And what I've attempted to do in Figure 21 is to take into account that uncertainty and produce, averaging over all efficiency gap estimates produced in a given year and taking into account the uncertainty that accompanies each one, nonetheless, what's the probability that a given efficiency gap number from a given election year is positive or negative, all right.

So here I've plotted the probability that an efficiency gap estimate from 1972 is positive, and remember positive means would favor democrats, and in 1972 we see that that's just above 50 percent. We see that cluster -- we see a bunch of estimates above 50 percent through to the mid nineties, and this largely tracks, you know, it's another summary of the distribution of the data presented in Figure 20, all right.

And so as the data in Figure 20 we saw the median fall below zero in the mid nineties. Likewise, this estimate of the probability that an efficiency gap estimate is positive, it falls

below .5 meaning it's more likely than not that efficiency gap estimates from that election year are negative. That happens in the mid nineties, and it's largely that way say for that line 50/50 result in 2010 as indicated on Figure 21.
Q So is this, looking at like 2006 because it's almost precisely on that .25 percent line --
A Uh-huh.
Q -- does that mean that 25 percent of plans were efficiency gap positive and 75 percent of plans were efficiency gap negative that year?
A Of elections held under plans in that year, 25 percent of the efficiency gap estimates produced in that election year indicated democratic advantage, 75 percent indicated republican advantage.
Q Okay. And going back to Figure 20, is each state weighted equally --
A Yes.
Q -- in these graphs?
A Yes.
Q And then I did note that on Figure 20 it said at the very end on the little caption it says, "weighted by the precision of each EG measure." What does that mean?

A Okay. So when the median is computed, an estimate of the efficiency gap that is imprecise contributes less weight to the computation of the estimate of where the median is than one that's estimated precisely, more precisely. So it is not the case that each state is weighted equally. They're precision weighted estimates of the median of the 25th percentile and of the 75th percentile.

Q Turning to Figure 22, what does this graph represent?

A This is in a sense folding the efficiency gap estimates now. So now we're looking at the absolute value in magnitude, not -- so we're just literally asking irrespective of the partisan advantage that may or may not indicate, just are the raw values in absolute value terms of a changing over time. And here the answer seems to be that's reasonably stable over time.

Q So when you say absolute value, what does that mean?

A It literally means a number that is negative, you would call a positive sign. The positive numbers stay the same. We're just literally looking at magnitudes now, not -- we're wiping out the sign, we're ignoring the sign of a given efficiency gap

estimate.
Q Okay. So a negative 10 and a positive 10 now become --
A Are treated the same, yeah, for the purposes of Figure 22.
Q Okay.
MR. EARLE: Yeah, we had a little overlap there. And maybe, Brian, you want to clear that up.
MR. KEENAN: Sure.
Q For the purposes of Figure 22, a negative 10 and a positive 10 would both be plotted out at the .10 level?
A That's correct.
Q Going to 9.3 which is titled Within-plan variation in the efficiency gap.
MR. EARLE: So you're on Page 48?
MR. KEENAN: Yes, 48.
Q So you did note that within a particular plan the efficiency gap will change over the course of that plan; is that correct?
A That is correct.
Q And it's your opinion that some of this change is caused by districts displaying demographic drift which is gradually changing the political

complexion of those districts; is that correct?
A That's one reason.
Q And then another one would be incumbent losing or not running again for some reason; that's true?
A That's true.
Q And then you also found that a variation in turn-out most prominently from an on-year to an off-year election will cause the distribution of vote shares to vary from election to election; is that correct?
A That's correct.
Q And an on-year election, that's a presidential election, correct?
A That's what I mean by that, yes.
Q And then an off-year is an election that takes place in a year when there's not a presidential election?
A Right.
Q So, for example, in Wisconsin in 2012, that would be an on-year election?
A That's correct.
Q And then 2014 is an off-year election?
A That's correct.
Q Going down to the third paragraph it says, "About 76 percent of the variation in the EG estimates is

between-plan variation." What does that mean?
A Okay. So suppose you took all the efficiency gap estimates, 786 of them, and you want to assess the extent to which the efficiency gap is more or less stable over the life of a plan and hence would bolster up confidence that we're measuring a characteristic of the plan and not these election-to-election vagaries that you just led me through.

What we observe is that 76 percent of the variation is due to if we clustered the efficiency gap estimates by what plan they belong to, if we group them by that, the variation across those groups now is 76 percent of the total variation we saw which means that 100 minus 76, 24 percent of the variation we see in efficiency gap estimates is within-plan variation. And so that means by a ratio of about three to one, all right, it's what plan I'm in is three times as important in telling me what level of efficiency gap I'm going to see than other factors such as these election-to-election vagaries.

So this bolsters my confidence that the efficiency gap is measuring something about the plan and isn't varying so much election to election that who knows what it's telling us about the plan. The strong clustering by plan in the efficiency gap scores is what that between-plan variation reference is getting at.

Q Did you do any analysis of analyzing, comparing the differences between just specific states between plans and whether a factor was just the underlying nature of the state?

MR. EARLE: I'm going to object to the form of that question but go ahead, you can answer.

A I didn't quite catch the last part of it.

Q Sure. Did you do any analysis of examining the difference in efficiency gap just looking at the variations in states over time through different plans and whether there was any correlation between the efficiency gap in just the particular state that was being measured?

MR. EARLE: I'm going to object to the form of the question as ambiguous. Are you referring to the variables that you went through before being the factors? I mean, I don't understand the question, I guess.

MR. KEENAN: No, he's talking about that he saw that variations in plans, 76 percent, you know, there's clustering by plan.

Q Did you do any analysis of clustering by states around efficiency gap numbers through time?

A Well, clustering by state, holding time, bundling all efficiency gap estimates by time, if that's what you mean, the answer is no, I haven't performed that specific analysis.

MR. EARLE: You completed your answer?

THE WITNESS: Yes.

MR. EARLE: Okay.

Q Going to Page 49, there's a second paragraph there, it says, "A plan with moderate variability in the EG. The median, within-plan standard deviation of the EG is about .03." What does that mean?

A Okay. So recall that we begin with an efficiency gap estimate for each election. Elections are then bundled into plans. And so for a given plan, we may have up to as many as five say estimates of the efficiency gap, all right. So now we're up at the level of plans.

For each plan, we can compute a measure of how variable the efficiency gap is over the life of the plan. And the particular measure of variability I used is the standard deviation, the square root of the variance. And now I have one of those numbers for each plan, and I simply computed the median of those standard deviations across the 200 odd plans in this analysis.

Q Okay. And in thinking about just what that means for a particular plan specific efficiency gap calculation, what does that .03 mean? Does that mean that like the median plan would deviate between .03 and .06 or like .3 from the middle of the plan, the median efficiency gap calculated under that plan? I mean, I just ask you to help me understand.

A Sure, sure.

MR. EARLE: So the question is you're asking him to help you understand --

MR. KEENAN: Yeah, what this means.

MR. EARLE: -- the ambiguous question, which I was struggling with the same thing. But I just want to clear that up. Go ahead.

A See if I can clarify here a little. One way to think of it, let's suppose a plan has -- we don't have to suppose. A plan will have an average efficiency gap number associated with it, right. And then the standard deviation measures variation in efficiency gap estimates over the life of the plan. And averaged over all plans, that variation, the median standard deviation is .03.

Now, how to interpret that. If, and it's an if, efficiency gap estimates followed say a normal distribution, then we could expect that it would be extremely unlikely to see an efficiency gap for a given election more than two standard deviations away from the average efficiency gap estimate for the plan. So that would be in this case plus or minus .06. That would be an extremely conservative bound on how much variation you see in efficiency gap estimates over the life of a plan around the average efficiency gap estimate we see over the plan.

Q Okay. So just in my head, like if the average efficiency gap is .05, one standard deviation away is .08?

A Uh-huh.

Q And then two would be .11?

A Yeah.

Q It would be unlikely to get -- statistically unlikely to get higher than .11?

A Yeah.
Q Okay. But then it could go the other way as well; .05 could go down to .02, correct, for one standard deviation?
A Well, two --
MR. EARLE: You're getting conversational again.
Q So if the average is .05, if the standard deviation goes the other way, one standard deviation is down to .02?
A Uh-huh.
Q Okay. And then two standard deviations away would be going to the other side of zero to --
A Yeah, negative .01.
Q Okay. Makes sense.
MR. EARLE: You said it makes sense?
MR. KEENAN: It makes sense to me now.
Q How did you go about measuring the durability of an efficiency gap over the course of a plan?
A I did a number of things. One of the first things I did was to compute just pair-wise election to election under a plan how often or the probability that a temporally adjacent pair of efficiency gap

estimates have the same sign. But the other thing I did was to also compute the probability that given the efficiency gap estimate we see at the start of a plan, the probability that the sequence of efficiency gap estimates we see from that point forward, right, the subsequent fall elections, have the same sign as the efficiency gap estimate that the plan opened with.

Q And then what did you find with respect to the chance that the plan would keep the same sign over the course of the plan?

A Well, so I'm referring to on Page 55 of my report. If we restrict our attention to efficiency gap measures available for three -- plans where we've got efficiency gap measures for three or more elections, the probability of seeing three or more efficiency gap estimates with the same sign, there are 141 such plans; 35 percent of those 141 plans had at least a 95 percent probability of each of the efficiency gap measures having the same sign. So I understand that's a little, may be a little difficult to parse, but --

MR. EARLE: You said parse?

THE WITNESS: Yes, P-A-R-S-E.

A So there's 141 -- I'll say it one more time.

There's 141 plans, all right, give us three or more elections with sequences of efficiency gaps of like three or more. What's the probability that they've all got the same sign? Well, 35 percent of those 141 plans, that probability is about 95 percent. If you say 75 percent chance of having the same sign, then we go up to roughly about half, 46 percent of the plans have at least a 75 percent chance of retaining the same sign over the life of the plan.

Q And then how do you -- how are you calculating this 95 percent probability and the 75 percent probability? I don't really understand that.

A Remember that each estimate of the efficiency gap comes with a confidence interval, and so it's taking into account the fact that each efficiency gap is being estimated with some uncertainty. And so, you know, there's a chance given that uncertainty that in any given year, for instance, that confidence interval may drift above zero. And so we want to take that into account when we talk about the stability of the efficiency gap. So that's why this is being couched in probabilistic terms.

For any given plan with its sequence of

efficiency gap estimates, there's a probability that that sequence of efficiency gap estimates lies above or below zero, reflecting the uncertainty that each individual efficiency gap estimate is accompanied with.
Q Okay. So I think that leads then to you found 17 plans that were utterly unambiguous as to their sign?
A That's right.
Q What does that mean?
A The individual efficiency gap estimates are so far from zero in a positive or negative direction and the uncertainty that accompanies each of those efficiency gap estimates is sufficiently small that the probability that we're seeing a sign flip is zero, out to as many decimal places as is reasonable.
Q No part of any confidence interval ends up on the other side of a line?
A It's even stronger than that. Remember those confidence intervals go up to 95 percent. Now we're up to 99.99999 percent. And that's an extremely stringent standard, and that's why it's a relatively small set of plans that it's not beyond -- you know, we're not just beyond the

typical standards used in the social sciences, say 95 percent; we're essentially within rounding error of 100 percent.

Q And those 17 plans are listed in Table 1 on Page 55; is that correct?

A That's right.

Q And as I read it, 16 of those 17 plans were unambiguously negative efficiency gaps which means they were favorable to the republicans and unfavorable to the democrats?

A That's correct.

Q And then one of them which looks to be Florida --

A Uh-huh.

Q -- in 1972 to 1980 was favorable to the democrats and unfavorable to the republicans?

A That's right.

Q Did you do any analysis on these states as to like which party was in control of the districting for these unambiguous plans?

A No, I did not.

Q And Wisconsin here, 2002 to 2010, that shows up as an unambiguously negative plan, correct?

A That's correct.

Q Okay. And I see the average efficiency gap of Wisconsin from 2002 to 2010 was negative .076

percent?
A Well, negative .076.
Q Okay. And negative -- I'll ask it again.
A Or we could say negative .7 --
Q Negative 7.6 percent?
A If we wish, yes.
Q And then the efficiency gap minimum which I guess would be the plan, the calculation that was most favorable to republicans and least favorable to democrats was negative .118; is that correct?
A That's correct.
Q And then the efficiency gap max which would be the plan that was --
MR. EARLE: Hold on a second, I think he's looking at -- in response to the last question.
A Yep.
Q And then the efficiency gap max is the plan that is most favorable to democrats and least favorable to republicans, and that's negative .039?
A That's correct.
Q Okay.
MR. KEENAN: I think now is a good time for a break.
MS. GREENWOOD: Yeah, sure.

(Discussion off the record)

(Recess)

Q Professor Jackman, you understand you're still under oath?

A Yes.

Q All right. Let's turn to Page 56 of your report which is Section 10. Why don't you describe how you determined a threshold for determining if the EG is a large and enduring characteristic of a plan.

A Sure. In this part of the report, what I sought about finding was a particular threshold value of the efficiency gap such that if you saw a value of the efficiency gap that large or larger, there's a low probability that you would see an efficiency gap with the opposite sign elsewhere over the life of the plan.

Q Okay. And why did you base your test on seeing an election with the opposite sign over the course of the plan?

A Well, remember that the sign of the efficiency gap is indicative of passing advantage one way or the other. So if a plan were to produce a sequence of efficiency gap values all of the same sign, that's evidence that's more consistent with the proposition the plan is advantaging one side or the other than if the efficiency gap estimates were to alternate sign or to be of mixed sign over the life of the plan. So consistency of sign of the efficiency gap estimate I took to be a signal, a reliable signal of the partisan advantage of the plan.

Q In this Page 56 it says EG with a little star after it. What does that refer to?

A That's the threshold or the putative, the proposed threshold, yeah.

Q Going down you say that, "Plans with at least one election with an efficiency gap greater than .07 are reasonably common."

So you found that there was a 20 percent chance that a plan will have at least one election that has an efficiency gap that's greater than .07?

MR. EARLE: You're referring to the second to last paragraph of Section 10 on Page 56, correct?

MR. KEENAN: Yes.

MS. GREENWOOD: Maybe you should just explain when you have EG between --

THE WITNESS: Sure.

A On the page, on Page 56 in that second to last paragraph, EG appears with two vertical bars around it. That's a mathematical notation for absolute value. So irrespective of sign, just in terms of raw magnitude, seven percent positive or negative is reasonably common is the way to read that. And that again is taking into account the uncertainty that accompanies the efficiency gap estimates.

Q Okay. Looking at Figure 27, could you explain what's represented here?

A Sure. Okay. So there are two quantities plotted on Figure 27, and the color version of the report makes the two quantities clear. In blue is the proportion of plans that have an efficiency gap estimate in excess of where we are on the horizontal axis. So let's just take, for instance, to the immediate left of zero we have negative not much, negative a little bit. And there are lots of plans, right, that produce an efficiency gap in excess of that threshold; about 75 percent of plans will do that.

But you'll note that as we move away from zero on the horizontal axis of the graph, as we move out to more extreme values of the efficiency gap in either direction, positive or negative, the probability -- the blue dots are going down meaning that the probability of or the proportion of plans that are recording a value of the efficiency gap in excess of that threshold is getting smaller and smaller, right. It's a more extreme event, all right, to record an efficiency gap -- let's go right out, say, on the left-hand side of the chart out to say a negative .10. At that point we see the blue square there is down now below .2; roughly about 18 percent of plans recording an efficiency gap estimate in excess to the left, in this case of negative .10, and the corresponding number out on the right of the chart is a positive .10, you know, about 14 percent of plans record a value in excess of that. So straight away we see that extreme values of the efficiency gap are relatively rare, all right.

And then there's a second quantity plotted, and that's the quantity in red. And then that asks conditional on having -- so now we're looking at a plan and we're looking at the sequence of efficiency gap estimates that are racked up over the life of a plan. And so now let's just take the case at negative .10. Conditional on one plan, at least one plan exceeding negative .10, of the set of plans that trip that threshold, what's the probability that in the same plan we'll get an estimate of the efficiency gap that's actually positive, right, it is on the other side of zero, all right. And you can see the general pattern is that that goes down as well as the threshold becomes more stern.

So in the case of negative .10 where I've referred us on Figure 27, conditional on seeing one efficiency gap estimate at negative .10 or even more extreme, the probability that we'd also see an estimate, a positive, right, sort of a different signal, right, advantage going the other way, positive advantage going the other way, that probability is about 15 percent and so on. So you can see that that probability continues to track down as we get further out into the tails of the distribution of efficiency gap estimates.

Q Focusing on the blue ones, are these values in -- are they absolute values or does the sign matter?

A Sign matters in this graph with respect to the horizontal axis. But since what's been plotted on the vertical axis here is a proportion, that's always going to lie between zero and one on the

vertical axis.
Q Sure. We looked at the negative .10 in the blue and it looks like there's I think you said 18 percent of plans would have an efficiency gap in excess of that.
A Uh-huh.
Q If we also look at the .1 positive for the democrats --
A Yep.
Q -- and there's another, I don't know what that is, 15 percent?
A Yeah, let's call it, sure.
Q So would that mean that in total when you're looking at the absolute values, that 33 percent of plans have a value greater than .1?
A Thirty-three percent of plans will, over the whole analysis, have recorded at least one efficiency gap estimate greater than .10 in magnitude.
Q And then I take it the same -- when we look at the red ones as well then, they are also -- the sign matters where if you look at .1 on the red and you look at .1 on the -- negative .1 and positive .1, in order to determine the absolute value of plans that had one election exceeding that threshold, you'd have to add those two percentages together?

A I just think we have to be very careful with exactly what the red dot -- it says conditional on a plan tripping that threshold, what's the probability of a sign flip. And so provided we keep that interpretation very foremost in our minds, that's right. Conditional in exceeding positive .1, there's about a 37 percent chance it would flip back over to the negative side. Conditional on going below negative .1, there's about a 15 percent chance it would flip and see something on the positive side?

Q And if I look at the efficiency gap thresholds, the positive efficiency gap thresholds for the red plotted squares, I'm just noticing that the shape looks a little different from --

A Yeah.

Q -- when you look at the negative efficiency gap. Can you explain what the difference in the shape means?

A Yeah, that was a very interesting feature of the analysis. The interpretation of that is that, okay, remember what a positive efficiency gap means, that's advantage for democrats. What this says is that a plan that trips that threshold indicative of -- you know, let's go right out, let's go out to .10, that's substantial advantage for democrats it would appear. The probability that we will, over the life of the plan we will also see an efficiency gap estimate indicating republican advantage is reasonably large, it's about 40 percent.

So there's an asymmetry here that the signal as it were or a single efficiency gap estimate tripping this threshold of .10 or of democratic advantage is not especially reliable or not as reliable as the signal on the other side. Plans that when we're getting indications of democratic advantage, at least over the data available to us, it appears that that's not a durable feature -- as durable a feature of the underlying plan as is the signal, the opposite signal, and that is saying negative .10, indicative of advantage for republicans. That tends to be a more durable feature of a plan.

So the take away there is that democratic advantage or apparent democratic advantage from any given reading of the efficiency gap isn't as durable, as reliable as the opposite signal. So these negative efficiency gap estimates tend to recur, are more likely to recur, to stay negative, than a positive estimate of the efficiency gap. That's far more likely to flip back and cross the road to the other sign.

Q There's a somewhat similar figure on Figure 28, Page 59. Maybe you could just explain what the Figure 28 on Page 59 represents.

A Yeah. Now, what I did there, let me just read carefully. Yeah, so Figure 28 is a replay of Figure 27 if you will, subset to redistricting plans from the 1990s forward. So putting the data from 1970 and 1980 aside, just focusing on more recent decades, and a couple of things happen. The red dots if you will even drift a little higher above the blue dots on the right of the graph. And the red dots on the left of the graph come down relative to where they were in Figure 27.

So let me explain that. The reliability of seeing a single efficiency gap estimate indicative of democratic advantage is less informative as to what you're going to see over the life of the plan than the corresponding signal on the other side with respect to -- so you saw the same magnitude of signal with respect to republican advantage. A single plans that appear to have republican

advantage in them, we tend to get a more similar sequence of efficiency gap estimates out of those plans than out of plans that at various points in time seem to be indicative of democratic advantage. And that is there in the entire data set, Figure 27, but is even more pronounced in the analysis that focuses on recent decades as done in Figure 28.
Q So the trend that was seen in Figure 27 shows up stronger when you look at just the data from 1991 to the present?
A That's correct.
Q Okay.
A Well, the asymmetry in Figure 27 is more pronounced in Figure 28.
Q Okay. And if we look at like some specific numbers on Figure 28, just using the positive .1, looks like there's, you know, about a 56 percent or something chance that there will be one election over the course of the plan that would have a negative sign; is that correct?
A Yeah, that's the correct interpretation.
Q Okay. But then if we look at the republicans at negative .1, there's maybe only a 14 percent chance or something that there's an election with

a positive sign?
A That's correct.
Q Moving on to Page 60 and Section 10.1, it's titled Conditioning on the first election in a districting plan.
A Right.
Q Can you just explain what conditioning on the first election in a districting plan means?
A Right. So here I tried to put myself in the shoes of litigants frankly and people trying to adjudicate these matters. And that is it's fine for me as an analyst to come through and look at these historical data and get to observe all five elections, up to five elections that we may observe over the life of a plan. But people that want to take issue with a redistricting plan, the idea we have to wait to see with the five elections -- you know, typically if you're going to intervene, you've got to intervene early before we've seen much data at all from the plan, the election results the plan is throwing off.
So what I set about to do was to ask how informative is the signal we get from the first efficiency gap reading under a plan. So in particular, what can you take away from the fact

that there's a new plan in place, we see the first election under that plan, and it generates a positive efficiency gap reading or negative one. So how much can you rely on that particular number as a characterization of what you would see over the life of the plan. How much does the first election or the efficiency gap estimate produced under the first election tell you about the plan. And in particular, what's the critical threshold of -- how big does that first efficiency gap estimate have to be before you can feel confident that you're seeing something about a plan that is not a one-off or a fluke, that you've seen something that gives you enough confidence to believe this plan is manifesting advantage one way or the other. That's the goal of this part of the analysis.

Q Okay. And then is your analysis of conditioning on the first election in a districting plan contained in Figure 29?

A That is one of the graphs that summarizes the results of this analysis.

Q And Figure 29 contains the results from all the elections that you looked at?

A Yes, that's 1972 to the present.

Q And why don't we just go ahead again and explain what the graph means, both the blue dots and the red dots.

A Okay. So the blue dots and the red dots have the same interpretation, an analogous interpretation to the previous discussion. But this time now that the event is the efficiency gap reading we get out of the first election under the plan.

So let's take an example. Let's say we're at negative .10 on the horizontal axis and we see the blue dot tells us -- the height of the blue dot, right, we read over against the vertical axis, tells us that about eight percent of districting plans have a first election efficiency gap reading at that level or more extreme to the left in a negative direction. All right. So that's the blue dot.

If we went out to the corresponding blue dot on the positive side, we would get, you know, it's almost the same number actually. The proportion of plans that have as their first efficiency gap reading .10 or more or larger, more positive, is about eight percent.

Now, the red dots, all right. Now, conditional on having seen the blue dot event, that is a first election under the plan with an efficiency gap at least as extreme as where we are on the horizontal axis, then how many of that set of plans, what's the proportion of them that go on over the life of the plan to produce an efficiency gap estimate of the opposite sign.

And so at negative .10, eight percent of plans begin life with an efficiency gap reading that large or more extreme. Of that eight percent, about -- what is that, that looks about just reading off the graph, I don't have the exact number, I'm reading off the graph -- but about 12 or 13 percent of them go on over the life of the plan to produce an efficiency gap reading that conveys a different message, all right, would convey in this case democratic advantage. So the plan opens up with the first reading is negative, that's republican advantage. Of the set of plans with sending an extreme signal like that or as extreme as that one, 12 or 13 percent of them flip sign.

We go out and we do the same exercise on the right-hand side of the graph. At .10 we're talking about eight percent of plans open up with apparent democratic advantage that large or larger, but of that eight percent, 40 percent of those go on to produce an efficiency gap estimate over the life of a plan that sends the opposite message; that is, would send a message consistent with a republican advantage.

So again, the take away there is a similar one to what we saw in the earlier graphs, and that is this asymmetry here, how reliable a signal that first efficiency gap reading is. It's far more reliable as to what you're going to see over the life of the plan if it's indicating in the first election republican advantage than the reliability we get from an initial reading that points us in the direction of saying we've got a democratic advantage. Democratic advantage doesn't seem to be as durable as republican advantage.

Q In looking at the plans that were analyzed here, did you include plans from the 2010s where you have two elections? Are they a data point here or not?

MR. EARLE: I'm going to object to the form of the question only because you're asking if there were two elections in 2010?

MR. KEENAN: No.

Q Like, for example, Wisconsin has a 2012 election and a 2014 election. You could condition a test on that 2012 election, but there's only one subsequent election for which it could possibly flip signs. And I was just wondering if those 2012, 2014 elections are represented in this Figure 29 data or not?

A I would want to consult my R code or my lab notes on that one before I answered one way. I take the point, right, given only two elections, and I know at other points I've restricted analyses of the plans for three or more elections. So I would need to consult my notes on that.

Q Would you be able to do that? I mean, we don't need to do it right now. But your computer is here, would you be able to do that during the course of the deposition, like on a break?

MS. GREENWOOD: Yeah.

MR. EARLE: Yeah, he can go in the R code and look at that.

MR. KEENAN: Okay.

Q We don't need to do it right now, we can do it at a time that works.

A Okay.

MR. EARLE: Do you want to mark the question so when we come back, we can

respond?
Q And then looking at, for example, the negative .1 percent efficiency gap and then the positive .1 percent -- or not percent, .1 efficiency gap, we had about eight percent for each of those numbers. Does that mean that in total about 16 percent of plans had an efficiency gap as an absolute matter that were greater than .1?
A That's right.
Q And the same would hold true for if we're trying to find absolute values for any one of these efficiency gap thresholds, we'd have to add the percent in on both the positive and the negative side?
A That's right.
Q Looking at these dots, just for example, like are the dots on hold numbers or are they on a certain percentage --
A Oh, yeah, they're on a grid, yeah. So literally the R code shifts that threshold in discrete steps out from zero.
Q And I was just sort of curious. For example, like the first one to the left of one, is that at a -- are those at particular places like .25 or .5 or is it -- or maybe I could just ask you if you know

if they're at particular value points?
A They're in steps of .005.
Q Okay. So to get to .01, we're at the second dot?
A That's correct.
Q Okay. All right, makes sense. And that would be the -- is that the same for the ones we looked at before, Figure 27?
A Yeah, that's right, that's right.
Q Okay. Now, looking at Figure 30, what does Figure 30 represent?
A Figure 30 is a rerun of Figure 29 but subset to data 1991 onwards again, this idea of separating out what's been going on in recent decades from the entire historical analysis.
Q And what changes did you see when comparing the post 1990 data to the entire data set?
A Sure. Well, for one thing, there are fewer plans that open with as large advantage to democrats. So if you were to look at the right-hand side of Figure 29 and compare it with the right-hand side of Figure 30, you'd see that the blue, the distribution of blue squares is pushed down the graph in Figure 30, right.
So now let's take that number we were playing with earlier, the .10. The proportion of plans in

recent decades that begin life with an efficiency gap that advantageous to democrats or even more advantageous is down to about five percent, whereas it was up around eight, nine percent in earlier decades.

The other thing you see is that on the left-hand side of the graph, the distribution of red dots has come down a little bit, and that's consistent with that initial reading of a particular efficiency gap reading that you get from the first election under a plan that appears to be more durable, a more reliable signal as to what you'll see over the life of the plan, a more reliable signal in recent decades than in the entire data set as a whole. We're less likely to see plans that initially manifest that level, a given level of republican advantage go on to produce a contrary signal over the life of the plan in recent decades than in the entire data set.

Q And everything we've held before about like the placement of the dots, that holds for this graph?

A Oh, the grid spacing you referred to earlier?

Q Yes.

A Yes, that's the same. I used the same grid stepping in all the graphs that have this layout.

Q Okay. Now, you've proposed I believe a threshold of seven percent; is that correct?

A Uh-huh.

Q For an efficiency gap in the first election?

A Uh-huh.

Q How did you come to that number?

A Through the calculations and indeed the graphs we were just discussing, I set about asking what would be a threshold such that we're either going to leave plans unquestioned, right, so plans don't trigger the threshold at all, or the probability of them flipping sign is sufficiently low that we've seen that that first election signal is sufficient to trigger investigation at a reasonably high level.

Now, by reasonably high, I chose a conventional 95 percent standard; that's fairly typical in the social sciences. And indeed, you know, went a little bit beyond that. If anything, it's closer to 99 percent. It's roughly 10 percent of plans exceed the threshold, and of those only 10 percent flip sign. So, you know, in a sense your error rate there is, you know, 10 percent of 10 percent. It is down to one percent.

So I thought -- what I was aiming for was a fairly conservative standard before on the basis of just one election we could say hey, there's something to look at here. This is a plan that on the basis of the first election has sent a sufficiently strong signal that we ought to take a closer look.

Q But the key fact you're trying to project would be whether the efficiency gap would flip sign throughout the course of the plan?

A That's right. And I relied on the historical analysis that we were just talking about to come up with a threshold.

Q Did you think that there should be a different threshold for positive versus negative efficiency gaps given the difference we saw in the durability between the two?

A No, I didn't. I thought if it was to be a threshold, it ought to be symmetric with respect to democratic or republican advantage.

Q And just looking at, for example, Figure 29, so if we look at the blue dots, what's the proportion of plans that have an EG in excess of negative .07?

A That's about -- let me make sure I'm reading the

right dot -- that's about 18 percent.
Q Okay. And then of that --
MR. EARLE: Wait, are you done? Were you done with the answer?
THE WITNESS: Uh-huh.
MR. EARLE: Okay.
Q And then the red dot there would represent the proportion of those plans that would change sign over the length of a plan; is that correct?
A Of those, how many then go on to flip, yeah.
Q And where is the red dot when we look at negative .07?
A Yeah, .22.
Q So 22 percent of that 18 percent would change sign?
A Uh-huh.
Q And then if we look at positive .07, the blue dot, where's the blue dot for that?
A Yeah, that's about 18 percent as well maybe, yep.
Q Okay. And then the red dot is up at -- where is that, about four?
A Forty, yep.
Q So using the .07 percent efficiency gap standard, we find that 18 percent plus 18 percent, so 36 percent of plans would exceed that in their

first election?

A Yep. I'm going to -- okay, so I'm going to qualify my answer here because the blue dots are the single best estimates. There is some uncertainty around each of them, and the folding exercise that you're proposing, it's not going to be strictly additive in the way as you've been proposing in the questions. That would come out, and indeed the confidence interval around that won't be simply putting the two together. So the better way to do that would be to compute it with respect to the absolute value directly rather than popping it off, reading it off this graph directly.

Q Do you have that absolute value calculated here?

A Well, that analysis is the analysis reported in Figure 32. That takes, that performs that calculation about the confidence that I was referring to earlier. So the more appropriate way to get at the level of confidence we have in a given threshold is summarized by the calculations that appear in Figure 32 than in this exercise that we're performing with respect to Figure 29 or alternatively Figure 30.

Q So maybe we could just explain why, why is it better to use the Figure 32 method than the --

A Okay. Because it's taking into account, okay, if we went down the road we were on with respect to Figure 29, we would say that 18 percent of plans, all right, exceed .07 or greater in the first election, and then of those, 22 percent change sign. So we'd have 22 percent of 18 which is, I can't quite do that but we'll call it 20 percent of 18 if you --

MR. STRAUSS: Looks like about three percent.

THE WITNESS: Right.

A But again, it's the way the uncertainty propagates. You want to, you know, once you're bound on that and you're confidence bound on that, and to do that you just don't literally multiply -- you know, you can multiply those two percentages together and get down to roughly three percent. But to put a bound on that, you've actually got to engage in some brute force computation. And the summary of that brute force computation is what I produced in Figure 30 and Figure 32. So we land somewhere close to, you know, 100 minus three, .97 in Figure 32. And the bound on that -- by that I mean if we went out to .7, a negative .07 on the horizontal axis on Figure 32 and project it out, we'd arrive at roughly that 100 minus three something, close to .97 there.

But the key is that that confidence interval is, this one is sort of an honest computation if you will, one that I believe more than just sort of, you know, reading off numbers from this graph, multiplying them together and we're not really -- on Figure 29 reading off numbers, multiplying them together and sort of finger to the wind in trying to come up with estimates of the corresponding error rates. Those are computed directly if you will in Figure 32.

Q Sure. Let's go into Figure 32.

A Sure.

Q Which dot represents the negative .07? Would it be the first one after that line at 6 or the second one?

A I believe I used the same gridding, yeah.

Q So it's the second one?

A I believe so.

Q And so that's at about 96 percent or .96?

A Thereabouts, yeah.

Q So what does that mean, that .96?

A That means that at that threshold, 96 percent of plans are either not tripping that threshold or if they are, they're continuing to produce efficiency gaps on that side of zero. So it's basically saying what proportion of plans would be correct decisions if that was your actionable standard. And so you'd be wrong, you're going to be wrong at least according to historical analysis, you know, let's call it like three plus or minus, not much, percent of the time, out at that standard. And as you make the standard more stringent, you can see there are fewer plans you're going to look at, right. And so the error rate obviously falls away to zero meaning our confidence rate goes up towards 100.
Q I think I understand. So any plan that never gets above or that doesn't start above the .7 threshold -- .07 threshold, that's undisturbed?
A Yeah, right, right, yes.
Q And then you're also adding in plans that are above that threshold but would never change sign over the course of the term?
A Yeah, yeah. And you can go the other way, right. So suppose we took a really permissive stand and said hey, if a plan trips -- suppose you took a

really small negative reading, you know, you'd be making errors 20 percent of the time, right. Or on the other side, a small positive reading, you'd be wrong, you know, 78 percent -- you'd be correct 78 percent of the time; you'd be making errors 22 percent of the time.

So as you push the threshold out, two things are happening. One, fewer things are tripping it, but you're also -- because it's a more stringent threshold, you're more confident that plans are going to stick. Conditional in the first plan getting over that hurdle, it's increasingly likely that subsequent elections under the plan will be there as well. But I was just hesitant to read -- I mean, I've done the calculation I think you were going for directly in Figure 32, you know.

Q Sure. But if we wanted to --

MR. EARLE: You were referencing Figure 29 as you were --

THE WITNESS: Figure 29, right.

Q If we wanted to calculate just the total overall percentage of plans that would trigger the initial threshold, could we look at Figure 29 and look at whichever threshold you want to pick.

A Sure.
Q Look at the blue dot and then add the proportion of plans on both the positive and the negative side that are in excess of that efficiency gap?
MR. EARLE: So your question's about Figure 29?
MR. KEENAN: Yeah.
A Figure 29 --
Q Yeah, just trying to figure out like instead of the number of plans where we're confident that we're right, the number of plans that just would get swept into this threshold?
A Right.
MR. EARLE: What's the question?
Q How would we determine that from looking at Figure 29?
MR. STRAUSS: I think the question is how would you determine by looking at Figure 29 what percentage of plans would have numbers more than an absolute value of .07; is that the question?
MR. KEENAN: Yes.
A Yeah, and the answer is -- the answer is if you're looking at the first election, the answer is over the entire historical period, 18 percent of plans

have a first efficiency gap reading in excess of that.
Q On the negative side?
A Yes, sir.
Q But then on the positive side, we'd have to look at that one as well?
A Yeah.
Q And then for each, if we want to change that threshold from .07 to .1, we could run that same exercise just looking at the dots on this --
A That's right, that's right. That's what the graph is reporting, the proportion of plans with a first efficiency gap reading at or beyond the specified threshold on the horizontal axis.
Q And if we go to Figure 30, this represents the same data we were looking at in Figure 29 but just for the 1991 through the present?
A Yeah, yeah.
Q So if we wanted to do the same thing and find out how many plans triggered -- what proportion of plans triggered the threshold, we would have to look at the blue dots --
A That's right.
Q -- on each side of the zero, correct?
A Uh-huh. Yeah, so quite a few plans trigger that

on the left, not many. That's a far fewer proportion than --

Q On the left it looks like --

MR. EARLE: Finish your answer.

A On Figure 30 at negative .07, right, we're at about 22 percent. At positive .07 we're at about, what's that, about 12 percent.

Q So that's 34 percent total of plans are in excess of the .07 efficiency gap?

MR. EARLE: Are you asking him to confirm that?

MR. KEENAN: Yes.

MR. EARLE: He's asking if what he just said is correct. Can we have the court reporter read it back?

(Question read)

A Yes.

Q All right. Let's move on to the -- okay, just maybe to clear up, Figure 33, that looks to be an analogous graph to Figure 32 but just using the data from the 1990 plans to the current?

A That's right.

Q So everything we talked about in Figure 32 we can transfer over to Figure 33?

A That's right, with the caveat that the data in

Figure 33 covers latter decades.
Q Let's go to like number -- well actually, it's 12:30. I don't know if you guys want to take a break or --
(Discussion off the record)
(Recess)
Q So we're back on the record. And we had an earlier question that, Professor Jackman, you said you didn't know and you wanted to consult your R code on the answer. And I was asking you about in Figure 29 whether this calculation that conditions certain things on the first election in a cycle, whether the elections from 2012 and 2014 were included in this data set. You've had a chance to look at your R code and what is your answer to that question?
A The answer is yes, elections from 2012 and 2014 are included in this analysis, this part of the analysis.
Q All right. So we can go back to Page 69 which deals with the Wisconsin plan.
A Uh-huh.
Q What did you conclude with respect to Wisconsin's plan that was enacted for the 2012 election?
A The Wisconsin plan 2012, and we've had two

elections under that plan, 2012 and 2014, has produced efficiency gap estimates of negative .13 in 2012 and negative .10 in 2014. Those are large and negative -- large, negative estimates of the efficiency gap.

Q In determining the efficiency gap for Wisconsin in 2012, what did you calculate the democratic share of the vote to be?

A After imputations for uncontestedness, 51.4.

Q And 2014, did you calculate it to be 48.0 percent?

A That's correct.

Q And if we wanted to visualize that, if we go back to Figure 4 on Page 18 --

A Yeah.

Q So if we go to -- we'd have to estimate sort of, but where 51.4 percent is, that shows that the -- we would have to see where the orange line, Page 18 --

A Yeah, I'm trying to --

MR. EARLE: Yeah, but wait for a complete question, though. I think he's trying to frame the question, hasn't gotten it out yet.

Q So I was just trying to figure out how we could -- so the orange line would say that with

51.4 percent of the votes, the democrats should receive I'm not sure exactly but perhaps, you know, 53, 55 percent of the vote. Do you know exactly what they should receive with 51.4 percent of the votes?

MR. EARLE: I'm going to object to the form of the question. Go ahead and answer it if you can.

A I can answer the question under the scenario the maintained hypothesis of a zero efficiency gap. So under a zero efficiency gap, should democrats win 51.4 percent of the vote, we can infer that they should win -- and it's pretty simple but I'll look up the exact formula. So they've exceeded 50 percent of the vote by .14 or .014 so that's .028, should be that they should bring 52.8 percent of the seats.

Q With 51.4 percent, did they exceed by 1.4 percent? I thought you used a .014.

A I was converting that 1.4 percent to a proportion.

Q Okay, that makes sense. I should assume that you know how to do this better than I do, so that my mistake. And so 51.4 percent of the votes translates to 52.8 percent of the seats?

A Under the maintained hypothesis of the zero

efficiency gap, yes.
Q And to determine the efficiency gap -- I guess, sorry, just scrap all that. What percentage of seats did the democrats win in the 2012 election?
A They won 39 of 99 seats or 39.4 percent of the seats.
Q So then is the efficiency gap equivalent to subtracting 39.4 percent from 52.8 percent?
A The efficiency gap is equivalent to subtracting -- to be perfectly explicit and if you don't mind, I'll work in proportions. So it's .394 minus .5 minus two times .514 minus .5. And so if you do that you should get negative .13.
Q And you round to the tenth?
A Yeah. When I'm reporting negative .13 and negative .10 in the report and in testimony, I'm rounding to digits of precision.
Q Looking at Figure 35, what's represented on Figure 35?
A Figure 35 presents a sequence of efficiency gap estimates for Wisconsin arrayed left to right from 1972 to 2014. Each plotted point is the estimate of the efficiency gap, and the vertical bars indicate the size of the 95 percent confidence interval accompanying each estimate.

Q And if we look at that, looks to me that the last positive efficiency gap that Wisconsin saw was in 199 -- is that 1994?
A That last positive point estimate was 1994.
Q That's a good point, the positive point estimate was 1994. 1996 the point estimate is a negative efficiency gap; is that correct?
A The point estimate is negative.
Q But the confidence interval spans to the positive side?
A That's right. That is indistinguishable from zero at conventional levels of statistical significance.
Q Then from 1998 onwards, would you say that Wisconsin has experienced an unambiguously negative efficiency gap?
A Yes.
Q And none of the confidence intervals go to the positive side?
A And indeed terminate considerable distance in negative territory.
Q Okay. You calculated an average efficiency gap for the elections conducted under the 2000s plan for Wisconsin; is that correct?
A Yes.

Q And Table 1 indicates that's a negative .076?
A Could you point me to the page, please?
Q Sure, Page 55.
A That's correct.
Q Maybe we could just use this graph to explain how that average is calculated.
A Oh, okay. So that is an average of the point estimates that begin 2002 and run through '04, '06, '08 and '10. And taking into account the uncertainty associated with each point estimate, then computing an average and the uncertainty in turn inducing a confidence interval around the average.
Q Okay. And then Figure 36, what does this represent?
A Figure 36 presents the efficiency gap estimates observed in states in the most recent round of redistricting. So for the states here it's typically just a pair of elections; just two elections have been held under the redistricting plan. And the solid square indicates an efficiency gap estimate, and the confidence interval is indicated by the gray bar extending horizontally. And you can see that there are, you know, two estimates per state. And I've ordered

the states by the average level of efficiency gap for each state from low at the bottom of the page to high, positive, at the top of the page.
Q So Florida had the lowest efficiency gap when considering the average of the two elections?
A That's right.
Q Okay. And did you calculate the average here in a similar manner to the way you calculated the average we discussed with respect to Wisconsin in --
A Yes.
MR. EARLE: You answered the question before he finished. He was going to indicate which figure.
THE WITNESS: I'm sorry.
Q -- Figure 35 during the 2000s period?
A Well, there is no average indicated on Figure 35.
Q Yeah, but we had discussed it in connection with that.
A That's right.
Q So you --
MR. EARLE: We want to wait for the whole question to come out.
MR. KEENAN: Yeah.
Q You calculated the averages in Figure 36 similar

to the way we discussed the way you calculated the averages for Wisconsin during the 2000s period?

A Yes.

MR. KEENAN: I'm just going to take a quick break, make sure I've asked everything I need to ask.

MR. EARLE: Sure.

(Recess)

MR. KEENAN: Well, we'll go back on the record just to say that I don't have any more questions. So thanks for your time this morning and afternoon.

MR. EARLE: We'll read and sign.

MR. STRAUSS: And that concludes the deposition. Thank you very much.

(Adjourning at 12:59 p.m.)

STATE OF WISCONSIN)
) ss.
COUNTY OF DANE   )

I, MARY L. MIXON, a Court Reporter and Notary Public in and for the State of Wisconsin, do hereby certify that the foregoing deposition was taken before me at the Wisconsin Department of Justice, 17 West Main Street, in the City of Madison, County of Dane, and State of Wisconsin, on the 20th day of November 2015, that it was taken at the request of the Defendants, upon verbal interrogatories; that it was taken in shorthand by me, a competent court reporter and disinterested person, approved by all parties in interest and thereafter converted to typewriting using computer-aided transcription; that said transcript is a true record of the deponent's testimony; that the appearances were as shown on Page 2 of the transcript; that the deposition was taken pursuant to notice; that said SIMON D. JACKMAN, Ph.D. before examination was sworn by me to testify the truth, the whole truth, and nothing but the truth relative to said cause.

Dated November 25, 2015.

Notary Public, State of Wisconsin

Mary L. O

G.A.B. Canvass Reporting System

Canvass Results for 2012 PRESIDENTIAL AND GENERAL ELECTION - 11/6/2012

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	President of the United States		Total Votes:	3,068,434
	1,407,966	45.89%	MITT ROMNEY/PAUL RYAN 585 COMMERCIAL ST BOSTON MA 021091024	Republican
Winner	1,620,985	52.83%	BARACK OBAMA/JOE BIDEN 233 N MICHIGAN AVE STE 1720 CHICAGO IL 60601	Democrat
	4,930	.16%	VIRGIL GOODE/JIM CLYMER 90 E CHURCH ST ROCKY MOUNT VA 241511556	CON
	20,439	.67%	GARY JOHNSON/JAMES P. GRAY 850C CAMINO CHAMISA SANTA FE NM 875018907	Independent
	526	.02%	GLORIA LA RIVA/FILBERTO RAMIREZ, JR. 3207 MISSION ST APT 9 SAN FRANCISCO CA 94110	Independent
	553	.02%	JERRY WHITE/PHYLLIS SCHERRER 17580 AVILLA BLVD LATHRUP VLG MI 480762706	Independent
	7,665	.25%	JILL STEIN/BEN MANSKI 17 TROTTING HORSE DR LEXINGTON MA 024216318	Independent
	112	0%	ROSS C. ROCKY ANDERSON/LUIS J. RODRIGUEZ (WRITE-IN) 418 S DOUGLAS ST SALT LAKE CTY UT 841023231	Independent
	88	0%	ROSEANNE BARR/CINDY LEE SHEEHAN (WRITE IN)	Independent
	5,170	.17%	SCATTERING	
Office	US SENATOR - CLASS I		Total Votes:	3,009,411
	1,380,126	45.86%	TOMMY G. THOMPSON 1313 MANASSAS TRL MADISON WI 537188243	Republican
Winner	1,547,104	51.41%	TAMMY BALDWIN 10 E DOTY ST STE 405 MADISON WI 53703	Democrat

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	US SENATOR - CLASS I		Total Votes:	3,009,411
	62,240	2.07%	JOSEPH KEXEL 7616 33RD AVE KENOSHA WI 53142	Independent
	16,455	.55%	NIMROD Y.U. ALLEN, III 749 LAND PL MILWAUKEE WI 532052358	Independent
	70	0%	RILEY J. HOOD (WRITE-IN) 1403 E POTTER AVE MILWAUKEE WI 532071918	CON
	43	0%	DIANE E. LORBIECKI (WRITE-IN) 10521 N O CONNELL LN MEQUON WI 530973315	Independent
	3,373	.11%	SCATTERING	
Office	CONGRESSIONAL - DISTRICT 1		Total Votes:	365,058
Winner	200,423	54.9%	PAUL RYAN 221 E HOLMES ST JANESVILLE WI 535453909	Republican
	158,414	43.39%	ROB ZERBAN 5406 2ND AVE KENOSHA WI 531406504	Democrat
	6,054	1.66%	KEITH DESCHLER 1239 1/2 MONROE AVE RACINE WI 53402	Independent
	167	.05%	SCATTERING	
Office	CONGRESSIONAL - DISTRICT 2		Total Votes:	390,898
	124,683	31.9%	CHAD LEE 403 DURTSCHI DR MT. HOREB WI 53572	Republican
Winner	265,422	67.9%	MARK POCAN 309 N BALDWIN ST MADISON WI 537031701	Democrat
	6	0%	JOE KOPSICK (WRITE-IN) 521 W DOTY ST APT 7 MADISON WI 537032664	Independent
	787	.2%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	CONGRESSIONAL - DISTRICT 3		Total Votes:	339,764
	121,713	35.82%	RAY BOLAND 7186 ICEHOUSE AVE SPARTA WI 546565729	Republican
Winner	217,712	64.08%	RON KIND 3061 EDGEWATER LN LACROSSE WI 54603	Democrat
	339	.1%	SCATTERING	
Office	CONGRESSIONAL - DISTRICT 4		Total Votes:	325,788
	80,787	24.8%	DAN SEBRING 3919 S 60TH ST MILWAUKEE WI 53220	Republican
Winner	235,257	72.21%	GWEN MOORE 4043 N 19TH PL MILWAUKEE WI 53209	Democrat
	9,277	2.85%	ROBERT R. RAYMOND 4102 N MORRIS BLVD SHOREWOOD WI 53211	Independent
	467	.14%	SCATTERING	
Office	CONGRESSIONAL - DISTRICT 5		Total Votes:	369,664
Winner	250,335	67.72%	F. JAMES SENSENBRENNER JR N76W14726 NORTHPOINT DR MENOMONEE FALLS WI 53052	Republican
	118,478	32.05%	DAVE HEASTER W234 GREY MOSS CT N7649 SUSSEX WI 53089	Democrat
	851	.23%	SCATTERING	
Office	CONGRESSIONAL - DISTRICT 6		Total Votes:	359,745
Winner	223,460	62.12%	TOM PETRI N5329 DE NEVEU LANE FOND DU LAC WI 54937	Republican
	135,921	37.78%	JOE KALLAS N4682 COUNTY ROAD D PRINCETON WI 54968	Democrat
	364	.1%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	CONGRESSIONAL - DISTRICT 7		Total Votes:	359,669
Winner	201,720	56.08%	SEAN DUFFY 2906 CITY HEIGHTS RD ASHLAND WI 54806	Republican
	157,524	43.8%	PAT KREITLOW 15854 93RD AVE CHIPPEWA FLS WI 547295167	Democrat
	20	.01%	DALE C. LEHNER (WRITE-IN) 1980 6TH AVE PRAIRIE LAKE WI	Independent
	405	.11%	SCATTERING	
Office	CONGRESSIONAL - DISTRICT 8		Total Votes:	355,464
Winner	198,874	55.95%	REID J. RIBBLE PO BOX 7200 APPLETON WI 53912	Republican
	156,287	43.97%	JAMIE WALL W6214 COUNTY ROAD S ONALASKA WI 546508926	Democrat
	303	.09%	SCATTERING	
Office	STATE SENATE - DISTRICT 2		Total Votes:	65,143
Winner	64,192	98.54%	ROBERT COWLES 300 W SAINT JOSEPH ST GREEN BAY WI 54301	Republican
	951	1.46%	SCATTERING	
Office	STATE SENATE - DISTRICT 4		Total Votes:	77,426
Winner	67,064	86.62%	LENA C. TAYLOR 1518 W CAPITOL DR MILWAUKEE WI 53206	Democrat
	10,154	13.11%	DAVID D. KING 2407A N PIERCE ST MILWAUKEE WI 53212	Independent
	208	.27%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	STATE SENATE - DISTRICT 6		Total Votes:	61,327
Winner	60,543	98.72%	NIKIYA HARRIS 7060 N PRESIDIO DR MILWAUKEE WI 532236321	Democrat
	784	1.28%	SCATTERING	
Office	STATE SENATE - DISTRICT 8		Total Votes:	79,934
Winner	76,402	95.58%	ALBERTA DARLING 1325 W DEAN RD RIVER HILLS WI 53217	Republican
	453	.57%	BETH L. LUECK (WRITE-IN) 5225 N BAY RIDGE AVE WHITEFISH BAY WI 532175102	Democrat
	3,079	3.85%	SCATTERING	
Office	STATE SENATE - DISTRICT 10		Total Votes:	87,734
Winner	51,911	59.17%	SHEILA HARSDORF N6627 COUNTY ROAD E RIVER FALLS WI 54022	Republican
	35,728	40.72%	DANIEL C. OLSON 499 95TH AVE CLAYTON WI 540043001	Democrat
	95	.11%	SCATTERING	
Office	STATE SENATE - DISTRICT 12		Total Votes:	90,994
Winner	51,176	56.24%	TOM TIFFANY 4973 WILLOW DAM RD HAZELHURST WI 54531	Republican
	36,809	40.45%	SUSAN SOMMER 2674 SUNRISE CIR PHELPS WI 545549000	Democrat
	2,964	3.26%	PAUL O. EHLERS 4560 CROSS COUNTRY RD RHINELANDER WI 545018957	Independent
	45	.05%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	STATE SENATE - DISTRICT 14			Total Votes:	81,941
Winner	47,137	57.53%	LUTHER S. OLSEN 1023 THOMAS ST RIPON WI 54971		Republican
	34,742	42.4%	MARGARETE WORTHINGTON PO BOX 1433 WAUTOMA WI 549821433		Democrat
	62	.08%	SCATTERING		
Office	STATE SENATE - DISTRICT 16			Total Votes:	73,231
Winner	72,298	98.73%	MARK MILLER 4903 ROIGAN TER MONONA WI 53716		Democrat
	933	1.27%	SCATTERING		
Office	STATE SENATE - DISTRICT 18			Total Votes:	85,648
Winner	43,079	50.3%	RICK GUDEX 361 E DIVISION ST FOND DU LAC WI 549354555		Republican
	42,479	49.6%	JESSICA KING 1523 HAZEL ST OSHKOSH WI 54901		Democrat
	90	.11%	SCATTERING		
Office	STATE SENATE - DISTRICT 20			Total Votes:	97,460
Winner	66,882	68.63%	GLENN GROTHMAN 111 S 6TH AVE WEST BEND WI 53095		Republican
	30,504	31.3%	TANYA LOHR 6244 GILBERT CIR WEST BEND WI 530959197		Democrat
	74	.08%	SCATTERING		
Office	STATE SENATE - DISTRICT 22			Total Votes:	73,559
	22,278	30.29%	PAM STEVENS 1521 SHERIDAN RD UNIT C KENOSHA WI 531404469		Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	STATE SENATE - DISTRICT 22			Total Votes:	73,559
Winner	51,177	69.57%	ROBERT W. WIRCH 3007 SPRINGBROOK RD PLEASANT PRAIRIE WI 53158		Democrat
	104	.14%	SCATTERING		
Office	STATE SENATE - DISTRICT 24			Total Votes:	86,024
	37,259	43.31%	SCOTT KENNETH NOBLE MARSHFIELD SB WI		Republican
Winner	48,677	56.59%	JULIE LASSA 4901 BEAVER DAM RD STEVENS POINT WI 54481		Democrat
	88	.1%	SCATTERING		
Office	STATE SENATE - DISTRICT 26			Total Votes:	88,087
Winner	87,144	98.93%	FRED A. RISSER 100 WISCONSIN AVE UNIT 501 MADISON WI 53703		Democrat
	943	1.07%	SCATTERING		
Office	STATE SENATE - DISTRICT 28			Total Votes:	96,010
Winner	60,854	63.38%	MARY LAZICH 4405 S 129TH ST NEW BERLIN WI 53151		Republican
	35,053	36.51%	JIM WARD 5225 MORLEY DR GREENDALE WI 531291249		Democrat
	103	.11%	SCATTERING		
Office	STATE SENATE - DISTRICT 30			Total Votes:	79,204
	36,178	45.68%	JOHN MACCO 1874 OLD VALLEY RD DE PERE WI 541153370		Republican
Winner	42,949	54.23%	DAVE HANSEN 920 COPPENS RD GREEN BAY WI 54303		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	STATE SENATE - DISTRICT 30		Total Votes:	79,204
	77	.1%	SCATTERING	
Office	STATE SENATE - DISTRICT 32		Total Votes:	87,769
	36,545	41.64%	BILL FEEHAN 1901 CHEROKEE AVE LA CROSSE WI 546031502	Republican
Winner	51,153	58.28%	JENNIFER SHILLING 2608 MAIN ST LACROSSE WI 54601	Democrat
	71	.08%	SCATTERING	
Office	ASSEMBLY - DISTRICT 1		Total Votes:	33,146
Winner	16,993	51.27%	GAREY BIES 2520 SETTLEMENT RD SISTER BAY WI 54234	Republican
	16,124	48.65%	PATRICK VEESER E2620 SUNSET RD LUXEMBURG WI 542179741	Democrat
	29	.09%	SCATTERING	
Office	ASSEMBLY - DISTRICT 2		Total Votes:	29,141
Winner	17,082	58.62%	ANDRE JACQUE 2390 E RIDGE TER GREEN BAY WI 54311	Republican
	12,033	41.29%	LARRY PRUESS 334 23RD ST TWO RIVERS WI 542413804	Democrat
	26	.09%	SCATTERING	
Office	ASSEMBLY - DISTRICT 3		Total Votes:	29,987
Winner	17,387	57.98%	AL OTT W2168 CAMPGROUND RD FOREST JUNCTION WI 54123	Republican
	11,398	38.01%	KOLE OSWALD 2424 S WALDEN AVE APPLETON WI 549155876	Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 3			Total Votes:	29,987
	1,189	3.97%	JOSH YOUNG 545 BERGHUIS DR COMBINED LCKS WI 541131418		Independent
	13	.04%	SCATTERING		
Office	ASSEMBLY - DISTRICT 4			Total Votes:	28,839
Winner	16,029	55.58%	CHAD WEININGER 2030 PACKERLAND DR GREEN BAY WI 54304		Republican
	12,770	44.28%	MICHAEL J. MALCHESKI 3564 S RIDGE RD DE PERE WI 541157695		Democrat
	40	.14%	SCATTERING		
Office	ASSEMBLY - DISTRICT 5			Total Votes:	28,850
Winner	16,117	55.86%	JIM STEINEKE N2352 VANDENBROEK RD KAUKAUNA WI 54130		Republican
	12,709	44.05%	JEFF MCCABE 900 KRISTY ST KAUKAUNA WI 541303851		Democrat
	24	.08%	SCATTERING		
Office	ASSEMBLY - DISTRICT 6			Total Votes:	25,961
Winner	15,423	59.41%	GARY TAUCHEN N3397 BROADWAY RD BONDUEL WI 54107		Republican
	10,508	40.48%	JOHN POWERS W16533 WILSON CREEK LN WITTENBURG WI 54499		Democrat
	9	.03%	JON KUPSKY (WRITE-IN) N7415 W RIVER ST GRESHAM WI 54128		Independent
	21	.08%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 7		Total Votes:	19,524
Winner	16,664	85.35%	DANIEL RIEMER 3053 S 39TH ST MILWAUKEE WI 532153558	Democrat
	2,499	12.8%	PEGGY KRUSICK (WRITE-IN) 3426 S 69TH ST MILWAUKEE WI 53219	Democrat
	2	.01%	TIFFANY LEE KOEHLER (WRITE-IN) 5395 SOMERSET LN S GREENFIELD WI 532213239	Independent
	359	1.84%	SCATTERING	
Office	ASSEMBLY - DISTRICT 8		Total Votes:	8,008
Winner	7,869	98.26%	JOCASTA ZAMARRIPA 1645 S 12TH ST MILWAUKEE WI 53204	Democrat
	139	1.74%	SCATTERING	
Office	ASSEMBLY - DISTRICT 9		Total Votes:	14,843
Winner	14,635	98.6%	JOSH ZEPNICK 3173 S 49TH ST MILWAUKEE WI 532194637	Democrat
	208	1.4%	SCATTERING	
Office	ASSEMBLY - DISTRICT 10		Total Votes:	20,299
Winner	20,038	98.71%	SANDY PASCH 6301 N BERKELEY BLVD WHITEFISH BAY WI 53217	Democrat
	261	1.29%	SCATTERING	
Office	ASSEMBLY - DISTRICT 11		Total Votes:	16,604
Winner	16,403	98.79%	MANDELA BARNES 7804 N FAIRWAY PL MILWAUKEE WI 532234222	Democrat
	201	1.21%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 12			Total Votes:	16,425
Winner	16,193	98.59%	FREDERICK P. KESSLER 11221 W SANCTUARY DR MILWAUKEE WI 53224		Democrat
	232	1.41%	SCATTERING		
Office	ASSEMBLY - DISTRICT 13			Total Votes:	33,669
Winner	20,367	60.49%	ROB HUTTON 17785 MARSEILLE DR BROOKFIELD WI 530455019		Republican
	13,258	39.38%	JOHN POKRANDT 6717 MILWAUKEE AVE WAUWATOSA WI 532132303		Democrat
	44	.13%	SCATTERING		
Office	ASSEMBLY - DISTRICT 14			Total Votes:	35,508
Winner	20,976	59.07%	DALE KOOYENGA 15365 ST THERESE BLVD BROOKFIELD WI 53005		Republican
	14,490	40.81%	CHRIS ROCKWOOD 2448 N 73RD ST WAUWATOSA WI 532131212		Democrat
	42	.12%	SCATTERING		
Office	ASSEMBLY - DISTRICT 15			Total Votes:	30,446
Winner	17,745	58.28%	JOE SANFELIPPO 12024 W EUCLID AVE WEST ALLIS WI 532273816		Republican
	12,668	41.61%	CINDY MOORE 14735 W FLEETWOOD LN NEW BERLIN WI 531511210		Democrat
	33	.11%	SCATTERING		
Office	ASSEMBLY - DISTRICT 16			Total Votes:	17,089
Winner	16,881	98.78%	LEON D. YOUNG 2224 N 17TH ST MILWAUKEE WI 53205		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 16			Total Votes:	17,089
	208	1.22%	SCATTERING		
Office	ASSEMBLY - DISTRICT 17			Total Votes:	23,943
	6	.03%	VIRGINIA PRATT (WRITE-IN) 4454 N 52ND ST MILWAUKEE WI 532185710		Republican
Winner	20,288	84.73%	LA TONYA JOHNSON 2363 N 54TH ST MILWAUKEE WI 532102734		Democrat
	3,573	14.92%	ANTHONY R. EDWARDS 5607 W BROOKLYN PL MILWAUKEE WI 532163138		Independent
	76	.32%	SCATTERING		
Office	ASSEMBLY - DISTRICT 18			Total Votes:	18,510
Winner	16,276	87.93%	EVAN GOYKE 2734 W STATE ST MILWAUKEE WI 532083548		Democrat
	2,140	11.56%	MELBA MORRIS-PAGE 2324 W WISCONSIN AVE APT 22 MILWAUKEE WI 532331857		Independent
	94	.51%	SCATTERING		
Office	ASSEMBLY - DISTRICT 19			Total Votes:	25,453
Winner	24,856	97.65%	JON RICHARDS 1823 N OAKLAND AVE MILWAUKEE WI 53202		Democrat
	597	2.35%	SCATTERING		
Office	ASSEMBLY - DISTRICT 20			Total Votes:	29,546
	12,500	42.31%	MOLLY M. MCGARTLAND 3777 S AHMEDI AVE ST FRANCIS WI 53235		Republican
Winner	16,995	57.52%	CHRISTINE SINICKI 3132 S INDIANA AVE MILWAUKEE WI 53207		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 20			Total Votes:	29,546
	51	.17%	SCATTERING		
Office	ASSEMBLY - DISTRICT 21			Total Votes:	29,357
Winner	17,403	59.28%	MARK HONADEL 1219 MANITOBA AVE SOUTH MILWAUKEE WI 53172		Republican
	11,921	40.61%	WILLIAM R. KURTZ 221 N CHICAGO AVE S MILWAUKEE WI 531721200		Democrat
	33	.11%	SCATTERING		
Office	ASSEMBLY - DISTRICT 22			Total Votes:	24,165
Winner	23,817	98.56%	DON PRIDEMORE 2277 COUNTY ROAD K HARTFORD WI 53027		Republican
	348	1.44%	SCATTERING		
Office	ASSEMBLY - DISTRICT 23			Total Votes:	36,232
Winner	22,536	62.2%	JIM OTT 11743 NORTH LAKE SHORE DR MEQUON WI 53092		Republican
	13,669	37.73%	CRIS ROGERS 816 E LAKE FOREST AVE WHITEFISH BAY WI 532175376		Democrat
	27	.07%	SCATTERING		
Office	ASSEMBLY - DISTRICT 24			Total Votes:	33,559
Winner	20,932	62.37%	DAN KNODL N101 W14475 RIDGEFIELD CT GERMANTOWN WI 53022		Republican
	12,594	37.53%	SHAN HAQQI 16940 TANGLEWOOD DR BROOKFIELD WI 530056846		Democrat
	33	.1%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 25			Total Votes:	28,295
Winner	16,287	57.56%	PAUL TITTL 2229 RHEAUME RD MANITOWOC WI 542202548		Republican
	11,947	42.22%	JIM BREY 809 S 25TH ST MANITOWOC WI 542204419		Democrat
	61	.22%	SCATTERING		
Office	ASSEMBLY - DISTRICT 26			Total Votes:	29,294
Winner	15,018	51.27%	MICHAEL ENDSLEY 1829 N 27TH PL SHEBOYGAN WI 530812022		Republican
	14,257	48.67%	MIKE HELMKE 4408 RED PINE LN SHEBOYGAN WI 530817950		Democrat
	19	.06%	SCATTERING		
Office	ASSEMBLY - DISTRICT 27			Total Votes:	31,269
Winner	18,101	57.89%	STEVE KESTELL W3829 STATE ROAD 32 ELKHART LAKE WI 53020		Republican
	13,148	42.05%	STEVEN H. BAUER W3798 COUNTY ROAD C PLYMOUTH WI 530734343		Democrat
	20	.06%	SCATTERING		
Office	ASSEMBLY - DISTRICT 28			Total Votes:	28,241
Winner	15,865	56.18%	ERIK SEVERSON 2147 45TH AVE STAR PRAIRIE WI 54026		Republican
	12,347	43.72%	ADAM T. BEVER 604 RAMBERG CT BALSAM LAKE WI 548108016		Democrat
	29	.1%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 29		Total Votes:	27,287
Winner	15,237	55.84%	JOHN MURTHA 2283 20TH AVE BALDWIN WI 54002	Republican
	12,004	43.99%	JIM SWANSON 1331 MATHEWS ST MENOMONIE WI 547514614	Democrat
	46	.17%	SCATTERING	
Office	ASSEMBLY - DISTRICT 30		Total Votes:	30,938
Winner	17,261	55.79%	DEAN KNUDSON 1753 LAUREL AVE HUDSON WI 54016	Republican
	13,657	44.14%	DIANE ODEEN 811 OAK KNOLL AVE RIVER FALLS WI 540222646	Democrat
	20	.06%	SCATTERING	
Office	ASSEMBLY - DISTRICT 31		Total Votes:	29,151
Winner	16,463	56.47%	AMY LOUDENBECK 10737 S STATE ROAD 140 CLINTON WI 53525	Republican
	12,653	43.41%	RYAN J. SCHROEDER 510 S 7TH ST DELAVAN WI 531151908	Democrat
	35	.12%	SCATTERING	
Office	ASSEMBLY - DISTRICT 32		Total Votes:	27,294
Winner	15,586	57.1%	TYLER AUGUST 120 FOX LN WALWORTH WI 53184	Republican
	10,828	39.67%	KIM M. PETERSON W768 DIXON DR BURLINGTON WI 531052648	Democrat
	847	3.1%	DAVID STOLOW 170 HIGHLAND WAY LAKE GENEVA WI 531472079	Independent
	33	.12%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 33		Total Votes:	30,087
Winner	18,891	62.79%	STEVE NASS N8330 JACKSON RD WHITEWATER WI 53190	Republican
	10,229	34%	SCOTT ALLAN WOODS 744 TYRRELL AVE DELAVAN WI 531152320	Democrat
	945	3.14%	TERRY VIRGIL 321 SWAP ST APT 101 JOHNSON CREEK WI 53038	Independent
	22	.07%	SCATTERING	
Office	ASSEMBLY - DISTRICT 34		Total Votes:	34,016
Winner	19,442	57.16%	ROB SWEARINGEN 4485 OAKVIEW LN RHINELANDER WI 545018299	Republican
	12,297	36.15%	MERLIN VAN BUREN 5125 KERRY LN RHINELANDER WI 54501	Democrat
	791	2.33%	TODD ALBANO	Independent
	1,469	4.32%	KEVIN M. FITZPATRICK 8677 HILL LAKE DR MINOCQUA WI 545489741	Independent
	17	.05%	SCATTERING	
Office	ASSEMBLY - DISTRICT 35		Total Votes:	29,045
Winner	15,481	53.3%	MARY CZAJA W4587 HWY S IRMA WI 54442	Republican
	12,149	41.83%	KEVIN KOTH W4987 HOOVIE RD TOMAHAWK WI 544878604	Democrat
	1,397	4.81%	PATRICK K. TJUGUM 2780 PRAIRIE LAKE RD TOMAHAWK WI 544878864	Independent
	18	.06%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 36		Total Votes:	26,902
Winner	15,886	59.05%	JEFFREY L. MURSAU 4 OAK ST CRIVITZ WI 54114	Republican
	10,997	40.88%	DOROTHY KEGLEY 710 W JEFFERSON ST CRANDON WI 545201564	Democrat
	19	.07%	SCATTERING	
Office	ASSEMBLY - DISTRICT 37		Total Votes:	29,172
Winner	15,799	54.16%	JOHN JAGLER 601 CLYMAN ST WATERTOWN WI 530944667	Republican
	13,289	45.55%	MARY I. ARNOLD 954 DIX ST COLUMBUS WI 539251210	Democrat
	84	.29%	SCATTERING	
Office	ASSEMBLY - DISTRICT 38		Total Votes:	32,781
Winner	19,181	58.51%	JOEL KLEEFISCH W357N6189 SPINNAKER DR OCONOMOWOC WI 53066	Republican
	12,795	39.03%	SCOTT MICHALAK 433 WATERLOO RD MARSHALL WI 535599637	Democrat
	788	2.4%	LEROY L. WATSON 901 YORK IMPERIAL DR OCONOMOWOC WI 53066	Independent
	17	.05%	SCATTERING	
Office	ASSEMBLY - DISTRICT 39		Total Votes:	28,933
Winner	17,465	60.36%	MARK L. BORN 121 FRANKLIN ST BEAVER DAM WI 539162211	Republican
	11,446	39.56%	JIM GRIGG 764 KAREN LN HORICON WI 530321007	Democrat
	22	.08%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 40			Total Votes:	21,403
Winner	21,127	98.71%	KEVIN PETERSEN N1433 DRIVAS RD WAUPACA WI 549818464		Republican
	276	1.29%	SCATTERING		
Office	ASSEMBLY - DISTRICT 41			Total Votes:	25,958
Winner	15,035	57.92%	JOAN BALLWEG 170 W SUMMIT ST MARKESAN WI 53946		Republican
	10,906	42.01%	MELISSA SORENSON 163 W NOYES ST BERLIN WI 549231553		Democrat
	17	.07%	SCATTERING		
Office	ASSEMBLY - DISTRICT 42			Total Votes:	28,975
Winner	16,394	56.58%	KEITH RIPP 7113 COUNTY ROAD V LODI WI 53555		Republican
	12,567	43.37%	PAULA COOPER W5751 E BUSH RD PARDEEVILLE WI 539549448		Democrat
	14	.05%	SCATTERING		
Office	ASSEMBLY - DISTRICT 43			Total Votes:	30,585
	12,894	42.16%	EVAN WYNN 214 LAKEVIEW DR WHITEWATER WI 53190		Republican
Winner	17,612	57.58%	ANDY JORGENSEN 1424 ENDL BLVD FORT ATKINSON WI 53538		Democrat
	79	.26%	SCATTERING		
Office	ASSEMBLY - DISTRICT 44			Total Votes:	27,597
	10,571	38.3%	JOE KNILANS 1600 ALPINE DR JANESVILLE WI 53546		Republican

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 44		Total Votes:	27,597
Winner	16,983	61.54%	DEBRA KOLSTE 4105 PARK VIEW DR JANESVILLE WI 535461777	Democrat
	43	.16%	SCATTERING	
Office	ASSEMBLY - DISTRICT 45		Total Votes:	24,712
	8,906	36.04%	BETH SCHMIDT 110 S WRIGHT ST ORFORDVILLE WI 535769701	Republican
Winner	15,753	63.75%	JANIS RINGHAND 412 FOWLER CIR EVANSVILLE WI 53536	Democrat
	53	.21%	SCATTERING	
Office	ASSEMBLY - DISTRICT 46		Total Votes:	31,131
	10,951	35.18%	TRISH SCHAEFER 2333 ST ALBERTS DR SUN PRAIRIE WI 53590	Republican
Winner	20,171	64.79%	GARY HEBL 515 SCHEUERELL LN SUN PRAIRIE WI 53590	Democrat
	9	.03%	SCATTERING	
Office	ASSEMBLY - DISTRICT 47		Total Votes:	31,203
	9,054	29.02%	SANDY BAKK 6611 MEREDITH WAY MC FARLAND WI 535589299	Republican
Winner	22,113	70.87%	ROBB KAHL 5700 WINNEQUAH RD MONONA WI 537163061	Democrat
	36	.12%	SCATTERING	
Office	ASSEMBLY - DISTRICT 48		Total Votes:	29,296
Winner	24,375	83.2%	MELISSA AGARD SARGENT 1638 MAYFIELD LN MADISON WI 537042144	Democrat

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 48		Total Votes:	29,296
	4,849	16.55%	TERRY R. GRAY 5113 STARKER AVE MADISON WI 537161915	Independent
	0	0%	ADAM KASSULKE (WRITE-IN) 57 NORTHRIDGE TER MADISON WI 537041979	Independent
	13	.04%	JONATHON WILLIAM RYGIEWICZ (WRITE-IN)	Republican
	59	.2%	SCATTERING	
Office	ASSEMBLY - DISTRICT 49		Total Votes:	26,235
Winner	14,218	54.19%	TRAVIS TRANEL 2231 LOUISBURG RD CUBA CITY WI 53807	Republican
	11,977	45.65%	CAROL BEALS 45 COMMERCE ST PLATTEVILLE WI 53818	Democrat
	40	.15%	SCATTERING	
Office	ASSEMBLY - DISTRICT 50		Total Votes:	25,533
	11	.04%	NATHAN JOHNSON (WRITE-IN) 710 S PRESTON AVE APT 201 REEDSBURG WI 539591890	Independent
Winner	12,842	50.3%	ED BROOKS S4311 GROTE HILL RD REEDSBURG WI 539599811	Republican
	11,945	46.78%	SARAH ANN SHANAHAN N5845 VALLEY RD NEW LISBON WI 53950	Democrat
	725	2.84%	BEN OLSON, III E9510 OAK HILL RD WISCONSIN DELLS WI 53965	Independent
	10	.04%	SCATTERING	
Office	ASSEMBLY - DISTRICT 51		Total Votes:	27,539
Winner	14,279	51.85%	HOWARD MARKLEIN S11665 SOELDNER RD SPRING GREEN WI 53588	Republican

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 51		Total Votes:	27,539
	13,238	48.07%	MAUREEN MAY-GRIMM 240 SOUTH ST MINERAL POINT WI 535651342	Democrat
	22	.08%	SCATTERING	
Office	ASSEMBLY - DISTRICT 52		Total Votes:	26,899
Winner	16,313	60.65%	JEREMY THIESFELDT 604 SUNSET LN FOND DU LAC WI 54935	Republican
	10,575	39.31%	PAUL G. CZISNY 260 SHEBOYGAN ST FOND DU LAC WI 54935	Democrat
	11	.04%	SCATTERING	
Office	ASSEMBLY - DISTRICT 53		Total Votes:	26,285
Winner	15,844	60.28%	MICHAEL SCHRAA 220 WYLDEBERRY LN OSHKOSH WI 549047676	Republican
	10,410	39.6%	RYAN FLEJTER 526 E FRANKLIN ST WAUPUN WI 539631513	Democrat
	31	.12%	SCATTERING	
Office	ASSEMBLY - DISTRICT 54		Total Votes:	29,058
	11,594	39.9%	PAUL J. ESSLINGER 2350 HIGH OAK DR OSHKOSH WI 549029005	Republican
Winner	17,400	59.88%	GORDON HINTZ 1209 WAUGOO AVE OSHKOSH WI 54901	Democrat
	64	.22%	SCATTERING	
Office	ASSEMBLY - DISTRICT 55		Total Votes:	30,408
Winner	19,142	62.95%	DEAN R. KAUFERT 1360 ALPINE LN NEENAH WI 54956	Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 55			Total Votes:	30,408
	10,202	33.55%	JIM CRAIL W6616 GEMSTONE CT GREENVILLE WI 549428101		Democrat
	1,016	3.34%	RICH MARTIN 1201 FIELDCREST DR MENASHA WI 549522120		Independent
	48	.16%	SCATTERING		
Office	ASSEMBLY - DISTRICT 56			Total Votes:	31,407
Winner	18,306	58.29%	DAVE MURPHY W6564 TALON DR GREENVILLE WI 549428714		Republican
	13,071	41.62%	RICHARD B. SCHOENBOHM 1331 N BALLARD RD APT 1 APPLETON WI 549114256		Democrat
	30	.1%	SCATTERING		
Office	ASSEMBLY - DISTRICT 57			Total Votes:	21,124
Winner	19,862	94.03%	PENNY BERNARD SCHABER 815 E WASHINGTON ST APPLETON WI 54911		Democrat
	668	3.16%	BRIAN GARROW (WRITE-IN) 806 W WINNEBAGO ST APPLETON WI 549143611		Republican
	594	2.81%	SCATTERING		
Office	ASSEMBLY - DISTRICT 58			Total Votes:	27,248
Winner	26,945	98.89%	PAT STRACHOTA 639 RIDGE RD WEST BEND WI 53095		Republican
	303	1.11%	SCATTERING		
Office	ASSEMBLY - DISTRICT 59			Total Votes:	25,369
Winner	25,172	99.22%	DANIEL R. LEMAHIEU W6284 LAKE ELLEN DR CASCADE WI 53011		Republican

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 59		Total Votes:	25,369
	197	.78%	SCATTERING	
Office	ASSEMBLY - DISTRICT 60		Total Votes:	33,633
Winner	23,905	71.08%	DUEY STROEBEL 2428 COVERED BRIDGE RD SAUKVILLE WI 53080	Republican
	9,682	28.79%	PERRY DUMAN 203 W GRAND AVE PORT WASHINGTON WI 53074	Democrat
	46	.14%	SCATTERING	
Office	ASSEMBLY - DISTRICT 61		Total Votes:	29,798
Winner	16,589	55.67%	SAMANTHA KERKMAN 40255 105TH ST GENOA CITY WI 53128	Republican
	13,186	44.25%	JOHN P. STEINBRINK 8640 88TH AVE PLEASANT PRAIRIE WI 53158	Democrat
	23	.08%	SCATTERING	
Office	ASSEMBLY - DISTRICT 62		Total Votes:	32,130
Winner	17,045	53.05%	TOM WEATHERSTON 5300 SANTA ANITA DR RACINE WI 534022176	Republican
	15,054	46.85%	MELISSA LEMKE 815 3 MILE RD RACINE WI 534022901	Democrat
	31	.1%	SCATTERING	
Office	ASSEMBLY - DISTRICT 63		Total Votes:	30,362
Winner	17,704	58.31%	ROBIN J. VOS 4710 EASTWOOD RDG RACINE WI 53406	Republican
	12,637	41.62%	KELLEY ALBRECHT 272 N KENDRICK AVE BURLINGTON WI 531051148	Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 63			Total Votes:	30,362
	21	.07%	SCATTERING		
Office	ASSEMBLY - DISTRICT 64			Total Votes:	20,926
Winner	20,264	96.84%	PETER W. BARCA 1339 38TH AVE KENOSHA WI 53144		Democrat
	662	3.16%	SCATTERING		
Office	ASSEMBLY - DISTRICT 65			Total Votes:	18,750
Winner	18,373	97.99%	TOD OHNSTAD 3814 18TH AVE KENOSHA WI 531405304		Democrat
	377	2.01%	SCATTERING		
Office	ASSEMBLY - DISTRICT 66			Total Votes:	17,060
Winner	16,830	98.65%	CORY MASON 3611 KINZIE AVE RACINE WI 53405		Democrat
	230	1.35%	SCATTERING		
Office	ASSEMBLY - DISTRICT 67			Total Votes:	28,538
Winner	15,194	53.24%	TOM LARSON E9359 COUNTY RD N COLFAX WI 54730		Republican
	13,325	46.69%	DEB BIEGING 431 WOODRIDGE CT CHIPPEWA FLS WI 547292057		Democrat
	1	0%	JAYME RYAN SCHULNER (WRITE-IN) 912 PEARL ST APT 112 CHIPPEWA FLS WI 547291865		Republican
	18	.06%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 68			Total Votes:	26,263
Winner	13,758	52.39%	KATHY BERNIER 10923 40TH AVE CHIPPEWA FALLS WI 54729		Republican
	12,482	47.53%	JUDY SMRIGA 500 S LINCOLN ST THORP WI 547719213		Democrat
	23	.09%	SCATTERING		
Office	ASSEMBLY - DISTRICT 69			Total Votes:	25,806
Winner	15,785	61.17%	SCOTT SUDER 102 S 4TH AVE ABBOTSFORD WI 54405		Republican
	9,998	38.74%	PAUL KNOFF GRANTON SB WI		Democrat
	23	.09%	SCATTERING		
Office	ASSEMBLY - DISTRICT 70			Total Votes:	26,936
	13,374	49.65%	NANCY L. VANDERMEER 18940 EDEN AVE TOMAH WI 546608071		Republican
Winner	13,518	50.19%	AMY SUE VRUWINK 9425 FLOWER LN MILLADORE WI 54454		Democrat
	44	.16%	SCATTERING		
Office	ASSEMBLY - DISTRICT 71			Total Votes:	28,968
	11,279	38.94%	PATRICK TESTIN 1200 RIVER VIEW AVE APT 86 STEVENS POINT WI 544815149		Republican
Winner	17,619	60.82%	KATRINA SHANKLAND 2300A COLLEGE AVE STEVENS POINT WI 544813103		Democrat
	70	.24%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 72		Total Votes:	28,185
Winner	14,138	50.16%	SCOTT S. KRUG 466 GROVE AVE WISCONSIN RAPIDS WI 54494	Republican
	14,029	49.77%	JUSTIN D. PLUESS 421 WITTER ST WISC RAPIDS WI 544944339	Democrat
	18	.06%	SCATTERING	
Office	ASSEMBLY - DISTRICT 73		Total Votes:	22,953
Winner	22,686	98.84%	NICK MILROY 4543 S SAM ANDERSON RD SOUTH RANGE WI 54874	Democrat
	267	1.16%	SCATTERING	
Office	ASSEMBLY - DISTRICT 74		Total Votes:	31,509
	12,911	40.98%	JOHN SENDRA 2695 W GREAT NORTHERN TRLS RD MERCER WI 545479768	Republican
Winner	18,582	58.97%	JANET BEWLEY 810 CHAPPLE AVE ASHLAND WI 54806	Democrat
	16	.05%	SCATTERING	
Office	ASSEMBLY - DISTRICT 75		Total Votes:	28,334
	13,841	48.85%	ROGER RIVARD 2680 17TH AVE RICE LAKE WI 54868	Republican
Winner	14,456	51.02%	STEPHEN SMITH 514 PINE RIDGE DR SHELL LAKE WI 548718727	Democrat
	37	.13%	SCATTERING	
Office	ASSEMBLY - DISTRICT 76		Total Votes:	31,948
Winner	31,663	99.11%	CHRIS TAYLOR 2910 OAKRIDGE AVE MADISON WI 53704	Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 76			Total Votes:	31,948
	285	.89%	SCATTERING		
Office	ASSEMBLY - DISTRICT 77			Total Votes:	27,801
Winner	27,622	99.36%	TERESE BERCEAU 4326 SOMERSET LN MADISON WI 53711		Democrat
	179	.64%	SCATTERING		
Office	ASSEMBLY - DISTRICT 78			Total Votes:	30,294
Winner	22,853	75.44%	BRETT HULSEY 110 MERRILL CREST DR MADISON WI 53705		Democrat
	7,323	24.17%	JONATHAN DEDERING 226 N BROOM ST APT 2 MADISON WI 537035037		Independent
	118	.39%	SCATTERING		
Office	ASSEMBLY - DISTRICT 79			Total Votes:	24,995
Winner	24,683	98.75%	DIANNE HESSELBEIN 1420 N HIGH POINT RD MIDDLETON WI 53562		Democrat
	312	1.25%	SCATTERING		
Office	ASSEMBLY - DISTRICT 80			Total Votes:	32,675
	11,771	36.02%	TOM LAMBERSON 1204 ENTERPRISE DR VERONA WI 53593		Republican
Winner	20,864	63.85%	SONDY POPE-ROBERTS 4793 DELMARA RD MIDDLETON WI 53562		Democrat
	40	.12%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 81		Total Votes:	28,835
	10,995	38.13%	SCOTT FROSTMAN 509 14TH AVE BARABOO WI 53913	Republican
Winner	17,829	61.83%	FRED CLARK E12367 COUNTY ROAD W BARABOO WI 53913	Democrat
	11	.04%	SCATTERING	
Office	ASSEMBLY - DISTRICT 82		Total Votes:	29,972
Winner	18,032	60.16%	JEFF STONE 5535 GRANDVIEW DR GREENDALE WI 53129	Republican
	11,896	39.69%	KATHLEEN WIED-VINCENT 19330 W NORTH AVE BROOKFIELD WI 530454173	Democrat
	44	.15%	SCATTERING	
Office	ASSEMBLY - DISTRICT 83		Total Votes:	33,024
Winner	23,034	69.75%	DAVE CRAIG W225 BIG BEND DRIVE S9505 BIG BEND WI 53103	Republican
	9,967	30.18%	JAMES BROWNLOW W173 SCENIC DRIVE S7955 MUSKEGO WI 53150	Democrat
	23	.07%	SCATTERING	
Office	ASSEMBLY - DISTRICT 84		Total Votes:	29,325
Winner	18,379	62.67%	MIKE KUGLITSCH 21865 W TOLBERT DR NEW BERLIN WI 53146	Republican
	10,882	37.11%	JESSE J. ROELKE 6784 HERBRAND RD SAUK CITY WI 535839557	Democrat
	64	.22%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 85		Total Votes:	28,026
	13,025	46.47%	PATRICK SNYDER 129 CHARLES ST SCHOFIELD WI 544761202	Republican
Winner	13,930	49.7%	MANDY WRIGHT 2016 EWING ST WAUSAU WI 544036908	Democrat
	1,047	3.74%	JIM MAAS 211 PEGGY LANE ROTHSCHILD WI 54474-175	Independent
	24	.09%	SCATTERING	
Office	ASSEMBLY - DISTRICT 86		Total Votes:	30,867
Winner	17,175	55.64%	JOHN SPIROS 1406 E FILLMORE ST MARSHFIELD WI 54449	Republican
	13,644	44.2%	DENNIS HALKOSKI 4903 TANYA ST WESTON WI 544763168	Democrat
	48	.16%	SCATTERING	
Office	ASSEMBLY - DISTRICT 87		Total Votes:	26,795
Winner	15,680	58.52%	MARY WILLIAMS 542 BILLINGS AVE MEDFORD WI 54451	Republican
	11,100	41.43%	ELIZABETH RILEY 16026 W 4TH ST HAYWARD WI 548437114	Democrat
	15	.06%	SCATTERING	
Office	ASSEMBLY - DISTRICT 88		Total Votes:	27,566
Winner	14,445	52.4%	JOHN KLENKE 3463 YORKSHIRE RD GREEN BAY WI 54311	Republican
	13,085	47.47%	WARD BACON 345 WINDWARD RD GREEN BAY WI 543025204	Democrat
	36	.13%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate	Party	
Office	ASSEMBLY - DISTRICT 89			Total Votes:	27,232
Winner	16,081	59.05%	JOHN NYGREN N2118 KELLER RD MARINETTE WI 54143	Republican	
	11,129	40.87%	JOE REINHARD 3034 SANDALWOOD RD ABRAMS WI 541019613	Democrat	
	22	.08%	SCATTERING		
Office	ASSEMBLY - DISTRICT 90			Total Votes:	18,856
	7,432	39.41%	DAVID VANDERLEEST 505 S MAPLE AVE GREEN BAY WI 54303	Republican	
Winner	11,353	60.21%	ERIC GENRICH 1089 DIVISION ST GREEN BAY WI 543033048	Democrat	
	71	.38%	SCATTERING		
Office	ASSEMBLY - DISTRICT 91			Total Votes:	23,674
Winner	23,030	97.28%	DANA WACHS 437 LINCOLN AVE EAU CLAIRE WI 547014094	Democrat	
	644	2.72%	SCATTERING		
Office	ASSEMBLY - DISTRICT 92			Total Votes:	20,562
Winner	20,308	98.76%	CHRIS DANOU 23951 8TH ST TREMPEALEAU WI 54661	Democrat	
	50	.24%	STEPHEN J. DOERR	Republican	
	204	.99%	SCATTERING		
Office	ASSEMBLY - DISTRICT 93			Total Votes:	30,742
Winner	15,612	50.78%	WARREN PETRYK S9840 HWY 93 ELEVA WI 54738	Republican	

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 93		Total Votes:	30,742
	15,114	49.16%	JEFF SMITH 236 HUDSON ST EAU CLAIRE WI 54703	Democrat
	16	.05%	SCATTERING	
Office	ASSEMBLY - DISTRICT 94		Total Votes:	30,644
	12,068	39.38%	BRUCE EVERS 909 SILVER DR HOLMEN WI 546368715	Republican
Winner	18,566	60.59%	STEVE DOYLE N5525 HAUSER RD ONALASKA WI 54650	Democrat
	10	.03%	SCATTERING	
Office	ASSEMBLY - DISTRICT 95		Total Votes:	22,783
Winner	22,531	98.89%	JILL BILLINGS 403 13TH ST S LA CROSSE WI 54601	Democrat
	252	1.11%	SCATTERING	
Office	ASSEMBLY - DISTRICT 96		Total Votes:	25,779
Winner	15,344	59.52%	LEE A. NERISON S3035 COUNTY ROAD B WESTBY WI 54667	Republican
	10,426	40.44%	TOM J. JOHNSON 1114 REBECCA ST VIROQUA WI 546658007	Democrat
	9	.03%	SCATTERING	
Office	ASSEMBLY - DISTRICT 97		Total Votes:	28,481
Winner	18,399	64.6%	BILL KRAMER 2005 CLIFF ALEX CT S APT 3 WAUKESHA WI 53189	Republican
	10,051	35.29%	MARGA KRUMINS 321 HARRISON AVE WAUKESHA WI 531866129	Democrat

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 97		Total Votes:	28,481
	31	.11%	SCATTERING	
Office	ASSEMBLY - DISTRICT 98		Total Votes:	32,187
Winner	22,665	70.42%	PAUL FARROW 245 HILLWOOD CT PEWAUKEE WI 53072	Republican
	9,503	29.52%	ERIC PRUDENT 206 N UNIVERSITY DR WAUKESHA WI 531884108	Democrat
	19	.06%	SCATTERING	
Office	ASSEMBLY - DISTRICT 99		Total Votes:	34,495
Winner	26,314	76.28%	CHRIS KAPENGA N9W31035 CONCORD CT DELAFIELD WI 53018	Republican
	8,166	23.67%	THOMAS D. HIBBARD N48 ST HIGHWAY 83 W31390 HARTLAND WI 53029	Democrat
	15	.04%	SCATTERING	
Office	District Attorney - Adams County		Total Votes:	4,702
Winner	4,672	99.36%	TANIA M. BONNETT 1887 LAKEVIEW DR FRIENDSHIP WI 539349631	Independent
	30	.64%	SCATTERING	
Office	District Attorney - Ashland County		Total Votes:	5,796
Winner	5,727	98.81%	KELLY J. MCKNIGHT 215 12TH ST W ASHLAND WI 548063122	Democrat
	69	1.19%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	District Attorney - Barron County			Total Votes:	16,968
Winner	16,730	98.6%	ANGELA L. BERANEK 1403 DUKE ST RICE LAKE WI 54868		Democrat
	238	1.4%	SCATTERING		
Office	District Attorney - Bayfield County			Total Votes:	9,236
	4,392	47.55%	CRAIG HAUKAAS 23540 CHERRYVILLE RD ASHLAND WI 548065671		Republican
Winner	4,833	52.33%	FREDERICK I. BOURG 14590 COUNTY HWY N DRUMMOND WI 548323622		Democrat
	11	.12%	SCATTERING		
Office	District Attorney - Brown County			Total Votes:	86,423
Winner	85,031	98.39%	DAVID L. LASEE 1339 EMILIE ST GREEN BAY WI 543013111		Republican
	1,392	1.61%	SCATTERING		
Office	District Attorney - Buffalo County			Total Votes:	5,147
Winner	5,104	99.16%	THOMAS CLARK 57 W 13TH ST BUFFALO WI 54622		Democrat
	43	.84%	SCATTERING		
Office	District Attorney - Burnett County			Total Votes:	6,091
Winner	6,041	99.18%	WILLIAM L. NORINE 513 N PINE ST GRANTSBURG WI 54840		Republican
	50	.82%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	District Attorney - Calumet County		Total Votes:	24,411
Winner	14,372	58.88%	NICHOLAS BOLZ W5460 HIDDEN TRAIL LN APPLETON WI 549155231	Republican
	10,010	41.01%	JERILYN DIETZ PO BOX 182 CHILTON WI 530140182	Independent
	29	.12%	SCATTERING	
Office	District Attorney - Chippewa County		Total Votes:	22,336
Winner	22,143	99.14%	STEVEN H. GIBBS 3320 172ND ST CHIPPEWA FLS WI 547295662	Republican
	193	.86%	SCATTERING	
Office	District Attorney - Clark County		Total Votes:	12,998
	5,377	41.37%	SHARI L. POST PO BOX 25 CHILI WI 544200025	Republican
Winner	7,615	58.59%	LYNDSEY BOON BRUNETTE W7928 CHILI RD NEILLSVILLE WI 544568806	Democrat
	6	.05%	SCATTERING	
Office	District Attorney - Columbia County		Total Votes:	20,584
Winner	20,051	97.41%	JANE E. KOHLWEY N2557 COUNTY ROAD C RIO WI 53960	Republican
	533	2.59%	SCATTERING	
Office	District Attorney - Crawford County		Total Votes:	5,818
Winner	5,782	99.38%	TIMOTHY C. BAXTER 57972 BRECKENRIDGE LN WAUZEKA WI 53826	Democrat
	36	.62%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	District Attorney - Dane County		Total Votes:	219,027
Winner	217,013	99.08%	ISMAEL OZANNE 210 S OWEN DR MADISON WI 537055037	Democrat
	2,014	.92%	SCATTERING	
Office	District Attorney - Dodge County		Total Votes:	34,963
Winner	34,630	99.05%	KURT F. KLOMBERG 218 FOX LAKE RD WAUPUN WI 539631754	Republican
	333	.95%	SCATTERING	
Office	District Attorney - Door County		Total Votes:	13,272
Winner	12,988	97.86%	RAYMOND L. PELRINE 10717 LITTLE SISTER RD SISTER BAY WI 542349184	Republican
	284	2.14%	SCATTERING	
Office	District Attorney - Douglas County		Total Votes:	17,485
Winner	17,237	98.58%	DANIEL W. BLANK 2328 HAMMOND AVE SUPERIOR WI 54880	Democrat
	248	1.42%	SCATTERING	
Office	District Attorney - Dunn County		Total Votes:	16,719
Winner	16,444	98.36%	JAMES M. PETERSON 3413 INGALLS RD MENOMONIE WI 54751	Republican
	275	1.64%	SCATTERING	
Office	District Attorney - Eau Claire County		Total Votes:	49,758
	23,266	46.76%	BRIAN H. WRIGHT 3727 ECHO VALLEY DR EAU CLAIRE WI 547012313	Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	District Attorney - Eau Claire County			Total Votes:	49,758
Winner	26,380	53.02%	GARY KING 1420 WEBSTER AVE EAU CLAIRE WI 547016586		Democrat
	112	.23%	SCATTERING		
Office	District Attorney - Florence County			Total Votes:	2,020
Winner	2,007	99.36%	DOUGLAS J. DREXLER 4030 W LAKE ELLWOOD RD FLORENCE WI 54121		Republican
	13	.64%	SCATTERING		
Office	District Attorney - Fond Du Lac County			Total Votes:	38,361
Winner	38,185	99.54%	ERIC TONEY N8191 ASHBERRY AVE FOND DU LAC WI 549376004		Republican
	176	.46%	SCATTERING		
Office	District Attorney - Forest County			Total Votes:	3,356
Winner	3,332	99.28%	CHUCK SIMONO 307 E GRANT ST CRANDON WI 54520		Democrat
	24	.72%	SCATTERING		
Office	District Attorney - Grant County			Total Votes:	17,315
Winner	17,088	98.69%	LISA A. RINIKER 3774 PLATTE RD PLATTEVILLE WI 53818		Republican
	227	1.31%	SCATTERING		
Office	District Attorney - Green County			Total Votes:	14,785
Winner	14,393	97.35%	GARY L. LUHMAN 1016 16TH AVE MONROE WI 53566		Republican

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	District Attorney - Green County		Total Votes:	14,785
	392	2.65%	SCATTERING	
Office	District Attorney - Green Lake County		Total Votes:	7,691
Winner	7,646	99.41%	KYLE SARGENT N4579 FOX RIVER DR PRINCETON WI 549688518	Republican
	45	.59%	SCATTERING	
Office	District Attorney - Iowa County		Total Votes:	9,606
Winner	9,522	99.13%	LARRY NELSON 1243 W LAKE RD MINERAL POINT WI 53565	Democrat
	84	.87%	SCATTERING	
Office	District Attorney - Iron County		Total Votes:	3,258
	1,626	49.91%	ANTHONY J. STELLA JR 13545 N COUNTY ROAD D HURLEY WI 545349131	Democrat
Winner	1,630	50.03%	MARTIN J. LIPSKE 13591 N COUNTY ROAD D HURLEY WI 54534	Independent
	2	.06%	SCATTERING	
Office	District Attorney - Jackson County		Total Votes:	7,507
Winner	7,451	99.25%	GERALD R. FOX N13014 COUNTY ROAD T FAIRCHILD WI 54741	Democrat
	56	.75%	SCATTERING	
Office	District Attorney - Jefferson County		Total Votes:	27,302
Winner	26,550	97.25%	SUSAN V. HAPP 633 N DEWEY AVE JEFFERSON WI 53459	Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	District Attorney - Jefferson County			Total Votes:	27,302
	752	2.75%	SCATTERING		
Office	District Attorney - Juneau County			Total Votes:	10,181
Winner	6,059	59.51%	MIKE SOLOVEY N5780 WOODLAND HILLS RD NEW LISBON WI 539509118		Republican
	4,070	39.98%	STACY SMITH MJJ-REGIONAL CTR WI		Independent
	52	.51%	SCATTERING		
Office	District Attorney - Kenosha County			Total Votes:	60,191
Winner	58,739	97.59%	ROBERT D. ZAPF 4920 17TH ST KENOSHA WI 53144		Democrat
	1,452	2.41%	SCATTERING		
Office	District Attorney - Kewaunee County			Total Votes:	8,404
Winner	8,313	98.92%	ANDREW NAZE 727 LOWELL RD LUXEMBURG WI 54217		Democrat
	91	1.08%	SCATTERING		
Office	District Attorney - La Crosse County			Total Votes:	46,489
Winner	46,127	99.22%	TIM GRUENKE 1009 REMINGTON DR HOLMEN WI 54636		Democrat
	362	.78%	SCATTERING		
Office	District Attorney - Lafayette County			Total Votes:	5,539
Winner	5,457	98.52%	KATE FINDLEY 530 E LOUISA ST DARLINGTON WI 535301458		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	District Attorney - Lafayette County		Total Votes:	5,539
	82	1.48%	SCATTERING	
Office	District Attorney - Langlade County		Total Votes:	6,886
Winner	6,742	97.91%	RALPH M. UTTKE W11296 LAMPLIGHT LN ANTIGO WI 54409	Democrat
	144	2.09%	SCATTERING	
Office	District Attorney - Lincoln County		Total Votes:	14,233
Winner	8,036	56.46%	DON DUNPHY W1412 1ST AVE GLEASON WI 54435	Republican
	6,172	43.36%	SIDNEY A. BRUBACHER 1909 N 10TH AVE APT 4 WAUSAU WI 544010820	Democrat
	25	.18%	SCATTERING	
Office	District Attorney - Manitowoc County		Total Votes:	30,634
Winner	30,391	99.21%	MARK ROHRER 2408 JEFFERSON ST TWO RIVERS WI 542412210	Democrat
	243	.79%	SCATTERING	
Office	District Attorney - Marathon County		Total Votes:	50,155
Winner	49,342	98.38%	KEN HEIMERMAN 1212 ARTHUR ST WAUSAU WI 544036634	Democrat
	813	1.62%	SCATTERING	
Office	District Attorney - Marinette County		Total Votes:	14,050
Winner	13,938	99.2%	ALLEN R. BREY 3009 RIVERSIDE AVE MARINETTE WI 54143	Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	District Attorney - Marinette County			Total Votes:	14,050
	112	.8%	SCATTERING		
Office	District Attorney - Marquette County			Total Votes:	5,843
Winner	5,800	99.26%	CHAD A. HENDEE W6766 COUNTY ROAD D OXFORD WI 539528934		Republican
	43	.74%	SCATTERING		
Office	District Attorney - Menominee-Shawano County			Total Votes:	15,031
Winner	14,929	99.32%	GREG PARKER 121 GANNON CT SHAWANO WI 54166		Republican
	102	.68%	SCATTERING		
Office	District Attorney - Milwaukee County			Total Votes:	302,998
Winner	297,883	98.31%	JOHN T. CHISHOLM 3411 S ILLINOIS AVE MILWAUKEE WI 53207		Democrat
	5,115	1.69%	SCATTERING		
Office	District Attorney - Monroe County			Total Votes:	14,762
Winner	14,574	98.73%	DAN CARY 902 ROSE ST CASHTON WI 54619		Republican
	188	1.27%	SCATTERING		
Office	District Attorney - Oconto County			Total Votes:	18,506
Winner	10,793	58.32%	ED BURKE 4721 BELL BRIDGE RD OCONTO WI 541539271		Republican
	7,673	41.46%	JOHN A. EVANS 4984 CRAWFORD RD OCONTO WI 541539404		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	District Attorney - Oconto County		Total Votes:	18,506
	27	.15%	BRENT DEBORD (WRITE-IN) 150 LUBY AVE OCONTO WI 541531923	Democrat
	13	.07%	SCATTERING	
Office	District Attorney - Oneida County		Total Votes:	20,399
Winner	11,026	54.05%	MICHAEL W. SCHIEK 4173 PINE POINT DR RHINELANDER WI 545019389	Republican
	9,353	45.85%	SCOTT MOLLER	Democrat
	20	.1%	SCATTERING	
Office	District Attorney - Outagamie County		Total Votes:	66,429
Winner	65,724	98.94%	CARRIE SCHNEIDER 320 S WALNUT ST APPLETON WI 54911	Republican
	705	1.06%	SCATTERING	
Office	District Attorney - Ozaukee County		Total Votes:	43,005
Winner	42,410	98.62%	ADAM Y. GEROL 11067 N ORIOLE LN MEQUON WI 530924915	Republican
	595	1.38%	SCATTERING	
Office	District Attorney - Pepin County		Total Votes:	2,912
Winner	2,884	99.04%	JON D. SEIFERT N1501 BUCK LN PEPIN WI 54759	Democrat
	28	.96%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	District Attorney - Pierce County			Total Votes:	15,854
Winner	15,616	98.5%	SEAN FROELICH 217 5TH ST RIVER FALLS WI 540222416		Democrat
	238	1.5%	SCATTERING		
Office	District Attorney - Polk County			Total Votes:	17,346
Winner	17,105	98.61%	DAN STEFFEN 2398 10TH AVE OSCEOLA WI 54020		Democrat
	241	1.39%	SCATTERING		
Office	District Attorney - Portage County			Total Votes:	28,032
Winner	27,308	97.42%	LOUIS JOHN MOLEPSKE, JR. 1800 MAIN ST STEVENS POINT WI 54481		Democrat
	724	2.58%	SCATTERING		
Office	District Attorney - Price County			Total Votes:	5,672
Winner	5,619	99.07%	MARK T. FUHR N9531 WESTVIEW RD PHILLIPS WI 54555		Democrat
	53	.93%	SCATTERING		
Office	District Attorney - Racine County			Total Votes:	60,886
Winner	60,277	99%	W. RICHARD CHIAPETE 3100 CHATHAM ST RACINE WI 534024004		Republican
	609	1%	SCATTERING		
Office	District Attorney - Richland County			Total Votes:	5,877
Winner	5,851	99.56%	JENNIFER HARPER 18780 COUNTY HWY BR RICHLAND CTR WI 535816218		Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	District Attorney - Richland County			Total Votes:	5,877
	26	.44%	SCATTERING		
Office	District Attorney - Rock County			Total Votes:	60,820
Winner	60,123	98.85%	DAVID J. O'LEARY 2930 YALE DR JANESVILLE WI 53548		Democrat
	697	1.15%	SCATTERING		
Office	District Attorney - Rusk County			Total Votes:	5,097
Winner	5,041	98.9%	ANDREA NODOLF 720 W COLUMBIA ST CHIPPEWA FLS WI 547292104		Republican
	56	1.1%	SCATTERING		
Office	District Attorney - Saint Croix County			Total Votes:	38,311
Winner	37,598	98.14%	ERIC G. JOHNSON 205 STATION CIR N HUDSON WI 54016		Republican
	713	1.86%	SCATTERING		
Office	District Attorney - Sauk County			Total Votes:	22,816
Winner	22,525	98.72%	KEVIN R. CALKINS 844 SEQUOIA CIR BARABOO WI 539131274		Republican
	291	1.28%	SCATTERING		
Office	District Attorney - Sawyer County			Total Votes:	5,905
Winner	5,849	99.05%	BRUCE R. POQUETTE 10689 N NAMEKAGON TRL HAYWARD WI 548436442		Republican
	56	.95%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	District Attorney - Sheboygan County		Total Votes:	46,402
Winner	45,823	98.75%	JOE DECECCO 7136 MOENNING RD SHEBOYGAN WI 530818805	Democrat
	579	1.25%	SCATTERING	
Office	District Attorney - Taylor County		Total Votes:	9,261
	4,177	45.1%	KARL J. KELZ 211 N 4TH ST MEDFORD WI 54451	Republican
Winner	5,084	54.9%	KRISTI S. TLUSTY 545 GRAHL ST MEDFORD WI 544511240	Democrat
	0	0%	SCATTERING	
Office	District Attorney - Trempealeau County		Total Votes:	10,109
Winner	10,030	99.22%	TAAVI MCMAHON 16898 S DAVIS ST GALESVILLE WI 546302206	Democrat
	79	.78%	SCATTERING	
Office	District Attorney - Vernon County		Total Votes:	10,717
Winner	10,640	99.28%	TIMOTHY J. GASKELL 602 S MAIN ST WESTBY WI 54667	Republican
	77	.72%	SCATTERING	
Office	District Attorney - Vilas County		Total Votes:	10,457
Winner	10,178	97.33%	ALBERT D. MOUSTAKIS 2707 DEERSKIN PARK RD EAGLE RIVER WI 54521	Republican
	279	2.67%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	District Attorney - Walworth County			Total Votes:	40,973
Winner	39,825	97.2%	DAN NECCI 924 CENTER ST DELAVAN WI 53115		Republican
	1,148	2.8%	SCATTERING		
Office	District Attorney - Washburn County			Total Votes:	7,059
Winner	7,014	99.36%	J. MICHAEL BITNEY N5552 BUCKINGHAM SPOONER WI 54801		Republican
	45	.64%	SCATTERING		
Office	District Attorney - Washington County			Total Votes:	64,420
Winner	63,856	99.12%	MARK D. BENSEN 5423 SILVER LAKE DR WEST BEND WI 530958714		Republican
	564	.88%	SCATTERING		
Office	District Attorney - Waukesha County			Total Votes:	159,575
Winner	158,479	99.31%	BRAD SCHIMEL W265 JAMIE COURT S2609 WAUKESHA WI 53188		Republican
	1,096	.69%	SCATTERING		
Office	District Attorney - Waupaca County			Total Votes:	19,030
Winner	18,899	99.31%	JOHN P. SNIDER 406 E LAKE ST WAUPACA WI 54982		Republican
	131	.69%	SCATTERING		
Office	District Attorney - Waushara County			Total Votes:	9,375
Winner	9,302	99.22%	SCOTT C. BLADER W8210 CYPRESS LN WAUTOMA WI 54982		Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	District Attorney - Waushara County			Total Votes:	9,375
	73	.78%	SCATTERING		
Office	District Attorney - Winnebago County			Total Votes:	67,862
Winner	66,277	97.66%	CHRISTIAN A. GOSSETT 885 ADAMS AVE OSHKOSH WI 54902		Republican
	1,585	2.34%	SCATTERING		
Office	District Attorney - Wood County			Total Votes:	28,238
Winner	27,995	99.14%	CRAIG LAMBERT 711 ELM ST WISC RAPIDS WI 544944323		Republican
	243	.86%	SCATTERING		
Office	WESTERN TECHNICAL COLLEGE DISTRICT REFERENDUM			Total Votes:	117,656
Winner	63,715	54.15%	YES		
	53,941	45.85%	NO		
Office	STATE SENATE - DISTRICT 33			Total Votes:	61,345
Winner	31,927	52.32%	PAUL FARROW 245 HILLWOOD CT PEWAUKEE WI 53072		Republican
	29,027	47.57%	CHRIS KAPENGA N9 CONCORD CT W31035 DELAFIELD WI 53018		Republican
	69	.11%	SCATTERING		
Winner	292	100%	SCATTERING		
Winner	14	100%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	STATE SENATE - DISTRICT 33		Total Votes:	61,345
Winner	16	100%	SCATTERING	

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District	Pop	Dev	% Dev	dhat_open	Dem %	rhat_open	Rep %	D Lost	R Lost	D Surplus	R Surplus	D Wasted	R Wasted	R-D Net	Rep Win
1	57220	-224	-0.39%	16,235	0.49402	16,628	0.50598	16235	-	-	197	16,235	197	16,038	1
2	57649	205	0.36%	12,398	0.431159	16,357	0.568841	12398	-	-	1,980	12,398	1,980	10,419	1
3	57444	0	0.00%	12,623	0.431425	16,636	0.568575	12623	-	-	2,006	12,623	2,006	10,617	1
4	57486	42	0.07%	13,926	0.472034	15,576	0.527966	13926	-	-	825	13,926	825	13,101	1
5	57470	26	0.05%	12,710	0.442439	16,017	0.557561	12710	-	-	1,654	12,710	1,654	11,056	1
6	57505	61	0.11%	10,929	0.422505	14,938	0.577495	10929	-	-	2,005	10,929	2,005	8,924	1
7	57498	54	0.09%	13,793	0.539399	11,778	0.460601	0	11,778	1,007	-	1,007	11,778	(10,771)	0
8	57196	-248	-0.43%	7,342	0.808608	1,738	0.191392	0	1,738	2,802	-	2,802	1,738	1,064	0
9	57283	-161	-0.28%	10,023	0.688604	4,533	0.311396	0	4,533	2,745	-	2,745	4,533	(1,787)	0
10	57428	-16	-0.03%	25,306	0.897289	2,897	0.102711	0	2,897	11,205	-	11,205	2,897	8,308	0
11	57503	59	0.10%	21,698	0.865628	3,368	0.134372	0	3,368	9,165	-	9,165	3,368	5,797	0
12	57494	50	0.09%	19,700	0.79048	5,222	0.20952	0	5,222	7,239	-	7,239	5,222	2,018	0
13	57452	8	0.01%	13,345	0.39597	20,358	0.60403	13345	-	-	3,506	13,345	3,506	9,839	1
14	57597	153	0.27%	14,499	0.408139	21,025	0.591861	14499	-	-	3,263	14,499	3,263	11,235	1
15	57372	-72	-0.13%	13,006	0.429006	17,310	0.570994	13006	-	-	2,152	13,006	2,152	10,853	1
16	57458	14	0.02%	22,293	0.904922	2,342	0.095078	0	2,342	9,975	-	9,975	2,342	7,633	0
17	57354	-90	-0.16%	24,088	0.856153	4,047	0.143847	0	4,047	10,020	-	10,020	4,047	5,973	0
18	57480	36	0.06%	22,204	0.891874	2,692	0.108126	0	2,692	9,756	-	9,756	2,692	7,064	0
19	57546	102	0.18%	22,759	0.687113	10,364	0.312887	0	10,364	6,198	-	6,198	10,364	(4,166)	0
20	57428	-16	-0.03%	16,066	0.555485	12,856	0.444515	0	12,856	1,605	-	1,605	12,856	(11,252)	0
21	57449	5	0.01%	12,566	0.450565	15,324	0.549435	12566	-	-	1,379	12,566	1,379	11,187	1
22	57495	51	0.09%	11,290	0.329657	22,958	0.670343	11290	-	-	5,834	11,290	5,834	5,456	1
23	57579	135	0.24%	14,260	0.397291	21,633	0.602709	14260	-	-	3,687	14,260	3,687	10,573	1
24	57282	-162	-0.28%	13,885	0.405749	20,335	0.594251	13885	-	-	3,225	13,885	3,225	10,659	1
25	57322	-122	-0.21%	12,032	0.430255	15,933	0.569745	12032	-	-	1,950	12,032	1,950	10,082	1
26	57581	137	0.24%	13,639	0.467121	15,559	0.532879	13639	-	-	960	13,639	960	12,679	1
27	57536	92	0.16%	14,709	0.473423	16,360	0.526577	14709	-	-	826	14,709	826	13,883	1
28	57467	23	0.04%	12,719	0.453914	15,302	0.546086	12719	-	-	1,291	12,719	1,291	11,428	1
29	57537	93	0.16%	12,909	0.468215	14,662	0.531785	12909	-	-	876	12,909	876	12,033	1
30	57241	-203	-0.35%	14,019	0.452666	16,951	0.547334	14019	-	-	1,466	14,019	1,466	12,553	1
31	57240	-204	-0.36%	13,273	0.459469	15,615	0.540531	13273	-	-	1,171	13,273	1,171	12,102	1
32	57524	80	0.14%	11,255	0.422892	15,359	0.577108	11255	-	-	2,052	11,255	2,052	9,203	1
33	57565	121	0.21%	11,226	0.380229	18,298	0.619771	11226	-	-	3,536	11,226	3,536	7,690	1
34	57387	-57	-0.10%	12,445	0.391359	19,355	0.608641	12445	-	-	3,455	12,445	3,455	8,991	1
35	57562	118	0.21%	12,270	0.441447	15,525	0.558553	12270	-	-	1,628	12,270	1,628	10,643	1
36	57432	-12	-0.02%	11,403	0.421178	15,672	0.578822	11403	-	-	2,134	11,403	2,134	9,269	1
37	57507	63	0.11%	12,707	0.439556	16,202	0.560444	12707	-	-	1,747	12,707	1,747	10,960	1

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District	Pop	Dev	% Dev	dhat_open	Dem %	rhat_open	Rep %	D Lost	R Lost	D Surplus	R Surplus	D Wasted	R Wasted	R-D Net	Rep Win
38	57493	49	0.09%	12,668	0.398397	19,129	0.601603	12668	-	-	3,231	12,668	3,231	9,437	1
39	57387	-57	-0.10%	11,491	0.400349	17,211	0.599651	11491	-	-	2,860	11,491	2,860	8,630	1
40	57366	-78	-0.14%	11,485	0.457903	13,597	0.542097	11485	-	-	1,056	11,485	1,056	10,429	1
41	57337	-107	-0.19%	11,719	0.447095	14,492	0.552905	11719	-	-	1,387	11,719	1,387	10,332	1
42	57285	-159	-0.28%	13,705	0.469871	15,462	0.530129	13705	-	-	879	13,705	879	12,826	1
43	57443	-1	0.00%	17,380	0.57068	13,075	0.42932	0	13,075	2,153	-	2,153	13,075	(10,923)	0
44	57395	-49	-0.09%	16,680	0.618152	10,304	0.381848	0	10,304	3,188	-	3,188	10,304	(7,116)	0
45	57658	214	0.37%	15,153	0.609941	9,691	0.390059	0	9,691	2,731	-	2,731	9,691	(6,959)	0
46	57458	14	0.02%	19,173	0.624385	11,534	0.375615	0	11,534	3,819	-	3,819	11,534	(7,714)	0
47	57465	21	0.04%	21,609	0.698214	9,340	0.301786	0	9,340	6,135	-	6,135	9,340	(3,205)	0
48	57506	62	0.11%	24,517	0.762539	7,635	0.237461	0	7,635	8,441	-	8,441	7,635	806	0
49	57346	-98	-0.17%	12,307	0.474661	13,621	0.525339	12307	-	-	657	12,307	657	11,650	1
50	57624	180	0.31%	12,467	0.502844	12,326	0.497156	0	12,326	71	-	71	12,326	(12,256)	0
51	57580	136	0.24%	14,173	0.520666	13,048	0.479334	0	13,048	563	-	563	13,048	(12,485)	0
52	57232	-212	-0.37%	11,294	0.419067	15,656	0.580933	11294	-	-	2,181	11,294	2,181	9,113	1
53	57240	-204	-0.36%	9,875	0.37086	16,753	0.62914	9875	-	-	3,439	9,875	3,439	6,437	1
54	57250	-194	-0.34%	15,180	0.540935	12,882	0.459065	0	12,882	1,149	-	1,149	12,882	(11,733)	0
55	57493	49	0.09%	12,634	0.426748	16,971	0.573252	12634	-	-	2,169	12,634	2,169	10,465	1
56	57582	138	0.24%	12,564	0.403477	18,576	0.596523	12564	-	-	3,006	12,564	3,006	9,559	1
57	57501	57	0.10%	14,387	0.551995	11,676	0.448005	0	11,676	1,355	-	1,355	11,676	(10,321)	0
58	57227	-217	-0.38%	8,843	0.282875	22,417	0.717125	8843	-	-	6,787	8,843	6,787	2,055	1
59	57391	-53	-0.09%	8,784	0.287912	21,725	0.712088	8784	-	-	6,471	8,784	6,471	2,313	1
60	57385	-59	-0.10%	9,848	0.291044	23,989	0.708956	9848	-	-	7,071	9,848	7,071	2,778	1
61	57614	170	0.30%	13,145	0.44369	16,481	0.55631	13145	-	-	1,668	13,145	1,668	11,477	1
62	57345	-99	-0.17%	14,828	0.461406	17,309	0.538594	14828	-	-	1,240	14,828	1,240	13,588	1
63	57365	-79	-0.14%	13,233	0.440164	16,830	0.559836	13233	-	-	1,799	13,233	1,799	11,434	1
64	57270	-174	-0.30%	15,702	0.581374	11,307	0.418626	0	11,307	2,198	-	2,198	11,307	(9,109)	0
65	57455	11	0.02%	15,105	0.655765	7,929	0.344235	0	7,929	3,588	-	3,588	7,929	(4,341)	0
66	57545	101	0.18%	16,162	0.747076	5,472	0.252924	0	5,472	5,345	-	5,345	5,472	(127)	0
67	57239	-205	-0.36%	13,769	0.484078	14,674	0.515922	13769	-	-	453	13,769	453	13,316	1
68	57261	-183	-0.32%	13,663	0.512334	13,005	0.487666	0	13,005	329	-	329	13,005	(12,676)	0
69	57649	205	0.36%	11,083	0.435819	14,347	0.564181	11083	-	-	1,632	11,083	1,632	9,451	1
70	57552	108	0.19%	12,211	0.459086	14,387	0.540914	12211	-	-	1,088	12,211	1,088	11,123	1
71	57519	75	0.13%	17,614	0.60744	11,383	0.39256	0	11,383	3,115	-	3,115	11,383	(8,267)	0
72	57449	5	0.01%	14,294	0.50707	13,895	0.49293	0	13,895	199	-	199	13,895	(13,696)	0
73	57453	9	0.02%	17,353	0.616729	10,784	0.383271	0	10,784	3,284	-	3,284	10,784	(7,500)	0
74	57494	50	0.09%	17,095	0.553832	13,772	0.446168	0	13,772	1,662	-	1,662	13,772	(12,110)	0

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District	Pop	Dev	% Dev	dhat_open	Dem %	rhat_open	Rep %	D Lost	R Lost	D Surplus	R Surplus	D Wasted	R Wasted	R-D Net	Rep Win
75	57462	18	0.03%	15,000	0.527835	13,418	0.472165	0	13,418	791	-	791	13,418	(12,627)	0
76	57617	173	0.30%	30,939	0.819701	6,805	0.180299	0	6,805	12,067	-	12,067	6,805	5,262	0
77	57433	-11	-0.02%	26,925	0.816763	6,041	0.183237	0	6,041	10,442	-	10,442	6,041	4,402	0
78	57546	102	0.18%	24,163	0.710254	9,857	0.289746	0	9,857	7,153	-	7,153	9,857	(2,704)	0
79	57461	17	0.03%	20,753	0.59759	13,975	0.40241	0	13,975	3,389	-	3,389	13,975	(10,586)	0
80	57585	141	0.25%	20,369	0.617747	12,604	0.382253	0	12,604	3,882	-	3,882	12,604	(8,722)	0
81	57403	-41	-0.07%	16,310	0.56896	12,356	0.43104	0	12,356	1,977	-	1,977	12,356	(10,379)	0
82	57430	-14	-0.02%	12,168	0.402209	18,085	0.597791	12168	-	-	2,959	12,168	2,959	9,210	1
83	57423	-21	-0.04%	10,186	0.300106	23,755	0.699894	10186	-	-	6,784	10,186	6,784	3,401	1
84	57365	-79	-0.14%	12,503	0.399877	18,765	0.600123	12503	-	-	3,131	12,503	3,131	9,373	1
85	57480	36	0.06%	13,613	0.512962	12,925	0.487038	0	12,925	344	-	344	12,925	(12,581)	0
86	57454	10	0.02%	13,425	0.439056	17,152	0.560944	13425	-	-	1,863	13,425	1,863	11,561	1
87	57358	-86	-0.15%	11,780	0.437956	15,118	0.562044	11780	-	-	1,669	11,780	1,669	10,111	1
88	57556	112	0.20%	13,141	0.477489	14,380	0.522511	13141	-	-	620	13,141	620	12,521	1
89	57634	190	0.33%	11,610	0.42801	15,516	0.57199	11610	-	-	1,953	11,610	1,953	9,658	1
90	57608	164	0.29%	12,080	0.623026	7,309	0.376974	0	7,309	2,385	-	2,385	7,309	(4,924)	0
91	57359	-85	-0.15%	17,942	0.603883	11,769	0.396117	0	11,769	3,086	-	3,086	11,769	(8,683)	0
92	57431	-13	-0.02%	14,285	0.555278	11,441	0.444722	0	11,441	1,422	-	1,422	11,441	(10,019)	0
93	57548	104	0.18%	15,268	0.497965	15,393	0.502035	15268	-	-	62	15,268	62	15,206	1
94	57266	-178	-0.31%	17,408	0.573345	12,954	0.426655	0	12,954	2,227	-	2,227	12,954	(10,727)	0
95	57372	-72	-0.13%	19,804	0.672888	9,627	0.327112	0	9,627	5,088	-	5,088	9,627	(4,539)	0
96	57484	40	0.07%	10,950	0.424041	14,873	0.575959	10950	-	-	1,962	10,950	1,962	8,989	1
97	57279	-165	-0.29%	10,826	0.375032	18,042	0.624968	10826	-	-	3,608	10,826	3,608	7,219	1
98	57513	69	0.12%	10,182	0.317822	21,855	0.682178	10182	-	-	5,837	10,182	5,837	4,346	1
99	57496	52	0.09%	8,346	0.246334	25,535	0.753666	8346	-	-	8,594	8,346	8,594	(248)	1
				1,454,717		1,389,958		702,148	401,975	175,297	142,918	877,445	544,893	332,552	57
														11.690%	

Final Map

Assembly				Senate			
DISTRICT	Current	New	Delta	DISTRICT	Current	New	Delta
1	51.15%	51.22%	0.07%	1	54.04%	53.73%	-0.31%
2	54.93%	54.84%	-0.09%				
3	56.10%	55.58%	-0.52%				
4	53.31%	53.47%	0.16%	2	55.44%	55.23%	-0.21%
5	53.74%	54.28%	0.54%				
6	59.77%	58.33%	-1.44%				
7	48.20%	45.38%	-2.82%	3	40.52%	38.12%	-2.40%
8	22.39%	30.48%	8.09%				
9	36.73%	29.14%	-7.59%				
10	10.27%	12.59%	2.32%	4	17.58%	19.63%	2.05%
11	11.91%	19.58%	7.67%				
12	29.23%	27.51%	-1.72%				
13	43.67%	58.67%	15.00%	5	50.62%	57.72%	7.10%
14	59.06%	58.64%	-0.42%				
15	48.21%	55.48%	7.27%				
16	14.21%	10.54%	-3.67%	6	14.12%	15.55%	1.43%
17	13.21%	19.84%	6.63%				
18	15.28%	14.94%	-0.34%				
19	29.15%	28.03%	-1.12%	7	41.13%	40.53%	-0.60%
20	43.71%	43.12%	-0.59%				
21	51.92%	52.94%	1.02%				
22	39.05%	66.82%	27.77%	8	52.82%	60.88%	8.06%
23	51.70%	57.64%	5.94%				
24	67.29%	58.49%	-8.80%				
25	52.79%	53.26%	0.47%	9	52.96%	55.19%	2.23%
26	45.42%	55.97%	10.55%				
27	59.20%	56.19%	-3.01%				
28	54.85%	55.00%	0.15%	10	53.14%	53.32%	0.18%
29	51.32%	50.97%	-0.35%				
30	53.29%	53.78%	0.49%				
31	67.57%	56.33%	-11.24%	11	67.64%	60.13%	-7.51%
32	61.06%	62.27%	1.21%				
33	72.24%	61.81%	-10.43%				
34	54.51%	55.22%	0.71%	12	53.37%	54.39%	1.02%
35	52.30%	52.99%	0.69%				
36	53.06%	54.84%	1.78%				
37	51.33%	58.11%	6.78%	13	59.22%	60.17%	0.95%
38	65.80%	60.45%	-5.35%				
39	60.35%	62.00%	1.65%				
40	58.50%	58.07%	-0.43%	14	55.86%	56.02%	0.16%
41	60.60%	55.16%	-5.44%				
42	48.54%	54.94%	6.40%				
43	44.14%	43.06%	-1.08%	15	41.20%	40.17%	-1.03%
44	36.74%	37.22%	0.48%				
45	42.39%	40.08%	-2.31%				
46	42.07%	42.39%	0.32%	16	39.06%	34.13%	-4.93%
47	48.69%	33.35%	-15.34%				
48	28.03%	27.56%	-0.47%				
49	49.68%	49.59%	-0.09%	17	48.46%	49.23%	0.77%
50	52.08%	52.06%	-0.02%				
51	44.01%	46.23%	2.22%				
52	57.39%	59.06%	1.67%	18	54.96%	55.01%	0.05%
53	62.74%	61.85%	-0.89%				
54	45.08%	45.22%	0.14%				
55	49.34%	55.06%	5.72%	19	53.32%	53.02%	-0.30%
56	61.05%	58.86%	-2.19%				
57	47.26%	44.50%	-2.76%				
58	70.90%	70.54%	-0.36%	20	70.55%	69.46%	-1.09%
59	72.74%	68.31%	-4.43%				
60	68.12%	69.52%	1.40%				
61	35.98%	57.22%	21.24%	21	49.86%	57.77%	7.91%
62	44.35%	56.56%	12.21%				
63	63.09%	59.64%	-3.45%				
64	35.66%	42.72%	7.06%	22	47.56%	36.97%	-10.59%
65	45.44%	35.92%	-9.52%				
66	59.12%	31.71%	-27.41%				
67	51.72%	51.67%	-0.05%	23	49.98%	51.75%	1.77%
68	45.01%	49.38%	4.37%				
69	54.06%	54.16%	0.10%				
70	49.74%	50.73%	0.99%	24	46.72%	47.51%	0.79%
71	41.68%	40.72%	-0.96%				
72	49.03%	51.49%	2.46%				
73	39.55%	40.16%	0.61%	25	44.88%	44.88%	0.00%
74	43.78%	42.89%	-0.89%				
75	51.71%	52.18%	0.47%				
76	24.29%	14.49%	-9.80%	26	20.85%	20.98%	0.13%
77	23.88%	19.23%	-4.65%				
78	14.09%	30.84%	16.75%				
79	37.49%	41.80%	4.31%	27	38.38%	41.49%	3.11%
80	42.15%	38.55%	-3.60%				
81	36.16%	44.56%	8.40%				
82	58.59%	57.08%	-1.51%	28	64.48%	60.93%	-3.55%
83	69.70%	68.31%	-1.39%				
84	64.99%	57.10%	-7.89%				
85	48.91%	48.38%	-0.53%	29	52.00%	52.47%	0.47%
86	54.56%	55.08%	0.52%				
87	52.16%	53.74%	1.58%				
88	44.85%	53.19%	8.34%	30	50.38%	50.55%	0.17%
89	55.76%	55.73%	-0.03%				
90	49.59%	40.40%	-9.19%				
91	45.87%	39.57%	-6.30%	31	46.89%	44.94%	-1.95%
92	50.79%	44.30%	-6.49%				
93	44.73%	51.10%	6.37%				
94	51.57%	51.91%	0.34%	32	44.43%	44.63%	0.20%
95	36.02%	36.36%	0.34%				
96	45.32%	46.40%	1.08%				
97	59.96%	62.91%	2.95%	33	68.84%	68.60%	-0.24%
98	70.96%	67.02%	-3.94%				
99	73.35%	74.85%	1.50%				

Current Map	Assembly	Senate
Strong GOP (55%+)	27	7
Lean GOP (52.1-54.9%):	13	8
Total GOP Seats (strong + lean):	40	15
Swing (48-52%):	19	5
Lean DEM (45.1-47.9%):	7	3
Strong DEM (-45%):	33	10
Total DEM Seats (strong + lean):	40	13

New Map	Assembly	Senate
Strong GOP (55%+)	38	12
New Lean GOP (52.1-54.9%):	14	5
Total GOP Seats (strong + lean):	52	17
New Swing (48-52%)	10	3
New Lean DEM (45.1-47.9%):	4	1
Strong DEM (-45%):	33	12
Total DEM Seats (strong + lean):	37	13

EXHIBIT
Mayer
7
LC 11-9-15
PENGAD 800-631-6989

Gaddie Metric

District	Pop	Dev	% Dev	Predicted Dem Votes	Dem %	Predicted Rep Votes	Rep %	D Lost	R Lost	D Surplus	R Surplus	D Wasted	R Wasted	R-D Net	Rep Win
1	57220	-224	-0.39%	15,857	0.4878	16,651	0.5122	15857	-	-	397	15,857	397	15,461	1
2	57649	205	0.36%	12,983	0.4516	15,766	0.5484	12983	-	-	1,391	12,983	1,391	11,591	1
3	57444	0	0.00%	12,976	0.4442	16,236	0.5558	12976	-	-	1,630	12,976	1,630	11,346	1
4	57486	42	0.07%	13,742	0.4653	15,791	0.5347	13742	-	-	1,025	13,742	1,025	12,717	1
5	57470	26	0.05%	13,134	0.4572	15,593	0.5428	13134	-	-	1,230	13,134	1,230	11,904	1
6	57505	61	0.11%	10,779	0.4167	15,088	0.5833	10779	-	-	2,155	10,779	2,155	8,624	1
7	57498	54	0.09%	13,967	0.5462	11,604	0.4538	0	11,604	1,181	-	1,181	11,604	(10,423)	0
8	57196	-248	-0.43%	6,178	0.6952	2,709	0.3048	0	2,709	1,735	-	1,735	2,709	(974)	0
9	57283	-161	-0.28%	10,173	0.7086	4,184	0.2914	0	4,184	2,995	-	2,995	4,184	(1,189)	0
10	57428	-16	-0.03%	24,623	0.8741	3,547	0.1259	0	3,547	10,538	-	10,538	3,547	6,992	0
11	57503	59	0.10%	20,235	0.8042	4,927	0.1958	0	4,927	7,654	-	7,654	4,927	2,728	0
12	57494	50	0.09%	18,066	0.7249	6,856	0.2751	0	6,856	5,605	-	5,605	6,856	(1,251)	0
13	57452	8	0.01%	13,929	0.4133	19,774	0.5867	13929	-	-	2,922	13,929	2,922	11,007	1
14	57597	153	0.27%	14,693	0.4136	20,831	0.5864	14693	-	-	3,069	14,693	3,069	11,624	1
15	57372	-72	-0.13%	13,497	0.4452	16,819	0.5548	13497	-	-	1,661	13,497	1,661	11,835	1
16	57458	14	0.02%	22,223	0.8946	2,618	0.1054	0	2,618	9,803	-	9,803	2,618	7,184	0
17	57354	-90	-0.16%	22,553	0.8016	5,582	0.1984	0	5,582	8,486	-	8,486	5,582	2,904	0
18	57480	36	0.06%	21,176	0.8506	3,719	0.1494	0	3,719	8,728	-	8,728	3,719	5,009	0
19	57546	102	0.18%	23,838	0.7197	9,284	0.2803	0	9,284	7,277	-	7,277	9,284	(2,007)	0
20	57428	-16	-0.03%	16,451	0.5688	12,471	0.4312	0	12,471	1,990	-	1,990	12,471	(10,482)	0
21	57449	5	0.01%	13,125	0.4706	14,765	0.5294	13125	-	-	820	13,125	820	12,305	1
22	57495	51	0.09%	11,364	0.3318	22,885	0.6682	11364	-	-	5,761	11,364	5,761	5,603	1
23	57579	135	0.24%	15,182	0.4236	20,658	0.5764	15182	-	-	2,738	15,182	2,738	12,444	1
24	57282	-162	-0.28%	14,205	0.4151	20,015	0.5849	14205	-	-	2,905	14,205	2,905	11,299	1
25	57322	-122	-0.21%	13,065	0.4674	14,887	0.5326	13065	-	-	911	13,065	911	12,154	1
26	57581	137	0.24%	12,853	0.4403	16,338	0.5597	12853	-	-	1,743	12,853	1,743	11,110	1
27	57536	92	0.16%	13,611	0.4381	17,458	0.5619	13611	-	-	1,923	13,611	1,923	11,688	1
28	57467	23	0.04%	12,609	0.45	15,412	0.55	12609	-	-	1,401	12,609	1,401	11,208	1
29	57537	93	0.16%	13,519	0.4903	14,054	0.5097	13519	-	-	267	13,519	267	13,251	1
30	57241	-203	-0.35%	14,267	0.4622	16,601	0.5378	14267	-	-	1,167	14,267	1,167	13,101	1
31	57240	-204	-0.36%	12,616	0.4367	16,273	0.5633	12616	-	-	1,829	12,616	1,829	10,787	1
32	57524	80	0.14%	10,038	0.3773	16,566	0.6227	10038	-	-	3,264	10,038	3,264	6,773	1
33	57565	121	0.21%	11,274	0.3819	18,247	0.6181	11274	-	-	3,487	11,274	3,487	7,788	1
34	57387	-57	-0.10%	14,239	0.4478	17,558	0.5522	14239	-	-	1,660	14,239	1,660	12,579	1

Gaddie Metric

District	Pop	Dev	% Dev	Predicted Dem Votes	Dem %	Predicted Rep Votes	Rep %	D Lost	R Lost	D Surplus	R Surplus	D Wasted	R Wasted	R-D Net	Rep Win
35	57562	118	0.21%	13,067	0.4701	14,729	0.5299	13067	-	-	831	13,067	831	12,236	1
36	57432	-12	-0.02%	12,227	0.4516	14,848	0.5484	12227	-	-	1,310	12,227	1,310	10,917	1
37	57507	63	0.11%	12,110	0.4189	16,799	0.5811	12110	-	-	2,345	12,110	2,345	9,766	1
38	57493	49	0.09%	12,574	0.3955	19,218	0.6045	12574	-	-	3,322	12,574	3,322	9,251	1
39	57387	-57	-0.10%	10,899	0.38	17,782	0.62	10899	-	-	3,442	10,899	3,442	7,457	1
40	57366	-78	-0.14%	10,514	0.4193	14,561	0.5807	10514	-	-	2,024	10,514	2,024	8,490	1
41	57337	-107	-0.19%	11,761	0.4484	14,467	0.5516	11761	-	-	1,353	11,761	1,353	10,407	1
42	57285	-159	-0.28%	13,152	0.4506	16,036	0.5494	13152	-	-	1,442	13,152	1,442	11,710	1
43	57443	-1	0.00%	17,339	0.5694	13,113	0.4306	0	13,113	2,113	-	2,113	13,113	(10,999)	0
44	57395	-49	-0.09%	16,941	0.6278	10,043	0.3722	0	10,043	3,449	-	3,449	10,043	(6,595)	0
45	57658	214	0.37%	14,886	0.5992	9,957	0.4008	0	9,957	2,464	-	2,464	9,957	(7,493)	0
46	57458	14	0.02%	17,681	0.5761	13,010	0.4239	0	13,010	2,336	-	2,336	13,010	(10,674)	0
47	57465	21	0.04%	20,628	0.6665	10,322	0.3335	0	10,322	5,153	-	5,153	10,322	(5,169)	0
48	57506	62	0.11%	23,290	0.7244	8,861	0.2756	0	8,861	7,215	-	7,215	8,861	(1,646)	0
49	57346	-98	-0.17%	13,071	0.5041	12,859	0.4959	0	12,859	106	-	106	12,859	(12,752)	0
50	57624	180	0.31%	11,887	0.4794	12,908	0.5206	11887	-	-	511	11,887	511	11,376	1
51	57580	136	0.24%	14,637	0.5377	12,584	0.4623	0	12,584	1,026	-	1,026	12,584	(11,558)	0
52	57232	-212	-0.37%	11,034	0.4094	15,918	0.5906	11034	-	-	2,442	11,034	2,442	8,592	1
53	57240	-204	-0.36%	9,930	0.3815	16,099	0.6185	9930	-	-	3,084	9,930	3,084	6,846	1
54	57250	-194	-0.34%	15,372	0.5478	12,690	0.4522	0	12,690	1,341	-	1,341	12,690	(11,348)	0
55	57493	49	0.09%	13,302	0.4494	16,297	0.5506	13302	-	-	1,498	13,302	1,498	11,804	1
56	57582	138	0.24%	12,809	0.4114	18,326	0.5886	12809	-	-	2,759	12,809	2,759	10,050	1
57	57501	57	0.10%	14,436	0.555	11,575	0.445	0	11,575	1,431	-	1,431	11,575	(10,145)	0
58	57227	-217	-0.38%	9,211	0.2946	22,056	0.7054	9211	-	-	6,422	9,211	6,422	2,789	1
59	57391	-53	-0.09%	9,669	0.3169	20,843	0.6831	9669	-	-	5,587	9,669	5,587	4,083	1
60	57385	-59	-0.10%	10,307	0.3048	23,508	0.6952	10307	-	-	6,601	10,307	6,601	3,706	1
61	57614	170	0.30%	12,661	0.4278	16,935	0.5722	12661	-	-	2,137	12,661	2,137	10,524	1
62	57345	-99	-0.17%	13,959	0.4344	18,175	0.5656	13959	-	-	2,108	13,959	2,108	11,851	1
63	57365	-79	-0.14%	11,973	0.4036	17,692	0.5964	11973	-	-	2,860	11,973	2,860	9,113	1
64	57270	-174	-0.30%	15,452	0.5728	11,524	0.4272	0	11,524	1,964	-	1,964	11,524	(9,560)	0
65	57455	11	0.02%	14,760	0.6408	8,274	0.3592	0	8,274	3,243	-	3,243	8,274	(5,031)	0
66	57545	101	0.18%	14,776	0.6829	6,861	0.3171	0	6,861	3,957	-	3,957	6,861	(2,904)	0
67	57239	-205	-0.36%	13,748	0.4833	14,698	0.5167	13748	-	-	475	13,748	475	13,273	1
68	57261	-183	-0.32%	13,508	0.5062	13,177	0.4938	0	13,177	165	-	165	13,177	(13,011)	0

Gaddie Metric

District	Pop	Dev	% Dev	Predicted Dem Votes	Dem %	Predicted Rep Votes	Rep %	D Lost	R Lost	D Surplus	R Surplus	D Wasted	R Wasted	R-D Net	Rep Win
69	57649	205	0.36%	11,657	0.4584	13,773	0.5416	11657	-	-	1,058	11,657	1,058	10,599	1
70	57552	108	0.19%	13,105	0.4927	13,493	0.5073	13105	-	-	194	13,105	194	12,911	1
71	57519	75	0.13%	17,189	0.5928	11,807	0.4072	0	11,807	2,691	-	2,691	11,807	(9,116)	0
72	57449	5	0.01%	13,674	0.4851	14,514	0.5149	13674	-	-	420	13,674	420	13,254	1
73	57453	9	0.02%	16,837	0.5984	11,300	0.4016	0	11,300	2,769	-	2,769	11,300	(8,531)	0
74	57494	50	0.09%	17,628	0.5711	13,239	0.4289	0	13,239	2,195	-	2,195	13,239	(11,044)	0
75	57462	18	0.03%	13,590	0.4782	14,829	0.5218	13590	-	-	620	13,590	620	12,970	1
76	57617	173	0.30%	32,275	0.8551	5,469	0.1449	0	5,469	13,403	-	13,403	5,469	7,934	0
77	57433	-11	-0.02%	26,627	0.8077	6,339	0.1923	0	6,339	10,144	-	10,144	6,339	3,804	0
78	57546	102	0.18%	23,528	0.6916	10,492	0.3084	0	10,492	6,518	-	6,518	10,492	(3,974)	0
79	57461	17	0.03%	20,211	0.582	14,516	0.418	0	14,516	2,848	-	2,848	14,516	(11,668)	0
80	57585	141	0.25%	20,251	0.6145	12,704	0.3855	0	12,704	3,773	-	3,773	12,704	(8,931)	0
81	57403	-41	-0.07%	15,887	0.5544	12,770	0.4456	0	12,770	1,559	-	1,559	12,770	(11,211)	0
82	57430	-14	-0.02%	12,985	0.4292	17,269	0.5708	12985	-	-	2,142	12,985	2,142	10,843	1
83	57423	-21	-0.04%	10,756	0.3169	23,185	0.6831	10756	-	-	6,215	10,756	6,215	4,541	1
84	57365	-79	-0.14%	13,414	0.429	17,854	0.571	13414	-	-	2,220	13,414	2,220	11,194	1
85	57480	36	0.06%	13,703	0.5162	12,843	0.4838	0	12,843	430	-	430	12,843	(12,413)	0
86	57454	10	0.02%	15,780	0.5162	14,789	0.4838	0	14,789	495	-	495	14,789	(14,294)	0
87	57358	-86	-0.15%	12,413	0.4626	14,420	0.5374	12413	-	-	1,004	12,413	1,004	11,409	1
88	57556	112	0.20%	12,882	0.4681	14,638	0.5319	12882	-	-	878	12,882	878	12,004	1
89	57634	190	0.33%	12,009	0.4427	15,118	0.5573	12009	-	-	1,554	12,009	1,554	10,455	1
90	57608	164	0.29%	11,556	0.596	7,833	0.404	0	7,833	1,861	-	1,861	7,833	(5,972)	0
91	57359	-85	-0.15%	18,044	0.6043	11,816	0.3957	0	11,816	3,114	-	3,114	11,816	(8,701)	0
92	57431	-13	-0.02%	14,313	0.557	11,383	0.443	0	11,383	1,465	-	1,465	11,383	(9,919)	0
93	57548	104	0.18%	15,014	0.489	15,690	0.511	15014	-	-	338	15,014	338	14,676	1
94	57266	-178	-0.31%	14,601	0.4809	15,761	0.5191	14601	-	-	580	14,601	580	14,022	1
95	57372	-72	-0.13%	18,730	0.6364	10,701	0.3636	0	10,701	4,014	-	4,014	10,701	(6,687)	0
96	57484	40	0.07%	13,841	0.536	11,982	0.464	0	11,982	930	-	930	11,982	(11,052)	0
97	57279	-165	-0.29%	10,706	0.3709	18,158	0.6291	10706	-	-	3,726	10,706	3,726	6,979	1
98	57513	69	0.12%	10,566	0.3298	21,472	0.6702	10566	-	-	5,453	10,566	5,453	5,113	1
99	57496	52	0.09%	8,517	0.2515	25,349	0.7485	8517	-	-	8,416	8,517	8,416	102	1
				1,448,901		1,394,018		726,238	402,334	160,165	132,723	886,403	535,057	351,346	58

Gaddie Metric

District	Pop	Dev	% Dev	Predicted Dem Votes	Dem %	Predicted Rep Votes	Rep %	D Lost	R Lost	D Surplus	R Surplus	D Wasted	R Wasted	R-D Net	Rep Win
						Correlation	1							12.36%	
						correlation 8th 9	1								
						Corr Gaddie and C	0.80622								
					Corr Gaddie Memo		0.318163								
							All Tot Corr Gaddie								

G.A.B. Canvass Reporting System

Canvass Results for 2014 GENERAL ELECTION - 11/4/2014

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	**GOVERNOR**		**Total Votes:**	**2,410,314**
	1,122,913	46.59%	MARY BURKE/JOHN LEHMAN 141 JACKSON ST MADISON WI 537045472	Democrat
Winner	1,259,706	52.26%	SCOTT WALKER/REBECCA KLEEFISCH PO BOX 620437 MIDDLETON WI 535620437	Republican
	7,530	.31%	DENNIS FEHR/No Candidate 7215 COUNTY HIGHWAY X CHIPPEWA FLS WI 547295770	Independent
	18,720	.78%	ROBERT BURKE/JOSEPH M. BROST 774 CROSBY DR HUDSON WI 540167869	Independent
	108	0%	MARY JO WALTERS (WRITE-IN) 137 CORRY ST MADISON WI 537045449	Independent
	9	0%	STEVE R. EVANS (WRITE-IN) 81 MICHIGAN AVE MONTREAL WI 545509728	Republican
	15	0%	JUMOKA A. JOHNSON (WRITE-IN)	CON
	52	0%	BRETT D HULSEY (WRITE-IN) 110 MERRILL CREST DR MADISON WI 537052706	Independent
	5	0%	JESSICA NICOLE PERRY (WRITE-IN) 2501 FISH HATCHERY RD APT 3 MADISON WI 537133830	Independent
	8	0%	SUSAN P. RESCH (WRITE-IN) 2301 CYPRESS WAY 4 MADISON WI 53713	Republican
	1,248	.05%	SCATTERING	
Office	**ATTORNEY GENERAL**		**Total Votes:**	**2,350,325**
	1,066,866	45.39%	SUSAN V. HAPP 633 N DEWEY AVE JEFFERSON WI 535491337	Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ATTORNEY GENERAL**			**Total Votes:**	**2,350,325**
Winner	1,211,388	51.54%	BRAD SCHIMEL W265S2609 JAMIE CT WAUKESHA WI 53188		Republican
	70,951	3.02%	THOMAS A. NELSON, SR. 2867 LAKESIDE ST MADISON WI 537115919		Independent
	1,120	.05%	SCATTERING		
Office	**SECRETARY OF STATE**			**Total Votes:**	**2,322,035**
Winner	1,161,113	50%	DOUG LA FOLLETTE 1211 RUTLEDGE ST APT 3 MADISON WI 537033840		Democrat
	1,074,835	46.29%	JULIAN BRADLEY 1901 MILLER ST APT 3 LA CROSSE WI 546015205		Republican
	25,744	1.11%	JERRY BROITZMAN PO BOX 13341 MILWAUKEE WI 532130341		CON
	58,996	2.54%	ANDY CRAIG 4148 N COLGATE CIR MILWAUKEE WI 532221736		Independent
	1,347	.06%	SCATTERING		
Office	**STATE TREASURER**			**Total Votes:**	**2,295,218**
	1,026,548	44.73%	DAVID L. SARTORI 6000 S BUCKHORN AVE CUDAHY WI 531103056		Democrat
Winner	1,120,140	48.8%	MATT ADAMCZYK 2450 N 117TH ST WAUWATOSA WI 532261120		Republican
	28,053	1.22%	ANDREW ZUELKE 578 EUREKA ST RIPON WI 549711155		CON
	66,120	2.88%	RON HARDY 1437 N MAIN ST OSHKOSH WI 549012911		Independent
	53,113	2.31%	JERRY SHIDELL 333 W PROSPECT ST RHINELANDER WI 545013867		Independent

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**STATE TREASURER**			**Total Votes:**	**2,295,218**
	1,244	.05%	SCATTERING		
Office	**CONGRESSIONAL - DISTRICT 1**			**Total Votes:**	**288,170**
	105,552	36.63%	ROB ZERBAN 5406 2ND AVE KENOSHA WI 531406504		Democrat
Winner	182,316	63.27%	PAUL RYAN 700 SAINT LAWRENCE AVE JANESVILLE WI 535454040		Republican
	29	.01%	KEITH R. DESCHLER (WRITE-IN) 1239 1/2 MONROE AVE RACINE WI 534052836		Independent
	273	.09%	SCATTERING		
Office	**CONGRESSIONAL - DISTRICT 2**			**Total Votes:**	**328,847**
Winner	224,920	68.4%	MARK POCAN 4062 BAKKEN STENLI RD BLACK EARTH WI 535159700		Democrat
	103,619	31.51%	PETER THERON 1021 SEQUOIA TRL MADISON WI 537132522		Republican
	308	.09%	SCATTERING		
Office	**CONGRESSIONAL - DISTRICT 3**			**Total Votes:**	**275,161**
Winner	155,368	56.46%	RON KIND 3061 EDGEWATER LN LA CROSSE WI 546031088		Democrat
	119,540	43.44%	TONY KURTZ 32722 OLD COUNTRY LN PR DU CHIEN WI 538218119		Republican
	128	.05%	KEN VAN DOREN (WRITE-IN) 248 MAINE ST MAUSTON WI 539481304		Independent
	125	.05%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**CONGRESSIONAL - DISTRICT 4**			**Total Votes:**	**254,892**
Winner	179,045	70.24%	GWEN MOORE 4043 N 19TH PL MILWAUKEE WI 532096806		Democrat
	68,490	26.87%	DAN SEBRING 3919 S 60TH ST MILWAUKEE WI 532202511		Republican
	7,002	2.75%	ROBERT R. RAYMOND 1212A E BURLEIGH ST MILWAUKEE WI 532122217		Independent
	355	.14%	SCATTERING		
Office	**CONGRESSIONAL - DISTRICT 5**			**Total Votes:**	**332,826**
	101,190	30.4%	CHRIS ROCKWOOD 2448 N 73RD ST WAUWATOSA WI 53213		Democrat
Winner	231,160	69.45%	F. JAMES SENSENBRENNER, JR. N76W14726 NORTHPOINT DR MENOMONEE FLS WI 530514330		Republican
	476	.14%	SCATTERING		
Office	**CONGRESSIONAL - DISTRICT 6**			**Total Votes:**	**299,033**
	122,212	40.87%	MARK L. HARRIS 2425 SANDSTONE CT OSHKOSH WI 549047894		Democrat
Winner	169,767	56.77%	GLENN GROTHMAN N3685 MITCHELL RD CAMPBELLSPORT WI 530101730		Republican
	6,865	2.3%	GUS FAHRENDORF 763 MILKWEED CT NEENAH WI 549563584		Independent
	189	.06%	SCATTERING		
Office	**CONGRESSIONAL - DISTRICT 7**			**Total Votes:**	**286,603**
	112,949	39.41%	KELLY WESTLUND 501 11TH AVE E ASHLAND WI 548062028		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**CONGRESSIONAL - DISTRICT 7**			**Total Votes:**	**286,603**
Winner	169,891	59.28%	SEAN DUFFY 4015 CRESTWOOD DR WAUSAU WI 544038124		Republican
	3,686	1.29%	LAWRENCE DALE 5152 COUNTY ROAD G EAGLE RIVER WI 545219712		Independent
	5	0%	JOHN SCHIESS (WRITE-IN) 2205 29TH ST RICE LAKE WI 548689050		Republican
	30	.01%	ROB TAYLOR (WRITE-IN) 1720 3RD AVE CUMBERLAND WI 548299169		Independent
	42	.01%	SCATTERING		
Office	**CONGRESSIONAL - DISTRICT 8**			**Total Votes:**	**290,048**
	101,345	34.94%	RON GRUETT 1000 WIETING CT CHILTON WI 530141390		Democrat
Winner	188,553	65.01%	REID J. RIBBLE N7611 LOWER CLIFF RD BOX 10 SHERWOOD WI 541699701		Republican
	150	.05%	SCATTERING		
Office	**STATE SENATE - DISTRICT 1**			**Total Votes:**	**77,025**
	29,555	38.37%	DEAN P. DEBROUX 1916 CREAMERY RD DE PERE WI 541159405		Democrat
Winner	47,438	61.59%	FRANK LASEE 1645 SWAN RD DE PERE WI 541158889		Republican
	32	.04%	SCATTERING		
Office	**STATE SENATE - DISTRICT 3**			**Total Votes:**	**30,166**
Winner	29,291	97.1%	TIM CARPENTER 2957 S 38TH ST MILWAUKEE WI 532153519		Democrat
	875	2.9%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**STATE SENATE - DISTRICT 5**			**Total Votes:**	**76,498**
Winner	55,869	73.03%	LEAH VUKMIR 2544 N 93RD ST WAUWATOSA WI 532261764		Republican
	20,020	26.17%	WENDY FRIEDRICH 13565 HAMPTON RD BROOKFIELD WI 530057516		Independent
	609	.8%	SCATTERING		
Office	**STATE SENATE - DISTRICT 7**			**Total Votes:**	**70,506**
Winner	41,950	59.5%	CHRIS J. LARSON 3261 S HERMAN ST MILWAUKEE WI 532072851		Democrat
	28,387	40.26%	JASON RED ARNOLD 626 SHERMAN AVE APT 1 S MILWAUKEE WI 531723950		Republican
	169	.24%	SCATTERING		
Office	**STATE SENATE - DISTRICT 9**			**Total Votes:**	**72,035**
	28,770	39.94%	MARTHA LANING 3007 GREENVIEW DR SHEBOYGAN WI 530832519		Democrat
Winner	43,186	59.95%	DEVIN LEMAHIEU 21 S 8TH ST OOSTBURG WI 530701436		Republican
	79	.11%	SCATTERING		
Office	**STATE SENATE - DISTRICT 11**			**Total Votes:**	**69,271**
	25,377	36.63%	DAN KILKENNY N3616 ELM RIDGE RD DELAVAN WI 531153134		Democrat
Winner	43,842	63.29%	STEVE NASS N8330 JACKSON RD WHITEWATER WI 531904244		Republican
	52	.08%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**STATE SENATE - DISTRICT 13**			**Total Votes:**	**76,980**
	28,700	37.28%	MICHELLE ZAHN W6378 STATE ROAD 26 JUNEAU WI 530399433		Democrat
Winner	48,255	62.69%	SCOTT L. FITZGERALD N4692 MAPLE RD JUNEAU WI 530399514		Republican
	25	.03%	SCATTERING		
Office	**STATE SENATE - DISTRICT 15**			**Total Votes:**	**61,187**
Winner	36,389	59.47%	JANIS RINGHAND 412 FOWLER CIR EVANSVILLE WI 535361220		Democrat
	24,760	40.47%	BRIAN FITZGERALD 3906 CAPELLA DR JANESVILLE WI 535463519		Republican
	38	.06%	SCATTERING		
Office	**STATE SENATE - DISTRICT 17**			**Total Votes:**	**62,836**
	28,179	44.85%	PAT BOMHACK 108 E JEFFERSON ST SPRING GREEN WI 535889256		Democrat
Winner	34,601	55.07%	HOWARD MARKLEIN S11665 SOELDNER RD SPRING GREEN WI 535889757		Republican
	56	.09%	SCATTERING		
Office	**STATE SENATE - DISTRICT 19**			**Total Votes:**	**72,815**
	31,135	42.76%	PENNY BERNARD SCHABER 815 E WASHINGTON ST APPLETON WI 54911		Democrat
Winner	41,628	57.17%	ROGER ROTH 1910 W CHARLES ST APPLETON WI 549144842		Republican
	52	.07%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**STATE SENATE - DISTRICT 21**			**Total Votes:**	**73,213**
	28,106	38.39%	RANDY BRYCE 4940 CHESTER LN UNIT 7 RACINE WI 534022480		Democrat
Winner	44,967	61.42%	VAN WANGGAARD 1246 BLAINE AVE RACINE WI 534052913		Republican
	34	.05%	BILL THOMPKINS (WRITE-IN) 4414 NORTHWESTERN AVE MT PLEASANT WI 534051330		Independent
	106	.14%	SCATTERING		
Office	**STATE SENATE - DISTRICT 23**			**Total Votes:**	**64,721**
	25,135	38.84%	PHIL SWANHORST 7181 185TH ST CHIPPEWA FLS WI 547296447		Democrat
Winner	39,577	61.15%	TERRY MOULTON 980 118TH ST CHIPPEWA FALLS WI 547295674		Republican
	9	.01%	SCATTERING		
Office	**STATE SENATE - DISTRICT 25**			**Total Votes:**	**68,522**
Winner	35,055	51.16%	JANET BEWLEY 810 CHAPPLE AVE ASHLAND WI 548062934		Democrat
	33,445	48.81%	DANE DEUTSCH 515 W EAU CLAIRE ST RICE LAKE WI 548681509		Republican
	22	.03%	SCATTERING		
Office	**STATE SENATE - DISTRICT 27**			**Total Votes:**	**63,500**
Winner	61,920	97.51%	JON B. ERPENBACH 7194 BELLE FONTAINE BLVD MIDDLETON WI 535621071		Democrat
	1,580	2.49%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**STATE SENATE - DISTRICT 29**			**Total Votes:**	**69,814**
	23,917	34.26%	PAUL DEMAIN 13426 W GURNO LAKE RD HAYWARD WI 548434254		Democrat
Winner	45,887	65.73%	JERRY PETROWSKI 720 136TH AVE MARATHON WI 544489184		Republican
	10	.01%	SCATTERING		
Office	**STATE SENATE - DISTRICT 31**			**Total Votes:**	**67,863**
Winner	35,508	52.32%	KATHLEEN VINEHOUT W1490 CESLER VALLEY RD ALMA WI 546108316		Democrat
	32,317	47.62%	MEL PITTMAN W1008 270TH AVE PLUM CITY WI 547618603		Republican
	38	.06%	SCATTERING		
Office	**STATE SENATE - DISTRICT 33**			**Total Votes:**	**80,151**
	20,899	26.07%	SHERRYLL SHADDOCK W329N3358 LAKELAND DR NASHOTAH WI 530589779		Democrat
Winner	59,199	73.86%	PAUL FARROW 245 HILLWOOD CT PEWAUKEE WI 530722570		Republican
	53	.07%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 1**			**Total Votes:**	**28,345**
	12,256	43.24%	JOE MAJESKI 5946 LORITZ RD STURGEON BAY WI 542358514		Democrat
Winner	16,072	56.7%	JOEL C. KITCHENS 1117 COVE RD STURGEON BAY WI 542351032		Republican
	17	.06%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 2**			**Total Votes:**	**19,256**
Winner	18,994	98.64%	ANDRE JACQUE 1615 LOST DAUPHIN RD DE PERE WI 541151919		Republican
	262	1.36%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 3**			**Total Votes:**	**19,542**
Winner	19,542	100%	AL OTT W2168 CAMPGROUND RD FOREST JUNCTION WI 54123		Republican
	0	0%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 4**			**Total Votes:**	**24,524**
	10,026	40.88%	CHRIS PLAUNT 1068 PEONIES DR DE PERE WI 541157685		Democrat
Winner	14,467	58.99%	DAVID STEFFEN 1593 REDSTONE TRL HOWARD WI 543133954		Republican
	31	.13%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 5**			**Total Votes:**	**24,130**
	9,084	37.65%	JEFF MCCABE 900 KRISTY ST KAUKAUNA WI 541303851		Democrat
Winner	15,045	62.35%	JIM STEINEKE N2352 VANDENBROEK RD KAUKAUNA WI 541309205		Republican
	1	0%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 6**			**Total Votes:**	**18,824**
Winner	18,696	99.32%	GARY TAUCHEN N3397 BROADWAY RD BONDUEL WI 541078865		Republican
	128	.68%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 7**			**Total Votes:**	**19,928**
Winner	11,065	55.52%	DANIEL RIEMER 3721 W OKLAHOMA AVE APT 7 MILWAUKEE WI 532154060		Democrat
	8,800	44.16%	SCOTT ESPESETH 169 N 67TH ST MILWAUKEE WI 532133962		Republican
	63	.32%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 8**			**Total Votes:**	**6,454**
Winner	5,155	79.87%	JOCASTA ZAMARRIPA 1645 S 12TH ST MILWAUKEE WI 532043332		Democrat
	1,271	19.69%	VINCENT SYNOWICZ 311 W BURNHAM ST MILWAUKEE WI 532044024		Republican
	28	.43%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 9**			**Total Votes:**	**8,709**
Winner	8,507	97.68%	JOSH ZEPNICK 1921 W PLAINFIELD AVE MILWAUKEE WI 532211913		Democrat
	202	2.32%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 10**			**Total Votes:**	**20,457**
Winner	20,242	98.95%	DAVID BOWEN 833 N 24TH ST APT 101 MILWAUKEE WI 532331524		Democrat
	215	1.05%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 11**			**Total Votes:**	**17,534**
Winner	17,328	98.83%	MANDELA BARNES 4800 N PT WASH RD APT 205 GLENDALE WI 532175441		Democrat
	206	1.17%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 12**			**Total Votes:**	**16,841**
Winner	16,494	97.94%	FREDERICK P. KESSLER 9312 W CLOVERNOOK ST MILWAUKEE WI 532245211		Democrat
	3	.02%	RUSSELL GOODWIN (WRITE-IN) 7370 N 86TH ST MILWAUKEE WI 532244116		Republican
	344	2.04%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 13**			**Total Votes:**	**21,384**
Winner	20,710	96.85%	ROB HUTTON 17785 MARSEILLE DR BROOKFIELD WI 530455019		Republican
	674	3.15%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 14**			**Total Votes:**	**22,781**
Winner	21,954	96.37%	DALE KOOYENGA 15365 SAINT THERESE BLVD BROOKFIELD WI 530052616		Republican
	827	3.63%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 15**			**Total Votes:**	**24,524**
	9,057	36.93%	JOHN F. WEISHAN, JR. 2605 S 82ND ST WEST ALLIS WI 532192421		Democrat
Winner	15,427	62.91%	JOE SANFELIPPO 20770 W COFFEE RD NEW BERLIN WI 531462407		Republican
	40	.16%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 16**			**Total Votes:**	**16,444**
Winner	16,183	98.41%	LEON D. YOUNG 2224 N 17TH ST MILWAUKEE WI 532051220		Democrat
	261	1.59%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 17**			**Total Votes:**	**22,541**
Winner	19,666	87.25%	LA TONYA JOHNSON 2363 N 54TH ST MILWAUKEE WI 532102734		Democrat
	2,802	12.43%	EUGENIE M. STACKOWITZ 3208 N 50TH ST MILWAUKEE WI 532163212		Independent
	73	.32%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 18**			**Total Votes:**	**16,773**
Winner	16,522	98.5%	EVAN GOYKE 2734 W STATE ST MILWAUKEE WI 532083548		Democrat
	251	1.5%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 19**			**Total Votes:**	**22,196**
Winner	18,077	81.44%	JONATHAN BROSTOFF 920 E PLEASANT ST APT 2 MILWAUKEE WI 532022121		Democrat
	3,943	17.76%	JOSEPH THOMAS KLEIN 3425 N BARTLETT AVE MILWAUKEE WI 532112802		Independent
	176	.79%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 20**			**Total Votes:**	**23,922**
Winner	13,400	56.02%	CHRISTINE SINICKI 3132 S INDIANA AVE MILWAUKEE WI 532073035		Democrat
	10,481	43.81%	MOLLY MCGARTLAND 3777 S AHMEDI AVE SAINT FRANCIS WI 532354151		Republican
	41	.17%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 21**			**Total Votes:**	**16,626**
Winner	16,051	96.54%	JESSIE RODRIGUEZ 9312 S 33RD ST FRANKLIN WI 531329153		Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 21**			**Total Votes:**	**16,626**
	575	3.46%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 22**			**Total Votes:**	**29,430**
	8,789	29.86%	JESSIE READ N7W24433 GOOD HOPE RD SUSSEX WI 53089		Democrat
Winner	20,607	70.02%	JANEL BRANDTJEN N52W16632 OAK RIDGE TRL MENOMONEE FLS WI 530510641		Republican
	34	.12%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 23**			**Total Votes:**	**31,501**
	11,470	36.41%	BETH L LUECK 5225 N BAY RIDGE AVE WHITEFISH BAY WI 53217		Democrat
Winner	20,006	63.51%	JIM OTT 11743 N LAKE SHORE DR MEQUON WI 530923538		Republican
	25	.08%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 24**			**Total Votes:**	**22,479**
Winner	21,818	97.06%	DAN KNODL N101W14475 RIDGEFIELD CT GERMANTOWN WI 530225348		Republican
	661	2.94%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 25**			**Total Votes:**	**17,042**
Winner	17,042	100%	PAUL TITTL 2229 RHEAUME RD MANITOWOC WI 542202548		Republican
	0	0%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 26**			**Total Votes:**	**23,459**
	9,064	38.64%	TERRY VAN AKKEREN 1612 S 7TH ST SHEBOYGAN WI 530815829		Democrat
Winner	14,352	61.18%	TERRY KATSMA 705 ERIE AVE OOSTBURG WI 530701406		Republican
	43	.18%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 27**			**Total Votes:**	**25,536**
	9,447	36.99%	SCOTT GROVER HEINIG W6287 HAMMANN RD PLYMOUTH WI 530732701		Democrat
Winner	16,042	62.82%	TYLER VORPAGEL 2418 VALLEY RD PLYMOUTH WI 530734963		Republican
	47	.18%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 28**			**Total Votes:**	**20,484**
	7,736	37.77%	TRAVIS SCHACHTNER 2116 54TH ST SOMERSET WI 540257387		Democrat
Winner	12,747	62.23%	ADAM JARCHOW 971 APPLE RIVER CT BALSAM LAKE WI 548102642		Republican
	1	0%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 29**			**Total Votes:**	**15,182**
Winner	14,953	98.49%	JOHN MURTHA 2283 20TH AVE BALDWIN WI 540022805		Republican
	229	1.51%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 30**			**Total Votes:**	**23,368**
	8,658	37.05%	DARREL LAUMANN 1279 146TH AVE NEW RICHMOND WI 540176634		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 30**			**Total Votes:**	**23,368**
Winner	13,951	59.7%	DEAN KNUDSON 1753 LAUREL AVE HUDSON WI 540162035		Republican
	747	3.2%	LAURIE KROEGER 2228 SACIA LN HUDSON WI 540167222		Independent
	12	.05%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 31**			**Total Votes:**	**17,983**
Winner	17,721	98.54%	AMY LOUDENBECK 10737 S STATE ROAD 140 PO BOX 556		Republican
	262	1.46%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 32**			**Total Votes:**	**20,845**
	7,094	34.03%	ALAN KUPSIK 717 S LAKE SHORE DR LAKE GENEVA WI 531472151		Democrat
Winner	13,714	65.79%	TYLER AUGUST 30 06 LAUSANNE CT LAKE GENEVA WI 53147		Republican
	37	.18%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 33**			**Total Votes:**	**19,818**
Winner	19,429	98.04%	CODY HORLACHER 1254 BEAR PASS MUKWONAGO WI 531498409		Republican
	389	1.96%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 34**			**Total Votes:**	**22,509**
Winner	22,085	98.12%	ROB SWEARINGEN 4485 OAKVIEW LN RHINELANDER WI 545018299		Republican
	424	1.88%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	**ASSEMBLY - DISTRICT 35**		**Total Votes:**	**18,982**
Winner	18,713	98.58%	MARY J. CZAJA W4587 HWY S IRMA WI 54442	Republican
	269	1.42%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 36**		**Total Votes:**	**18,530**
Winner	18,504	99.86%	JEFFREY L. MURSAU 4 OAK ST CRIVITZ WI 541141635	Republican
	26	.14%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 37**		**Total Votes:**	**24,473**
	10,058	41.1%	MARY I. ARNOLD 954 DIX ST COLUMBUS WI 539251210	Democrat
Winner	14,400	58.84%	JOHN JAGLER 601 CLYMAN ST WATERTOWN WI 530944667	Republican
	15	.06%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 38**		**Total Votes:**	**27,786**
	10,281	37%	TOM CHOJNACKI 703 S MAIN ST LAKE MILLS WI 535511809	Democrat
Winner	17,481	62.91%	JOEL KLEEFISCH W357N6189 SPINNAKER DR OCONOMOWOC WI 530661848	Republican
	24	.09%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 39**		**Total Votes:**	**22,772**
Winner	16,793	73.74%	MARK L. BORN 121 FRANKLIN ST BEAVER DAM WI 539162211	Republican
	5,977	26.25%	RICHARD BENNETT N6070 BENNETTS RD HORICON WI 530329774	Independent

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 39**			**Total Votes:**	**22,772**
	2	.01%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 40**			**Total Votes:**	**18,617**
Winner	18,424	98.96%	KEVIN PETERSEN N1433 DRIVAS RD WAUPACA WI 549818464		Republican
	193	1.04%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 41**			**Total Votes:**	**21,563**
	8,409	39%	JOE KALLAS N4682 COUNTY ROAD D PRINCETON WI 549688606		Democrat
Winner	13,152	60.99%	JOAN BALLWEG 170 W SUMMIT ST MARKESAN WI 539467192		Republican
	2	.01%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 42**			**Total Votes:**	**24,770**
	10,518	42.46%	GEORGE FERRITER N4209 MOHR RD FALL RIVER WI 539328908		Democrat
Winner	14,238	57.48%	KEITH RIPP 7113 COUNTY ROAD V LODI WI 535559509		Republican
	14	.06%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 43**			**Total Votes:**	**23,640**
Winner	14,116	59.71%	ANDY JORGENSEN 10 DIVISION ST MILTON WI 535631018		Democrat
	9,493	40.16%	LEON L. HEBERT W5795 HOGE RD FORT ATKINSON WI 535388928		Republican
	31	.13%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 44**			**Total Votes:**	**19,652**
Winner	13,354	67.95%	DEBRA KOLSTE 4105 PARK VIEW DR JANESVILLE WI 535461777		Democrat
	6,298	32.05%	JACOB DORSEY 3246 W ROCKPORT PARK DR JANESVILLE WI 535487604		Republican
	0	0%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 45**			**Total Votes:**	**12,983**
Winner	12,856	99.02%	MARK SPREITZER 1718 HENDERSON AVE BELOIT WI 535113158		Democrat
	127	.98%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 46**			**Total Votes:**	**20,566**
Winner	20,014	97.32%	GARY HEBL 515 SCHEUERELL LN SUN PRAIRIE WI 535902347		Democrat
	552	2.68%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 47**			**Total Votes:**	**25,014**
Winner	20,332	81.28%	ROBB KAHL 5700 WINNEQUAH RD MONONA WI 537163061		Democrat
	4,596	18.37%	PHILLIP N. ANDERSON 2318 WESTCHESTER RD FITCHBURG WI 537114372		Independent
	86	.34%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 48**			**Total Votes:**	**23,785**
Winner	23,423	98.48%	MELISSA AGARD SARGENT 1638 MAYFIELD LN MADISON WI 537042144		Democrat
	362	1.52%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 49**			**Total Votes:**	**19,941**
	7,689	38.56%	CHAD HENNEMAN 16896 LARSON RD BOSCOBEL WI 538059557		Democrat
Winner	12,240	61.38%	TRAVIS TRANEL 2231 LOUISBURG RD CUBA CITY WI 538079380		Republican
	12	.06%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 50**			**Total Votes:**	**20,383**
	8,600	42.19%	CHRISTOPHER MILLER 311B SCHOOL RD LA VALLE WI 539418553		Democrat
Winner	11,775	57.77%	ED BROOKS S4311 GROTE HILL RD REEDSBURG WI 539599811		Republican
	8	.04%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 51**			**Total Votes:**	**22,413**
	10,577	47.19%	DICK CATES 5992 COUNTY ROAD T SPRING GREEN WI 535889008		Democrat
Winner	10,642	47.48%	TODD NOVAK 202 W DIVISION ST DODGEVILLE WI 535331426		Republican
	1,177	5.25%	ADAM LAUFENBERG 422 STEIL RD HIGHLAND WI 535439329		Independent
	17	.08%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 52**			**Total Votes:**	**17,523**
Winner	17,523	100%	JEREMY THIESFELDT 604 SUNSET LN FOND DU LAC WI 549354742		Republican
	0	0%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 53**			**Total Votes:**	**17,878**
Winner	17,618	98.55%	MICHAEL SCHRAA 220 WYLDEBERRY LN OSHKOSH WI 549047676		Republican
	260	1.45%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 54**			**Total Votes:**	**21,858**
Winner	11,228	51.37%	GORDON HINTZ 1209 WAUGOO AVE OSHKOSH WI 549015466		Democrat
	10,571	48.36%	MARK ELLIOTT 1550 MARICOPA DR OSHKOSH WI 549048230		Republican
	59	.27%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 55**			**Total Votes:**	**24,295**
	10,240	42.15%	MARK WESTPHAL 945 HUNT AVE NEENAH WI 549563725		Democrat
Winner	14,027	57.74%	MIKE ROHRKASTE 1417 MAHLER BLVD NEENAH WI 549564974		Republican
	28	.12%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 56**			**Total Votes:**	**20,935**
Winner	20,844	99.57%	DAVE MURPHY 1777 IVY LN GREENVILLE WI 549428714		Republican
	91	.43%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 57**			**Total Votes:**	**20,614**
Winner	11,162	54.15%	AMANDA STUCK 1404 N HARRIMAN ST APPLETON WI 549113534		Democrat
	9,432	45.76%	CHRIS KLEIN 730 KEYES ST MENASHA WI 549523412		Republican

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	**ASSEMBLY - DISTRICT 57**		**Total Votes:**	**20,614**
	20	.1%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 58**		**Total Votes:**	**22,570**
Winner	22,087	97.86%	BOB GANNON 4833 CEDAR HILLS DR SLINGER WI 530869514	Republican
	483	2.14%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 59**		**Total Votes:**	**22,639**
Winner	22,417	99.02%	JESSE KREMER 119 HILLCREST RD KEWASKUM WI 53040	Republican
	222	.98%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 60**		**Total Votes:**	**24,326**
Winner	24,066	98.93%	ROBERT BROOKS 204 E DEKORA ST SAUKVILLE WI 530802003	Republican
	5	.02%	PERRY DUMAN (WRITE-IN) 127 WEST GRAND AVE	Democrat
	255	1.05%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 61**		**Total Votes:**	**17,916**
Winner	17,452	97.41%	SAMANTHA KERKMAN 7510 288TH AVE UNIT 3 SALEM WI 531689532	Republican
	464	2.59%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 62**		**Total Votes:**	**19,221**
Winner	18,761	97.61%	THOMAS WEATHERSTON 5300 SANTA ANITA DR RACINE WI 534022176	Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 62**			**Total Votes:**	**19,221**
	460	2.39%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 63**			**Total Votes:**	**24,295**
	8,917	36.7%	ANDY MITCHELL 410 SHERVIN DR BURLINGTON WI 531059628		Democrat
Winner	15,361	63.23%	ROBIN J. VOS 960 ROCK RIDGE RD BURLINGTON WI 531057229		Republican
	17	.07%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 64**			**Total Votes:**	**14,536**
Winner	13,887	95.54%	PETER W. BARCA 1339 38TH AVE KENOSHA WI 531442953		Democrat
	649	4.46%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 65**			**Total Votes:**	**11,966**
Winner	11,599	96.93%	TOD OHNSTAD 3814 18TH AVE KENOSHA WI 531405304		Democrat
	367	3.07%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 66**			**Total Votes:**	**14,942**
Winner	12,062	80.73%	CORY MASON 1948 MICHIGAN BLVD RACINE WI 534024759		Democrat
	2,781	18.61%	GEORGE MEYERS 1307 N WISCONSIN ST RACINE WI 534025032		Independent
	99	.66%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 67**			**Total Votes:**	**22,044**
	8,691	39.43%	GARY STENE 715 JOHNSON OLSON ST APT 1 COLFAX WI 547309529		Democrat
Winner	13,353	60.57%	TOM LARSON E9359 COUNTY RD N COLFAX WI 547305124		Republican
	0	0%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 68**			**Total Votes:**	**21,371**
	10,076	47.15%	JEFF PECK 21956 30TH AVE CADOTT WI 547275928		Democrat
Winner	11,289	52.82%	KATHY BERNIER 10923 40TH AVE CHIPPEWA FLS WI 547296637		Republican
	6	.03%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 69**			**Total Votes:**	**20,613**
	6,380	30.95%	NORBERT SALAMONSKI 307 LEY AVE MARSHFIELD WI 544493379		Democrat
Winner	14,233	69.05%	BOB KULP C4098 PAULINE LN STRATFORD WI 544849464		Republican
	0	0%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 70**			**Total Votes:**	**22,293**
	10,508	47.14%	AMY SUE VRUWINK 9425 FLOWER LN MILLADORE WI 544549744		Democrat
Winner	11,766	52.78%	NANCY LYNN VANDER MEER 18940 EDEN AVE TOMAH WI 546608071		Republican
	19	.09%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	**ASSEMBLY - DISTRICT 71**		**Total Votes:**	**17,521**
Winner	17,134	97.79%	KATRINA SHANKLAND 833 CLARK ST APT G STEVENS POINT WI 544812926	Democrat
	387	2.21%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 72**		**Total Votes:**	**23,437**
	10,317	44.02%	DANA W. DUNCAN 811 BRENTWOOD DR PORT EDWARDS WI 544691172	Democrat
Winner	13,113	55.95%	SCOTT S. KRUG 1414 AKRON AVE NEKOOSA WI 544579079	Republican
	7	.03%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 73**		**Total Votes:**	**15,634**
Winner	15,602	99.8%	NICK MILROY 4543 S SAM ANDERSON RD SOUTH RANGE WI 548748523	Democrat
	32	.2%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 74**		**Total Votes:**	**25,532**
Winner	14,663	57.43%	BETH MEYERS 36505 AIKEN RD BAYFIELD WI 548144755	Democrat
	10,862	42.54%	JAMEY FRANCIS 305 5TH AVE S HURLEY WI 545341331	Republican
	7	.03%	SCATTERING	
Office	**ASSEMBLY - DISTRICT 75**		**Total Votes:**	**21,382**
	9,643	45.1%	STEPHEN SMITH 514 PINE RIDGE DR SHELL LAKE WI 548718727	Democrat
Winner	11,730	54.86%	ROMAINE ROBERT QUINN 604 W STOUT ST RICE LAKE WI 548681565	Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 75**			**Total Votes:**	**21,382**
	9	.04%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 76**			**Total Votes:**	**27,613**
Winner	27,102	98.15%	CHRIS TAYLOR 2910 OAKRIDGE AVE MADISON WI 537045845		Democrat
	511	1.85%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 77**			**Total Votes:**	**25,610**
Winner	25,268	98.66%	TERESE BERCEAU 4326 SOMERSET LN MADISON WI 537112816		Democrat
	342	1.34%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 78**			**Total Votes:**	**23,486**
Winner	23,014	97.99%	LISA SUBECK 818 S GAMMON RD UNIT 4		Democrat
	472	2.01%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 79**			**Total Votes:**	**30,275**
Winner	18,843	62.24%	DIANNE HESSELBEIN 1420 N HIGH POINT RD MIDDLETON WI 535623676		Democrat
	11,406	37.67%	BRENT RENTERIA 7752 OX TRAIL WAY VERONA WI 535939640		Republican
	26	.09%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 80**			**Total Votes:**	**22,140**
Winner	21,633	97.71%	SONDY POPE 9262 MOEN RD CROSS PLAINS WI 535288829		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 80**			**Total Votes:**	**22,140**
	507	2.29%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 81**			**Total Votes:**	**23,832**
Winner	12,934	54.27%	DAVE CONSIDINE N6194 BREEZY HILL RD BARABOO WI 539139500		Democrat
	10,892	45.7%	ASHTON KIRSCH 8986 WATERFORD RD SAUK CITY WI 535839569		Republican
	6	.03%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 82**			**Total Votes:**	**19,750**
Winner	19,210	97.27%	KEN SKOWRONSKI 8642 S 116TH ST FRANKLIN WI 531329501		Republican
	540	2.73%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 83**			**Total Votes:**	**29,295**
	7,877	26.89%	JIM BROWNLOW W173S7955 SCENIC DR MUSKEGO WI 531508824		Democrat
Winner	21,382	72.99%	DAVE CRAIG W225 S9505 BIG BEND DR BIG BEND, WI 53103		Republican
	36	.12%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 84**			**Total Votes:**	**20,252**
Winner	19,700	97.27%	MICHAEL KUGLITSCH 21865 W TOLBERT DR NEW BERLIN WI 531465225		Republican
	552	2.73%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 85**			**Total Votes:**	**22,249**
	11,082	49.81%	MANDY WRIGHT 2016 EWING ST WAUSAU WI 544036908		Democrat
Winner	11,167	50.19%	DAVE HEATON 8007 E JEFFERSON ST WAUSAU WI 544039191		Republican
	0	0%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 86**			**Total Votes:**	**25,403**
	9,528	37.51%	NANCY STENCIL 119 SUNRISE DR WAUSAU WI 544017767		Democrat
Winner	15,875	62.49%	JOHN SPIROS 1406 E FILLMORE ST MARSHFIELD WI 544493050		Republican
	0	0%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 87**			**Total Votes:**	**21,277**
	7,098	33.36%	RICHARD PULCHER W13276 SOUTH ST LUBLIN WI 544479702		Democrat
Winner	14,121	66.37%	JAMES W. EDMING N4998 EDMING RD GLEN FLORA WI 545269746		Republican
	52	.24%	MICHAEL BUB (WRITE-IN) 427 BILLINGS AVE MEDFORD WI 544511313		Republican
	6	.03%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 88**			**Total Votes:**	**22,980**
	10,046	43.72%	DAN ROBINSON 446 COOK ST DE PERE WI 541152412		Democrat
Winner	12,915	56.2%	JOHN MACCO 1874 OLD VALLEY RD DE PERE WI 541153370		Republican
	19	.08%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 89**			**Total Votes:**	**18,599**
Winner	18,483	99.38%	JOHN NYGREN N2118 KELLER RD MARINETTE WI 541439779		Republican
	116	.62%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 90**			**Total Votes:**	**14,477**
Winner	7,953	54.94%	ERIC GENRICH 1089 DIVISION ST GREEN BAY WI 543033048		Democrat
	5,342	36.9%	ERIC WIMBERGER 1146 PINE ST GREEN BAY WI 543014724		Republican
	1,164	8.04%	SHAE SORTWELL 1846 FARLIN AVE GREEN BAY WI 543022916		Independent
	18	.12%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 91**			**Total Votes:**	**15,145**
Winner	14,686	96.97%	DANA WACHS 437 LINCOLN AVE EAU CLAIRE WI 547014094		Democrat
	459	3.03%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 92**			**Total Votes:**	**20,966**
Winner	11,862	56.58%	CHRIS DANOU 23951 8TH ST TREMPEALEAU WI 546619272		Democrat
	9,096	43.38%	ISAAC WEIX 5683 LOVELY RD MONDOVI WI 54755		Republican
	8	.04%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 93**			**Total Votes:**	**24,130**
	10,749	44.55%	JEFF SMITH S7747 NORRISH RD EAU CLAIRE WI 547018679		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 93**			**Total Votes:**	**24,130**
Winner	13,367	55.4%	WARREN PETRYK S9840 HWY 93 ELEVA WI 54738		Republican
	14	.06%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 94**			**Total Votes:**	**25,287**
Winner	13,670	54.06%	STEVE DOYLE N5525 HAUSER RD ONALASKA WI 546508913		Democrat
	11,617	45.94%	TRACIE HAPPEL N5653 MOHICAN TRL ONALASKA WI 546509302		Republican
	0	0%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 95**			**Total Votes:**	**17,037**
Winner	17,037	100%	JILL BILLINGS 403 13TH ST S LA CROSSE WI 546014873		Democrat
	0	0%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 96**			**Total Votes:**	**21,528**
	8,839	41.06%	PETER FLESCH 42554 STATE HWY 171 SOLDIERS GROVE, WI 54655		Democrat
Winner	12,683	58.91%	LEE NERISON S3035 COUNTY ROAD B WESTBY WI 546678263		Republican
	6	.03%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 97**			**Total Votes:**	**18,198**
Winner	17,804	97.83%	SCOTT ALLEN S42W25312 DALE DR WAUKESHA WI 531897812		Republican
	394	2.17%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	**ASSEMBLY - DISTRICT 98**			**Total Votes:**	**21,652**
Winner	21,357	98.64%	ADAM NEYLON 294 MEADOWCREEK DR APT 4 PEWAUKEE WI 530723886		Republican
	295	1.36%	SCATTERING		
Office	**ASSEMBLY - DISTRICT 99**			**Total Votes:**	**29,855**
	6,593	22.08%	ALICE JENSEN S29W31497 SUNSET DR WAUKESHA WI 531899011		Democrat
Winner	23,232	77.82%	CHRIS KAPENGA N9W31035 CONCORD CT DELAFIELD WI 530182727		Republican
	30	.1%	SCATTERING		

All Open Seat Data

District	Pop	Dev	% Dev	Net D	Predicted Dem	D Pct	Predicted Rep	R PCT	D Lost	R Lost	D Surplus	R Surplus	D Wasted	R Wasted	R-D Net	Rep Win
1	57487	43	0.07%		16,259	49.8%	16414	50.2%	16259	-	-	78	16,259	78	16,181	1
2	57590	146	0.25%		11,805	54.1%	10025	45.9%	0	10,025	890	-	890	10,025	(9,136)	0
3	57686	242	0.42%		11,243	38.7%	17807	61.3%	11243	-	-	3,282	11,243	3,282	7,961	1
4	57406	-38	-0.07%		10,881	46.0%	12790	54.0%	10881	-	-	955	10,881	955	9,926	1
5	57633	189	0.33%		13,497	49.4%	13845	50.6%	13497	-	-	174	13,497	174	13,323	1
6	57480	36	0.06%		11,045	38.5%	17627	61.5%	11045	-	-	3,291	11,045	3,291	7,753	1
7	57208	-236	-0.41%		22,822	69.1%	10214	30.9%	0	10,214	6,304	-	6,304	10,214	(3,910)	0
8	57196	-248	-0.43%		7,192	80.9%	1695	19.1%	0	1,695	2,749	-	2,749	1,695	1,054	0
9	57420	-24	-0.04%		10,497	65.1%	5635	34.9%	0	5,635	2,431	-	2,431	5,635	(3,205)	0
10	57195	-249	-0.43%		25,348	88.6%	3270	11.4%	0	3,270	11,039	-	11,039	3,270	7,769	0
11	57455	11	0.02%		22,374	82.2%	4855	17.8%	0	4,855	8,759	-	8,759	4,855	3,904	0
12	57420	-24	-0.04%		20,041	83.2%	4039	16.8%	0	4,039	8,001	-	8,001	4,039	3,962	0
13	57248	-196	-0.34%		15,950	49.1%	16510	50.9%	15950	-	-	280	15,950	280	15,670	1
14	57333	-111	-0.19%		13,575	49.6%	13799	50.4%	13575	-	-	112	13,575	112	13,464	1
15	57514	70	0.12%		13,412	47.4%	14901	52.6%	13412	-	-	745	13,412	745	12,667	1
16	57282	-162	-0.28%		21,234	88.1%	2856	11.9%	0	2,856	9,189	-	9,189	2,856	6,333	0
17	57437	-7	-0.01%		21,769	85.9%	3569	14.1%	0	3,569	9,100	-	9,100	3,569	5,531	0
18	57241	-203	-0.35%		23,817	82.8%	4954	17.2%	0	4,954	9,431	-	9,431	4,954	4,477	0
19	57313	-131	-0.23%		15,160	58.2%	10904	41.8%	0	10,904	2,128	-	2,128	10,904	(8,776)	0
20	57410	-34	-0.06%		14,118	52.3%	12901	47.7%	0	12,901	609	-	609	12,901	(12,292)	0
21	57434	-10	-0.02%		12,257	42.0%	16911	58.0%	12257	-	-	2,327	12,257	2,327	9,930	1
22	57526	82	0.14%		18,335	55.3%	14831	44.7%	0	14,831	1,752	-	1,752	14,831	(13,079)	0
23	57476	32	0.06%		10,922	30.0%	25459	70.0%	10922	-	-	7,268	10,922	7,268	3,654	1
24	57369	-75	-0.13%		8,667	25.1%	25868	74.9%	8667	-	-	8,601	8,667	8,601	66	1
25	57480	36	0.06%		12,179	40.0%	18248	60.0%	12179	-	-	3,034	12,179	3,034	9,145	1
26	57552	108	0.19%		13,251	47.7%	14527	52.3%	13251	-	-	638	13,251	638	12,613	1
27	57191	-253	-0.44%		14,935	56.0%	11755	44.0%	0	11,755	1,590	-	1,590	11,755	(10,165)	0
28	57515	71	0.12%		12,617	44.7%	15591	55.3%	12617	-	-	1,487	12,617	1,487	11,131	1
29	57300	-144	-0.25%		14,180	52.3%	12954	47.7%	0	12,954	613	-	613	12,954	(12,341)	0
30	57407	-37	-0.06%		11,308	42.7%	15165	57.3%	11308	-	-	1,929	11,308	1,929	9,379	1
31	57429	-15	-0.03%		11,304	41.2%	16117	58.8%	11304	-	-	2,406	11,304	2,406	8,898	1
32	57349	-95	-0.17%		12,685	47.9%	13787	52.1%	12685	-	-	551	12,685	551	12,135	1
33	57391	-53	-0.09%		14,609	59.0%	10151	41.0%	0	10,151	2,229	-	2,229	10,151	(7,922)	0
34	57651	207	0.36%		13,139	45.6%	15690	54.4%	13139	-	-	1,275	13,139	1,275	11,864	1
35	57528	84	0.15%		11,288	40.6%	16503	59.4%	11288	-	-	2,607	11,288	2,607	8,681	1
36	57377	-67	-0.12%		11,516	43.4%	14997	56.6%	11516	-	-	1,741	11,516	1,741	9,775	1

EXHIBIT
Mayer 10
LC 11-4-15
PENGAD 800-631-6989

All Open Seat Data

District	Pop	Dev	% Dev	Net D	Predicted Dem	D Pct	Predicted Rep	R PCT	D Lost	R Lost	D Surplus	R Surplus	D Wasted	R Wasted	R-D Net	Rep Win
37	57671	227	0.40%		9,222	29.3%	22240	70.7%	9222	-	-	6,509	9,222	6,509	2,713	1
38	57572	128	0.22%		9,710	28.0%	25021	72.0%	9710	-	-	7,655	9,710	7,655	2,055	1
39	57457	13	0.02%		10,747	38.0%	17526	62.0%	10747	-	-	3,390	10,747	3,390	7,357	1
40	57495	51	0.09%		15,061	51.9%	13947	48.1%	0	13,947	557	-	557	13,947	(13,391)	0
41	57671	227	0.40%		16,784	56.1%	13120	43.9%	0	13,120	1,832	-	1,832	13,120	(11,288)	0
42	57559	115	0.20%		13,254	51.9%	12282	48.1%	0	12,282	486	-	486	12,282	(11,796)	0
43	57444	0	0.00%		12,658	48.2%	13606	51.8%	12658	-	-	474	12,658	474	12,184	1
44	57434	-10	-0.02%		16,477	60.2%	10886	39.8%	0	10,886	2,795	-	2,795	10,886	(8,091)	0
45	57242	-202	-0.35%		16,352	54.6%	13589	45.4%	0	13,589	1,382	-	1,382	13,589	(12,207)	0
46	57463	19	0.03%		20,583	64.3%	11418	35.7%	0	11,418	4,582	-	4,582	11,418	(6,835)	0
47	57494	50	0.09%		20,208	67.1%	9888	32.9%	0	9,888	5,160	-	5,160	9,888	(4,728)	0
48	57568	124	0.22%		24,457	73.5%	8840	26.5%	0	8,840	7,808	-	7,808	8,840	(1,032)	0
49	57389	-55	-0.10%		13,625	50.3%	13477	49.7%	0	13,477	74	-	74	13,477	(13,403)	0
50	57465	21	0.04%		12,289	47.3%	13709	52.7%	12289	-	-	710	12,289	710	11,579	1
51	57247	-197	-0.34%		14,760	52.6%	13323	47.4%	0	13,323	718	-	718	13,323	(12,605)	0
52	57384	-60	-0.10%		12,376	38.9%	19416	61.1%	12376	-	-	3,520	12,376	3,520	8,857	1
53	57444	0	0.00%		12,388	48.1%	13362	51.9%	12388	-	-	487	12,388	487	11,902	1
54	57443	-1	0.00%		14,032	53.4%	12240	46.6%	0	12,240	896	-	896	12,240	(11,344)	0
55	57446	2	0.00%		13,565	47.0%	15300	53.0%	13565	-	-	868	13,565	868	12,697	1
56	57342	-102	-0.18%		12,553	46.4%	14518	53.6%	12553	-	-	983	12,553	983	11,570	1
57	57404	-40	-0.07%		14,897	53.4%	13016	46.6%	0	13,016	941	-	941	13,016	(12,075)	0
58	57436	-8	-0.01%		9,325	30.6%	21180	69.4%	9325	-	-	5,927	9,325	5,927	3,398	1
59	57554	110	0.19%		11,565	34.5%	21984	65.5%	11565	-	-	5,209	11,565	5,209	6,356	1
60	57547	103	0.18%		8,756	28.1%	22415	71.9%	8756	-	-	6,830	8,756	6,830	1,926	1
61	57605	161	0.28%		12,933	43.8%	16576	56.2%	12933	-	-	1,822	12,933	1,822	11,112	1
62	57632	188	0.33%		15,181	60.3%	9999	39.7%	0	9,999	2,591	-	2,591	9,999	(7,408)	0
63	57299	-145	-0.25%		15,640	61.2%	9902	38.8%	0	9,902	2,869	-	2,869	9,902	(7,033)	0
64	57266	-178	-0.31%		15,089	52.8%	13470	47.2%	0	13,470	810	-	810	13,470	(12,660)	0
65	57601	157	0.27%		12,721	39.1%	19816	60.9%	12721	-	-	3,547	12,721	3,547	9,173	1
66	57459	15	0.03%		16,286	71.9%	6362	28.1%	0	6,362	4,962	-	4,962	6,362	(1,401)	0
67	57378	-66	-0.11%		15,321	51.9%	14226	48.1%	0	14,226	547	-	547	14,226	(13,678)	0
68	57254	-190	-0.33%		11,958	49.7%	12124	50.3%	11958	-	-	83	11,958	83	11,875	1
69	57424	-20	-0.03%		17,902	59.8%	12022	40.2%	0	12,022	2,940	-	2,940	12,022	(9,083)	0
70	57415	-29	-0.05%		18,661	60.3%	12266	39.7%	0	12,266	3,197	-	3,197	12,266	(9,069)	0
71	57228	-216	-0.38%		15,081	52.1%	13884	47.9%	0	13,884	599	-	599	13,884	(13,285)	0
72	57654	210	0.37%		11,180	40.3%	16542	59.7%	11180	-	-	2,681	11,180	2,681	8,500	1

All Open Seat Data

District	Pop	Dev	% Dev	Net D	Predicted Dem	D Pct	Predicted Rep	R PCT	D Lost	R Lost	D Surplus	R Surplus	D Wasted	R Wasted	R-D Net	Rep Win
73	57491	47	0.08%		17,137	61.4%	10785	38.6%	0	10,785	3,176	-	3,176	10,785	(7,609)	0
74	57320	-124	-0.22%		17,712	55.5%	14219	44.5%	0	14,219	1,747	-	1,747	14,219	(12,472)	0
75	57255	-189	-0.33%		13,902	44.0%	17700	56.0%	13902	-	-	1,899	13,902	1,899	12,002	1
76	57586	142	0.25%		30,929	82.0%	6811	18.0%	0	6,811	12,059	-	12,059	6,811	5,248	0
77	57398	-46	-0.08%		26,708	81.5%	6059	18.5%	0	6,059	10,325	-	10,325	6,059	4,266	0
78	57579	135	0.24%		24,413	71.3%	9847	28.7%	0	9,847	7,283	-	7,283	9,847	(2,564)	0
79	57341	-103	-0.18%		20,439	60.6%	13294	39.4%	0	13,294	3,572	-	3,572	13,294	(9,722)	0
80	57385	-59	-0.10%		20,179	63.4%	11644	36.6%	0	11,644	4,267	-	4,267	11,644	(7,377)	0
81	57266	-178	-0.31%		13,703	51.8%	12741	48.2%	0	12,741	481	-	481	12,741	(12,260)	0
82	57641	197	0.34%		9,871	31.8%	21201	68.2%	9871	-	-	5,665	9,871	5,665	4,206	1
83	57612	168	0.29%		9,241	28.6%	23075	71.4%	9241	-	-	6,917	9,241	6,917	2,324	1
84	57375	-69	-0.12%		11,990	34.6%	22700	65.4%	11990	-	-	5,355	11,990	5,355	6,634	1
85	57529	85	0.15%		10,028	43.2%	13190	56.8%	10028	-	-	1,581	10,028	1,581	8,448	1
86	57477	33	0.06%		13,853	50.7%	13494	49.3%	0	13,494	180	-	180	13,494	(13,314)	0
87	57661	217	0.38%		11,358	40.0%	17003	60.0%	11358	-	-	2,823	11,358	2,823	8,535	1
88	57533	89	0.15%		14,209	56.0%	11142	44.0%	0	11,142	1,533	-	1,533	11,142	(9,609)	0
89	57490	46	0.08%		13,374	45.9%	15771	54.1%	13374	-	-	1,199	13,374	1,199	12,175	1
90	57617	173	0.30%		11,349	39.4%	17468	60.6%	11349	-	-	3,059	11,349	3,059	8,290	1
91	57374	-70	-0.12%		14,807	51.7%	13845	48.3%	0	13,845	481	-	481	13,845	(13,364)	0
92	57421	-23	-0.04%		14,907	50.5%	14594	49.5%	0	14,594	157	-	157	14,594	(14,437)	0
93	57280	-164	-0.29%		12,441	40.8%	18057	59.2%	12441	-	-	2,808	12,441	2,808	9,633	1
94	57509	65	0.11%		16,171	57.9%	11759	42.1%	0	11,759	2,206	-	2,206	11,759	(9,553)	0
95	57496	52	0.09%		19,769	66.5%	9949	33.5%	0	9,949	4,910	-	4,910	9,949	(5,040)	0
96	57406	-38	-0.07%		14,665	51.5%	13836	48.5%	0	13,836	415	-	415	13,836	(13,421)	0
97	57487	43	0.07%		11,492	32.2%	24222	67.8%	11492	-	-	6,365	11,492	6,365	5,128	1
98	57485	41	0.07%		9,864	28.5%	24773	71.5%	9864	-	-	7,454	9,864	7,454	2,410	1
99	57657	213	0.37%		10,783	36.0%	19160	64.0%	10783	-	-	4,188	10,783	4,188	6,594	1
	5686986	30	0.86%		1,454,117		1,388,991		566,634	536,783	175,350	142,787	741,984	679,570	62,414	48

Wisconsin State Elections Board

Results of Fall General Election - 11/04/2008

Office President | Total Vote : 2,983,417 | Incumbent George W. Bush/ Dick Cheney

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	1,677,211	56.22 %	DEM	200622 OBAMA	Barack Obama/ Joe Biden 233 North Michigan Avenue, Ste. 1720 Chicago, IL 60601
	1,262,393	42.31 %	REP	200529 MCCAIN	John McCain/ Sarah Palin 2211 East Camelback Road Phoenix, AZ 85016
	4,216	.14 %	WGR	200647 MCKINNEY	Cynthia McKinney/ Rosa Clemente 10371 Beach Street Los Angeles, CA 90002
	8,858	.3 %	LIB	200644 BARR	Bob Barr/ Wayne A. Root 2256 Parkwood Place Ct. Smyrna, GA 30080
	540	.02 %	IND	200646 MOORE	Brian Moore/ Stewart A. Alexander 5559 Cactus Circle Spring Hill, FL 34606
	237	.01 %	IND	200641 LARIVA	Gloria LaRiva/ Robert Moses 3207 Mission Street, Apt. 9 San Francisco, CA 94110
	17,605	.59 %	IND	200487 NADER	Ralph Nader/ Matt Gonzalez 53 Hillside Avenue Winsted, CT 06098
	5,072	.17 %	IND	200645 BALDWIN	Chuck Baldwin/ Darrell L. Castle 7970 Sasser Lane Pensacola, FL 32526
	764	.03 %	IND	200643 WAMBOLDT	Jeffrey J. Wamboldt/ David J. Klimisch 10314 83rd Place Pleasant Prairie, WI 53158
	6,521	.22 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	US Congress, District No. 1			Total Vote : 361,107	Incumbent Paul Ryan
	125,268	34.69 %	DEM	200638 KRUPP	Marge Krupp 11427 79th Place Pleasant Prairie, WI 53158
Winner	231,009	63.97 %	REP	200500 RYAN	Paul Ryan 221 East Holmes Street Janesville, WI 53545
	4,606	1.28 %	LIB	200630 KEXEL	Joseph Kexel 7616 33rd Avenue Kenosha, WI 53142
	224	.06 %			Scattering
Office	US Congress, District No. 2			Total Vote : 400,841	Incumbent Tammy Baldwin
Winner	277,914	69.33 %	DEM	200491 BALDWIN	Tammy Baldwin 10 East Doty Street, #405 Madison, WI 53703
	122,513	30.56 %	REP	200629 THERON	Peter Theron 1021 Sequoia Trail Madison, WI 53713-2522
	414	.1 %			Scattering

Wisconsin State Elections Board

Results of Fall General Election - 11/04/2008

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office US Congress, District No. 3				Total Vote : 356,400	Incumbent Ron Kind
Winner	225,208	63.19 %	DEM	200435 KIND	Ron Kind 3061 Edgewater Lane La Crosse, WI 54603
	122,760	34.44 %	REP	200634 STARK	Paul Stark S7950 Graceland Court Eau Claire, WI 54701
	8,236	2.31 %	LIB	200637 BARRETT	Kevin Barrett E2729 Porter Road Lone Rock, WI 53556
	196	.05 %			Scattering
Office US Congress, District No. 4				Total Vote : 254,179	Incumbent Gwen Moore
Winner	222,728	87.63 %	DEM	200564 MOORE	Gwen Moore 4043 North 19th Place Milwaukee, WI 53209
	29,282	11.52 %	IND	200648 LAFOREST	Michael D. LaForest 4470 West Sumac Place Milwaukee, WI 53219
	2,169	.85 %			Scattering
Office US Congress, District No. 5				Total Vote : 345,899	Incumbent F. James Sensenbrenner, Jr.
Winner	275,271	79.58 %	REP	200049 SENSENBRENNE	F. James Sensenbrenner, Jr. N76 W14726 Northpoint Drive, P.O. Box 186 Menomonee Falls, WI 53052-0186
	69,715	20.15 %	IND	200513 RAYMOND	Robert R. Raymond 4102 North Morris Boulevard Shorewood, WI 53211
	913	.26 %			Scattering

Wisconsin State Elections Board
Results of Fall General Election - 11/04/2008

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office US Congress, District No. 6				Total Vote : 348,264	Incumbent Tom Petri
	126,090	36.21 %	DEM	200636 KITTELSON	Roger A. Kittelson 555 Sunrise Avenue Lomira, WI 53048
Winner	221,875	63.71 %	REP	200100 PETRI	Tom Petri N5329 De Neveu Lane Fond du Lac, WI 54935
	299	.09 %			Scattering
Office US Congress, District No. 7				Total Vote : 349,837	Incumbent David R. Obey
Winner	212,666	60.79 %	DEM	200024 OBEY	David R. Obey 1212 Grand Avenue, #32 Wausau, WI 54403
	136,938	39.14 %	REP	200627 MIELKE	Dan Mielke 2550 County Road II Rudolph, WI 54475
	233	.07 %			Scattering
Office US Congress, District No. 8				Total Vote : 358,647	Incumbent Steven L. Kagen
Winner	193,662	54 %	DEM	200611 KAGEN	Steve Kagen 1712 South Mason Street Appleton, WI 54914
	164,621	45.9 %	REP	200591 GARD	John Gard 2234 Skyline Pines Drive Suamico, WI 54313
	364	.1 %			Scattering

Wisconsin State Elections Board

Results of Fall General Election - 11/04/2008

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office State Senate, District No. 2					Total Vote : 60,900 Incumbent Robert L. Cowles
Winner	60,507	99.35 %	REP	100789 COWLES	Robert L. Cowles 300 West St. Joseph Street Green Bay, WI 54301-2328
	393	.65 %			Scattering
Office State Senate, District No. 4					Total Vote : 67,551 Incumbent Lena C. Taylor
Winner	66,751	98.82 %	DEM	104170 TAYLOR	Lena C. Taylor 1518 West Capitol Drive Milwaukee, WI 53206
	800	1.18 %			Scattering
Office State Senate, District No. 6					Total Vote : 61,309 Incumbent Spencer Coggs
Winner	60,606	98.85 %	DEM	101390 COGGS	Spencer Coggs 7819 West Potomac Ave Milwaukee, WI 53222
	703	1.15 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Senate, District No. 8			Total Vote : 99,328	Incumbent Alberta Darling
	49,118	49.45 %	DEM	103149 WASSERMAN	Sheldon A. Wasserman 3487 North Lake Drive Milwaukee, WI 53211
Winner	50,125	50.46 %	REP	102511 DARLING	Alberta Darling 1325 West Dean Road River Hills, WI 53217
	85	.09 %			Scattering
Office	State Senate, District No. 10			Total Vote : 98,967	Incumbent Sheila Harsdorf
	43,041	43.49 %	DEM	104633 PAGE	Alison H. Page 430 Crescent Street River Falls, WI 54022
Winner	55,816	56.4 %	REP	102332 HARSDORF	Sheila Harsdorf N6627 County Road E River Falls, WI 54022
	110	.11 %			Scattering
Office	State Senate, District No. 12			Total Vote : 85,125	Incumbent Roger Breske (Filed Notification of Noncandidacy)
Winner	43,595	51.21 %	DEM	101410 HOLPERIN	Jim Holperin 3575 Monheim Rd Conover, WI 54516
	41,480	48.73 %	REP	104212 TIFFANY	Tom Tiffany 4973 Willow Dam Rd Hazelhurst, WI 54531
	50	.06 %			Scattering

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	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office State Senate, District No. 14				Total Vote : 54,486	Incumbent Luther S. Olsen
Winner	54,138	99.36 %	REP	103168 OLSEN	Luther S. Olsen 1023 Thomas Street Ripon, WI 54971
	348	.64 %			Scattering
Office State Senate, District No. 16				Total Vote : 74,197	Incumbent Mark Miller
Winner	73,672	99.29 %	DEM	102942 MILLER	Mark Miller 4903 Roigan Terrace Monona, WI 53716
	525	.71 %			Scattering
Office State Senate, District No. 18				Total Vote : 83,724	Incumbent Carol A. Roessler (Filed Notification of Noncandidacy)
	41,741	49.86 %	DEM	104608 KING	Jessica King 1523 Hazel Street Oshkosh, WI 54901
Winner	41,904	50.05 %	REP	104739 HOPPER	Randy Hopper W5192 Rienzi Road Fond du Lac, WI 54935
	79	.09 %			Scattering

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	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office: State Senate, District No. 20				Total Vote : 87,146	Incumbent Glenn Grothman
Winner	69,942	80.26 %	REP	103073 GROTHMAN	Glenn Grothman 111 South 6th Avenue West Bend, WI 53095
	17,113	19.64 %	IND	104752 WINTER	Clyde Winter 2276 Highway I Grafton, WI 53024
	91	.1 %			Scattering
Office: State Senate, District No. 22				Total Vote : 82,444	Incumbent Robert W. Wirch
Winner	54,946	66.65 %	DEM	102813 WIRCH	Robert W. Wirch 3007 Springbrook Road Pleasant Prairie, WI 53158
	27,383	33.21 %	REP	104684 BAKKE	Benjamin Lee Bakke 5301 65th Place Kenosha, WI 53142
	115	.14 %			Scattering
Office: State Senate, District No. 24				Total Vote : 85,690	Incumbent Julie Lassa
Winner	57,985	67.67 %	DEM	103147 LASSA	Julie M. Lassa 4901 Beaver Dam Rd Stevens Point, WI 54481
	27,660	32.28 %	REP	104762 KIMMET	Tom Kimmet 5902 Hickory Road Vesper, WI 54489
	45	.05 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office State Senate, District No. 26				Total Vote : 81,630	Incumbent Fred A. Risser
Winner	80,923	99.13 %	DEM	100332 RISSER	Fred A. Risser 100 Wisconsin Avenue, Unit 501 Madison, WI 53703
	707	.87 %			Scattering
Office State Senate, District No. 28				Total Vote : 75,522	Incumbent Mary Lazich
Winner	74,951	99.24 %	REP	102385 LAZICH	Mary Lazich 4405 South 129th Street New Berlin, WI 53151
	571	.76 %			Scattering
Office State Senate, District No. 30				Total Vote : 78,176	Incumbent Dave Hansen
Winner	51,643	66.06 %	DEM	103835 HANSEN	Dave Hansen 920 Coppens Road Green Bay, WI 54303
	26,483	33.88 %	REP	104631 FRADETTE	Chad Fradette 1406 Day Street Green Bay, WI 54302
	50	.06 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate

Office State Senate, District No. 32 — Total Vote : 87,881 — Incumbent Dan Kapanke

	42,647	48.53 %	DEM	104632 JOHNSON	Tara Johnson N980 Bloomer Mill Road LaCrosse, WI 54601-2100
Winner	45,154	51.38 %	REP	103851 KAPANKE	Dan Kapanke 1610 Lakeshore Drive La Crosse, WI 54603
	80	.09 %			Scattering

Office State Assembly, District No. 1 — Total Vote : 30,985 — Incumbent Garey Bies

	15,055	48.59 %	DEM	104647 SKARE	Dick Skare 9311 Gibraltar Bluff Road Fish Creek, WI 54212
Winner	15,905	51.33 %	REP	103815 BIES	Garey Bies 2520 Settlement Rd Sister Bay, WI 54234
	25	.08 %			Scattering

Office State Assembly, District No. 2 — Total Vote : 30,714 — Incumbent Frank G. Lasee

Winner	16,008	52.12 %	DEM	104562 ZIGMUNT	Ted Zigmunt 305 Oakwood Drive, P.O. Box 321 Francis Creek, WI 54214
	14,687	47.82 %	REP	103174 LASEE	Frank Lasee 2380 Bluestone Place Green Bay, WI 54311
	19	.06 %			Scattering

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Office State Assembly, District No. 3 — Total Vote : 33,795 — Incumbent Al Ott

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
	14,081	41.67 %	DEM	104750 KRUEGER	Justin Krueger 215 Prospect Street Combined Locks, WI 54113
Winner	19,689	58.26 %	REP	102095 OTT	Al Ott W2168 Campground Rd Forest Junction, WI 54123
	25	.07 %			Scattering

Office State Assembly, District No. 4 — Total Vote : 28,647 — Incumbent Phil Montgomery

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
	13,520	47.2 %	DEM	104698 DUNLOP	Sam Dunlop 924 Cedar Street De Pere, WI 54115
Winner	15,106	52.73 %	REP	103596 MONTGOMERY	Phil Montgomery 1305 Oak Crest Drive Ashwaubenon, WI 54313
	21	.07 %			Scattering

Office State Assembly, District No. 5 — Total Vote : 30,083 — Incumbent Tom Nelson

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	19,384	64.44 %	DEM	104230 NELSON	Tom Nelson 1510 Orchard Drive Kaukauna, WI 54130
	10,684	35.52 %	REP	104713 STEINEKE	Jim Steineke N2352 Vandenbroek Road Kaukauna, WI 54130
	15	.05 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 6			Total Vote : 25,874	Incumbent Gary Tauchen
	11,631	44.95 %	DEM	104390 POWERS	John Powers W16533 Wilson Creek Lane Wittenburg, WI 54499
Winner	14,237	55.02 %	REP	104463 TAUCHEN	Gary Tauchen N3397 S Broadway Rd Bonduel, WI 54107
	6	.02 %			Scattering
Office	State Assembly, District No. 7			Total Vote : 27,831	Incumbent Peggy Krusick
Winner	16,568	59.53 %	DEM	101250 KRUSICK	Peggy Krusick 3426 South 69th Street Milwaukee, WI 53219
	10,578	38.01 %	REP	104710 WIESMUELLER	Corrine Wiesmueller 9089 West Waterford Square N Greenfield, WI 53228
	655	2.35 %	LIB	104720 SPONHOLZ	Brad Sponholz 4407 West Ohio Avenue Greenfield, WI 53219
	30	.11 %			Scattering
Office	State Assembly, District No. 8			Total Vote : 8,898	Incumbent Pedro Colon
Winner	8,743	98.26 %	DEM	103656 COLON	Pedro Colon 821 South 3rd St Milwaukee, WI 53204
	155	1.74 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 9			Total Vote : 14,280	Incumbent Josh Zepnick
Winner	14,070	98.53 %	DEM	104034 ZEPNICK	Josh Zepnick 3173 S. 49th St Milwaukee, WI 53219
	210	1.47 %			Scattering
Office	State Assembly, District No. 10			Total Vote : 23,140	Incumbent Annette Polly Williams
Winner	22,952	99.19 %	DEM	100428 WILLIAMS	Annette Polly Williams 3927 North 16th Street Milwaukee, WI 53206-2918
	188	.81 %			Scattering
Office	State Assembly, District No. 11			Total Vote : 21,245	Incumbent Jason Fields
Winner	21,083	99.24 %	DEM	104274 FIELDS	Jason Fields 5686 North 60th Street Milwaukee, WI 53218
	162	.76 %			Scattering
Office	State Assembly, District No. 12			Total Vote : 20,622	Incumbent Frederick P. Kessler
Winner	20,399	98.92 %	DEM	100994 KESSLER	Frederick P. Kessler 11221 West Sanctuary Dr Milwaukee, WI 53224
	223	1.08 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office State Assembly, District No. 13				Total Vote : 22,316	Incumbent David Cullen
Winner	21,963	98.42 %	DEM	101887 CULLEN	David Cullen 2845 North 68th Street Milwaukee, WI 53210
	353	1.58 %			Scattering
Office State Assembly, District No. 14				Total Vote : 31,182	Incumbent Leah Vukmir
	11,708	37.55 %	DEM	104554 HUCKE	Dave Hucke 332 N. 95th St Milwaukee, WI 53226
Winner	19,419	62.28 %	REP	104015 VUKMIR	Leah Vukmir 2544 North 93rd Street Wauwatosa, WI 53226
	55	.18 %			Scattering
Office State Assembly, District No. 15				Total Vote : 25,891	Incumbent Tony Staskunas
Winner	15,652	60.45 %	DEM	103374 STASKUNAS	Tony Staskunas 2010 South 103rd Ct West Allis, WI 53227
	10,200	39.4 %	REP	104566 NICKEL	David Nickel 1131 South 75th St West Allis, WI 53214
	39	.15 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 16			Total Vote : 19,432	Incumbent Leon D. Young
Winner	19,200	98.81 %	DEM	102990 YOUNG	Leon D. Young 2224 North 17th Street Milwaukee, WI 53205
	232	1.19 %			Scattering
Office	State Assembly, District No. 17			Total Vote : 23,227	Incumbent Barbara L. Toles
Winner	23,041	99.2 %	DEM	104213 TOLES	Barbara L. Toles 3835 N 56th St Milwaukee, WI 53216
	186	.8 %			Scattering
Office	State Assembly, District No. 18			Total Vote : 17,559	Incumbent Tamara D. Grigsby
Winner	17,377	98.96 %	DEM	104335 GRIGSBY	Tamara D. Grigsby 2354 North 41st Street Milwaukee, WI 53210
	182	1.04 %			Scattering
Office	State Assembly, District No. 19			Total Vote : 25,660	Incumbent Jon Richards
Winner	25,281	98.52 %	DEM	103633 RICHARDS	Jon Richards 1823 North Oakland Avenue Milwaukee, WI 53202
	379	1.48 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 20			Total Vote : 20,277	Incumbent Christine M. Sinicki
Winner	19,917	98.22 %	DEM	103687 SINICKI	Christine M. Sinicki 3132 South Indiana Ave Milwaukee, WI 53207
	360	1.78 %			Scattering
Office	State Assembly, District No. 21			Total Vote : 29,902	Incumbent Mark Honadel
	14,184	47.43 %	DEM	104666 BROWER	Glen Brower 404 Lake Drive South Milwaukee, WI 53172
Winner	15,679	52.43 %	REP	104183 HONADEL	Mark Honadel 1219 Manitoba Avenue South Milwaukee, WI 53172
	39	.13 %			Scattering
Office	State Assembly, District No. 22			Total Vote : 32,716	Incumbent Sheldon A. Wasserman (Filed Notification of Noncandidacy)
Winner	21,938	67.06 %	DEM	104577 PASCH	Sandy Pasch 6301 North Berkeley Boulevard Whitefish Bay, WI 53217
	10,720	32.77 %	REP	104686 WADHWA	Yash P. Wadhwa 920 West Brentwood Lane Glendale, WI 53217
	58	.18 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 23			Total Vote : 30,787	Incumbent Jim Ott
	12,960	42.1 %	DEM	104293 SETTLE-ROBINS(	Rene Settle-Robinson 7609 West Glenbrook Road Milwaukee, WI 53223
Winner	17,804	57.83 %	REP	104488 OTT	Jim Ott 11743 North Lakeshore Drive Mequon, WI 53092
	23	.07 %			Scattering
Office	State Assembly, District No. 24			Total Vote : 33,145	Incumbent Suzanne Jeskewitz (Filed Notification of Noncandidacy)
	12,561	37.9 %	DEM	104733 BRADY	Charlene S. Brady N109W16620 Hawthorne Drive Germantown, WI 53022
Winner	20,510	61.88 %	REP	104717 KNODL	Dan Knodl N101 W14475 Ridgefield Court Germantown, WI 53022
	74	.22 %			Scattering
Office	State Assembly, District No. 25			Total Vote : 19,920	Incumbent Bob Ziegelbauer
Winner	19,690	98.85 %	DEM	101280 ZIEGELBAUER	Bob Ziegelbauer 1213 South 8th Street, PO Box 325 Manitowoc, WI 54221-0325
	230	1.15 %			Scattering

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	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	**State Assembly, District No. 26**				Total Vote : 24,523 Incumbent Terry Van Akkeren
Winner	16,046	65.43 %	DEM	103784 VAN AKKEREN	Terry Van Akkeren 1612 South 7th St Sheboygan, WI 53081
	8,463	34.51 %	REP	104753 PIEPER	Alex Pieper 152 Grafton Court Kohler, WI 53044
	14	.06 %			Scattering
Office	**State Assembly, District No. 27**				Total Vote : 31,393 Incumbent Steve Kestell
	10,672	33.99 %	DEM	104768 COX	Bob Cox 4022 North 45th Street Sheboygan, WI 53083
Winner	20,704	65.95 %	REP	103640 KESTELL	Steve Kestell W3829 Hwy 32 Elkhart Lake, WI 53020
	17	.05 %			Scattering
Office	**State Assembly, District No. 28**				Total Vote : 29,633 Incumbent Ann Hraychuck
Winner	16,407	55.37 %	DEM	104389 HRAYCHUCK	Ann Hraychuck 1629 130th St, P.O. Box 334 Balsam Lake, WI 54810
	13,214	44.59 %	REP	104679 MUSCHINSKE	Kent Muschinske 2129 100th Avenue Dresser, WI 54009
	12	.04 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	**State Assembly, District No. 29**			Total Vote : 33,036	Incumbent John Murtha
	14,115	42.73 %	DEM	104667 BUCKEL	Chris Buckel 960 Marjorie Street Hammond, WI 54015
Winner	17,633	53.38 %	REP	104510 MURTHA	John Murtha 2283 20th Avenue Baldwin, WI 54002
	1,257	3.8 %	LIB	104262 MOHN	Craig Mohn 505 Southside Drive Woodville, WI 54028
	31	.09 %			Scattering
Office	**State Assembly, District No. 30**			Total Vote : 36,041	Incumbent Kitty Rhoades
	16,278	45.17 %	DEM	104624 BRUCH	Sarah A. Bruch 645 Cherry Hill Lane Hudson, WI 54016
Winner	19,729	54.74 %	REP	103675 RHOADES	Kitty Rhoades 708 4th Street Hudson, WI 54016
	34	.09 %			Scattering
Office	**State Assembly, District No. 31**			Total Vote : 32,671	Incumbent Steve Nass
	10,853	33.22 %	DEM	104690 URBAN	Frank E. Urban W277 Northey Road Dousman, WI 53118
Winner	21,780	66.66 %	REP	102660 NASS	Steve Nass N8330 Jackson Rd Whitewater, WI 53190
	38	.12 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 32			Total Vote : 26,508	Incumbent Thomas A. Lothian
	10,928	41.23 %	DEM	104677 HARROD	Doug A. Harrod W1815 County Highway B Genoa City, WI 53128
Winner	13,692	51.65 %	REP	104079 LOTHIAN	Thomas A. Lothian 539 Park Ridge Road Williams Bay, WI 53191
	1,865	7.04 %	IND	104755 FINLEY	John K. Finley 201 West Washington Street Delavan, WI 53115
	23	.09 %			Scattering
Office	State Assembly, District No. 33			Total Vote : 27,811	Incumbent Scott Newcomer
Winner	27,746	99.77 %	REP	103950 NEWCOMER	Scott Newcomer 1829 Nagawicka Road Hartland, WI 53029
	65	.23 %			Scattering
Office	State Assembly, District No. 34			Total Vote : 32,416	Incumbent Dan Meyer
	16,092	49.64 %	DEM	104527 TUBBS	Paul Tubbs 4205 West Lake George Road, P.O. Box 253 Rhinelander, WI 54501
Winner	16,300	50.28 %	REP	103774 MEYER	Dan Meyer 1013 Walnut St Eagle River, WI 54521
	24	.07 %			Scattering

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	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	**State Assembly, District No. 35**			Total Vote : 27,181	Incumbent Don Friske
	11,751	43.23 %	DEM	104682 SCHMELLING	Jay Schmelling N1206 Cain Creek Road Merrill, WI 54452-9083
Winner	15,416	56.72 %	REP	103843 FRISKE	Don Friske N2998 CTH K Merrill, WI 54452
	14	.05 %			Scattering
Office	**State Assembly, District No. 36**			Total Vote : 25,229	Incumbent Jeffrey L. Mursau
	12,159	48.19 %	DEM	101711 GRUSZYNSKI	Stan Gruszynski W3034 Twin Creek Rd Porterfield, WI 54159
Winner	13,064	51.78 %	REP	104355 MURSAU	Jeffrey L. Mursau 4 Oak St Crivitz, WI 54114
	6	.02 %			Scattering
Office	**State Assembly, District No. 37**			Total Vote : 29,923	Incumbent Andy Jorgensen
Winner	17,724	59.23 %	DEM	104452 JORGENSEN	Andy Jorgensen 1424 Endl Blvd Fort Atkinson, WI 53538
	12,161	40.64 %	REP	104702 KOEBKE	Kent Koebke 551 Milwaukee Avenue E Fort Atkinson, WI 53538
	38	.13 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	**State Assembly, District No. 38**			Total Vote : 30,623	Incumbent Joel Kleefisch
	10,295	33.62 %	DEM	104725 PAS	Dick Pas 662 E. Juneau Avenue Oconomowoc, WI 53066
Winner	20,294	66.27 %	REP	104258 KLEEFISCH	Joel Kleefisch W357N6189 Spinnaker Drive Oconomowoc, WI 53066
	34	.11 %			Scattering
Office	**State Assembly, District No. 39**			Total Vote : 26,588	Incumbent Jeff Fitzgerald
	10,607	39.89 %	DEM	104589 ONSRUD	Aaron E. Onsrud 104 York Street Beaver Dam, WI 53916
Winner	15,974	60.08 %	REP	103832 FITZGERALD	Jeff Fitzgerald 910 Sunset Lane Horicon, WI 53032
	7	.03 %			Scattering
Office	**State Assembly, District No. 40**			Total Vote : 25,289	Incumbent Kevin David Petersen
	10,537	41.67 %	DEM	104689 KUEHL	Kevin M. Kuehl 511 South State Street Waupaca, WI 54981
Winner	14,741	58.29 %	REP	104400 PETERSEN	Kevin David Petersen N1433 Drivas Rd Waupaca, WI 54981
	11	.04 %			Scattering

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Office: State Assembly, District No. 41 — Total Vote: 26,532 — Incumbent: Joan A. Ballweg

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
	9,853	37.14 %	DEM	104650 MILHEISER	Scott Milheiser 1466 Wolf River Drive Fremont, WI 54940
Winner	16,658	62.78 %	REP	104243 BALLWEG	Joan A. Ballweg 170 W. Summit St. Markesan, WI 53946
	21	.08 %			Scattering

Office: State Assembly, District No. 42 — Total Vote: 27,257 — Incumbent: J.A. Hines

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	15,936	58.47 %	DEM	104644 CLARK	Fred Clark E12367 Cty Rd W Baraboo, WI 53913
	11,304	41.47 %	REP	103561 HINES	J.A. Hines W8632 County I Oxford, WI 53952
	17	.06 %			Scattering

Office: State Assembly, District No. 43 — Total Vote: 29,914 — Incumbent: Kim Hixson

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	15,303	51.16 %	DEM	104475 HIXSON	Kim Hixson 327 South Woodland Drive Whitewater, WI 53190
	14,581	48.74 %	REP	104061 TOWNS	Debi Towns 7930 North Eagle Rd Janesville, WI 53548
	30	.1 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 44			Total Vote : 19,698	Incumbent Mike Sheridan
Winner	19,531	99.15 %	DEM	104286 SHERIDAN	Mike Sheridan 1032 Nantucket Dr Janesville, WI 53546
	167	.85 %			Scattering
Office	State Assembly, District No. 45			Total Vote : 26,590	Incumbent Chuck Benedict
Winner	16,053	60.37 %	DEM	104308 BENEDICT	Chuck Benedict 3639 Bee Lane Beloit, WI 53511
	10,524	39.58 %	REP	104640 HAHN	Mike Hahn 430 Harrison Avenue, #305 Beloit, WI 53511
	13	.05 %			Scattering
Office	State Assembly, District No. 46			Total Vote : 33,721	Incumbent Gary Hebl
Winner	22,350	66.28 %	DEM	104277 HEBL	Gary Hebl 515 Scheuerell Ln Sun Prairie, WI 53590
	11,365	33.7 %	REP	104741 MAVES	Kathy Maves 744 Cledell Street Oregon, WI 53575
	6	.02 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	**State Assembly, District No. 47**			Total Vote : 32,310	Incumbent Eugene Hahn (Filed Notification of Noncandidacy)
	15,443	47.8 %	DEM	104604 O'NEIL	Trish O'Neil W1087 Fox Road Columbus, WI 53925
Winner	15,466	47.87 %	REP	104638 RIPP	Keith Ripp 7113 County Road V Lodi, WI 53555
	1,388	4.3 %	IND	104685 HRUBY	Dennis E. Hruby 7493 Brereton Road Dane, WI 53529
	13	.04 %			Scattering
Office	**State Assembly, District No. 48**			Total Vote : 27,777	Incumbent Joseph T. Parisi
Winner	27,640	99.51 %	DEM	103945 PARISI	Joseph T. Parisi 702 McLean Drive Madison, WI 53718
	137	.49 %			Scattering
Office	**State Assembly, District No. 49**			Total Vote : 25,693	Incumbent Phil Garthwaite
Winner	13,865	53.96 %	DEM	104431 GARTHWAITE	Phil Garthwaite 141 South Main Street Dickeyville, WI 53808
	11,793	45.9 %	REP	104591 TRANEL	Travis Tranel 2231 Louisburg Road Cuba City, WI 53807
	35	.14 %			Scattering

Office State Assembly, District No. 50 — Total Vote : 25,600 — Incumbent Sheryl K. Albers (Filed Notification of Noncandidacy)

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
	11,194	43.73 %	DEM	104596 CROFTON	Tom Crofton 16005 Crofton Drive Richland Center, WI 53581
Winner	14,387	56.2 %	REP	104714 BROOKS	Ed Brooks S4311 Grote Hill Road Reedsburg, WI 53959
	19	.07 %			Scattering

Office State Assembly, District No. 51 — Total Vote : 27,892 — Incumbent Steve Hilgenberg

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	15,855	56.84 %	DEM	104438 HILGENBERG	Steve Hilgenberg 3607 Evans Quarry Rd Dodgeville, WI 53533
	12,026	43.12 %	REP	104637 RUSSELL	Nathan R. Russell 1705 Bates Street Sauk City, WI 53583
	11	.04 %			Scattering

Office State Assembly, District No. 52 — Total Vote : 26,099 — Incumbent John Townsend

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
	10,966	42.02 %	DEM	104672 KEIFENHEIM	Jerry Keifenheim N7828 Van Dyne Road Fond du Lac, WI 54937
Winner	15,116	57.92 %	REP	103624 TOWNSEND	John Townsend 297 Rooseveldt Street Fond du Lac, WI 54935
	17	.07 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office: State Assembly, District No. 53					Total Vote : 28,014 — Incumbent: Carol Owens (Filed Notification of Noncandidacy)
	10,116	36.11 %	DEM	104704 MANN	Jeff Mann, 3116 Sheldon Drive, Oshkosh, WI 54904
Winner	17,872	63.8 %	REP	104203 SPANBAUER	Richard J. Spanbauer, 3040 Sheldon Dr, Oshkosh, WI 54904
	26	.09 %			Scattering
Office: State Assembly, District No. 54					Total Vote : 28,329 — Incumbent: Gordon Hintz
Winner	18,758	66.21 %	DEM	104278 HINTZ	Gordon Hintz, 1209 Waugoo Ave, Oshkosh, WI 54901
	9,531	33.64 %	REP	104693 REIFF	Mark Reiff, 456 West 9th Avenue, Apt. F, Oshkosh, WI 54902
	40	.14 %			Scattering
Office: State Assembly, District No. 55					Total Vote : 26,466 — Incumbent: Dean R. Kaufert
	12,179	46.02 %	DEM	104517 WESTPHAL	Mark Westphal, 945 Hunt Avenue, Neenah, WI 54956
Winner	14,259	53.88 %	REP	102571 KAUFERT	Dean R. Kaufert, 1360 Alpine Lane, Neenah, WI 54956
	28	.11 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	**State Assembly, District No. 56**			Total Vote : 35,149	Incumbent Roger J. Roth, Jr.
	14,144	40.24 %	DEM	104497 GARCIA FRANZ	Susan Garcia Franz 1790 Wendy Way Neenah, WI 54956
Winner	20,971	59.66 %	REP	104439 ROTH	Roger Roth 2732 West Glenpark Dr Appleton, WI 54914
	34	.1 %			Scattering
Office	**State Assembly, District No. 57**			Total Vote : 26,999	Incumbent Steve Wieckert (Filed Notification of Noncandidacy)
Winner	15,383	56.98 %	DEM	104412 SCHABER	Penny Bernard Schaber 815 East Washington Street Appleton, WI 54911-5660
	11,560	42.82 %	REP	104675 EGELHOFF	Jo Egelhoff 4734 Everbreeze Circle, Unit A Appleton, WI 54914
	56	.21 %			Scattering
Office	**State Assembly, District No. 58**			Total Vote : 28,515	Incumbent Pat Strachota
Winner	23,603	82.77 %	REP	104363 STRACHOTA	Pat Strachota 639 Ridge Rd West Bend, WI 53095
	4,891	17.15 %	IND	104614 DOMBRO	Greg Dombro 1450 Spring Valley Rd Jackson, WI 53037
	21	.07 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office State Assembly, District No. 59				Total Vote : 26,434	Incumbent Daniel LeMahieu
Winner	26,254	99.32 %	REP	104053 LEMAHIEU	Daniel R. LeMahieu W6284 Lake Ellen Drive, P.O. Box 277 Cascade, WI 53011
	180	.68 %			Scattering
Office State Assembly, District No. 60				Total Vote : 33,121	Incumbent Mark Gottlieb
	9,821	29.65 %	DEM	104585 DUMAN	Perry Duman 203 West Grand Avenue Port Washington, WI 53074
Winner	23,282	70.29 %	REP	103989 GOTTLIEB	Mark Gottlieb 1205 Noridge Trail Port Washington, WI 53074
	18	.05 %			Scattering
Office State Assembly, District No. 61				Total Vote : 18,547	Incumbent Robert Turner
Winner	16,267	87.71 %	DEM	101939 TURNER	Robert Turner 36 McKinley Avenue Racine, WI 53404
	2,242	12.09 %	LIB	100261 MEYERS	George Meyers 1307 N. Wisconsin Street Racine, WI 53402
	38	.2 %			Scattering

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	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office State Assembly, District No. 62				Total Vote : 21,164	Incumbent Cory Mason
Winner	17,892	84.54 %	DEM	104429 MASON	Cory Mason 3611 Kinzie Ave Racine, WI 53405
	3,217	15.2 %	LIB	104118 DESCHLER	Keith R. Deschler 1239 1/2 Monroe Avenue Racine, WI 53405
	55	.26 %			Scattering
Office State Assembly, District No. 63				Total Vote : 32,794	Incumbent Robin J. Vos
	12,609	38.45 %	DEM	104676 FLASHINSKI	Linda Flashinski 5508 River Hills Road Racine, WI 53402
Winner	20,172	61.51 %	REP	104283 VOS	Robin J. Vos 4710 Eastwood Ridge Racine, WI 53406
	13	.04 %			Scattering
Office State Assembly, District No. 64				Total Vote : 19,996	Incumbent Jim Kreuser (Filed Notification of Noncandidacy)
Winner	19,739	98.71 %	DEM	101918 BARCA	Peter W. Barca 1339 38th Avenue Kenosha, WI 53144
	257	1.29 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	**State Assembly, District No. 65**			Total Vote : 29,127	Incumbent John P. Steinbrink
Winner	18,093	62.12 %	DEM	103399 STEINBRINK	John Steinbrink 8640 - 88th Avenue Pleasant Prairie, WI 53158
	10,994	37.75 %	REP	104718 TIAHNYBOK	Alex Tiahnybok 8757 Lakeshore Drive Pleasant Prairie, WI 53158
	40	.14 %			Scattering
Office	**State Assembly, District No. 66**			Total Vote : 29,478	Incumbent Samantha Kerkman
	11,799	40.03 %	DEM	104582 ZAMBA	Larry Zamba 1720 216th Avenue Union Grove, WI 53182
Winner	17,659	59.91 %	REP	103849 KERKMAN	Samantha Kerkman 40255 105th Street Genoa City, WI 53128
	20	.07 %			Scattering
Office	**State Assembly, District No. 67**			Total Vote : 24,650	Incumbent Jeff Wood
	12,215	49.55 %	REP	104774 MOGA	Don Moga 17571 142nd Avenue Jim Falls, WI 54748
Winner	12,393	50.28 %	IND	104114 WOOD	Jeff Wood 1921 19th Avenue Bloomer, WI 54724
	42	.17 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 68			Total Vote : 30,657	Incumbent Terry Moulton
Winner	15,437	50.35 %	DEM	104590 DEXTER	Kristen Dexter 7410 Lakeview Drive Eau Claire, WI 54701
	15,165	49.47 %	REP	104124 MOULTON	Terry Moulton 980 118th St Chippewa Falls, WI 54729
	55	.18 %			Scattering
Office	State Assembly, District No. 69			Total Vote : 24,450	Incumbent Scott Suder
	9,905	40.51 %	DEM	104458 SWIGGUM	Tim Swiggum 739 E 7th St Owen, WI 54460
Winner	14,537	59.46 %	REP	103615 SUDER	Scott Suder 102 South Fourth Avenue Abbotsford, WI 54405
	8	.03 %			Scattering
Office	State Assembly, District No. 70			Total Vote : 27,995	Incumbent Amy Sue Vruwink
Winner	19,490	69.62 %	DEM	103828 VRUWINK	Amy Sue Vruwink 9425 Flower Lane Milladore, WI 54454
	8,495	30.34 %	REP	104767 SEEVERS	Dennis Seevers 5969 Butternut Road Arpin, WI 54410
	10	.04 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	**State Assembly, District No. 71**			Total Vote : 29,674	Incumbent Louis John Molepske, Jr.
Winner	20,359	68.61 %	DEM	104188 MOLEPSKE	Louis John Molepske, Jr. 1557 Church Street Stevens Point, WI 54481
	9,271	31.24 %	REP	104548 JENSEN	Daron L. Jensen 4500 Highway 66 Stevens Point, WI 54481
	44	.15 %			Scattering
Office	**State Assembly, District No. 72**			Total Vote : 27,145	Incumbent Marlin D. Schneider
Winner	16,892	62.23 %	DEM	100355 SCHNEIDER	Marlin D. Schneider 3820 Southbrook Lane Wisconsin Rapids, WI 54494
	10,230	37.69 %	REP	104769 TYBERG	Jeff Tyberg 5311 Wyatt Ave Wisconsin Rapids, WI 54494
	23	.08 %			Scattering
Office	**State Assembly, District No. 73**			Total Vote : 25,612	Incumbent Frank Boyle (Filed Notification of Noncandidacy)
Winner	20,684	80.76 %	DEM	104678 MILROY	Nick Milroy 2706 North 17th Street Superior, WI 54880
	4,788	18.69 %	IND	104661 MONAGHAN	Jeffery Lawrence Monaghan 1213 Tower Avenue Superior, WI 54880
	140	.55 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 74			Total Vote : 28,939	Incumbent Gary E. Sherman
Winner	18,051	62.38 %	DEM	103485 SHERMAN	Gary Sherman 11800A Sherman Road, PO Box 157 Port Wing, WI 54865
	10,874	37.58 %	REP	104425 LABARRE	Shirl LaBarre 10152 Abby Lane Hayward, WI 54843
	14	.05 %			Scattering
Office	State Assembly, District No. 75			Total Vote : 20,453	Incumbent Mary Hubler
Winner	20,254	99.03 %	DEM	101762 HUBLER	Mary Hubler 1966 21 7/8 St Rice Lake, WI 54868
	199	.97 %			Scattering
Office	State Assembly, District No. 76			Total Vote : 27,384	Incumbent Terese Berceau
Winner	27,218	99.39 %	DEM	103642 BERCEAU	Terese Berceau 4326 Somerset Lane Madison, WI 53711
	166	.61 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 77			Total Vote : 25,953	Incumbent Spencer Black
Winner	25,798	99.4 %	DEM	101780 BLACK	Spencer Black 5742 Elder Place Madison, WI 53705
	155	.6 %			Scattering
Office	State Assembly, District No. 78			Total Vote : 27,443	Incumbent Mark Pocan
Winner	27,273	99.38 %	DEM	103540 POCAN	Mark Pocan 309 N Baldwin St Madison, WI 53703
	170	.62 %			Scattering
Office	State Assembly, District No. 79			Total Vote : 40,224	Incumbent Sondy Pope-Roberts
Winner	26,835	66.71 %	DEM	103840 POPE-ROBERTS	Sondy Pope-Roberts 4793 Delmara Rd. Middleton, WI 53562
	13,361	33.22 %	REP	104743 SKALITZKY	Carl Skalitzky 3614 Lynn Court Middleton, WI 53562
	28	.07 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 80			Total Vote : 30,821	Incumbent Brett Davis
	13,517	43.86 %	DEM	104612 WAELTI	John Waelti 1800 21st Avenue Monroe, WI 53566
Winner	17,291	56.1 %	REP	104257 DAVIS	Brett Davis 1420 Raven Oaks Trail Oregon, WI 53375
	13	.04 %			Scattering
Office	State Assembly, District No. 81			Total Vote : 24,253	Incumbent Dave Travis (Filed Notification of Noncandidacy)
Winner	23,984	98.89 %	DEM	104606 ROYS	Kelda Helen Roys 2215 North Sherman Avenue Madison, WI 53704-3310
	269	1.11 %			Scattering
Office	State Assembly, District No. 82			Total Vote : 22,998	Incumbent Jeff Stone
Winner	22,773	99.02 %	REP	103406 STONE	Jeff Stone 5535 Grandview Dr. Greendale, WI 53129
	225	.98 %			Scattering

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	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate

Office State Assembly, District No. 83 — Total Vote : 34,032 — Incumbent Scott L. Gunderson

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
	9,182	26.98 %	DEM	104730 ROBERTSON	Aaron Robertson S67 W12559 Larkspur Road Muskego, WI 53150
Winner	24,834	72.97 %	REP	103233 GUNDERSON	Scott L. Gunderson 123 North 2nd Street Waterford, WI 53185
	16	.05 %			Scattering

Office State Assembly, District No. 84 — Total Vote : 25,272 — Incumbent Mark Gundrum

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	25,136	99.46 %	REP	103333 GUNDRUM	Mark Gundrum 5239 South Guerin Pass New Berlin, WI 53151
	136	.54 %			Scattering

Office State Assembly, District No. 85 — Total Vote : 26,489 — Incumbent Donna Seidel

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	16,975	64.08 %	DEM	104282 SEIDEL	Donna Seidel 807 South 20th St Wausau, WI 54403
	9,487	35.81 %	REP	104687 KUFAHL	Jess F. Kufahl 10325 60th Avenue Merrill, WI 54452
	27	.1 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	**State Assembly, District No. 86**			Total Vote : 31,133	Incumbent Jerry J. Petrowski
	13,716	44.06 %	DEM	104680 MYSZKA	Nate Myszka 4906 Crestwood Drive, #4 Weston, WI 54476
Winner	17,402	55.9 %	REP	103686 PETROWSKI	Jerry J. Petrowski 720 North 136th Ave Marathon, WI 54448
	15	.05 %			Scattering
Office	**State Assembly, District No. 87**			Total Vote : 25,617	Incumbent Mary Williams
	12,685	49.52 %	DEM	104432 REAS	Judy Reas W8055 Maple Ridge Rd Park Falls, WI 54552
Winner	12,917	50.42 %	REP	104128 WILLIAMS	Mary Williams 542 Billings Avenue Medford, WI 54451
	15	.06 %			Scattering
Office	**State Assembly, District No. 88**			Total Vote : 23,548	Incumbent Jim Soletski
Winner	13,155	55.86 %	DEM	104467 SOLETSKI	Jim Soletski 496 Menlo Park Rd Green Bay, WI 54302
	10,368	44.03 %	REP	104691 THEISEN	Tony Theisen 931 South Baird Street Green Bay, WI 54301
	25	.11 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 89			Total Vote : 27,668	Incumbent John Nygren
	12,839	46.4 %	DEM	104477 KOEHN	Randy Koehn 2011 10th Street Marinette, WI 54143
Winner	14,814	53.54 %	REP	104417 NYGREN	John Nygren 1224 Carney Boulevard Marinette, WI 54143
	15	.05 %			Scattering
Office	State Assembly, District No. 90			Total Vote : 25,992	Incumbent Karl Van Roy
	12,016	46.23 %	DEM	104665 WEIX	Lou Ann Weix 1596 Meadow Wood Court Green Bay, WI 54313
Winner	13,959	53.7 %	REP	104054 VAN ROY	Karl Van Roy 805 Riverview Drive Green Bay, WI 54303
	17	.07 %			Scattering

Office State Assembly, District No. 91 — Total Vote : 26,953 — Incumbent Barbara Gronemus (Filed Notification of Noncandidacy)

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	14,377	53.34 %	DEM	104405 DANOU	Chris Danou 23951 8th Street Trempealeau, WI 54661
	11,583	42.97 %	REP	104670 HEGENBARTH	Dave Hegenbarth W17251 Crystal Valley Road Galesville, WI 54630
	256	.95 %	LIB	104756 BURLESON	Ted Burleson S2790 State Road 35 Fountain City, WI 54629
	712	2.64 %	IND	104696 BESELER	Paul A. Beseler W17694 Moen Coulee Road Ettrick, WI 54627
	25	.09 %			Scattering

Office State Assembly, District No. 92 — Total Vote : 25,386 — Incumbent Terry M. Musser (Filed Notification of Noncandidacy)

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	13,499	53.17 %	DEM	104663 RADCLIFFE	Mark A. Radcliffe 376 North 12th Street Black River Falls, WI 54615
	11,844	46.66 %	REP	103608 HELLMAN	Dan Hellman 602 Merrywood Lane Sparta, WI 54656
	43	.17 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	State Assembly, District No. 93			Total Vote : 32,479	Incumbent Jeff Smith
Winner	19,276	59.35 %	DEM	104251 SMITH	Jeff Smith 236 Hudson St Eau Claire, WI 54703
	13,161	40.52 %	REP	104737 FIELDS	Darcy Fields 3561 Sharon Drive Eau Claire, WI 54701
	42	.13 %			Scattering
Office	State Assembly, District No. 94			Total Vote : 32,791	Incumbent Mike Huebsch
	15,054	45.91 %	DEM	104652 HANCOCK	Cheryl Hancock 1007 Deerfield Street Holmen, WI 54636
Winner	17,719	54.04 %	REP	102532 HUEBSCH	Mike Huebsch 419 West Franklin West Salem, WI 54669
	18	.05 %			Scattering
Office	State Assembly, District No. 95			Total Vote : 22,963	Incumbent Jennifer Shilling
Winner	22,341	97.29 %	DEM	103853 SHILLING	Jennifer Shilling 2608 Main St La Crosse, WI 54601
	622	2.71 %			Scattering

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Number of Votes Received	Percent of Total Votes	Party	I D	Candidate

Office State Assembly, District No. 96 Total Vote : 24,979 Incumbent Lee Nerison

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
	12,054	48.26 %	DEM	104586 KLEMME	Dale Klemme 338 North Main Street Prairie du Chien, WI 53821
Winner	12,919	51.72 %	REP	104289 NERISON	Lee Nerison S3035 CTH B Westby, WI 54667
	6	.02 %			Scattering

Office State Assembly, District No. 97 Total Vote : 27,097 Incumbent Bill Kramer

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
	12,268	45.27 %	DEM	104657 JONES	Ruth Page Jones W251S4386 Oak View Drive Waukesha, WI 53189
Winner	14,801	54.62 %	REP	104449 KRAMER	Bill Kramer 2005 Cliff Alex Court South, #3 Waukesha, WI 53189
	28	.1 %			Scattering

Office State Assembly, District No. 98 Total Vote : 33,842 Incumbent Rich Zipperer

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
	9,498	28.07 %	DEM	104745 WEERS	Victor Weers 15980 Mark Drive Brookfield, WI 53005
Winner	24,325	71.88 %	REP	104459 ZIPPERER	Rich Zipperer N24 W26419 Bucks Island Ct Pewaukee, WI 53072
	19	.06 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office State Assembly, District No. 99				Total Vote : 28,074	Incumbent Don Pridemore
Winner	27,906	99.4 %	REP	104236 PRIDEMORE	Don Pridemore 2277 Highway K Hartford, WI 53027
	168	.6 %			Scattering
Office Adams County District Attorney				Total Vote : 7,135	Incumbent Mark D. Thibodeau
Winner	7,069	99.07 %	DEM	102030 THIBODEAU	Mark D. Thibodeau 1081 Quarterstaff Court Nekoosa, WI 54457
	66	.93 %			Scattering
Office Ashland County District Attorney				Total Vote : 4,963	Incumbent Sean P. Duffy
Winner	4,856	97.84 %	REP	104056 DUFFY	Sean P. Duffy 2906 City Heights Road Ashland, WI 54806
	107	2.16 %			Scattering
Office Barron County District Attorney				Total Vote : 16,097	Incumbent Angela L. Holmstrom
Winner	15,980	99.27 %	DEM	104299 HOLMSTROM	Angela L. Holmstrom Beranek 1403 Duke St Rice Lake, WI 54868
	117	.73 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	Bayfield County District Attorney			Total Vote : 5,317	Incumbent H. Craig Haukaas
Winner	5,212	98.03 %	REP	104083 HAUKAAS	H. Craig Haukaas 23540 Cherryville Rd Ashland, WI 54806
	105	1.97 %			Scattering
Office	Brown County District Attorney			Total Vote : 87,849	Incumbent John P. Zakowski
Winner	87,066	99.11 %	REP	102685 ZAKOWSKI	John P. Zakowski 1254 Emilie St Green Bay, WI 54301
	783	.89 %			Scattering
Office	Buffalo County District Attorney			Total Vote : 4,739	Incumbent Thomas Clark
Winner	4,713	99.45 %	DEM	104490 CLARK	Thomas W. Clark 57 W. 13 St Buffalo, WI 54622
	26	.55 %			Scattering
Office	Burnett County District Attorney			Total Vote : 3,238	Incumbent William L. Norine
Winner	3,199	98.8 %	IND	104760 NORINE	William L. Norine 513 North Pine Grantsburg, WI 54840
	39	1.2 %			Scattering

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	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	**Calumet County District Attorney**			Total Vote : 19,349	Incumbent Kenneth R. Kratz
Winner	19,203	99.25 %	REP	102831 KRATZ	Kenneth R. Kratz N9435 Dusty Drive Appleton, WI 54915
	146	.75 %			Scattering
Office	**Chippewa County District Attorney**			Total Vote : 29,170	Incumbent Jon M. Theisen
	11,748	40.27 %	DEM	104732 WEBSTER	Holly Wood Webster S8364 Wren Drive Eau Claire, WI 54701
Winner	17,407	59.67 %	REP	104246 THEISEN	Jon M. Theisen 903 Bluff View Ct Chippewa Falls, WI 54729
	15	.05 %			Scattering
Office	**Clark County District Attorney**			Total Vote : 10,477	Incumbent Darwin L. Zwieg
Winner	10,364	98.92 %	DEM	102520 ZWIEG	Darwin L. Zwieg N7503 Gorman Ave Willard, WI 54493
	113	1.08 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	Columbia County District Attorney			Total Vote : 18,645	Incumbent Jane E. Kohlwey
Winner	16,923	90.76 %	REP	103630 KOHLWEY	Jane E. Kohlwey N2557 CTH C Rio, WI 53960
	1,722	9.24 %			Scattering
Office	Crawford County District Attorney			Total Vote : 5,518	Incumbent Timothy C. Baxter
Winner	5,482	99.35 %	DEM	102662 BAXTER	Timothy C. Baxter 57972 Breckenridge Lane Wauzeka, WI 53826
	36	.65 %			Scattering
Office	Dane County District Attorney			Total Vote : 209,490	Incumbent Brian Blanchard
Winner	208,257	99.41 %	DEM	103880 BLANCHARD	Brian Blanchard 6722 Colony Dr Madison, WI 53717
	1,233	.59 %			Scattering
Office	Dodge County District Attorney			Total Vote : 31,396	Incumbent William Bedker
Winner	31,265	99.58 %	REP	103995 BEDKER	Bill Bedker 704 Western Meadows Drive Watertown, WI 53098
	131	.42 %			Scattering

Number of Votes Received	Percent of Total Votes	Party	I D	Candidate

Office Door County District Attorney — Total Vote : 11,981 — Incumbent Raymond L. Pelrine

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	11,795	98.45 %	REP	102545 PELRINE	Raymond L. Pelrine 10717 Little Sister Road Sister Bay, WI 54234
	186	1.55 %			Scattering

Office Douglas County District Attorney — Total Vote : 19,190 — Incumbent Daniel W. Blank

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	18,923	98.61 %	DEM	102586 BLANK	Daniel W. Blank 2328 Hammond Avenue Superior, WI 54880
	267	1.39 %			Scattering

Office Dunn County District Attorney — Total Vote : 15,679 — Incumbent James M. Peterson

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	15,491	98.8 %	REP	102343 PETERSON	James M. Peterson 3413 Ingalls Road Menomonie, WI 54751
	188	1.2 %			Scattering

Office Eau Claire County District Attorney — Total Vote : 38,324 — Incumbent Rich White

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	37,634	98.2 %	DEM	103925 WHITE	Rich White 3615 Wintergreen Court Eau Claire, WI 54701
	690	1.8 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	Florence County District Attorney			Total Vote : 1,858	Incumbent Douglas J. Drexler
Winner	1,852	99.68 %	REP	102921 DREXLER	Douglas J. Drexler 4030 Lake Ellwood Road Florence, WI 54121
	6	.32 %			Scattering
Office	Fond du Lac County District Attorney			Total Vote : 49,210	Incumbent Michael O'Rourke
	23,108	46.96 %	DEM	104581 O'ROURKE	Michael E. O'Rourke 415 3rd Street Fond du Lac, WI 54935
Winner	26,075	52.99 %	REP	104722 KAMINSKY	Dan Kaminsky W3952 Artesian Road Fond du Lac, WI 54937
	27	.05 %			Scattering
Office	Forest County District Attorney			Total Vote : 3,166	Incumbent Leon D. Stenz (Filed Notification of Noncandidacy)
Winner	3,159	99.78 %	DEM	104731 SIMONO	Chuck Simono 307 East Grant Street Crandon, WI 54520
	7	.22 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	Grant County District Attorney			Total Vote : 15,415	Incumbent Lisa A. Riniker
Winner	15,305	99.29 %	REP	104344 RINIKER	Lisa A. Riniker 3774 Platte Road Platteville, WI 53818
	110	.71 %			Scattering
Office	Green County District Attorney			Total Vote : 13,097	Incumbent Gary L. Luhman
Winner	12,880	98.34 %	REP	102553 LUHMAN	Gary L. Luhman W9440 Coon Creek Road Browntown, WI 53522
	217	1.66 %			Scattering
Office	Green Lake County District Attorney			Total Vote : 7,419	Incumbent Winn Collins
Winner	7,306	98.48 %	REP	104674 COLLINS	Winn S. Collins 706 Broadway Street, Apt. 2 Berlin, WI 54923
	113	1.52 %			Scattering
Office	Iowa County District Attorney			Total Vote : 8,528	Incumbent Larry E. Nelson
Winner	8,488	99.53 %	DEM	104507 NELSON	Larry E. Nelson 1243 West Lake Rd Mineral Point, WI 53565
	40	.47 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office Iron County District Attorney				Total Vote : 2,401	Incumbent Martin J. Lipske
Winner	2,386	99.38 %	DEM	103236 LIPSKE	Martin J. Lipske 13591N County Rd D Hurley, WI 54534
	15	.62 %			Scattering
Office Jackson County District Attorney				Total Vote : 6,926	Incumbent Gerald R. Fox
Winner	6,912	99.8 %	DEM	103614 FOX	Gerald R. Fox N13014 County Road T Fairchild, WI 54741
	14	.2 %			Scattering
Office Jefferson County District Attorney				Total Vote : 41,203	Incumbent David J. Wambach (Filed Notification of Noncandidacy)
Winner	23,117	56.11 %	DEM	104655 HAPP	Susan V. Happ 633 North Dewey Avenue Jefferson, WI 53549
	18,003	43.69 %	REP	104744 TEMPELIS	Peter M. Tempelis 111 Deer Crossing #3 Johnson Creek, WI 53038
	83	.2 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	Juneau County District Attorney			Total Vote : 7,246	Incumbent Scott Harold Southworth
Winner	7,153	98.72 %	REP	103551 SOUTHWORTH	Scott Harold Southworth 904 Heath Ct. Mauston, WI 53948
	93	1.28 %			Scattering
Office	Kenosha County District Attorney			Total Vote : 57,573	Incumbent Robert D. Zapf
Winner	56,712	98.5 %	DEM	102747 ZAPF	Robert D. Zapf 4920 17th Street Kenosha, WI 53144
	861	1.5 %			Scattering
Office	Kewaunee County District Attorney			Total Vote : 8,087	Incumbent Andrew P. Naze
Winner	8,040	99.42 %	DEM	104300 NAZE	Andrew Naze 727 Lowell Rd Luxemburg, WI 54217
	47	.58 %			Scattering
Office	La Crosse County District Attorney			Total Vote : 44,679	Incumbent Tim Gruenke
Winner	44,210	98.95 %	DEM	104721 GRUENKE	Tim Gruenke 1009 Remington Drive Holmen, WI 54636
	469	1.05 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office Lafayette County District Attorney				Total Vote : 5,122	Incumbent Charlotte L. Doherty
Winner	5,077	99.12 %	DEM	102833 DOHERTY	Charlotte L. Doherty 12971 Roller Coaster Road Darlington, WI 53530
	45	.88 %			Scattering
Office Langlade County District Attorney				Total Vote : 6,825	Incumbent Ralph M. Uttke
Winner	6,627	97.1 %	DEM	102712 UTTKE	Ralph M. Uttke W11296 Lamplight Lane Antigo, WI 54409
	198	2.9 %			Scattering
Office Lincoln County District Attorney				Total Vote : 10,793	Incumbent Don Dunphy
Winner	10,564	97.88 %	REP	103680 DUNPHY	Don Dunphy W1412 1st Avenue Gleason, WI 54435
	229	2.12 %			Scattering
Office Manitowoc County District Attorney				Total Vote : 30,050	Incumbent Mark Rohrer
Winner	29,916	99.55 %	DEM	104233 ROHRER	Mark R. Rohrer 1618 Torrison Drive Manitowoc, WI 54220
	134	.45 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	Marathon County District Attorney			Total Vote : 50,758	Incumbent Jill N. Falstad
Winner	49,896	98.3 %	DEM	103235 FALSTAD	Jill N. Falstad 1968 River Vista Drive Mosinee, WI 54455
	862	1.7 %			Scattering
Office	Marinette County District Attorney			Total Vote : 20,503	Incumbent Brent H. DeBord
Winner	12,539	61.16 %	DEM	102503 BREY	Allen R. Brey 3009 Riverside Avenue Marinette, WI 54143
	7,950	38.77 %	REP	104457 DEBORD	Brent H. DeBord 341 McCagg Street Peshtigo, WI 54157
	14	.07 %			Scattering
Office	Marquette County District Attorney			Total Vote : 4,870	Incumbent Dick Dufour
Winner	4,805	98.67 %	REP	102594 DUFOUR	Dick Dufour 494 South Lake Street Montello, WI 53949
	65	1.33 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate

Office Menominee-Shawano County District Attorney — Total Vote : 14,095 — Incumbent Gregory A. Parker

Winner	13,700	97.2 %	REP	104513 PARKER	Gregory A. Parker 121 Gannon Ct Shawano, WI 54166
	395	2.8 %			Scattering

Office Milwaukee County District Attorney — Total Vote : 338,788 — Incumbent John T. Chisholm

Winner	334,813	98.83 %	DEM	104433 CHISHOLM	John T. Chisholm 3411 South Illinois Avenue Milwaukee, WI 53207
	3,975	1.17 %			Scattering

Office Monroe County District Attorney — Total Vote : 13,171 — Incumbent Dan Cary

Winner	13,086	99.35 %	REP	104028 CARY	Dan Cary 902 Rose St, P.O. Box 253 Cashton, WI 54619
	85	.65 %			Scattering

Office Oconto County District Attorney — Total Vote : 13,540 — Incumbent Jay Conley

Winner	13,461	99.42 %	REP	102611 CONLEY	Jay Conley 130 Sunrise Ct Oconto Falls, WI 54154
	79	.58 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	Oneida County District Attorney			Total Vote : 15,174	Incumbent Michael Bloom
Winner	15,059	99.24 %	DEM	104724 BLOOM	Michael H. Bloom 1991 Larsen Drive Rhinelander, WI 54501
	115	.76 %			Scattering
Office	Outagamie County District Attorney			Total Vote : 60,461	Incumbent Carrie Schneider
Winner	59,922	99.11 %	REP	103967 SCHNEIDER	Carrie Schneider W10097 Allcan Rd New London, WI 54961
	539	.89 %			Scattering
Office	Ozaukee County District Attorney			Total Vote : 40,126	Incumbent Sandy A. Williams
Winner	39,625	98.75 %	REP	102517 WILLIAMS	Sandy A. Williams 11708 Settlers Rd Cedarburg, WI 53012
	501	1.25 %			Scattering
Office	Pepin County District Attorney			Total Vote : 2,689	Incumbent Jon D. Seifert
Winner	2,677	99.55 %	DEM	103393 SEIFERT	Jon D. Seifert N1501 Buck Lane Pepin, WI 54759
	12	.45 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office Pierce County District Attorney				Total Vote : 15,763	Incumbent John M. O'Boyle
Winner	15,571	98.78 %	DEM	102860 O'BOYLE	John M. O'Boyle W8625 830th Avenue River Falls, WI 54022
	192	1.22 %			Scattering
Office Polk County District Attorney				Total Vote : 15,474	Incumbent Dan Steffen
Winner	15,371	99.33 %	DEM	104494 STEFFEN	Daniel P. Steffen 2398 10th Ave Osceola, WI 54020
	103	.67 %			Scattering
Office Portage County District Attorney				Total Vote : 28,728	Incumbent Thomas B. Eagon
Winner	28,563	99.43 %	DEM	102615 EAGON	Thomas B. Eagon 327 Orderinda Court Stevens Point, WI 54481
	165	.57 %			Scattering
Office Price County District Attorney				Total Vote : 5,836	Incumbent Mark T. Fuhr
Winner	5,829	99.88 %	DEM	104045 FUHR	Mark T. Fuhr N9531 West View Road Phillips, WI 54555
	7	.12 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	Racine County District Attorney			Total Vote : 60,506	Incumbent Michael E. Nieskes
Winner	60,114	99.35 %	REP	104281 NIESKES	Michael E. Nieskes 26639 Richard Dr Wind Lake, WI 53185
	392	.65 %			Scattering
Office	Richland County District Attorney			Total Vote : 5,287	Incumbent Andrew Sharp
Winner	5,266	99.6 %	REP	102841 SHARP	Andrew Sharp 714 North Main Street Richland Center, WI 53581
	21	.4 %			Scattering
Office	Rock County District Attorney			Total Vote : 58,767	Incumbent David J. O'Leary
Winner	58,408	99.39 %	DEM	103380 O'LEARY	David J. O'Leary 2930 Yale Dr Janesville, WI 53548
	359	.61 %			Scattering
Office	Rusk County District Attorney			Total Vote : 4,979	Incumbent Kathleen A. Pakes
Winner	4,955	99.52 %	DEM	103837 PAKES	Kathleen A. Pakes 1005 Bruno Avenue Ladysmith, WI 54848
	24	.48 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	St. Croix County District Attorney			Total Vote : 33,707	Incumbent Eric G. Johnson
Winner	33,176	98.42 %	REP	102535 JOHNSON	Eric G. Johnson 205 Station Circle North Hudson, WI 54016
	531	1.58 %			Scattering
Office	Sauk County District Attorney			Total Vote : 20,361	Incumbent Patricia A. Barrett
Winner	20,060	98.52 %	REP	103198 BARRETT	Patricia A. Barrett S7731 Eagle Point Dr Merrimac, WI 53561
	301	1.48 %			Scattering
Office	Sawyer County District Attorney			Total Vote : 5,179	Incumbent Thomas E. Van Roy
Winner	5,152	99.48 %	REP	102496 VAN ROY	Thomas E. Van Roy 11145N Airport Rd Hayward, WI 54843
	27	.52 %			Scattering
Office	Sheboygan County District Attorney			Total Vote : 43,257	Incumbent Joe DeCecco
Winner	42,926	99.23 %	DEM	103212 DECECCO	Joe DeCecco 7136 Moenning Road Sheboygan, WI 53081-8805
	331	.77 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office	Taylor County District Attorney			Total Vote : 6,307	Incumbent Karl Kelz
Winner	6,006	95.23 %	REP	104001 KELZ	Karl J. Kelz 211 North Fourth Street Medford, WI 54451
	301	4.77 %			Scattering
Office	Trempealeau County District Attorney			Total Vote : 9,850	Incumbent Jeri Marsolek
Winner	9,803	99.52 %	DEM	104154 MARSOLEK	Jeri Marsolek 19665 Bluffview Place Galesville, WI 54630
	47	.48 %			Scattering
Office	Vernon County District Attorney			Total Vote : 9,113	Incumbent Timothy J. Gaskell
Winner	9,055	99.36 %	REP	103604 GASKELL	Timothy J. Gaskell 602 South Main St Westby, WI 54667
	58	.64 %			Scattering
Office	Vilas County District Attorney			Total Vote : 9,876	Incumbent Albert D. Moustakis
Winner	9,690	98.12 %	REP	103216 MOUSTAKIS	Albert D. Moustakis 2707 Deerskin Park Road Eagle River, WI 54521
	186	1.88 %			Scattering

Number of Votes Received	Percent of Total Votes	Party	I D	Candidate

Office Walworth County District Attorney — Total Vote : 37,300 — Incumbent Phillip A. Koss

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	36,698	98.39 %	REP	102514 KOSS	Phillip A. Koss 120 North Wisconsin Street Elkhorn, WI 53121
	602	1.61 %			Scattering

Office Washburn County District Attorney — Total Vote : 6,241 — Incumbent J. Michael Bitney

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	6,223	99.71 %	REP	102830 BITNEY	J. Michael Bitney N5552 Buckingham Drive, P.O. Box 195 Spooner, WI 54801
	18	.29 %			Scattering

Office Washington County District Attorney — Total Vote : 58,285 — Incumbent Todd K. Martens

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	57,926	99.38 %	REP	103845 MARTENS	Todd K. Martens W166 N10095 Santa Fe Court Germantown, WI 53022
	359	.62 %			Scattering

Office Waukesha County District Attorney — Total Vote : 169,061 — Incumbent Brad Schimel

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Winner	168,330	99.57 %	REP	104385 SCHIMEL	Brad Schimel W295 S2609 Jamie Court Waukesha, WI 53188
	731	.43 %			Scattering

	Number of Votes Received	Percent of Total Votes	Party	I D	Candidate
Office Waupaca County District Attorney				Total Vote : 16,783	Incumbent John P. Snider
Winner	16,728	99.67 %	REP	102519 SNIDER	John P. Snider 406 East Lake Street Waupaca, WI 54981
	55	.33 %			Scattering
Office Waushara County District Attorney				Total Vote : 8,430	Incumbent Scott C. Blader
Winner	8,381	99.42 %	REP	104495 BLADER	Scott C. Blader W8210 Cypress Lane Wautoma, WI 54982
	49	.58 %			Scattering
Office Winnebago County District Attorney				Total Vote : 61,376	Incumbent Christian A. Gossett
Winner	60,429	98.46 %	REP	104437 GOSSETT	Christian A. Gossett 885 Adams Avenue Oshkosh, WI 54902
	947	1.54 %			Scattering
Office Wood County District Attorney				Total Vote : 26,111	Incumbent Todd P. Wolf
Winner	25,930	99.31 %	REP	104040 WOLF	Todd P. Wolf 5111 Timberland Trail Wisconsin Rapids, WI 54494
	181	.69 %			Scattering

G.A.B. Canvass Reporting System

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	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	GOVERNOR		Total Votes:	2,160,832
Party:	Governor/Lieutenant Governor		Total Votes: 2,160,832	
	1,004,303	46.48%	TOM BARRETT/TOM NELSON 5030 WEST WASHINGTON BLVD MILWAUKEE WI 53208	Democrat
Winner	1,128,941	52.25%	SCOTT WALKER/REBECCA KLEEFISCH 520 N 68TH ST WAUWATOSA WI 53213	Republican
	6,790	.31%	No Candidate/TERRY VIRGIL 321 SWAP ST APT 101 JOHNSON CREEK WI 53038	Libertarian
	8,273	.38%	JAMES JAMES/No Candidate 437 N WOOD ST SPRING GREEN WI 53588	Common Sense
	10,608	.49%	JIM LANGER/No Candidate W165N11555 ABBEY CT GERMANTOWN WI 53022	Independent
	19	0%	LESLIE ERVIN SMETAK/DAVID MYRON SMETAK (WRITE-IN) 455 OLD HWY 51 MOSINEE WI 54455	Independent
	22	0%	PATRICIA MESSICCI/No Candidate (WRITE-IN) 212 100TH AVE CLAYTON WI 54004	Independent
	18	0%	HARI TRIVEDI/No Candidate (WRITE-IN) 16880 VANDERBILT ST BROOKFIELD WI 53005	Independent
	1,858	.09%	SCATTERING	
Office	ATTORNEY GENERAL		Total Votes:	2,112,485
Party:	Attorney General		Total Votes: 2,112,485	
	890,080	42.13%	SCOTT HASSETT N7420 ROCK LAKE RD LAKE MILLS WI 53551	Democrat
Winner	1,220,791	57.79%	J.B. VAN HOLLEN 1303 LAWTON CT WAUNAKEE WI 53579	Republican
	1,614	.08%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	SECRETARY OF STATE			Total Votes:	2,081,198
Party:	Secretary of State		Total Votes:	2,081,198	
Winner	1,074,118	51.61%	DOUG LA FOLLETTE 1211 RUTLEDGE ST APT 3 MADISON WI 53703		Democrat
	1,005,217	48.3%	DAVID D. KING 2407A N PIERCE ST MILWAUKEE WI 53212		Republican
	1,863	.09%	SCATTERING		
Office	STATE TREASURER			Total Votes:	2,062,661
Party:	State Treasurer		Total Votes:	2,062,661	
	958,468	46.47%	DAWN MARIE SASS 356 SUGAR AVENUE BELLEVILLE WI 53508-904		Democrat
Winner	1,101,320	53.39%	KURT W. SCHULLER 104 CAROLYN CT EDEN WI 53019		Republican
	2,873	.14%	SCATTERING		
Office	US SENATOR - CLASS III			Total Votes:	2,171,331
Party:	United States Senator - 2011-2017		Total Votes:	2,171,331	
	1,020,958	47.02%	RUSS FEINGOLD 7114 DONNA DR MIDDLETON WI 53562		Democrat
Winner	1,125,999	51.86%	RON JOHNSON 5171 ISLAND VIEW DRIVE OSHKOSH WI 54901		Republican
	23,473	1.08%	ROB TAYLOR 1720 THIRD AVE CUMBERLAND WI 54829		Constitution Party of Wisconsin
	134	.01%	ERNEST J. PAGELS JR. (WRITE-IN) 352 W WISCONSIN AVENUE APT 1 WAUKESHA WI 53186-475		Republican
	129	.01%	MICHAEL D LAFOREST (WRITE-IN) 4470 WEST SUMAC PLACE MILWAUKEE WI 53219		Independent
	638	.03%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	CONGRESSIONAL - DISTRICT 1			Total Votes:	263,627
Party:	Congressional - District 1		Total Votes:	263,627	
	79,363	30.1%	JOHN HECKENLIVELY 410 SEVENTH STREET APT 2 RACINE WI 53403		Democrat
Winner	179,819	68.21%	PAUL RYAN 221 E HOLMES ST JANESVILLE WI 53545		Republican
	4,311	1.64%	JOSEPH KEXEL 7616 33RD AVE KENOSHA WI 53142		Libertarian
	134	.05%	SCATTERING		
Office	CONGRESSIONAL - DISTRICT 2			Total Votes:	309,460
Party:	Congressional - District 2		Total Votes:	309,460	
Winner	191,164	61.77%	TAMMY BALDWIN 119 MARTIN LUTHER KING JR BLVD MADISON WI 53703		Democrat
	118,099	38.16%	CHAD LEE 403 DURTSCHI DRIVE MT. HOREB WI 53572		Republican
	197	.06%	SCATTERING		
Office	CONGRESSIONAL - DISTRICT 3			Total Votes:	251,340
Party:	Congressional - District 3		Total Votes:	251,340	
Winner	126,380	50.28%	RON KIND 3061 EDGEWATER LANE LACROSSE WI 54603		Democrat
	116,838	46.49%	DAN KAPANKE 1610 LAKESHORE DRIVE LACROSSE WI 54603		Republican
	8,001	3.18%	MICHAEL KRSIEAN 360 144TH AVE HOULTON WI 54082		Independent Citizen for Constitutional Government
	121	.05%	SCATTERING		
Office	CONGRESSIONAL - DISTRICT 4			Total Votes:	208,103
Party:	Congressional - District 4		Total Votes:	208,103	
Winner	143,559	68.98%	GWEN MOORE 4043 N 19TH PLACE MILWAUKEE WI 53209		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	CONGRESSIONAL - DISTRICT 4			Total Votes:	208,103
Party:	Congressional - District 4		Total Votes:	208,103	
	61,543	29.57%	DAN SEBRING 3919 S 60TH STREET MILWAUKEE WI 53220		Republican
	2,802	1.35%	EDDIE AHMAD AYYASH 1403 W KLEIN AVENUE MILWAUKEE WI 53221		Coalition On Government Reform
	199	.1%	SCATTERING		
Office	CONGRESSIONAL - DISTRICT 5			Total Votes:	331,258
Party:	Congressional - District 5		Total Votes:	331,258	
	90,634	27.36%	TODD P. KOLOSSO 2226 E EDGEWOOD DR SHOREWOOD WI 53211		Democrat
Winner	229,642	69.32%	F. JAMES SENSENBRENNER, JR. N76 W14726 NORTHPOINT DRIVE MENOMONEE FALLS WI 53052		Republican
	10,813	3.26%	ROBERT R RAYMOND 4102 NORTH MORRIS BOULEVARD SHOREWOOD WI 53211		Independent
	169	.05%	SCATTERING		
Office	CONGRESSIONAL - DISTRICT 6			Total Votes:	259,367
Party:	Congressional - District 6		Total Votes:	259,367	
	75,926	29.27%	JOSEPH C. KALLAS N4682 COUNTY ROAD D PRINCETON WI 54968		Democrat
Winner	183,271	70.66%	TOM PETRI N5329 DE NEVEU LANE FOND DU LAC WI 54937		Republican
	170	.07%	SCATTERING		
Office	CONGRESSIONAL - DISTRICT 7			Total Votes:	254,389
Party:	Congressional - District 7		Total Votes:	254,389	
	113,018	44.43%	JULIE M. LASSA 4901 BEAVER DAM RD STEVENS POINT WI 54482		Democrat
Winner	132,551	52.11%	SEAN DUFFY 2906 CITY HEIGHTS RD ASHLAND WI 54806		Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	CONGRESSIONAL - DISTRICT 7			Total Votes:	254,389
Party:	Congressional - District 7		Total Votes:	254,389	
	8,397	3.3%	GARY KAUTHER 8754 E MIDDLE RIVER RD POPLAR WI 54864		Independent No War No Bailout
	423	.17%	SCATTERING		
Office	CONGRESSIONAL - DISTRICT 8			Total Votes:	262,938
Party:	Congressional - District 8		Total Votes:	262,938	
	118,646	45.12%	STEVEN L. KAGEN 1712 SOUTH MASON STREET APPLETON WI 54914		Democrat
Winner	143,998	54.77%	REID J. RIBBLE PO BOX 7200 APPLETON WI 53912		Republican
	294	.11%	SCATTERING		
Office	STATE SENATE - DISTRICT 1			Total Votes:	72,313
Party:	State Senate - District 1		Total Votes:	72,313	
	28,800	39.83%	MONK ELMER W2642 BROOKHAVEN DR APPLETON WI 54915		Democrat
Winner	43,415	60.04%	FRANK LASEE 830 SPRING HILLS CT DE PERE WI 54115		Republican
	98	.14%	SCATTERING		
Office	STATE SENATE - DISTRICT 3			Total Votes:	38,305
Party:	State Senate - District 3		Total Votes:	38,305	
Winner	23,401	61.09%	TIM CARPENTER 2957 S 38TH ST MILWAUKEE WI 53215		Democrat
	14,796	38.63%	ANNETTE MILLER KRZNARICH 3531 W GRANGE AVE MILWAUKEE WI 53221		Republican
	108	.28%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	STATE SENATE - DISTRICT 5			Total Votes:	70,663
Party:	State Senate - District 5		Total Votes:	70,663	
	33,702	47.69%	JIM SULLIVAN 2650 N 72ND ST WAUWATOSA WI 53213		Democrat
Winner	36,852	52.15%	LEAH VUKMIR 2544 N 93RD ST WAUWATOSA WI 53226		Republican
	109	.15%	SCATTERING		
Office	STATE SENATE - DISTRICT 7			Total Votes:	65,077
Party:	State Senate - District 7		Total Votes:	65,077	
Winner	37,165	57.11%	CHRIS LARSON 3261 S HERMAN ST MILWAUKEE WI 53207		Democrat
	27,772	42.68%	JESS RIPP 777 N PROSPECT #206 MILWAUKEE WI 53202		Republican
	140	.22%	SCATTERING		
Office	STATE SENATE - DISTRICT 9			Total Votes:	62,459
Party:	State Senate - District 9		Total Votes:	62,459	
	16,775	26.86%	JASON B. BORDEN 1023 N 29TH ST SHEBOYGAN WI 53081		Democrat
Winner	45,663	73.11%	JOE LEIBHAM 3618 RIVER RIDGE DR SHEBOYGAN WI 53083		Republican
	21	.03%	SCATTERING		
Office	STATE SENATE - DISTRICT 11			Total Votes:	73,137
Party:	State Senate - District 11		Total Votes:	73,137	
	17,955	24.55%	L. D. ROCKWELL N6619 GROVE RD ELKHORN WI 53121		Democrat
Winner	55,121	75.37%	NEAL KEDZIE N7661 HIGHWAY 12 ELKHORN WI 53121		Republican
	61	.08%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	STATE SENATE - DISTRICT 13			Total Votes:	65,860
Party:	State Senate - District 13		Total Votes:	65,860	
	19,232	29.2%	DWAYNE BLOCK 637 DAISY LANE OCONOMOWOC WI 53066		Democrat
Winner	44,529	67.61%	SCOTT FITZGERALD N4692 MAPLE ROAD JUNEAU WI 53039		Republican
	2,071	3.14%	VITTORIO SPADARO 240 LINDEN COURT UNIT B LOMIRA WI 53048		Independent
	28	.04%	SCATTERING		
Office	STATE SENATE - DISTRICT 15			Total Votes:	54,117
Party:	State Senate - District 15		Total Votes:	54,117	
Winner	31,918	58.98%	TIM CULLEN 3711 N SPRING HILL DR JANESVILLE WI 53545		Democrat
	22,181	40.99%	RICK RICHARD 2625 W HWY 14 JANESVILLE WI 53545		Republican
	18	.03%	SCATTERING		
Office	STATE SENATE - DISTRICT 17			Total Votes:	57,738
Party:	State Senate - District 17		Total Votes:	57,738	
	21,580	37.38%	CAROL BEALS 45 COMMERCE ST PLATTEVILLE WI 53818		Democrat
Winner	36,122	62.56%	DALE W. SCHULTZ 515 N CENTRAL AVE RICHLAND CENTER WI 53581		Republican
	36	.06%	SCATTERING		
Office	STATE SENATE - DISTRICT 19			Total Votes:	49,655
Party:	State Senate - District 19		Total Votes:	49,655	
Winner	49,179	99.04%	MICHAEL G. ELLIS 1752 CTY ROAD GG NEENAH WI 54956		Republican
	476	.96%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	STATE SENATE - DISTRICT 21			Total Votes:	60,995
Party:	State Senate - District 21		Total Votes:	60,995	
	28,930	47.43%	JOHN LEHMAN 708 ORCHARD ST RACINE WI 53405		Democrat
Winner	32,036	52.52%	VAN H. WANGGAARD 1246 BLAINE AVE RACINE WI 53405		Republican
	29	.05%	SCATTERING		
Office	STATE SENATE - DISTRICT 23			Total Votes:	59,866
Party:	State Senate - District 23		Total Votes:	59,866	
	27,375	45.73%	PAT KREITLOW 15854 93RD AVE CHIPPEWA FALLS WI 54729		Democrat
Winner	32,448	54.2%	TERRY MOULTON 980 118TH STREET CHIPPEWA FALLS WI 54729		Republican
	43	.07%	SCATTERING		
Office	STATE SENATE - DISTRICT 25			Total Votes:	61,317
Party:	State Senate - District 25		Total Votes:	61,317	
Winner	31,437	51.27%	BOB JAUCH 5271 S MAPLE DR POPLAR WI 54864		Democrat
	29,854	48.69%	DANE DEUTSCH 515 W EAU CLAIRE ST RICE LAKE WI 54868		Republican
	26	.04%	SCATTERING		
Office	STATE SENATE - DISTRICT 27			Total Votes:	83,677
Party:	State Senate - District 27		Total Votes:	83,677	
Winner	51,742	61.84%	JON ERPENBACH 6150 BRIGGS RD WAUNAKEE WI 53597		Democrat
	31,909	38.13%	KURT SCHLICHT 2011 SYLVIA PINE WAY CROSS PLAINS WI 53528		Republican
	26	.03%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	STATE SENATE - DISTRICT 29			Total Votes:	62,452
Party:	State Senate - District 29		Total Votes:	62,452	
	29,742	47.62%	RUSS DECKER 1305 LAKE STREET WAUSAU WI 54401		Democrat
Winner	32,640	52.26%	PAM GALLOWAY 1506 PINE VIEW LN WAUSAU WI 54403		Republican
	70	.11%	SCATTERING		
Office	STATE SENATE - DISTRICT 31			Total Votes:	60,298
Party:	State Senate - District 31		Total Votes:	60,298	
Winner	30,314	50.27%	KATHLEEN VINEHOUT W1490 CESLER VALLEY RD ALMA WI 54610		Democrat
	29,911	49.61%	ED THOMPSON 805 KILBOURN AVENUE, PO BOX 604 TOMAH WI 54660		Republican
	73	.12%	SCATTERING		
Office	STATE SENATE - DISTRICT 33			Total Votes:	63,045
Party:	State Senate - District 33		Total Votes:	63,045	
Winner	62,732	99.5%	RICH ZIPPERER N24 W26419 BUCKS ISLAND CT PEWAUKEE WI 53072		Republican
	313	.5%	SCATTERING		
Office	ASSEMBLY - DISTRICT 1			Total Votes:	24,405
Party:	Assembly - District 1		Total Votes:	24,405	
	10,165	41.65%	RICHARD A. SKARE 9311 GILBRALTAR BLUFF ROAD, PO BOX FISH CREEK WI 54212		Democrat
Winner	14,225	58.29%	GAREY D. BIES 2520 SETTLEMENT RD SISTER BAY WI 54234		Republican
	15	.06%	SCATTERING		
Office	ASSEMBLY - DISTRICT 2			Total Votes:	22,429
Party:	Assembly - District 2		Total Votes:	22,429	
	8,456	37.7%	TED ZIGMUNT 305 OAKWOOD DR FRANCIS CREEK WI 54214		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 2			Total Votes:	22,429
Party:	Assembly - District 2		Total Votes:	22,429	
Winner	13,958	62.23%	ANDRE JACQUE 2390 E RIDGE TERR GREEN BAY WI 54311		Republican
	15	.07%	SCATTERING		
Office	ASSEMBLY - DISTRICT 3			Total Votes:	19,481
Party:	Assembly - District 3		Total Votes:	19,481	
Winner	18,869	96.86%	AL OTT W2168 CAMPGROUND RD FOREST JUNCTION WI 54123		Republican
	455	2.34%	JOSEPH W MUELLER (WRITE-IN) W4991 STATE ROAD 114 SHERWOOD WI 54169		Independent
	157	.81%	SCATTERING		
Office	ASSEMBLY - DISTRICT 4			Total Votes:	21,682
Party:	Assembly - District 4		Total Votes:	21,682	
	8,361	38.56%	SAM DUNLOP 924 CEDAR STREET DE PERE WI 54115		Democrat
Winner	12,476	57.54%	CHAD WEININGER 2030 PACKERLAND DR GREEN BAY WI 54304		Republican
	838	3.86%	BRAD SAUER 114 1/2 N BROADWAY AVE APT 2 DE PERE WI 54115		Independent
	7	.03%	SCATTERING		
Office	ASSEMBLY - DISTRICT 5			Total Votes:	21,835
Party:	Assembly - District 5		Total Votes:	21,835	
	9,178	42.03%	MERT SUMMERS 3214 PENNWAY PARK DEPERE WI 54115		Democrat
Winner	12,629	57.84%	JIM STEINEKE N2352 VANDENBROEK RD KAUKAUNA WI 54130		Republican
	28	.13%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 6			Total Votes:	15,686
Party:	Assembly - District 6		Total Votes:	15,686	
Winner	15,599	99.45%	GARY TAUCHEN N3397 S BROADWAY RD BONDUEL WI 54107		Republican
	87	.55%	SCATTERING		
Office	ASSEMBLY - DISTRICT 7			Total Votes:	20,478
Party:	Assembly - District 7		Total Votes:	20,478	
Winner	11,782	57.53%	PEGGY KRUSICK 3426 S 69TH ST MILWAUKEE WI 53219		Democrat
	8,656	42.27%	BRAD SPONHOLZ 4407 W OHIO AVENUE GREENFIELD WI 53219		Republican
	40	.2%	SCATTERING		
Office	ASSEMBLY - DISTRICT 8			Total Votes:	5,113
Party:	Assembly - District 8		Total Votes:	5,113	
Winner	4,287	83.85%	JOCASTA ZAMARRIPA 1645 S 12TH ST MILWAUKEE WI 53204		Democrat
	678	13.26%	RAMONA RIVAS 1123 SOUTH 6TH STREET UPPER MILWAUKEE WI 53204		Independent
	90	1.76%	LAURA MANRIQUEZ (WRITE-IN) 2224 S 7TH ST MILWAUKEE WI 53215		Democrat
	58	1.13%	SCATTERING		
Office	ASSEMBLY - DISTRICT 9			Total Votes:	7,502
Party:	Assembly - District 9		Total Votes:	7,502	
Winner	7,354	98.03%	JOSH ZEPNICK 3173 S 49TH ST MILWAUKEE WI 532194637		Democrat
	148	1.97%	SCATTERING		
Office	ASSEMBLY - DISTRICT 10			Total Votes:	17,152
Party:	Assembly - District 10		Total Votes:	17,152	
Winner	15,874	92.55%	ELIZABETH M. COGGS 1321 N 18TH ST MILWAUKEE WI 53205		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 10			Total Votes:	17,152
Party:	Assembly - District 10		Total Votes:	17,152	
	1,223	7.13%	IESHUH GRIFFIN 2722A NORTH RICHARDS STREET MILWAUKEE WI 53212		Independent
	5	.03%	SHERMAN L. HILL (WRITE-IN) 3828 N 5TH ST MILWAUKEE WI 53212		Democrat
	50	.29%	SCATTERING		
Office	ASSEMBLY - DISTRICT 11			Total Votes:	14,995
Party:	Assembly - District 11		Total Votes:	14,995	
Winner	14,860	99.1%	JASON M. FIELDS 5686 N 60TH ST MILWAUKEE WI 53218		Democrat
	135	.9%	SCATTERING		
Office	ASSEMBLY - DISTRICT 12			Total Votes:	18,661
Party:	Assembly - District 12		Total Votes:	18,661	
Winner	13,758	73.73%	FREDERICK P. KESSLER 11221 W SANCTUARY DR MILWAUKEE WI 53224		Democrat
	4,868	26.09%	SAM HAGEDORN 10427 W HARVEST LN MILWAUKEE WI 53225		Republican
	35	.19%	SCATTERING		
Office	ASSEMBLY - DISTRICT 13			Total Votes:	18,837
Party:	Assembly - District 13		Total Votes:	18,837	
Winner	14,364	76.25%	DAVID CULLEN 2845 N 68TH ST MILWAUKEE WI 53210		Democrat
	4,409	23.41%	LISA R. BECKER 3135 N 94TH ST MILWAUKEE WI 53222		Constitution Party of Wisconsin
	64	.34%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 14			Total Votes:	16,661
Party:	Assembly - District 14		Total Votes:	16,661	
Winner	16,481	98.92%	DALE P. KOOYENGA 15365 ST THERESE BLVD BROOKFIELD WI 53005		Republican
	180	1.08%	SCATTERING		
Office	ASSEMBLY - DISTRICT 15			Total Votes:	18,881
Party:	Assembly - District 15		Total Votes:	18,881	
Winner	9,617	50.93%	TONY STASKUNAS 2010 S 103RD COURT WEST ALLIS WI 53227		Democrat
	9,230	48.89%	RONALD RIEBOLDT 5241 W HAYES AVENUE WEST ALLIS WI 53219		Republican
	34	.18%	SCATTERING		
Office	ASSEMBLY - DISTRICT 16			Total Votes:	11,864
Party:	Assembly - District 16		Total Votes:	11,864	
Winner	11,655	98.24%	LEON D. YOUNG 2224 N 17TH STREET MILWAUKEE WI 53205		Democrat
	209	1.76%	SCATTERING		
Office	ASSEMBLY - DISTRICT 17			Total Votes:	17,727
Party:	Assembly - District 17		Total Votes:	17,727	
Winner	17,550	99%	BARBARA L. TOLES 3835 N 56TH STREET MILWAUKEE WI 53210		Democrat
	177	1%	SCATTERING		
Office	ASSEMBLY - DISTRICT 18			Total Votes:	11,965
Party:	Assembly - District 18		Total Votes:	11,965	
Winner	11,757	98.26%	TAMARA D. GRIGSBY 2354 N 41ST STREET MILWAUKEE WI 53210		Democrat
	208	1.74%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 19			Total Votes:	22,064
Party:	Assembly - District 19		Total Votes:	22,064	
Winner	15,123	68.54%	JON RICHARDS 1823 N OAKLAND AVENUE MILWAUKEE WI 53202		Democrat
	6,892	31.24%	KRISTA BURNS 3149 SOUTH DELAWARE MILWAUKEE WI 53207		Republican
	49	.22%	SCATTERING		
Office	ASSEMBLY - DISTRICT 20			Total Votes:	20,391
Party:	Assembly - District 20		Total Votes:	20,391	
Winner	10,844	53.18%	CHRISTINE SINICKI 3132 S INDIANA AVENUE MILWAUKEE WI 53207		Democrat
	9,503	46.6%	MOLLY M. MCGARTLAND 3777 S AHMEDI AVE ST FRANCIS WI 53235		Republican
	44	.22%	SCATTERING		
Office	ASSEMBLY - DISTRICT 21			Total Votes:	21,875
Party:	Assembly - District 21		Total Votes:	21,875	
	8,155	37.28%	TOM MICHALSKI 8720 S 13TH STREET OAK CREEK WI 53154-370		Democrat
Winner	13,693	62.6%	MARK HONADEL 1219 MANITOBA AVE SOUTH MILWAUKEE WI 53172		Republican
	27	.12%	SCATTERING		
Office	ASSEMBLY - DISTRICT 22			Total Votes:	26,933
Party:	Assembly - District 22		Total Votes:	26,933	
Winner	16,782	62.31%	SANDY PASCH 6301 N BERKELEY BLVD WHITEFISH BAY WI 53217		Democrat
	10,094	37.48%	PAUL PEDERSEN 360 EAST DAPHNE ROAD FOX POINT WI 53217		Republican
	57	.21%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 23			Total Votes:	16,549
Party:	Assembly - District 23		Total Votes:	16,549	
Winner	16,257	98.24%	JIM OTT 11743 NORTH LAKE SHORE DR MEQUON WI 53092		Republican
	292	1.76%	SCATTERING		
Office	ASSEMBLY - DISTRICT 24			Total Votes:	27,414
Party:	Assembly - District 24		Total Votes:	27,414	
	6,910	25.21%	DUSTIN JAMES KLEIN 5071 N 126TH ST BUTLER WI 53007		Democrat
Winner	20,488	74.74%	DAN KNODL N101 W14475 RIDGEFIELD CT GERMANTOWN WI 53022		Republican
	16	.06%	SCATTERING		
Office	ASSEMBLY - DISTRICT 25			Total Votes:	19,495
Party:	Assembly - District 25		Total Votes:	19,495	
	6,459	33.13%	KERRY A. TRASK 1020 N 16TH ST MANITOWOC WI 54220		Democrat
	3,325	17.06%	ANDREW WISNIEWSKI 4423 MENASHA AVE MANITOWOC WI 54220		Republican
Winner	9,702	49.77%	BOB ZIEGELBAUER 1213 S 8TH STREET MANITOWOC WI 54221		Independent
	9	.05%	SCATTERING		
Office	ASSEMBLY - DISTRICT 26			Total Votes:	18,045
Party:	Assembly - District 26		Total Votes:	18,045	
	8,671	48.05%	TERRY VAN AKKEREN 1612 S 7TH ST SHEBOYGAN WI 53081		Democrat
Winner	8,822	48.89%	MIKE ENDSLEY 1829 N 27TH PLACE SHEBOYGAN WI 53081		Republican
	543	3.01%	JOB E. HOU-SEYE 222 PROSPECT AVE SHEBOYGAN WI 53081		Reagan-Washington Tea Party Candidate

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 26			Total Votes:	18,045
Party:	Assembly - District 26		Total Votes:	18,045	
	9	.05%	SCATTERING		
Office	ASSEMBLY - DISTRICT 27			Total Votes:	22,404
Party:	Assembly - District 27		Total Votes:	22,404	
Winner	16,879	75.34%	STEVE KESTELL W3829 HWY 32 ELKHART LAKE WI 53020		Republican
	5,502	24.56%	JACK LECHLER 1334 1ST ST KIEL WI 53042		Independent
	23	.1%	SCATTERING		
Office	ASSEMBLY - DISTRICT 28			Total Votes:	20,415
Party:	Assembly - District 28		Total Votes:	20,415	
	8,634	42.29%	ANN HRAYCHUCK 1629 130TH ST BALSAM LAKE WI 54810		Democrat
Winner	11,770	57.65%	ERIK SEVERSON 2147 45TH AVENUE STAR PRAIRIE WI 54026		Republican
	11	.05%	SCATTERING		
Office	ASSEMBLY - DISTRICT 29			Total Votes:	20,100
Party:	Assembly - District 29		Total Votes:	20,100	
	7,548	37.55%	LIZ JONES 2640 12TH AVENUE WOODVILLE WI 54028		Democrat
Winner	12,533	62.35%	JOHN MURTHA 2283 20TH AVENUE BALDWIN WI 54002		Republican
	19	.09%	SCATTERING		
Office	ASSEMBLY - DISTRICT 30			Total Votes:	22,780
Party:	Assembly - District 30		Total Votes:	22,780	
	8,629	37.88%	MATT BORUP 1029 8TH STREET HUDSON WI 54016		Democrat
Winner	14,124	62%	DEAN KNUDSON 1753 LAUREL AVE HUDSON WI 54016		Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 30			Total Votes:	22,780
Party:	Assembly - District 30		Total Votes:	22,780	
	27	.12%	SCATTERING		
Office	ASSEMBLY - DISTRICT 31			Total Votes:	22,614
Party:	Assembly - District 31		Total Votes:	22,614	
Winner	20,193	89.29%	STEVE NASS N8330 JACKSON RD WHITEWATER WI 53190		Republican
	2,378	10.52%	LEROY L. WATSON 901 YORK IMPERIAL DR OCONOMOWOC WI 53066		Libertarian
	43	.19%	SCATTERING		
Office	ASSEMBLY - DISTRICT 32			Total Votes:	18,708
Party:	Assembly - District 32		Total Votes:	18,708	
	5,156	27.56%	DOUG A. HARROD W1815 COUNTY HIGHWAY B GENOA CITY WI 53128		Democrat
Winner	10,868	58.09%	TYLER AUGUST 120 FOX LANE WALWORTH WI 53184		Republican
	1,983	10.6%	DANIEL G. KILKENNY N3616 ELM RIDGE RD DELAVAN WI 53115		Independent
	648	3.46%	RICK PAPPAS 543 AKWENASA WAY FONTANA WI 53125		Independent
	53	.28%	SCATTERING		
Office	ASSEMBLY - DISTRICT 33			Total Votes:	23,699
Party:	Assembly - District 33		Total Votes:	23,699	
Winner	23,580	99.5%	CHRIS KAPENGA N9 W31035 CONCORD CT DELAFIELD WI 53018		Republican
	119	.5%	SCATTERING		
Office	ASSEMBLY - DISTRICT 34			Total Votes:	24,552
Party:	Assembly - District 34		Total Votes:	24,552	
	7,406	30.16%	MERLIN VAN BUREN 5125 KERRY LN RHINELANDER WI 54501		Democrat

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 34			Total Votes:	24,552
Party:	Assembly - District 34		Total Votes:	24,552	
Winner	14,678	59.78%	DAN MEYER 1013 WALNUT ST EAGLE RIVER WI 54521		Republican
	2,456	10%	WIL LOSCH 2531 ROSEMIL LN RHINELANDER WI 545018029		Libertarian
	12	.05%	SCATTERING		
Office	ASSEMBLY - DISTRICT 35			Total Votes:	20,366
Party:	Assembly - District 35		Total Votes:	20,366	
	8,515	41.81%	JAY SCHMELLING N1206 CAIN CREEK ROAD MERRILL WI 54452-908		Democrat
Winner	11,830	58.09%	TOM TIFFANY 4973 WILLOW DAM RD HAZELHURST WI 54531		Republican
	21	.1%	SCATTERING		
Office	ASSEMBLY - DISTRICT 36			Total Votes:	18,910
Party:	Assembly - District 36		Total Votes:	18,910	
	7,735	40.9%	ANNE WOZNICKI PO BOX 25 FLORENCE WI 54121		Democrat
Winner	11,170	59.07%	JEFFREY L. MURSAU 4 OAK ST CRIVITZ WI 54114		Republican
	5	.03%	SCATTERING		
Office	ASSEMBLY - DISTRICT 37			Total Votes:	22,823
Party:	Assembly - District 37		Total Votes:	22,823	
Winner	11,908	52.18%	ANDY JORGENSEN 1424 ENDL BLVD FORT ATKINSON WI 53538		Democrat
	10,895	47.74%	VICKI L. MILBRATH N4858 N HELENVILLE RD HELENVILLE WI 53137		Republican
	20	.09%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate	Party
Office	ASSEMBLY - DISTRICT 38		Total Votes:	23,847
Party:	Assembly - District 38		Total Votes: 23,847	
	6,558	27.5%	DICK PAS 662 EAST JUNEAU AVENUE OCONOMOWOC WI 53066	Democrat
Winner	17,267	72.41%	JOEL KLEEFISCH W357N6189 SPINNAKER DR OCONOMOWOC WI 53066	Republican
	22	.09%	SCATTERING	
Office	ASSEMBLY - DISTRICT 39		Total Votes:	15,019
Party:	Assembly - District 39		Total Votes: 15,019	
Winner	14,849	98.87%	JEFF FITZGERALD 910 SUNSET LANE HORICON WI 53032	Republican
	170	1.13%	SCATTERING	
Office	ASSEMBLY - DISTRICT 40		Total Votes:	18,442
Party:	Assembly - District 40		Total Votes: 18,442	
	5,682	30.81%	JON BALTMANIS 7065 EVERGREEN DRIVE W WAUPACA WI 54981	Democrat
Winner	12,749	69.13%	KEVIN DAVID PETERSEN N1433 DRIVAS RD WAUPACA WI 54981	Republican
	11	.06%	SCATTERING	
Office	ASSEMBLY - DISTRICT 41		Total Votes:	20,146
Party:	Assembly - District 41		Total Votes: 20,146	
	5,183	25.73%	SCOTT MILHEISER 1466 WOLF RIVER DR FREMONT WI 54940	Democrat
Winner	13,163	65.34%	JOAN A. BALLWEG 170 W SUMMIT ST MARKESAN WI 53946	Republican
	1,786	8.87%	JAY SELTHOFNER W1648 COUNTY ROAD J GREEN LAKE WI 54941	Independent
	14	.07%	SCATTERING	

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 42			Total Votes:	20,138
Party:	Assembly - District 42		Total Votes:	20,138	
Winner	10,208	50.69%	FRED CLARK E12367 CTY RD W BARABOO WI 53913		Democrat
	9,921	49.27%	JACK CUMMINGS W7210 COUNTY P ENDEAVOR WI 53930		Republican
	9	.04%	SCATTERING		
Office	ASSEMBLY - DISTRICT 43			Total Votes:	19,907
Party:	Assembly - District 43		Total Votes:	19,907	
	9,449	47.47%	KIM HIXSON 327 S WOODLAND DR WHITEWATER WI 53190		Democrat
Winner	10,450	52.49%	EVAN WYNN 214 LAKE VIEW DR WHITEWATER WI 53190		Republican
	8	.04%	SCATTERING		
Office	ASSEMBLY - DISTRICT 44			Total Votes:	16,862
Party:	Assembly - District 44		Total Votes:	16,862	
	8,169	48.45%	MICHAEL J. SHERIDAN 1120 ELIDA ST JANESVILLE WI 53545		Democrat
Winner	8,684	51.5%	JOE KNILANS 1600 ALPINE DRIVE JANESVILLE WI 53546		Republican
	9	.05%	SCATTERING		
Office	ASSEMBLY - DISTRICT 45			Total Votes:	17,367
Party:	Assembly - District 45		Total Votes:	17,367	
	7,921	45.61%	ROGER ANCLAM 7928 S BUTTERFLY RD BELOIT WI 53511		Democrat
Winner	9,440	54.36%	AMY LOUDENBECK 10737 S STATE RD 140 CLINTON WI 53525		Republican
	6	.03%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 46			Total Votes:	26,473
Party:	Assembly - District 46		Total Votes:	26,473	
Winner	15,720	59.38%	GARY HEBL 515 SCHEURELL LN SUN PRAIRIE WI 53590		Democrat
	10,738	40.56%	KATHY MAVES 744 CLEDELL ST OREGON WI 53575		Republican
	15	.06%	SCATTERING		
Office	ASSEMBLY - DISTRICT 47			Total Votes:	25,317
Party:	Assembly - District 47		Total Votes:	25,317	
	10,820	42.74%	TRISH O'NEIL W1087 FOX RD COLUMBUS WI 53925		Democrat
Winner	14,490	57.23%	KEITH RIPP 7113 COUNTY RD V LODI WI 53555		Republican
	7	.03%	SCATTERING		
Office	ASSEMBLY - DISTRICT 48			Total Votes:	28,485
Party:	Assembly - District 48		Total Votes:	28,485	
Winner	20,650	72.49%	JOSEPH T. PARISI 702 MCLEAN DR MADISON WI 53718		Democrat
	6,929	24.33%	SPENCER ZIMMERMAN 4724 BURMA RD APT 6 MCFARLAND WI 53558		Republican
	893	3.13%	GRANT J. GILBERTSON 5848 HOLSCHER ROAD MCFARLAND WI 53558		Progress-Freedom
	13	.05%	SCATTERING		
Office	ASSEMBLY - DISTRICT 49			Total Votes:	18,244
Party:	Assembly - District 49		Total Votes:	18,244	
	7,844	42.99%	PHIL GARTHWAITE 141 S MAIN ST DICKEYVILLE WI 53808		Democrat
Winner	10,384	56.92%	TRAVIS TRANEL 2231 LOUISBURG RD CUBA CITY WI 53807		Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 49			Total Votes:	18,244
Party:	Assembly - District 49		Total Votes:	18,244	
	16	.09%	SCATTERING		
Office	ASSEMBLY - DISTRICT 50			Total Votes:	18,957
Party:	Assembly - District 50		Total Votes:	18,957	
	7,097	37.44%	SARAH ANN SHANAHAN N5845 VALLEY ROAD NEW LISBON WI 53950		Democrat
Winner	11,420	60.24%	ED BROOKS S4311 GROTE HILL RD REEDSBURG WI 53959		Republican
	436	2.3%	BEN OLSON III E9510 OAK HILL WISCONSIN DELLS WI 53965		Libertarian
	4	.02%	SCATTERING		
Office	ASSEMBLY - DISTRICT 51			Total Votes:	20,759
Party:	Assembly - District 51		Total Votes:	20,759	
	9,931	47.84%	JOHN SIMONSON 1851 TWIN BRIDGE ROAD MINERAL POINT WI 53565		Democrat
Winner	10,822	52.13%	HOWARD MARKLEIN S11665 SOELDNER RD SPRING GREEN WI 53588		Republican
	6	.03%	SCATTERING		
Office	ASSEMBLY - DISTRICT 52			Total Votes:	18,952
Party:	Assembly - District 52		Total Votes:	18,952	
	7,008	36.98%	PAUL G. CZISNY 260 SHEBOYGAN ST FOND DU LAC WI 54935		Democrat
Winner	11,921	62.9%	JEREMY THIESFELDT 604 SUNSET LN FOND DU LAC WI 54935		Republican
	23	.12%	SCATTERING		
Office	ASSEMBLY - DISTRICT 53			Total Votes:	17,782
Party:	Assembly - District 53		Total Votes:	17,782	
Winner	17,685	99.45%	RICHARD J. SPANBAUER 3040 SHELDON DR OSHKOSH WI 54904		Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 53			Total Votes:	17,782
Party:	Assembly - District 53		Total Votes:	17,782	
	97	.55%	SCATTERING		
Office	ASSEMBLY - DISTRICT 54			Total Votes:	19,407
Party:	Assembly - District 54		Total Votes:	19,407	
Winner	11,093	57.16%	GORDON HINTZ 1209 WAUGOO AVE OSHKOSH WI 54901		Democrat
	8,296	42.75%	JONATHAN KRAUSE 322 N LARK ST OSHKOSH WI 54902		Republican
	18	.09%	SCATTERING		
Office	ASSEMBLY - DISTRICT 55			Total Votes:	13,735
Party:	Assembly - District 55		Total Votes:	13,735	
Winner	13,569	98.79%	DEAN R. KAUFERT 1360 ALPINE LN NEENAH WI 54956		Republican
	166	1.21%	SCATTERING		
Office	ASSEMBLY - DISTRICT 56			Total Votes:	21,675
Party:	Assembly - District 56		Total Votes:	21,675	
Winner	21,572	99.52%	MICHELLE LITJENS 3765 MAXWELL ROAD OSHKOSH WI 54904		Republican
	103	.48%	SCATTERING		
Office	ASSEMBLY - DISTRICT 57			Total Votes:	19,881
Party:	Assembly - District 57		Total Votes:	19,881	
Winner	10,426	52.44%	PENNY BERNARD SCHABER 815 E WASHINGTON ST APPLETON WI 54911		Democrat
	9,420	47.38%	CHRIS HANSON W8673 QUIET LN HORTONVILLE WI 54944		Republican
	35	.18%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 58			Total Votes:	21,521
Party:	Assembly - District 58		Total Votes:	21,521	
Winner	21,385	99.37%	PAT STRACHOTA 639 RIDGE RD WEST BEND WI 53095		Republican
	136	.63%	SCATTERING		
Office	ASSEMBLY - DISTRICT 59			Total Votes:	22,298
Party:	Assembly - District 59		Total Votes:	22,298	
Winner	22,156	99.36%	DANIEL LEMAHIEU W6284 LAKE ELLEN DR CASCADE WI 53011		Republican
	142	.64%	SCATTERING		
Office	ASSEMBLY - DISTRICT 60			Total Votes:	22,067
Party:	Assembly - District 60		Total Votes:	22,067	
Winner	21,896	99.23%	MARK GOTTLIEB 1205 NORIDGE TRL PORT WASHINGTON WI 53074		Republican
	171	.77%	SCATTERING		
Office	ASSEMBLY - DISTRICT 61			Total Votes:	12,233
Party:	Assembly - District 61		Total Votes:	12,233	
Winner	10,026	81.96%	ROBERT TURNER 36 MCKINLEY AVE RACINE WI 53404		Democrat
	2,167	17.71%	GEORGE MEYERS 1307 N WISCONSIN ST RACINE WI 53402		Libertarian
	40	.33%	SCATTERING		
Office	ASSEMBLY - DISTRICT 62			Total Votes:	19,439
Party:	Assembly - District 62		Total Votes:	19,439	
Winner	10,455	53.78%	CORY MASON 3611 KINZIE AVE RACINE WI 53405		Democrat
	8,572	44.1%	CHRIS WRIGHT 2906 96TH STREET STURTEVANT WI 53177		Republican
	403	2.07%	TONY DECUBELLIS 1644 HOLMES AVE RACINE WI 53405		Libertarian

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 62			Total Votes:	19,439
Party:	Assembly - District 62		Total Votes: 19,439		
	9	.05%	SCATTERING		
Office	ASSEMBLY - DISTRICT 63			Total Votes:	19,653
Party:	Assembly - District 63		Total Votes: 19,653		
Winner	19,525	99.35%	ROBIN J. VOS 4710 EASTWOOD RIDGE RACINE WI 53406		Republican
	128	.65%	SCATTERING		
Office	ASSEMBLY - DISTRICT 64			Total Votes:	11,485
Party:	Assembly - District 64		Total Votes: 11,485		
Winner	9,667	84.17%	PETER W. BARCA 1339 38TH AVE KENOSHA WI 53144		Democrat
	1,774	15.45%	DAANE HOFFMAN 3538 14TH AVE KENOSHA WI 53140		Libertarian
	44	.38%	SCATTERING		
Office	ASSEMBLY - DISTRICT 65			Total Votes:	12,172
Party:	Assembly - District 65		Total Votes: 12,172		
Winner	11,762	96.63%	JOHN P. STEINBRINK 8640 88TH AVE PLEASANT PRAIRIE WI 53158		Democrat
	410	3.37%	SCATTERING		
Office	ASSEMBLY - DISTRICT 66			Total Votes:	20,796
Party:	Assembly - District 66		Total Votes: 20,796		
	6,284	30.22%	STEVEN M. BROWN 8734 245TH AVENUE SALEM WI 53168		Democrat
Winner	14,502	69.73%	SAMANTHA KERKMAN 40255 105TH ST GENOA CITY WI 53128		Republican
	10	.05%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 67			Total Votes:	20,049
Party:	Assembly - District 67		Total Votes:	20,049	
	6,518	32.51%	C. W. KING 1050 W SPRUCE ST CHIPPEWA FALLS WI 54729		Democrat
Winner	12,547	62.58%	TOM LARSON E9359 COUNTY ROAD N COLFAX WI 54730		Republican
	969	4.83%	THOMAS LANGE 100 N BRIDGE ST CHIPPEWA FALLS WI 54729		Independent
	15	.07%	SCATTERING		
Office	ASSEMBLY - DISTRICT 68			Total Votes:	21,464
Party:	Assembly - District 68		Total Votes:	21,464	
	10,673	49.73%	KRISTEN DEXTER 7410 LAKEVIEW DR EAU CLAIRE WI 54701		Democrat
Winner	10,765	50.15%	KATHY BERNIER 10923 40TH AVENUE CHIPPEWA FALLS WI 54729		Republican
	26	.12%	SCATTERING		
Office	ASSEMBLY - DISTRICT 69			Total Votes:	14,479
Party:	Assembly - District 69		Total Votes:	14,479	
Winner	14,354	99.14%	SCOTT SUDER 102 SOUTH FOURTH AVENUE ABBOTSFORD WI 54405		Republican
	125	.86%	SCATTERING		
Office	ASSEMBLY - DISTRICT 70			Total Votes:	22,658
Party:	Assembly - District 70		Total Votes:	22,658	
Winner	12,178	53.75%	AMY SUE VRUWINK 9425 FLOWER LANE MILLADORE WI 54454		Democrat
	10,461	46.17%	JOHN SPIROS 1406 E FILLMORE MARSHFIELD WI 54449		Republican
	19	.08%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 71			Total Votes:	21,653
Party:	Assembly - District 71		Total Votes:	21,653	
Winner	12,328	56.93%	LOUIS JOHN MOLEPSKE, JR 1800 MAIN ST STEVENS POINT WI 54481		Democrat
	9,293	42.92%	BOB SCOVILL 7015 CNT ROAD JJ SOUTH BANCROFT WI 54921		Republican
	32	.15%	SCATTERING		
Office	ASSEMBLY - DISTRICT 72			Total Votes:	20,407
Party:	Assembly - District 72		Total Votes:	20,407	
	8,432	41.32%	MARLIN D. SCHNEIDER 3820 SOUTHBROOK LANE WISCONSIN RAPIDS WI 54494		Democrat
Winner	9,501	46.56%	SCOTT S. KRUG 466 GROVE AVE WISCONSIN RAPIDS WI 54494		Republican
	2,465	12.08%	THAD KUBISIAK 1961 6TH ST S WISCONSIN RAPIDS WI 54494		Independent
	9	.04%	SCATTERING		
Office	ASSEMBLY - DISTRICT 73			Total Votes:	20,167
Party:	Assembly - District 73		Total Votes:	20,167	
Winner	11,330	56.18%	NICK MILROY 4543 S SAM ANDERSON RD SOUTH RANGE WI 54874		Democrat
	8,827	43.77%	BONNIE BAKER 5 BADGER DR SUPERIOR WI 54880		Republican
	10	.05%	SCATTERING		
Office	ASSEMBLY - DISTRICT 74			Total Votes:	21,547
Party:	Assembly - District 74		Total Votes:	21,547	
Winner	11,418	52.99%	JANET BEWLEY 810 CHAPPLE AVE ASHLAND WI 54806		Democrat
	10,117	46.95%	SHIRL LABARRE 10152 ABBY LN HAYWARD WI 54843		Republican
	12	.06%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 75			Total Votes:	19,518
Party:	Assembly - District 75		Total Votes: 19,518		
	9,535	48.85%	STEVE PERALA 628 E WISCONSIN AVE BARRON WI 54812		Democrat
Winner	9,950	50.98%	ROGER RIVARD 2680 17TH AVE RICE LAKE WI 54868		Republican
	8	.04%	JOHN SCHIESS (WRITE-IN) 1025 WEST MACARTHUR AVENUE #111 EAU CLAIRE WI 54701		Republican
	25	.13%	SCATTERING		
Office	ASSEMBLY - DISTRICT 76			Total Votes:	24,799
Party:	Assembly - District 76		Total Votes: 24,799		
Winner	20,246	81.64%	TERESE BERCEAU 4326 SOMERSET LN MADISON WI 53711		Democrat
	4,501	18.15%	TORREY JAECKLE 4001 CHIPPEWA DR MADISON WI 53711		Independent
	52	.21%	SCATTERING		
Office	ASSEMBLY - DISTRICT 77			Total Votes:	24,972
Party:	Assembly - District 77		Total Votes: 24,972		
Winner	12,142	48.62%	BRETT HULSEY 110 MERRILL CREST DRIVE MADISON WI 53705		Democrat
	4,670	18.7%	DAVID REDICK 913 HAMPSHIRE PLACE MADISON WI 53711		Republican
	7,762	31.08%	BEN MANSKI PO BOX 260217 MADISON WI 53726		WIG
	373	1.49%	DAVID K. OLSON 201 S YELLOWSTONE DR APT 208 MADISON WI 53705		Constitution Party of Wisconsin
	25	.1%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 78			Total Votes:	21,729
Party:	Assembly - District 78		Total Votes:	21,729	
Winner	21,498	98.94%	MARK POCAN 309 N BALDWIN ST MADISON WI 53703		Democrat
	231	1.06%	SCATTERING		
Office	ASSEMBLY - DISTRICT 79			Total Votes:	33,802
Party:	Assembly - District 79		Total Votes:	33,802	
Winner	19,937	58.98%	SONDY POPE-ROBERTS 4793 DELMARA RD MIDDLETON WI 53562		Democrat
	13,842	40.95%	TOM CLAUDER 2583 NORWICH STREET FITCHBURG WI 53711		Republican
	23	.07%	SCATTERING		
Office	ASSEMBLY - DISTRICT 80			Total Votes:	22,926
Party:	Assembly - District 80		Total Votes:	22,926	
Winner	12,097	52.77%	JANIS RINGHAND 412 FOWLER CIRCLE EVANSVILLE WI 53536		Democrat
	10,795	47.09%	DAN HENKE 1129 2ND STREET MONROE WI 53566		Republican
	34	.15%	SCATTERING		
Office	ASSEMBLY - DISTRICT 81			Total Votes:	18,906
Party:	Assembly - District 81		Total Votes:	18,906	
Winner	18,698	98.9%	KELDA HELEN ROYS 2215 N SHERMAN AVE MADISON WI 53704		Democrat
	208	1.1%	SCATTERING		
Office	ASSEMBLY - DISTRICT 82			Total Votes:	19,366
Party:	Assembly - District 82		Total Votes:	19,366	
Winner	19,148	98.87%	JEFF STONE 5535 GRANDVIEW DR GREENDALE WI 53129		Republican
	218	1.13%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 83			Total Votes:	28,203
Party:	Assembly - District 83		Total Votes:	28,203	
	6,003	21.28%	AARON ROBERTSON S67W12559 LARKSPUR RD MUSKEGO WI 53150		Democrat
Winner	22,192	78.69%	SCOTT L. GUNDERSON 30805 SUNSET LANE WATERFORD WI 53185		Republican
	8	.03%	SCATTERING		
Office	ASSEMBLY - DISTRICT 84			Total Votes:	27,004
Party:	Assembly - District 84		Total Votes:	27,004	
	7,080	26.22%	DON VANPOOL S60W23787 STIGLER LN WAUKESHA WI 53189		Democrat
Winner	19,906	73.72%	MIKE KUGLITSCH 21865 W TOLBERT DR NEW BERLIN WI 53146		Republican
	18	.07%	SCATTERING		
Office	ASSEMBLY - DISTRICT 85			Total Votes:	19,604
Party:	Assembly - District 85		Total Votes:	19,604	
Winner	10,298	52.53%	DONNA SEIDEL 807 S 20TH ST WAUSAU WI 54403		Democrat
	8,460	43.15%	CHARLES R. ENO 8705 WHIE PINE CT WAUSAU WI 54403		Republican
	830	4.23%	JIM MAAS 211 PEGGY LANE ROTHSCHILD WI 54474-175		Libertarian
	16	.08%	SCATTERING		
Office	ASSEMBLY - DISTRICT 86			Total Votes:	23,136
Party:	Assembly - District 86		Total Votes:	23,136	
	6,701	28.96%	TODD PUNKE 4104 SUNNY HILL LANE WAUSAU WI 54401		Democrat
Winner	15,459	66.82%	JERRY J. PETROWSKI 720 N 136TH AVE MARATHON WI 54448		Republican

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 86			Total Votes:	23,136
Party:	Assembly - District 86		Total Votes:	23,136	
	967	4.18%	FREDERICK MELMS 3200 RIB MOUNTAIN WAY WAUSAU WI 54401		Low taxes, small government
	9	.04%	SCATTERING		
Office	ASSEMBLY - DISTRICT 87			Total Votes:	19,760
Party:	Assembly - District 87		Total Votes:	19,760	
	7,908	40.02%	DANA SCHULTZ 7002 RANGELINE RD ATHENS WI 54411		Democrat
Winner	11,223	56.8%	MARY WILLIAMS 542 BILLINGS AVE MEDFORD WI 54451		Republican
	623	3.15%	FRANK RUTHERFORD 11158 W CO RD C EXELAND WI 54835-210		Independent
	6	.03%	SCATTERING		
Office	ASSEMBLY - DISTRICT 88			Total Votes:	16,209
Party:	Assembly - District 88		Total Votes:	16,209	
	7,957	49.09%	JIM SOLETSKI 496 MENLO PARK RD GREEN BAY WI 54302		Democrat
Winner	8,224	50.74%	JOHN KLENKE 3463 YORKSHIRE ROAD GREEN BAY WI 54311		Republican
	28	.17%	SCATTERING		
Office	ASSEMBLY - DISTRICT 89			Total Votes:	23,326
Party:	Assembly - District 89		Total Votes:	23,326	
	7,520	32.24%	BOB ORWIG W2133 RADER RD MARINETTE WI 54143		Democrat
Winner	15,788	67.68%	JOHN NYGREN N2118 KELLER RD MARINETTE WI 54143		Republican
	18	.08%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 90			Total Votes:	18,560
Party:	Assembly - District 90		Total Votes:	18,560	
	7,705	41.51%	LOU ANN WEIX 1596 MEADOW WOOD CT GREEN BAY WI 54313		Democrat
Winner	10,842	58.42%	KARL VAN ROY 805 RIVERVIEW DR GREEN BAY WI 54303		Republican
	13	.07%	SCATTERING		
Office	ASSEMBLY - DISTRICT 91			Total Votes:	19,378
Party:	Assembly - District 91		Total Votes:	19,378	
Winner	11,375	58.7%	CHRIS DANOU 23951 8TH ST TREMPEALEAU WI 54661		Democrat
	8,000	41.28%	BILL INGRAM N7317 COUNTY ROAD C DURAND WI 54736		Republican
	3	.02%	SCATTERING		
Office	ASSEMBLY - DISTRICT 92			Total Votes:	18,164
Party:	Assembly - District 92		Total Votes:	18,164	
Winner	9,227	50.8%	MARK A. RADCLIFFE 376 N 12TH ST BLACK RIVER FALLS WI 54615		Democrat
	8,915	49.08%	DENNIS CLINARD 5852 CEDAR RD SPARTA WI 54656		Republican
	22	.12%	SCATTERING		
Office	ASSEMBLY - DISTRICT 93			Total Votes:	22,105
Party:	Assembly - District 93		Total Votes:	22,105	
	11,006	49.79%	JEFF SMITH S7747 NORRISH RD EAU CLAIRE WI 54701		Democrat
Winner	11,080	50.12%	WARREN PETRYK S9840 HWY 93 ELEVA WI 54738		Republican
	19	.09%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 94			Total Votes:	23,754
Party:	Assembly - District 94		Total Votes:	23,754	
	9,768	41.12%	CHERYL HANCOCK 1007 DEERFIELD ST HOLMEN WI 54636		Democrat
Winner	13,979	58.85%	MIKE HUEBSCH 419 W FRANKLIN ST WEST SALEM WI 54669		Republican
	7	.03%	SCATTERING		
Office	ASSEMBLY - DISTRICT 95			Total Votes:	18,720
Party:	Assembly - District 95		Total Votes:	18,720	
Winner	11,893	63.53%	JENNIFER SHILLING 2608 MAIN ST LACROSSE WI 54601		Democrat
	6,790	36.27%	NICK CHARLES 1010 CASS ST LA CROSSE WI 54601		Republican
	37	.2%	SCATTERING		
Office	ASSEMBLY - DISTRICT 96			Total Votes:	19,571
Party:	Assembly - District 96		Total Votes:	19,571	
	7,604	38.85%	BRIAN K. MURPHY S1222 MATHISON LANE WESTBY WI 54667-726		Democrat
Winner	11,964	61.13%	LEE A. NERISON S3035 COUNTY ROAD B WESTBY WI 54667		Republican
	3	.02%	SCATTERING		
Office	ASSEMBLY - DISTRICT 97			Total Votes:	19,675
Party:	Assembly - District 97		Total Votes:	19,675	
	6,390	32.48%	DAWN M. CARUSS 215 N GREENFIELD AVENUE WAUKESHA WI 53186		Democrat
Winner	13,272	67.46%	BILL KRAMER 2005 CLIFF ALEX CT SOUTH APT 3 WAUKESHA WI 53189		Republican
	13	.07%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	ASSEMBLY - DISTRICT 98			Total Votes:	29,040
Party:	Assembly - District 98		Total Votes:	29,040	
	6,788	23.37%	VICTOR WEERS 15980 MARK DRIVE BROOKFIELD WI 53005		Democrat
Winner	22,236	76.57%	PAUL FARROW 245 HILLWOOD CT PEWAUKEE WI 53072		Republican
	16	.06%	SCATTERING		
Office	ASSEMBLY - DISTRICT 99			Total Votes:	28,910
Party:	Assembly - District 99		Total Votes:	28,910	
	6,518	22.55%	TOM HIBBARD N48 W31390 ST HWY 83 HARTLAND WI 53029		Democrat
Winner	22,355	77.33%	DON PRIDEMORE 2277 HIGHWAY K HARTFORD WI 53027		Republican
	37	.13%	SCATTERING		

G.A.B. Canvass Reporting System

Canvass Results for 2012 JUNE 5 RECALL ELECTION - 6/5/2012

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	GOVERNOR			Total Votes:	2,516,065
Party:	GOVERNOR		Total Votes:	2,516,065	
Winner	1,335,585	53.08%	SCOTT WALKER 520 N 68TH ST WAUWATOSA WI 53213		Republican
	1,164,480	46.28%	TOM BARRETT 5030 W WASHINGTON BLVD MILWAUKEE WI 53208		Democrat
	14,463	.57%	HARI TRIVEDI 16880 VANDERBILT ST BROOKFIELD WI 530052777		Independent
	1,537	.06%	SCATTERING		
Office	LIEUTENANT GOVERNOR			Total Votes:	2,461,336
Party:	LIEUTENANT GOVERNOR		Total Votes:	2,461,336	
Winner	1,301,739	52.89%	REBECCA KLEEFISCH W357 SPINNAKER DRIVE N6189 OCONOMOWOC WI 53066		Republican
	1,156,520	46.99%	MAHLON MITCHELL 2574 TARGHEE ST FITCHBURG WI 537115493		Democrat
	3,077	.13%	SCATTERING		
Office	RECALL STATE SENATE-DISTRICT 13			Total Votes:	80,851
Party:	RECALL STATE SENATE- 13		Total Votes:	80,851	
Winner	47,146	58.31%	SCOTT FITZGERALD N4692 MAPLE RD JUNEAU WI 53039		Republican
	32,909	40.7%	LORI COMPAS 326 GARFIELD ST FORT ATKINSON WI 535381409		Democrat
	763	.94%	TERRY VIRGIL 321 SWAP ST APT 101 JOHNSON CREEK WI 53038		Libertarian
	33	.04%	SCATTERING		

	Number of Votes Received	Percent of Total Votes	Candidate		Party
Office	RECALL STATE SENATE-DISTRICT 21			Total Votes:	71,955
Party:	RECALL STATE SENATE- 21		Total Votes:	71,955	
	35,539	49.39%	VAN H. WANGGAARD 1246 BLAINE AVE RACINE WI 53405		Republican
Winner	36,358	50.53%	JOHN LEHMAN 708 ORCHARD ST RACINE WI 53405		Democrat
	58	.08%	SCATTERING		
Office	RECALL STATE SENATE-DISTRICT 23			Total Votes:	70,468
Party:	RECALL STATE SENATE- 23		Total Votes:	70,468	
Winner	39,864	56.57%	TERRY MOULTON 980 118TH ST CHIPPEWA FALLS WI 54729		Republican
	30,504	43.29%	KRISTEN DEXTER 7410 LAKEVIEW DR EAU CLAIRE WI 54701		Democrat
	100	.14%	SCATTERING		
Office	RECALL STATE SENATE-DISTRICT 29			Total Votes:	71,909
Party:	RECALL STATE SENATE-29		Total Votes:	71,909	
Winner	44,107	61.34%	JERRY PETROWSKI 720 136TH AVE MARATHON WI 54448		Republican
	27,744	38.58%	DONNA SEIDEL 807 S 20TH ST WAUSAU WI 54403		Democrat
	58	.08%	SCATTERING		

Analysis of the Efficiency Gaps of Wisconsin's Current Legislative District Plan and Plaintiffs' Demonstration Plan

Kenneth R. Mayer, Ph.D.
Department of Political Science
University of Wisconsin-Madison
July 3, 2015

Table of Contents

I. Introduction

My name is Kenneth Mayer and I currently am a Professor of Political Science at the University of Wisconsin-Madison, and a faculty affiliate at the Lafollette School of Public Affairs, at the University. I joined the faculty in 1989. I teach courses on American politics, the presidency, Congress, campaign finance, election law, and electoral systems.

I have been retained by counsel representing the plaintiffs in this lawsuit (the "Plaintiffs") to analyze and provide expert opinions. I have been asked to determine whether, in my opinion, it is possible to create a Wisconsin state legislative map that does not result in systemic partisan advantage, by drawing a legislative district plan that has an efficiency gap as close to zero as possible while complying with federal and state requirements at least as well as the plan enacted by the Wisconsin legislature in Act 43.[1]

I submit this report, which contains the opinions that I intend to give in this matter. I describe my methods for estimating the state Assembly vote in actual and hypothetical state legislative redistricting plans, and for calculating the efficiency gap for Act 43 and for the alternative demonstration plan I drew.

My opinions, which are based on the technical and specialized knowledge that I have gained from my education, training and experience, are premised on commonly used, widely accepted and reliable methods of analysis, the application of the legal requirements of redistricting, and are based on my review and analysis of the following information and materials:

- Redistricting materials available from the Wisconsin legislature at http://legis.wisconsin.gov/gis/data, including Geographic Information System (GIS)

[1] The federal requirements are equal population, compliance with Section 2 of the Voting Rights Act, and the ban on racially gerrymandered districts. The state requirements are contiguity, compactness, and respect for political subdivisions (counties, towns, cities, and villages).

files for Act 43 districts, and ward level election data for 2012

- Census Bureau data on population, citizenship, and location of institutionalized populations as explained below
- Election data from the 2013-2014 Wisconsin *Blue Book* for the 2012 State Assembly and presidential elections
- Election data from the Government Accountability Board, including ward level 2012 election results for State Assembly and presidential elections.
- GIS data, including Census population figures, block assignments, and shape files for Wisconsin, available in the GIS program Maptitude for Redistricting
- Files submitted by defendants in *Baldus et al. v. Brennan et al.*

I conducted my analysis using Stata, Excel, R, and Maptitude for Redistricting.

II. Qualifications, Publications, Testimony, and Compensation

I have a Ph.D. in political science from Yale University, where my graduate training included courses in econometrics and statistics. My undergraduate degree is from the University of California, San Diego, where I majored in political science and minored in applied mathematics. My curriculum vitae is attached to this report as Exhibit 1.

All publications that I have authored and published in the past ten years appear in my curriculum vitae, attached as Exhibit 1. Those publications include the following peer-reviewed journals: Journal of Politics, American Journal of Political Science, Election Law Journal, Legislative Studies Quarterly, Presidential Studies Quarterly, American Politics Research, Congress and the Presidency, Public Administration Review, and PS: Political Science and Politics. I have also published in law reviews, including the Richmond Law Review, the UCLA Pacific Basin Law Journal, and the University of Utah Law Review. My work on campaign finance has been published in Legislative Studies Quarterly, Regulation, PS: Political Science and Politics, Richmond Law Review, the Democratic Audit of Australia, and in an edited volume on electoral competitiveness published by the Brookings Institution Press. My research on campaign finance has been cited by the Government Accountability Office, and by legislative research offices in Connecticut and Wisconsin.

My work on election administration has been published in the Election Law Journal, American Journal of Political Science, Public Administration Review, and American Politics Research. I was part of a research group retained as a consultant by the Wisconsin Government Accountability Board to review their compliance with federal mandates and reporting systems, and to survey local election officials throughout the state. I serve on the Steering Committee of the Wisconsin Elections Research Center, a unit with the UW-Madison College of Letters and Science. In 2012 I was retained by the U.S. Department of Justice to analyze data and methods regarding Florida's efforts to identify and remove claimed ineligible noncitizens from the statewide file of registered voters.

In the past eight years, I have testified as an expert witness in trial or deposition in the following cases: *Baldus et al. v. Brennan et al.,* 849 F. Supp. 2d 840 (E.D. Wis. 2012); *Milwaukee Branch of the NAACP et al. v. Walker et al.,* 2014 WI 98, 357 Wis. 2d 469, 851 N.W. 2d 262; *McComish et al. v. Brewer et al.,* No.CV- 08-1550, 2010 WL 2292213 (D. Ariz. June 23, 2010); and *Kenosha County v. City of Kenosha,* No. 11-CV-1813 (Kenosha County Circuit Court, Kenosha, WI, 2011).

I am being compensated at a rate of $300 per hour.

III. Opinions

A. Summary

My opinions may be summarized as follows.

- Using a model that estimates baseline ward-level partisanship, I conclude that the redistricting plan enacted by Act 43 is significantly biased against Democrats, with an efficiency gap of 11.69%. The plan achieves this via the use of classic "packing and cracking" gerrymandering techniques: concentrating Democratic voters into districts where they have overwhelming majorities (packing), and drawing other districts so that Democrats constitute partisan minorities well below 50% and unlikely to win legislative seats (cracking). In doing so, Republicans guarantee a strong majority of legislative seats, even if they obtain well below 50% of the statewide legislative vote. In 2012, Republicans won 61% of State Assembly seats (60 of 99) while achieving only 46.5% of the statewide vote (as measured by the presidential vote, a common proxy for statewide partisanship).

- Using the same measure of partisan strength that the Wisconsin state legislature used in assessing partisan impact of proposed districts in Act 43, Act 43 has an efficiency gap of 12.36%.

- I created a demonstration redistricting plan (the "Demonstration Plan") that is equivalent to Act 43 on population deviation, has fewer political subdivision splits, and has better compactness scores, with a much lower efficiency gap score of 2.20%. This is less than one-fifth of the Act 43 efficiency gap.

- The Demonstration Plan shows that the partisan advantage secured in Act 43 was in no sense required in order to adhere to the constitutional and statutory requirements of legislative redistricting.

B. Measuring Partisanship in Actual and Hypothetical Districting Plans

The efficiency gap is a measure of "wasted votes" that fall into two categories: those votes cast for a losing candidate in a district (lost votes), and votes cast for the winning candidate above what is necessary to win (surplus votes). In an existing set of districts, the calculation is based on the actual vote in each district, with adjustments for uncontested races (Stephanopoulos and McGhee 2015). Larger imbalances in the number of wasted votes signify a degree of partisan unfairness against the political party with more wasted votes.

Calculating the efficiency gap in the Demonstration Plan requires estimating what the underlying partisan vote would be in each newly drawn (and hypothetical) district. The gap cannot be estimated by simply rearranging the votes cast in actual Assembly contests into a new district configuration, as the votes cast for specific Assembly candidates in each district are a function of the electoral environment in that district and whether a race is even contested by both parties. A large literature has developed around the problem of estimating the likely election results in redistricting plan alternatives and calculating summary statistics that characterize existing and hypothetical plans (Gelman and King 1994; Cain 1985).

In most applications, the partisan consequences of a redistricting plan are expressed in terms of the effect on *future* elections: using prior election results to predict outcomes in subsequent election cycles, or estimating the statewide vote swing required to significantly change the partisan composition of the legislature from one election to the next (Gelman and King 1990; Cain 1985). The results are typically expressed as the estimated two-party vote percentages in each new district (Gelman and King 1994), which are sufficient to forecast who will win an election and calculate swing ratios and seats-votes curves.[2]

My aim is different. Instead of estimating future election results for an existing or proposed hypothetical plan, my goal was to determine whether it was possible to draw a district plan following the 2010 Census that minimized the efficiency gap while maintaining strict fidelity to the federal and state constitutional requirements of population equality, contiguity, compactness, respect for political subdivisions, and compliance with the Voting Rights Act. The efficiency gap is a function of the *number* of wasted votes, and therefore requires a model that generates predictions of *how many votes* would have been cast for Democratic and Republican candidates in 2012 in a different district configuration, rather than simply vote

[2] Winners are determined by which candidate receives >50% of the vote in a two party race. Seats votes curves depend on the number of seats a party wins in an election (determined by the number of races in which that party received >50% of the vote) and the statewide vote totals in legislative races or some other set of statewide races

percentages. My methods provide a way of estimating what the 2012 Assembly election results would have been in such a Demonstration Plan.

Given appropriate data, it is possible to generate reliable and accurate vote count predictions that can be aggregated to any district boundaries. What is required is a set of independent variables that accurately predict the vote in state Assembly elections but which are to the greatest extent possible *exogenous* to that vote, meaning that the independent variables have underlying values that do not themselves depend on the district vote. If this condition is met, we can estimate what the district vote would have been in an alternative district configuration, since the independent variables do not depend on any particular district configuration. This is not an issue in models that predict future election results, since by definition variables measured today are exogenous to outcomes that occur several years in the future. Because I use one set of election results (the 2012 presidential vote) as part of a model that predicts another set of contemporaneous election results (the 2012 Assembly vote), it is an important but manageable methodological issue.

My method consists of two steps. The first is the construction of a regression model that predicts the 2012 Assembly vote as a function of partisanship, population, demographics, incumbency, and fixed geographic boundaries in Wisconsin's roughly 6,600 wards. In doing so, I establish the empirical relationships between a set of exogenous variables independent of any specific district configurations and the actual Assembly vote in existing wards. In the second step, I use this model to generate a forecast of Assembly vote preferences as a function of these independent variables, and disaggregate this forecast to the Census block level. Using these block level estimates of the Assembly vote, I draw a Demonstration Plan and estimate the Assembly vote and efficiency gap in the resulting districts.

1. Step One: A Model of Voting in Assembly Elections

Estimating the Assembly vote in alternative district configurations requires a model that can generate accurate estimates of the underlying partisanship of a district. As I noted above, the most common models regress the observed Assembly vote on measures of district partisan preferences and other variables known to affect the vote, and generate a predicted value of the vote based on the values of the independent variables. Changing district boundaries will change the values of the independent variables as new voters are moved into the district and others moved out, which in turn allows forecasts of what the vote would be in those new districts.

What I am interested in estimating is *how many* votes will be cast for Democratic and Republican candidates in each district in a demonstration district plan. This involves a different set of variables than is typical in models that evaluate the percentage of votes each party receives, since I require a measure that accounts for both differences in ward populations and variation in turnout.

I use ward level vote totals as the unit of analysis to increase the number of observations available and allow for more precise estimates. Wisconsin's 99 Assembly districts are composed of roughly 6,600 wards, with districts containing between 24 and 153 wards. While the ideal population of an Assembly district is 57,444, wards have an average population of approximately 869 people, and are far more demographically homogeneous.[3]

[3] Legislative Technology Services Bureau data show 6,592 wards in Wisconsin, of which 66 are unpopulated and another 50 have fewer than 10 people. The average populated ward contains 869 people. Wisconsin statutes 5.15 (2)(b) specifies a permissible population range for wards of 300-4,000, depending on a municipality's size, with exceptions allowed in certain circumstances (for example, when single blocks exceed a permitted ward size, or when a municipality is divided into multiple counties or school districts, contains islands, or has wards that must be altered to match district boundaries).

There are four reasons analysis at the ward level is preferable to analysis at the district level. The first is a matter of sheer numbers: the precision of coefficient estimates, forecasting accuracy, and overall statistical power are all strongly related to the number of observations (or sample size). An *n* of 6,600 is far preferable to an *n* of 99, all other things being equal.[4]

The second is the amount of information lost when smaller units are ignored. From a statistical standpoint, using district data when ward data are available imposes the assumption that the values of all of the ward-level variables are equal to the district level variables, when we know this to be untrue immediately upon inspection. Assembly district 1, for example, has 110 populated wards, ranging in population between one and 999 people. In 2012, 73.4% of the voting age population cast ballots in the Assembly contest, and the victorious Republican Assembly candidate received 51.3% of the vote. At the ward level, however, there was considerable variation, with the Republican vote percentage ranging from a low of 38.4% to a high of 75%, and turnout ranging from 50% to over 90%. Ignoring this information and variation will lead to less accurate estimates and forecasts.

Third, in the second step of the analysis I disaggregate ward level estimates to the block level. Minimizing the differences in size and maximizing the homogeneity across that disaggregation will lead to more accurate block level estimates.

And fourth, each Census block is assigned to a single ward,[5] with a unique numerical code that identifies the block's location.[6] These codes allow for disaggregating ward level data

[4] The larger n also means that OLS is an accurate method of estimating the underlying relationships, whereas more complicated techniques may be required with smaller sample sizes (Afshartous and de Leeuw 2005).
[5] The Census Bureau uses the term "Voting Tabulation District" (VTD). Most states call VTDs precincts. In Wisconsin these units are called "wards."
[6] These are known as FIPS (Federal Information Processing Standard) codes. http://www.census.gov/geo/reference/ansi.html.

into blocks and generating inputs for the redistricting software I use in the second step of my analysis.

I use two main sources of data. The first is redistricting data prepared by the Wisconsin Legislative Technology Services Bureau (LTSB), which consists of spreadsheets with ward level Census population data and election results, as well as ward and district shape files containing this data that can be imported into GIS software.[7] The second source is official election results published by the Government Accountability Board (GAB), both online and in the 2013 edition of the *Wisconsin Blue Book*.

In my experience working with large data sets, and especially when dealing with complex GIS data, I have found data errors to be a common problem. I assessed the reliability of the LTSB data by checking it against the GAB election data, and found numerous errors that required correction, as well some errors that could not be corrected.[8] I describe these errors and my corrections in greater detail in an annex to this report. All subsequent references to ward level vote or population counts uses these corrected vote totals.

The regression model used to predict Assembly vote totals takes the standard form of

$$Y_i = \alpha + \beta X_i + \varepsilon_i,$$

where Y_i is the dependent variable in ward i, X_i is a set of independent variables in ward i, and α, β, and ε_i are parameters estimated as a function of the variables. The full model is:

$$\begin{matrix} Assembly \\ Vote \end{matrix}_{\,i} = \alpha + \beta_1 Total\ VEP_i + \beta_2 Black\ VEP_i + \beta_3\ Hispanic\ VEP_i$$

[7] The files are available at http://legis.wisconsin.gov/gis/data. The 2012 election results are in the file Wards_111312_ED_110612.xlsx.

[8] As I note in the Annex, I was not able to allocate 0.21% of the vote in 2012 because of inconsistencies between electoral data reported by the GAB and the geographic redistricting data reported by the LTSB. This small number of votes will not change any of my analysis or conclusions, and such errors are inevitable when working with large data sets.

$$+\beta_4 \begin{matrix} Democratic \\ Presidential\,Vote_i \end{matrix} + \beta_5 \begin{matrix} Republican \\ Presidential\,Vote_i \end{matrix}$$

$$+\beta_6 \begin{matrix} Democratic \\ Incumbent_i \end{matrix} + \beta_7 \begin{matrix} Republican \\ Incumbent_i \end{matrix} + \sum_{j=1}^{71} \gamma_j County_j + \varepsilon_i$$

Where

Assembly Vote	Number of votes cast for the Republican or Democratic candidate in the 2012 Assembly election in ward *i*. I estimate separate equations for the Democratic and Republican candidates
Total VEP	Voting eligible population in ward *i*, as measured in the 2010 Census
Black VEP	Voting eligible Black population in ward *i*
Hispanic VEP	Voting eligible Hispanic population in ward *i*
Democratic Presidential Vote	Number of votes cast for Barack Obama in the 2012 presidential election in ward *i*
Republican Presidential Vote	Number of votes cast for Mitt Romney in the 2012 presidential election in ward *i*
Democratic Incumbent	1 if the Assembly election in ward *i* has a Democratic incumbent, 0 otherwise, multiplied by the VEP in ward *i*
Republican Incumbent	1 if the Assembly election in ward *i* has a Republican incumbent, 0 otherwise, multiplied by the VEP in ward *i*
County	Set of fixed effects dummy variables for each county. Dunn County is the excluded value.[9]

The model explains the Assembly vote as a function of four types of variables: district demographics, underlying partisanship, incumbency, and fixed geographic effects.

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[9] When using dummy variables (which take binary values of either 0 or 1) to measure effects in units or conditions across the full population, one unit must be excluded, as otherwise perfect collinearity prevents estimation (Greene 1990, 240-241).

a. The Dependent Variable: Ward level Assembly Vote

The key quantity of interest in this analysis is the number of Assembly votes for each party, and it is the dependent variable in the model, using LTSB ward data that I corrected using the process outlined above. Since I am interested in estimating actual vote counts and not the percentage of the two party vote, I estimate separate equations for votes received by each party.[10] Estimating vote counts provides more accuracy than vote percentages, as it controls for variations in turnout across districts.[11]

b. Independent Variables: Demographic Data

The first three independent variables - Total Voting Age Population (VEP), Black VEP, and Hispanic VEP - are the 2010 Census voting age population counts by ward, adjusted to remove ineligible voters.[12] Total VEP constitutes a baseline of the size of the voting population, reflecting the fact that the number of votes will be a function of total population. Black and Hispanic VEP are additional controls that reflect the partisan tendencies of key subpopulations as

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[10] The reliance on actual numbers of voters eliminates the Modified Areal Unit Problem, which results when group statistics such as vote percentages or demographic fractions are aggregated into different geographic units levels. All of my variables and measures are scale invariant (see King 1996).

[11] The number of votes cast in Assembly races varies considerably even in in contested races. In 2012, the number of major party votes cast in the highest turnout Assembly election in the 23rd Assembly district, 36,205, was almost twice the number cast in the 90th Assembly district, 18,735, and almost 5 times the number cast in the uncontested 8th district, 7,869 (numbers taken from GAB figures).

[12] The voting eligible population (VEP) adjusts the voting age population by removing adults who are not eligible to vote. In Wisconsin, the two largest categories of ineligible adults that can be identified geographically are noncitizens and adults in prison for felonies. Noncitizens were removed using the 2008-2012 5 year American Community Survey county level noncitizen estimates (available at http://www.census.gov/acs/www/data_documentation/2012_release/. Institutionalized prison populations were identified using Census Bureau "Advanced Group Quarters" files for Wisconsin, available at .http://www2.census.gov/census_2010/02-Advance_Group_Quarters/, and described in http://www.census.gov/newsroom/releases/archives/2010_census/cb11-tps13.html. There are individuals on probation or extended supervision who are also ineligible to vote. I was not able to systematically identify their locations, but they are dispersed enough that they will not have a material effect on my resulting estimates or conclusions. All regression results and district estimates are materially unchanged when the unadjusted data are used.

well as turnout likelihood. Traditionally, both African American and Hispanic populations vote at lower rates that whites, although in 2012 African American turnout was comparable to white turnout. Hispanic populations vote at lower rates than other demographic groups, in part because of a higher noncitizen population, but also because of socioeconomic factors known to reduce turnout.

I expect weak relationships for these measures because of the importance of the next set of variables, which reflect actual voting in the 2012 presidential election.

c. Independent Variables: Measures of Partisanship

The next two variables are the number of votes cast for the Democratic and Republican candidates for president in the 2012 election. The presidential vote is widely used as an exogenous measure of district level partisanship (Ansolabehere, Snyder and Stewart 2000, 2001; Gelman and King 1994; Glazier, Grofman, and Robbins 1987; McDonald 2014; Jacobson 2003, 2009), and it correlates very strongly with other more complex measures of partisan strength (Levendusky, Pope, and Jackman 2008).

The presidential vote is, not surprisingly, an extremely strong predictor of the legislative vote. If we know how many votes were cast for the Republican presidential candidate in a ward we will have a very good idea, subject to some conditions, of how many votes will be cast for the Republican candidate in the legislative election in that ward. While not everyone who votes for the Republican presidential candidate will vote for the Republican state legislative candidate, nearly all will, and we can precisely quantify the nature of that relationship.

The strength of the relationship between presidential and Assembly votes is clear in Figures 1 through 3, which plot the total Assembly vote, Republican Assembly vote, and Democratic Assembly vote in 2012 by the respective presidential vote in each contested ward (where voters have an opportunity to express a preference for either party in the legislative race).

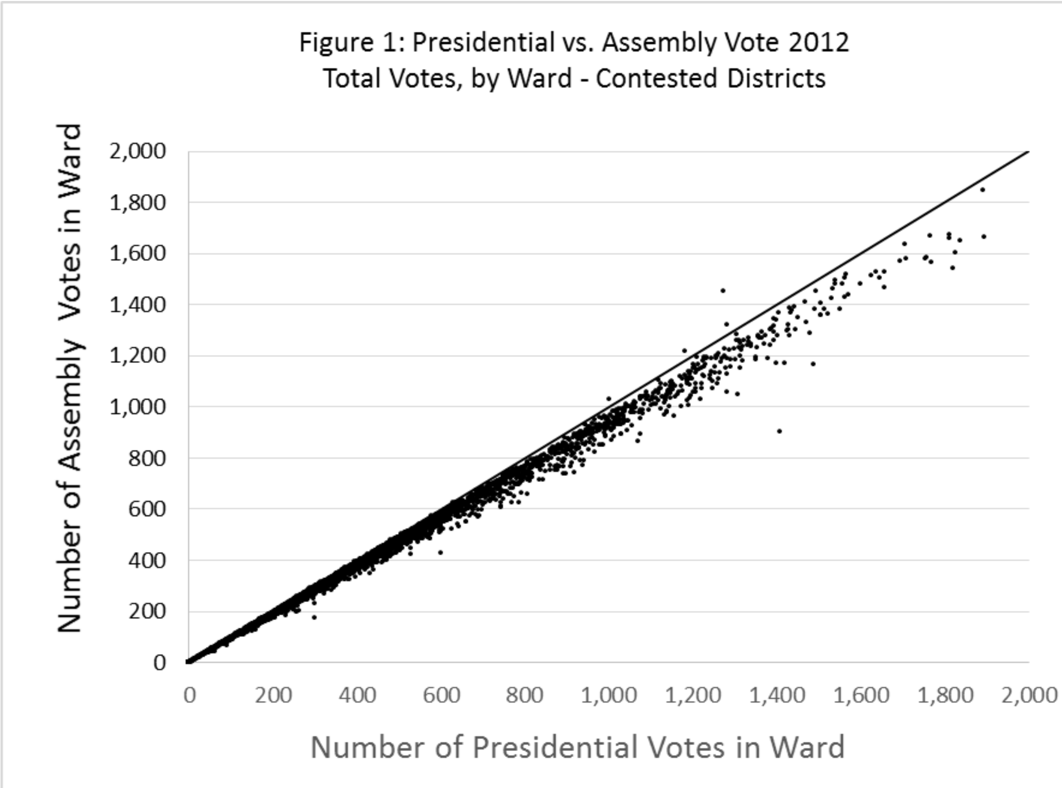
Figure 1: Presidential vs. Assembly Vote 2012
Total Votes, by Ward - Contested Districts
Number of Assembly Votes in Ward
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
Number of Presidential Votes in Ward

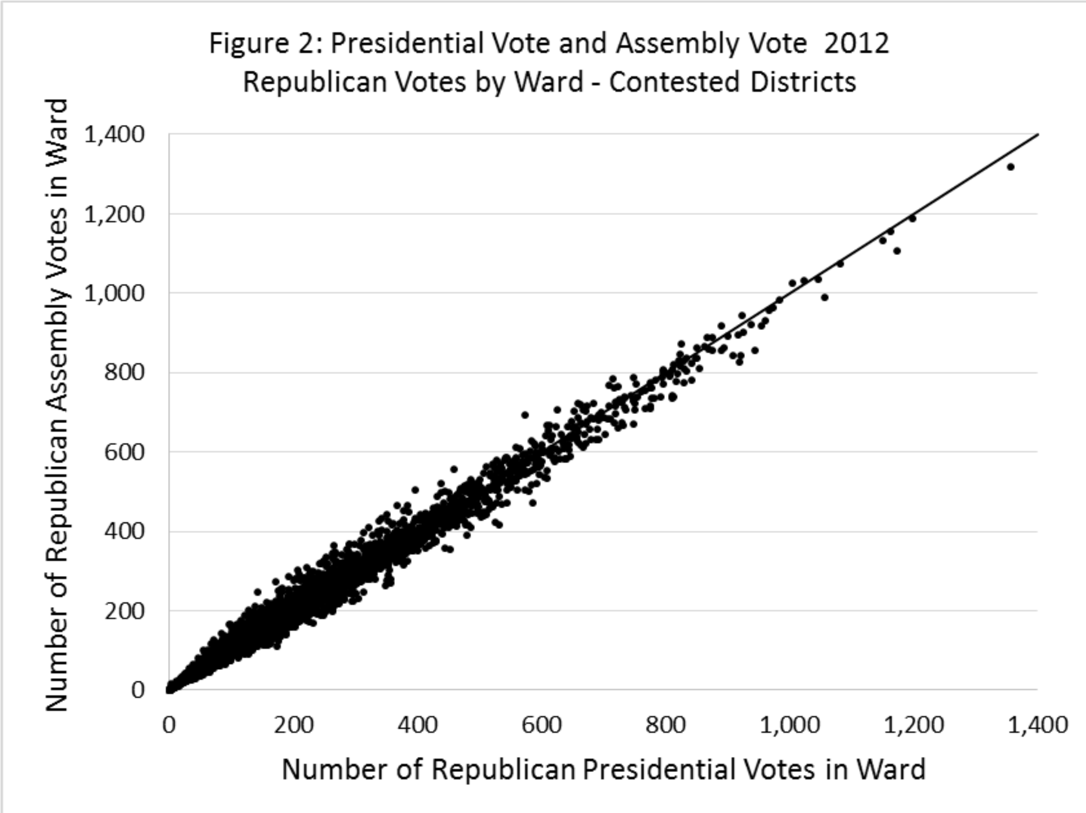
Figure 2: Presidential Vote and Assembly Vote 2012
Republican Votes by Ward - Contested Districts
Number of Republican Assembly Votes in Ward
0
200
400
600
800
1,000
1,200
1,400
Number of Republican Presidential Votes in Ward

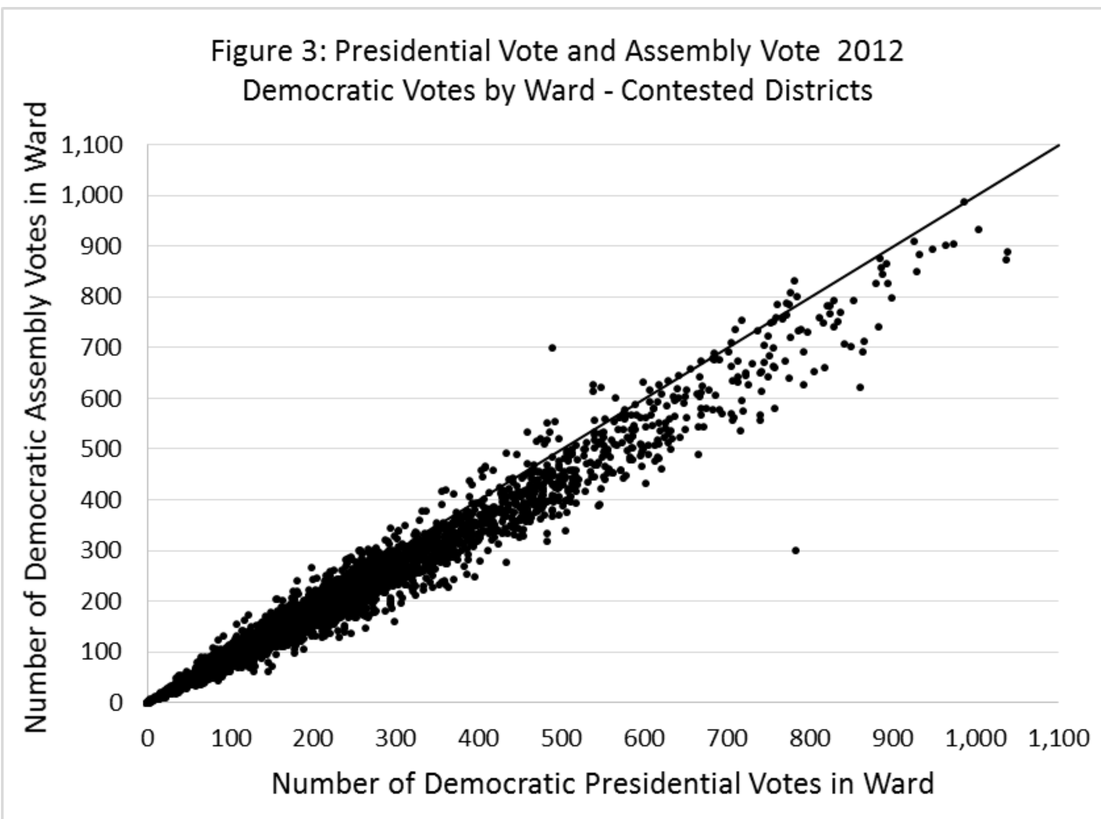
Figure 3: Presidential Vote and Assembly Vote 2012
Democratic Votes by Ward - Contested Districts
Number of Democratic Assembly Votes in Ward
0
100
200
300
400
500
600
700
800
900
1,000
1,100
Number of Democratic Presidential Votes in Ward

Figure 1 shows that the number of presidential votes cast in a ward is very strongly related to the number of Assembly votes, although almost all wards show a "roll off" as some presidential voters opt not to mark the ballot in the assembly race (the reference line shows where the number of presidential and Assembly votes would be equal). Such drop-offs are ubiquitous in down-ticket races, because voters have less information about lower-level candidates and often have weaker or nonexistent preferences (Wattenberg, McAllister, and Salvanto 2000).

The graphs for the Republican (Figure 2) and Democratic (Figure 3) votes show more variance around this reference line, indicating that some voters are splitting their tickets by voting for a presidential candidate of one party and an Assembly candidate of the other. Nevertheless, the relationship between the number the Republican and Democratic presidential and Assembly votes is apparent. Taken together, these figures indicate that the presidential vote is a very strong predictor of the Assembly vote.

An important property of the presidential vote as an independent variable in this model is that it can be treated as exogenous to (i.e., not caused by) the legislative vote. Exogeneity can be described in two ways. The first is in causal terms. Most voters will vote for the same party for the president and state Assembly, as the above graphs show. These voters are consistent because they are Democrats or Republicans, and partisanship is the factor that explains both vote choices. Other voters will make their Assembly choice based on their presidential vote, because they use party labels as a cue when voting in a down-ticket race. "[P]arties are generally known by the presidential candidates they nominate, and candidates for state legislative races are a good deal less well known to voters than the congressional candidates who ride presidential coattails" (Campbell 1986, 46). Few voters, if any at all, will decide on an Assembly candidate first and then vote for president on the basis of their Assembly vote preference. The causal arrow runs from the presidential vote to the Assembly vote, not from the Assembly vote to the presidential vote. This is why we speak of presidential coattails affecting legislative races, and not the other way around (Campbell 1986; Jacobson 2009).

The second reason why the presidential vote is exogenous to the Assembly vote is that it is not affected by local district-level conditions such as incumbency, spending, or candidate quality (Abramowitz, Alexander, and Gunning 2006, 87). The broader factors that influence the presidential vote, and the presidential candidates themselves, are the same in every Assembly district. The presidential vote is affected by underlying partisanship, national conditions and the characteristics of the presidential candidates, factors that are constant whether that vote is aggregated at the state, district, or ward levels.

To put it another way, a change in the statewide presidential vote is virtually certain to affect state legislative election results. Adding or subtracting hundreds of thousands of Democrats or Republicans will alter voting patterns at the district level. However, nobody would expect that the statewide presidential result will be affected by the configuration of legislative districts. The statewide presidential vote would be the same, no matter how the district lines are drawn. Consequently, we can consider the presidential vote as exogenous to, but a causal factor of, the state legislative vote.

d. Independent Variables: Incumbency

The incumbency advantage is perhaps the most well-known feature of contemporary legislative elections (Jacobson 2009, 30-35). Legislative incumbents rarely lose, and usually win by large margins. All other things being equal, an incumbent will get more votes than a non-incumbent. The causes of this advantage are less important in this context than its magnitude.[13] The model takes into account the incumbency advantage by noting whether an incumbent is running in an Assembly district.

Incumbency effects are measured with a dummy variable equal to 1 when a candidate is an incumbent, and 0 otherwise,[14] multiplied by the ward voting eligible population to create an interactive variable that accounts for differences in size from one ward to the next. Since the dependent variable is an actual vote count, the value of incumbency – in terms of how many additional votes incumbents receive – will vary with the number of voters who reside in a ward.

e. Independent Variables: County Effects

The last set of variables estimate the effect that county geography has on the Assembly vote. Some counties in Wisconsin are heavily Republican (Ozaukee, Washington, Waukesha) and some heavily Democratic (Dane, Douglas, Milwaukee). It is possible that a voters' county of residence could have an effect on the vote choice, whether because of sorting, socialization or assimilation, or other unobserved effects. Including dummy variables for each county will capture these effects if they exist. There are 71 county variables (excluding Dunn County) set to 1 when a ward is located in that county, 0 otherwise.

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[13] In the political science literature, the incumbency advantage has been attributed to the political skills and campaign experience of officeholders, higher name recognition, fundraising advantages, constituency service, redistricting, and the ability to scare off quality challengers.

[14] Incumbents were identified using 2012 election data in the 2013 *Wisconsin Blue Book*. In the 43rd and 61st Assembly districts two incumbents were paired against each other; these districts were coded as having no incumbent, since the advantage cancels. In the 7th Assembly district, the Democratic incumbent lost in the primary election and ran a write in campaign in the general election. Because the incumbent was not on the ballot, this district is also coded as having no incumbent.

f. Estimation and Results

Using Stata IC 11.2 I performed ordinary least squares regression, using 2012 ward data from contested districts where both Republican and Democratic candidates were on the ballot.[15] Analyzing contested races solves the problem of trying to estimate partisan support in a district where voters have no opportunity to express their support for one side (Gelman and King 1994). The fact that Republicans registered 0 Assembly votes in the 78th district (Madison), and Democrats 0 votes in the 58th district (Washington County), does not mean there are no Republicans in the 78th or Democrats in the 58th districts, or that a Republican or Democratic candidate would receive zero votes if one were on the ballot. Using uncontested races in this initial analysis would produce inaccurate estimates of party strength in those districts.

The results for the Democratic and Republic regression models appear in Table 1.[16] Most variables show the expected effects, particularly the very strong impact of the presidential vote. The r^2 values are extremely high, and the standard errors of the regression models (Root MSE) are low. The model is also extremely accurate: when compared to actual ward vote, the model's predictions of the Republican ward totals are within 16 votes, and the Democratic predictions are within 18 votes.

Figure 4 shows the overall accuracy of the model by plotting the predicted ward level vote totals by the actual vote totals in each ward. Predictions for both Democrats and

[15] This major-party contested definition is standard. It counts as uncontested four districts where one major party candidate was not on the ballot but received votes as a write in (districts 7, 17, 48, and 57), and one district (district 95) where one major party candidate was on the ballot but did not campaign and received only 50 votes (or 0.24%). This is consistent with methods used in the literature, which often uses a 95% threshold for the winning candidate as a standard (Gelman and King 1990, 274).

[16] Standard errors were adjusted to reflect the aggregation (or clustering) of wards into districts. The full set of variables is included in an appendix to this report.

Republicans are grouped tightly around the 45-degree line where predicted and actual values would be equal.

Figure 5 shows the accuracy of the model at the district level, which is the more relevant quantity for real-world applicability. I calculated district level results by aggregating wards into the associated Assembly district, using LTSB assignments. The district-level estimates are very close to the actual vote totals, and the average absolute error is 356 votes for Democratic candidates and 344 votes for Republican candidates.

Table 1
Regression Results: 2012 Assembly Votes, Contested Districts
County fixed effect variables not shown,

	Independent Variable	
Dependent Variable	Assembly Republican Votes	Assembly Democratic Votes
Total Voting Eligible Population	0.009 (.0070)	-0.008 (.0122)
Black Voting Eligible Population	-0.026 (.0215)	-0.021 (.044)
Hispanic Voting eligible Population	-0.0083 (.0321)	-0.149** (.05)
Democratic Presidential Votes	0.0072 (.0173)	0.931*** (.028)
Republican Presidential Votes	0.946*** (.0086)	0.013 (.013)
Democratic Assembly Incumbent	-0.021*** (.006)	0.028*** (.007)
Republican Assembly Incumbent	0.011** (.0042)	-0.014** (.005)
Constant	-0.92 (7.52)	9.8 (5.4)
N	5,282	5,282
r^2	.9903	.9843
Root MS Error	15.8	17.7

Robust standard errors clustered by Assembly District in parentheses.
*p<.05, **p<0.01, ***p<0.001

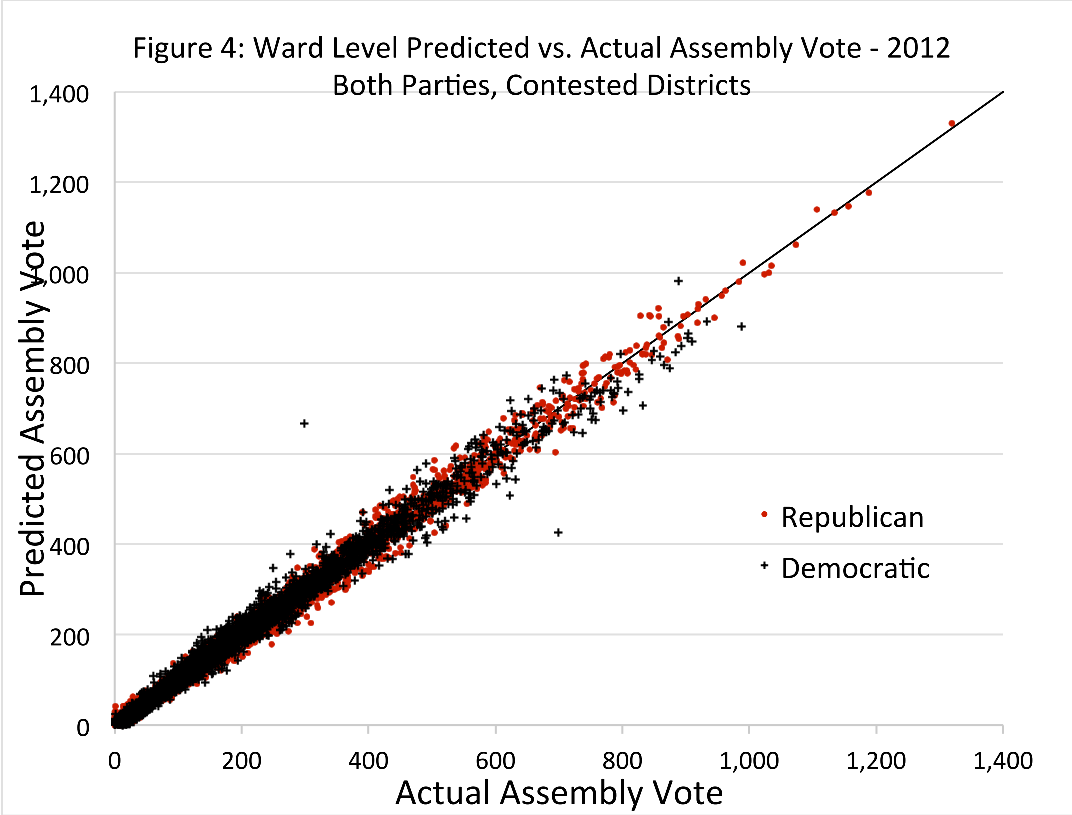
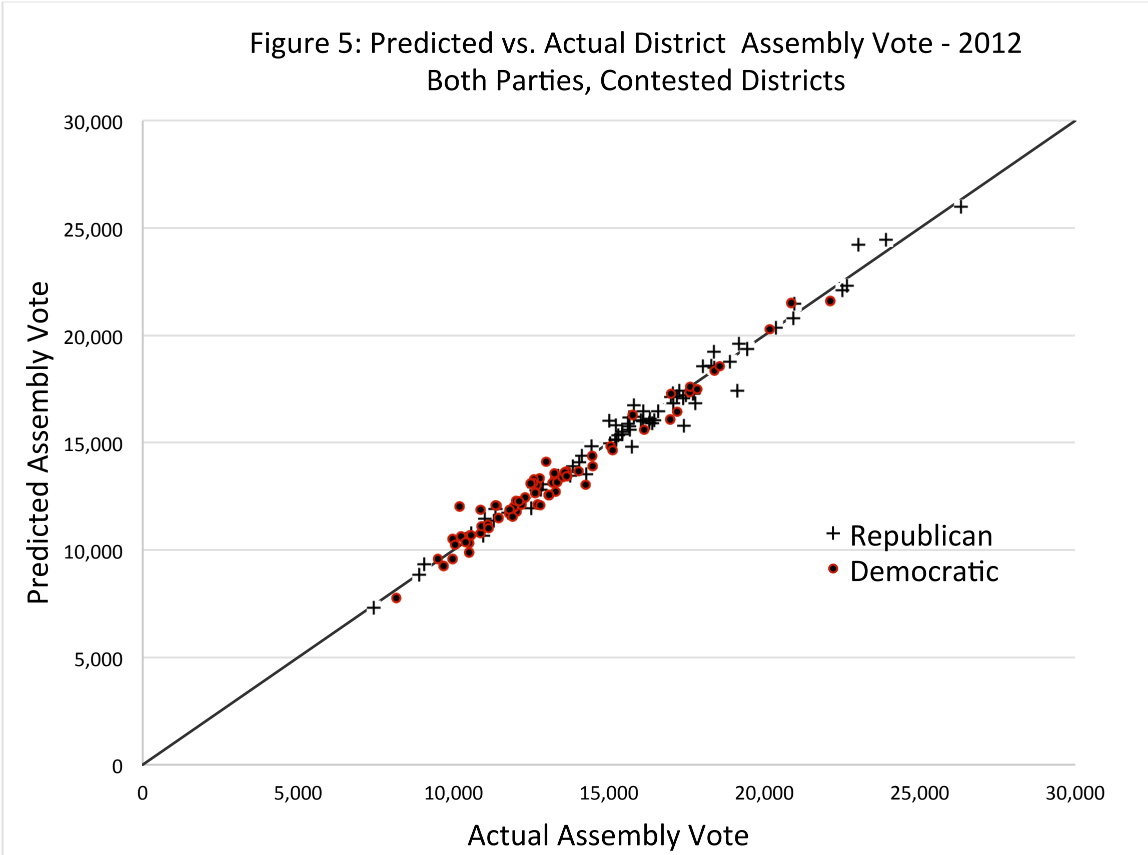


Figure 4: Ward Level Predicted vs. Actual Assembly Vote - 2012
Both Parties, Contested Districts
Predicted Assembly Vote
Actual Assembly Vote
0
200
400
600
800
1,000
1,200
1,400
Republican
Democratic



As important as the prediction of actual district vote totals is the model's ability to accurately identify the winner, as the efficiency gap calculation is sensitive to the party of the winners and losers.[17] The accuracy of the model is shown in Table 2, which gives the actual and predicted vote percentages of the two-party vote for Republican candidates in contested districts.[18]

[17] All of the votes for a losing candidate are defined as wasted, whereas only those votes in excess of the number required to win are wasted for the winner.
[18] The vote percentages were calculated using the actual and predicted vote totals.

Table 2 - Predicted vs. Actual Vote Percentages, Contested Districts

Assembly District	Actual GOP Vote %	Predicted GOP Vote %	Correct Winner?	Error
1	51.3%	52.3%	Y	1.0%
2	58.7%	58.8%	Y	0.1%
3	60.4%	58.6%	Y	-1.8%
4	55.7%	54.6%	Y	-1.0%
5	55.9%	57.6%	Y	1.7%
6	59.5%	59.9%	Y	0.4%
13	60.6%	60.4%	Y	-0.2%
14	59.1%	60.7%	Y	1.6%
15	58.3%	57.1%	Y	-1.2%
20	42.4%	40.9%	Y	-1.5%
21	59.3%	56.9%	Y	-2.5%
23	62.3%	61.8%	Y	-0.5%
24	62.4%	61.0%	Y	-1.4%
25	57.7%	57.0%	Y	-0.7%
26	51.3%	55.1%	Y	3.8%
27	57.8%	54.4%	Y	-3.5%
28	56.2%	56.5%	Y	0.3%
29	55.9%	55.2%	Y	-0.7%
30	55.8%	56.5%	Y	0.7%
31	56.5%	55.9%	Y	-0.7%
32	59.1%	59.7%	Y	0.6%
33	64.9%	63.8%	Y	-1.0%
34	61.3%	60.9%	Y	-0.4%
35	56.0%	55.9%	Y	-0.1%
36	59.0%	60.0%	Y	1.0%
37	54.3%	56.0%	Y	1.7%
38	60.0%	61.9%	Y	1.9%
39	60.4%	60.0%	Y	-0.4%
41	58.0%	57.4%	Y	-0.5%
42	56.6%	54.8%	Y	-1.8%
43	42.3%	42.9%	Y	0.7%
44	38.4%	40.1%	Y	1.7%
45	36.1%	35.2%	Y	-1.0%
46	35.2%	34.5%	Y	-0.7%
47	29.0%	30.2%	Y	1.1%
49	54.4%	54.6%	Y	0.3%
50	51.7%	51.8%	Y	0.1%
51	51.9%	49.9%	N	-2.0%
52	60.7%	60.1%	Y	-0.6%
53	60.1%	62.9%	Y	2.8%
54	39.8%	42.0%	Y	2.3%
55	65.2%	59.2%	Y	-6.1%
56	58.3%	59.7%	Y	1.3%
60	71.2%	72.6%	Y	1.4%
61	55.7%	55.6%	Y	-0.1%
62	53.1%	53.9%	Y	0.8%
63	58.4%	57.7%	Y	-0.6%

67	53.3%	53.5%	Y	0.2%
68	52.4%	50.7%	Y	-1.8%
69	61.2%	58.5%	Y	-2.7%
70	49.7%	50.1%	N	0.4%
71	39.0%	39.3%	Y	0.2%
72	50.2%	51.3%	Y	1.1%
74	41.0%	41.1%	Y	0.1%
75	48.9%	49.2%	Y	0.2%
80	36.1%	35.3%	Y	-0.8%
81	38.1%	39.6%	Y	1.4%
82	60.3%	61.6%	Y	1.4%
83	69.8%	71.6%	Y	1.9%
84	62.8%	61.8%	Y	-1.0%
85	48.2%	48.7%	Y	0.5%
86	55.7%	56.1%	Y	0.4%
87	58.6%	58.3%	Y	-0.3%
88	52.5%	54.1%	Y	1.7%
89	59.1%	59.2%	Y	0.1%
90	39.6%	37.7%	Y	-1.9%
93	50.8%	52.0%	Y	1.2%
94	39.4%	39.4%	Y	0.0%
96	59.6%	59.7%	Y	0.1%
97	64.7%	64.4%	Y	-0.3%
98	70.5%	70.0%	Y	-0.5%
99	76.3%	77.0%	Y	0.7%

The regression model identifies the correct winner in 70 of 72 districts (97.2%); that is, it accurately identifies the candidate who received the most votes. In the two misclassified races, the Republican candidates received 51.9% and 49.7% of the vote. The average absolute error in the vote margin is 1.49%.

g. Out of Sample Forecasting Accuracy

These results, which compare predicted election results to the actual election results, demonstrate that the model is very accurate. A harder test involves the accuracy of predictions using data not in the sample – that is, applying the model to data and election results that are different from the data used to estimate the model. To test the model's out of sample accuracy, I reran the model 72 times (once for every contested district) excluding every ward in one single contested district each time,[19] and then used the results of that estimation to predict the vote totals in wards in the excluded district using the independent variable values for those wards. For example, in the first run I excluded all wards in Assembly district 2 (see footnote 20), and estimated the model using data from the other seventy one contested districts. I then used the results to predict the vote totals in the 2nd district, and compared the prediction to the actual vote totals. Since we know the actual election results in excluded districts, this exercise is a "hard test" of the model's general predictive ability.

Figure 6 and Table 3 show the results for the 60 contested districts in which the full model could be estimated.[20] The average district forecast error of the Republican vote percentage increased slightly, to 2.1%, but the out of sample forecasts identified the correct winner in 59 out of 60 races (98.3%). In Figure 6, which plots the actual versus predicted vote totals, the points are not grouped as tightly around the 45-degree line as they are in the full model predictions (Figure 5), but still show a very high degree of accuracy.

Table 3 -Out of Sample Predicted vs. Actual Vote Percentages, Contested Districts

Assembly District	Actual GOP Vote %	Predicted GOP Vote %	Correct Winner?	Error
2	58.7%	59.0%	Y	0.3%
3	60.4%	57.5%	Y	-2.9%
4	55.7%	54.3%	Y	-1.3%
5	55.9%	58.9%	Y	2.9%
13	60.6%	60.4%	Y	-0.2%

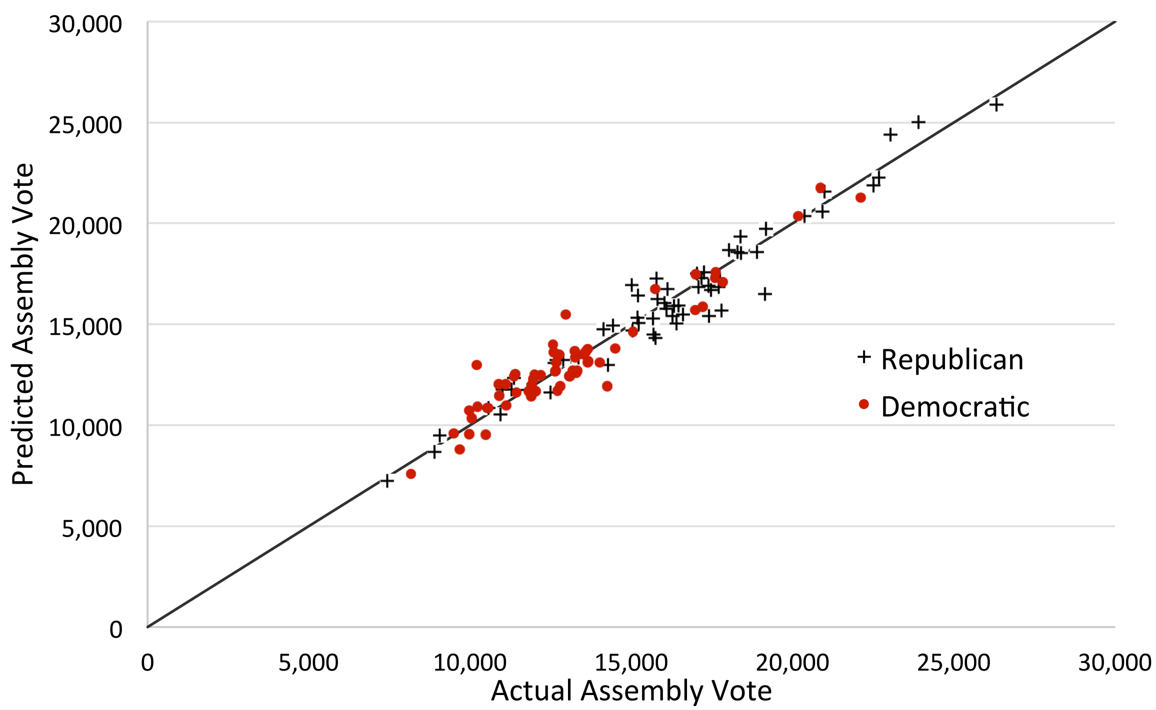
[19] Uncontested districts were not included in the analysis for reasons specified in section B(1)(f) above.

[20] In twelve districts (districts 1, 6, 34, 35, 36, 49, 68, 74, 75, 93, 94 and 96), at least one county was entirely contained in a single district, making it impossible to estimate the fixed effect coefficient value for that county. Consequently, when the out-of-sample predictions were calculated, a variable was missing. An accurate test involves districts for which it was possible to estimate the full model.

14	59.1%	61.0%	Y	1.8%
15	58.3%	56.7%	Y	-1.6%
20	42.4%	39.9%	Y	-2.5%
21	59.3%	56.3%	Y	-3.1%
23	62.3%	61.4%	Y	-0.9%
24	62.4%	60.2%	Y	-2.3%
25	57.7%	55.7%	Y	-2.0%
26	51.3%	58.6%	Y	7.3%
27	57.8%	50.3%	Y	-7.5%
28	56.2%	55.1%	Y	-1.2%
29	55.9%	54.6%	Y	-1.3%
30	55.8%	57.2%	Y	1.4%
31	56.5%	55.7%	Y	-0.9%
32	59.1%	60.2%	Y	1.1%
33	64.9%	63.0%	Y	-1.9%
37	54.3%	56.3%	Y	2.0%
38	60.0%	62.3%	Y	2.3%
39	60.4%	59.0%	Y	-1.5%
41	58.0%	56.2%	Y	-1.7%
42	56.6%	51.8%	Y	-4.8%
43	42.3%	43.3%	Y	1.1%
44	38.4%	40.8%	Y	2.5%
45	36.1%	34.1%	Y	-2.0%
46	35.2%	34.1%	Y	-1.0%
47	29.0%	30.9%	Y	1.8%
50	51.7%	53.1%	Y	1.4%
51	51.9%	48.7%	N	-3.2%
52	60.7%	59.4%	Y	-1.3%
53	60.1%	64.4%	Y	4.4%
54	39.8%	43.8%	Y	4.0%
55	65.2%	56.0%	Y	-9.3%
56	58.3%	59.9%	Y	1.6%
60	71.2%	73.9%	Y	2.8%
61	55.7%	54.9%	Y	-0.8%
62	53.1%	54.5%	Y	1.4%
63	58.4%	57.1%	Y	-1.3%
67	53.3%	54.7%	Y	1.4%
69	61.2%	57.2%	Y	-4.0%
70	49.7%	49.7%	Y	0.0%
71	39.0%	40.1%	Y	1.1%
72	50.2%	53.0%	Y	2.8%
80	36.1%	35.1%	Y	-1.0%
81	38.1%	40.8%	Y	2.6%

82	60.3%	62.0%	Y	1.8%
83	69.8%	71.8%	Y	2.0%
84	62.8%	61.7%	Y	-1.1%
85	48.2%	49.0%	Y	0.8%
86	55.7%	56.9%	Y	1.2%
87	58.6%	54.6%	Y	-3.9%
88	52.5%	54.6%	Y	2.1%
89	59.1%	59.0%	Y	-0.1%
90	39.6%	36.9%	Y	-2.7%
97	64.7%	64.2%	Y	-0.5%
98	70.5%	69.9%	Y	-0.5%
99	76.3%	77.3%	Y	1.0%

Figure 6: Out of Sample Results
Predicted vs. Actual District Assembly Vote Both Parties, Contested Districts



The model does an excellent job accurately forecasting vote totals and election results, and provides a solid foundation for estimating hypothetical vote totals in an alternative district plan.

h. Comparison to 2011 Republican Expert Baseline Partisanship Measure

The method I have outlined here is a standard technique in the analysis of redistricting plans: creating a baseline measure of partisanship that is independent of a particular district configuration, and applying those estimates to alternative hypothetical district plans.

Indeed, in preparing the district plan that would become Act 43, the state legislature went through the same analytical exercise, generating partisanship measures to forecast what the election results would be in the districts enacted in that plan. The expert that the legislative Republicans relied on to conduct that analysis, Dr. Ronald Keith Gaddie, described the process and method as "an effort to create a partisan normal vote measure or a partisan baselining measure to use to apply to different districts to ascertain their political tendency."[21] The results of his regression analysis of the districts in Act 43 are in a spreadsheet used to evaluate the plan entitled "Final Map" which contains open seat baseline partisan estimates for existing and new Assembly districts.

Figure 7 compares Dr. Gaddie's open-seat baseline partisanship measure for the Act 43 districts with the equivalent results of my model, excluding the 8th and 9th Assembly districts which were redrawn by the Federal Court and are therefore not comparable. Gaddie's partisan baseline measure is plotted on the x-axis, and my measure on the y-axis. My measure is the expected partisan performance in actual Act 43 districts, with incumbency effects removed.[22] The two measures are strongly related, indicating that both are capturing stable features of partisanship in Wisconsin. The line is a bivariate regression line produced by using Dr. Gaddie's partisanship estimate as the independent variable and my measure as the dependent variable.

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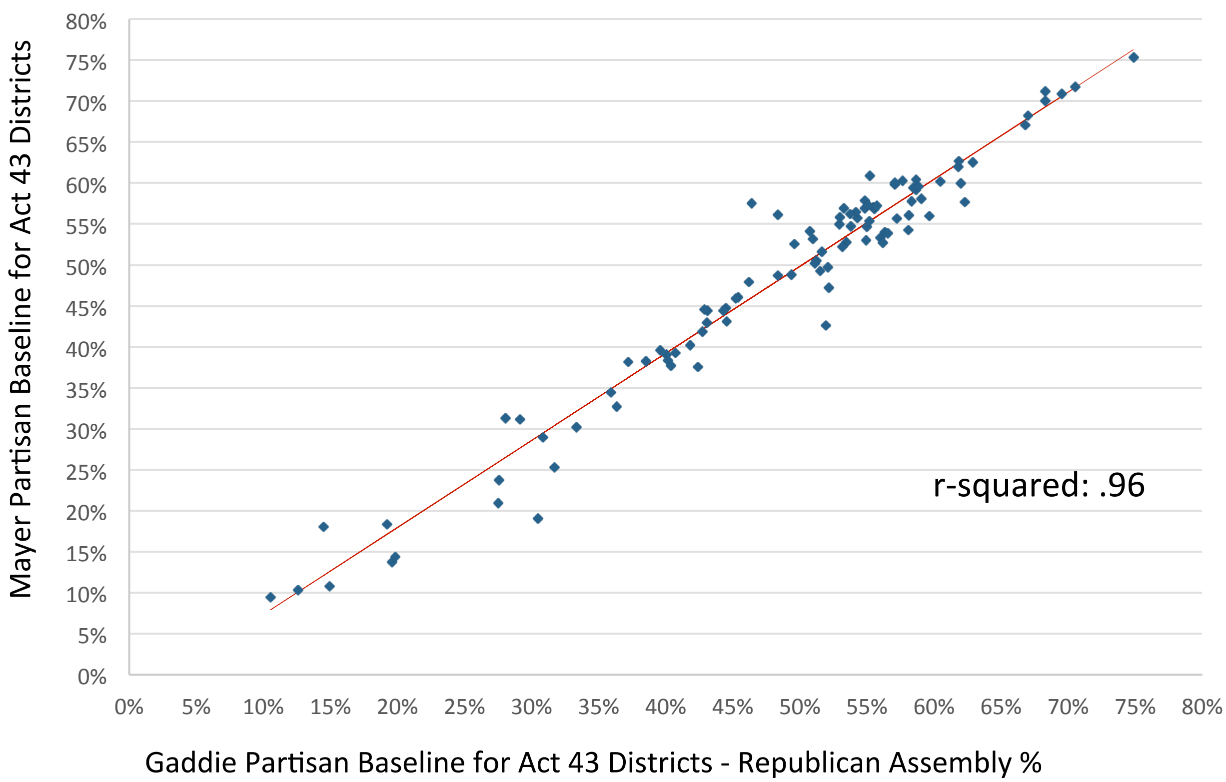
[21] Deposition, January 20, 2012, p. 196.
[22] I generated this data by calculating predicted values for my model in Act 43 districts, setting all incumbency variables to zero.

The r-squared for this regression is 0.96, indicating that the two measures are almost perfectly related, and are both capturing the same underlying partisanship.

The most important characteristics of Gaddie's measure is that it constitutes a true forecast of what was expected to occur in the 2012 elections, since the measure itself was generated in 2011 using data from the 2004-2010 elections. As I show below, this metric can be used to generate an efficiency gap measure of what was likely to happen (indeed, what *did* happen) in the 2012 election.

Figure 7
Gaddie and Mayer Partisan Baselne Metrics Compared for Act 43 Districts



2. Step Two – Predicting Votes in a Demonstration District Plan

a. Creating a Demonstration District Plan

With the model parameters in hand, I can estimate baseline partisanship and vote totals in every ward, including those uncontested by both parties (because I have independent variables in all wards, even when only one party is on the Assembly ballot). For uncontested districts, the predicted ward vote totals are what would be expected if both parties ran a candidate, based on the values of the independent variables in the wards. I then use these predicted ward level vote totals to generate vote estimates at the Census block level, and build a demonstration district using Census blocks as my basic unit. Because the variables used in the model are exogenous to district configuration and the out of sample predictions are accurate, the results of the analysis in Step one represent a valid measure of what the Assembly vote would have been in a different district configuration.

I calculated estimated "open seat" vote totals, by subtracting the incumbency advantage in every district in which an incumbent ran. This is a more accurate method of determining the baseline partisanship of a district, as it removes the effect of incumbents, who may or may not be running in an alternative plan. This baseline process is standard in the discipline, and was used by the expert retained by the state legislature, Dr. Ronald Keith Gaddie, to analyze the partisan effects of Act 43 during the redistricting process.

To obtain block level vote estimates, I disaggregated the ward level predicted values for the Democratic and Republican vote totals to individual blocks in that ward, based on each block's share of the ward vote eligible population. This technique is widely used and accepted in the discipline (McDonald 2014; Pavia. and López-Quílez 2013). Census blocks have a voting eligible population range between 0 and 2,988, with an average of approximately 17 people. Wards contain an average of 40 blocks, although the range is substantial, with a minimum of 1 and a maximum of 740. At the end of this disaggregation process, I have a predicted Democratic and Republican Assembly vote total for each Census block in the state.

Table 4 shows an illustrative example, using Ward 23 in the city of Waukesha. This ward, located in the southeastern part of the city, had a 2010 Census population of 1,426, a voting age population of 1,089, and a voting eligible population of 1,071. The voting model generated estimates of 552 Republican and 318 Democratic votes in an open seat Assembly race in that ward. The ward contains twenty five Census blocks ranging in population from 0 to 127, with a voting eligible population range of 0 to 115.

The first column in Table 4 is the block's geographic identifier, a unique code.[23] The next column is the block's voting eligible population (VEP) calculated as described in the previous section by removing noncitizens and institutionalized persons (although there are no prisons in this ward). The third column is the block's share of the ward's total VEP of 1,071; for the first block in the table it is 38 ÷ 1,071= .0352, or 3.52%. The next column is block level Republican vote estimate, calculated as 3.52% the ward Republican vote of 552, or 19.438. While the table rounds these vote totals, I use fractional values in the actual calculations.

[23] The identifier is a combination of state, county, Census tract, and block FIPS codes.

Table 4 - Ward to Block Disaggregation
City of Waukesha Ward 23

Ward Voting Eligible Population				**1,071**
Ward Estimated Republican Assembly Vote				**552**
Ward Estimated Democratic Assembly Vote				**318**
Block Geographic Identifier	**Block VEP**	**Block Share of Ward VEP (Block VEP ÷ 1,071)**	**Block Level Republican Vote Estimate (Block Share * 522)**	**Block Level Democratic Vote Estimate (Block Share * 318)**
551332024001002	38	3.52%	19	11
551332024001003	56	5.24%	29	17
551332024001004	65	6.06%	33	19
551332024001005	30	2.77%	15	9
551332024001007	47	4.37%	24	14
551332024001008	81	7.57%	42	24
551332024001009	12	1.11%	6	4
551332024001010	50	4.70%	26	15
551332024001011	26	2.46%	14	8
551332024001012	25	2.32%	13	7
551332024001013	44	4.14%	23	13
551332024001014	60	5.57%	31	18
551332024001015	30	2.77%	15	9
551332024001016	53	4.99%	28	16
551332024001017	0	0.00%	0	0
551332024002009	10	0.93%	5	3
551332024002010	50	4.68%	26	15
551332024002011	65	6.06%	33	19
551332024002012	37	3.44%	19	11
551332024002013	39	3.61%	20	12
551332024003036	41	3.78%	21	12
551332024003039	15	1.39%	8	4
551332024003040	62	5.76%	32	18
551332024003042	22	2.01%	11	6
551332025005011	115	10.73%	59	34

Next, I input this block level data into a commercial GIS software package used for redistricting (Maptitude for Redistricting 2013, Build 2060) matching each block in the database of estimated votes with the same block in the Maptitude data using the block identification code.

Finally, I drew a redistricting plan with the goal of minimizing the efficiency gap while adhering to the Wisconsin and federal Constitutional requirements of equal population, contiguity, compactness, and respect for political subdivisions. Beyond these criteria. the primary decision rule was creating competitive districts where possible, and balancing the number of districts with large Democratic and Republican majorities.

Figures 8 and 9 show the statewide map and the districts in the Milwaukee area.

Figure 8 – Demonstration Plan Statewide Map

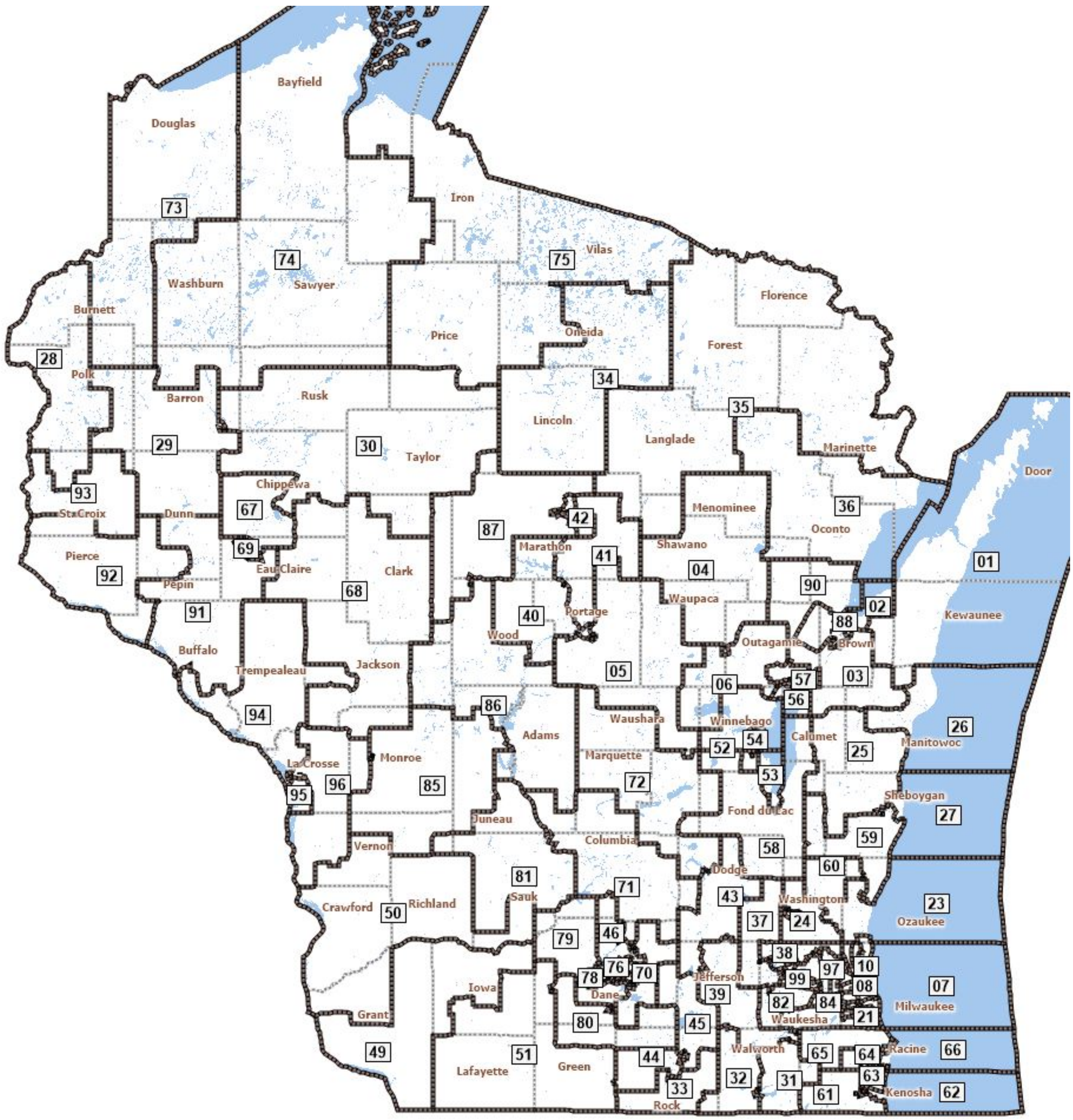
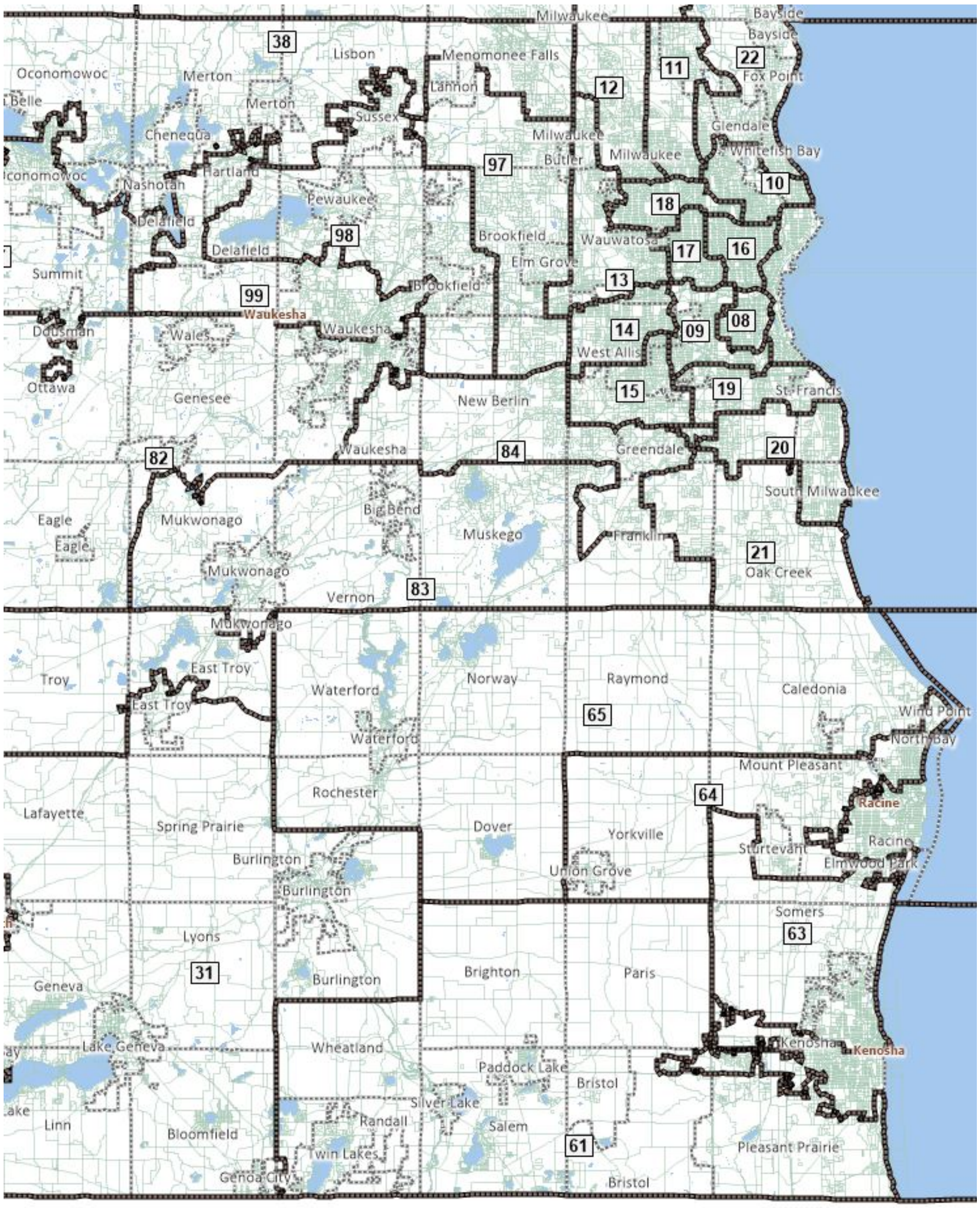


Figure 9 – Demonstration Plan - Milwaukee Area



b. Constitutional and Statutory Requirements

Table 5 shows the summary data for the Demonstration Plan (the full tables are in the annex to this report) and comparison data for the actual 2012 plan implemented in Act 43.[24] The Demonstration Plan has a marginally larger population deviation, but is well below even the strictest standards applied to state legislative districts (a difference of 0.1% translates into 57 people). The population range in the Demonstration Plan is 57,191 to 57,686, a difference of 495 people. Given the ideal Assembly district population of 57,444, this is a deviation of 0.86%. The Demonstration Plan is more compact on average than Act 43, and has fewer municipal splits (119 compared to 120 in Act 43). On all constitutional requirements, the Demonstration Plan is comparable to Act 43.

Table 5 - Plan Comparison to Act 43

		Demonstration Plan	Act 43
Population Deviation		0.86%	0.76%
Average Compactness (Reock)		0.41	0.28
Number of Municipal Splits	County	55	58
	City Town Village	64	62

Act 43 created six majority-minority Black population districts (numbers 10-12 and 16-18), ranging from 56.7% -67.6% Black population, and from 51.1%-61.8% Black voting age population. The Demonstration Plan retains six Majority Black Assembly districts, ranging from 60.0% to 63.4% Black population, and from 56.2% to 60.5% Black voting age population:

[24] Act 43 figures are taken from the Joint Final Pretrial Report filed in *Baldus et al. vs Brennan et al.*11-CV-562, filed February 24, 2012.

Table 6 - Black Majority Districts in Demonstration Plan

Assembly District	Population	Voting Age Population	Black Population	Black Percentage of Population	Black Voting Age Population	BVAP%
10	57,195	41,528	36,593	64.0%	25,125	60.5%
11	57,455	40,510	34,822	60.6%	22,762	56.2%
12	57,420	38,774	34,923	60.8%	21,829	56.3%
16	57,282	42,469	36,321	63.4%	23,920	56.3%
17	57,437	39,639	34,450	60.0%	22,275	56.2%
18	57,241	40,840	35,316	61.7%	24,054	58.9%

In *Baldus et al. v. Brennan et al.*, a federal Court created a majority Latino district in Milwaukee (the 8th Assembly District). The Demonstration Plan retains the boundaries of this district thereby insuring compliance with Section 2 of the Voting Rights Act.

C. Efficiency Gap Calculations

With the model described in Step one above and the block-level partisanship baseline it generates, I can analyze any existing or hypothetical district configuration and generate predicted vote totals and efficiency gap measures for the Demonstration Plan.

1. Analysis of Act 43

Any discussion of Act 43 must begin with the basic fact that in 2012 Republicans achieved a 60-39 majority in the Assembly in an election in which the Democratic Party achieved 53.5% of the statewide two-party presidential vote. The imbalance between the Republican Party's statewide vote margin at the top of the ticket (46.5%) and its Assembly majority (60.6%) turns the very notion of partisan symmetry on its head. That standard, according to King and Grofman (2007,8) "requires that the number of seats one party would receive if it garnered a particular percentage of the vote be identical to the number of seats the other party would receive if it had received the same percentage of the vote" (2007,8). Here, it means that Democrats would have had to obtain 60 Assembly seats with 46.5% of the vote, an absurd proposition that requires a party's legislative seat share to go *up* as its share of the vote goes *down*.

This result was achieved via the classic gerrymandering strategies of packing and cracking. Figure 10, a histogram of Republican two party vote percentages in 2012, shows the pattern. Here, the bars to the right of 50% indicate a Republican victory. Twenty three Democratic candidates were uncontested, indicating a significant level of packing (the bar at the far left side of the figure); uncontested races occur largely when one party sees zero probability of winning because the majority party has such overwhelming majorities in the district. By contrast, only four Republicans were uncontested. Act 43 also successfully cracked Democratic majorities in other districts, creating Republican majorities that were either marginal (twelve in the 50-55% range) or relatively safe (thirty nine in the 55-65% range). The 2012 results are consistent with what was forecast in 2011, as shown by Figure 11, a histogram of Dr. Gaddie's baseline partisanship measure for Act 43 districts. This measure forecast fifty one Assembly districts with between 50% and 65% Republican vote share. This is the same number that actually occurred, fifty one.

Figure 12 shows the baseline partisanship district forecasts for Act 43, using the model outline in Step one, above. It is very similar to Dr. Gaddie's forecast and the actual results: it forecast fifty districts with between 50% and 65% Republican vote share.

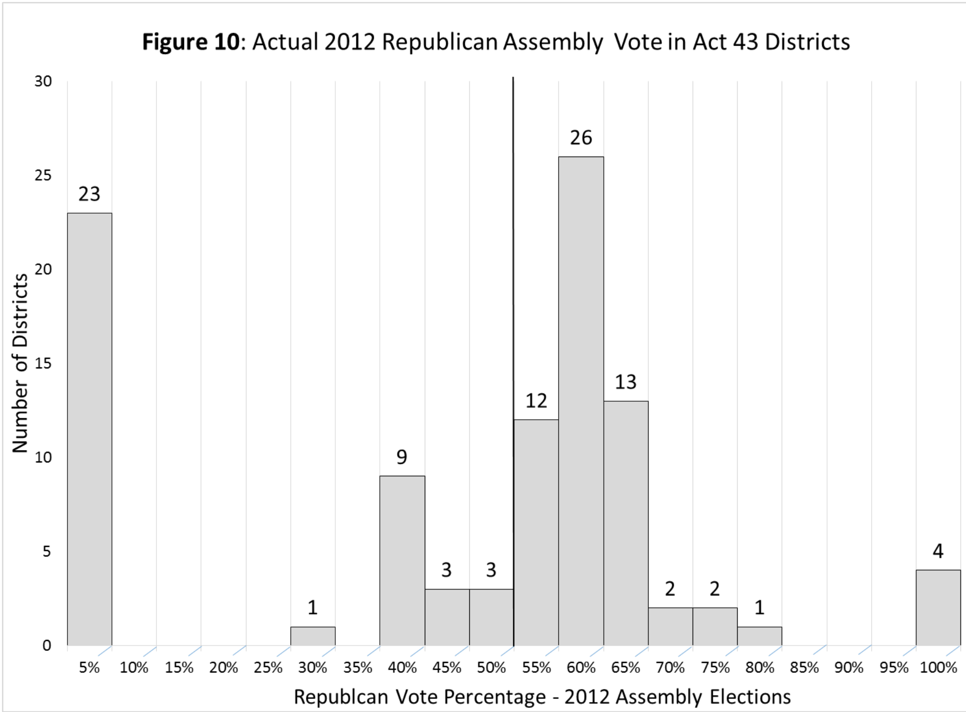


Figure 10: Actual 2012 Republican Assembly Vote in Act 43 Districts
Number of Districts
0
5
10
15
20
25
30
23
1
9
3
3
12
26
13
2
2
1
4
5% 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70% 75% 80% 85% 90% 95% 100%
Republcan Vote Percentage - 2012 Assembly Elections

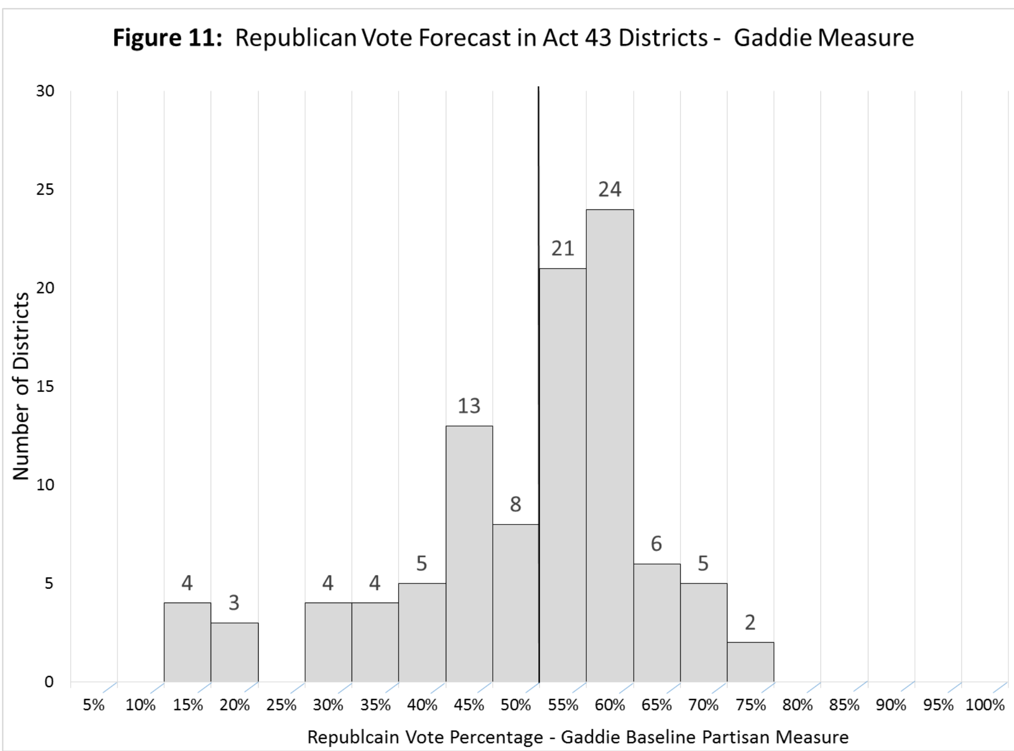
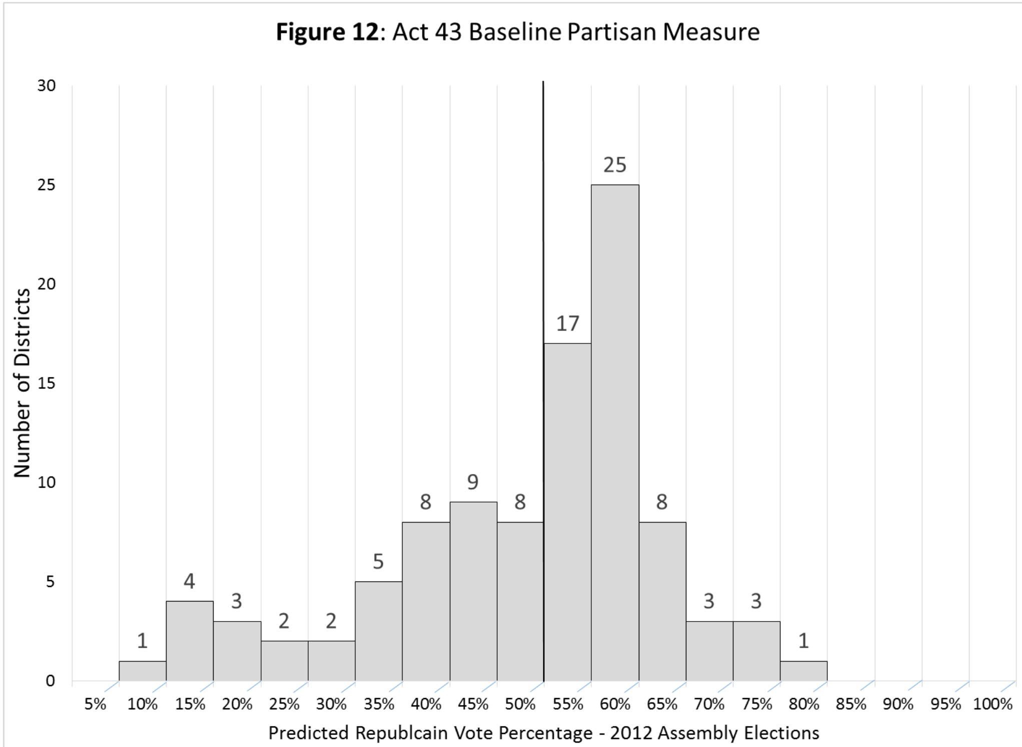


Figure 11: Republican Vote Forecast in Act 43 Districts - Gaddie Measure
Number of Districts
0
5
10
15
20
25
30
4
3
4
4
5
13
8
21
24
6
5
2
5% 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70% 75% 80% 85% 90% 95% 100%
Republcain Vote Percentage - Gaddie Baseline Partisan Measure



The treatment of the city of Sheboygan shows how this cracking was achieved. Sheboygan is a city on the Lake Michigan shoreline with a population of 49,285. It is a strongly Democratic area, voting 58.7%-41.3% for Obama in 2012; my baseline partisanship estimate for the city is 58.2%. The city is small enough to be contained in a single Assembly district in which it would constitute 86% of the ideal population, and it was entirely within the 26th Assembly district in both the 1992 and 2001 redistricting rounds. The areas surrounding it – the Village of Kohler and the Towns of Sheboygan and Wilson are all strongly Republican (with vote percentages for Romney of 62.8 %, 56.3%, and 59.4%, respectively; together, these municipalities constitute an area that is 58.2% Republican, as measured by the presidential vote).

Keeping the city of Sheboygan together would have created a Democratic district, made up of the city itself (58.7% Democratic) with the remaining 14% of population drawn from one of the Republican areas around it. The result would have been a District that was roughly 54%-56% Democratic.

Act 43, however, split Sheboygan into separate Assembly districts, placing 32,640 residents of the city into the 26th District, and 16,645 into the 27th. With the city split, these areas were combined into the Republican areas surrounding the city, producing two Republican districts: the 26th (51.3% Republican in the 2012 Assembly race; baseline open seat partisanship measure of 53.3%) and the 27th (57.9% Republican in the 2012 Assembly race, baseline open seat partisanship measure of 52.3%).

Figure 13, below, shows the split into Districts 26 and 27:

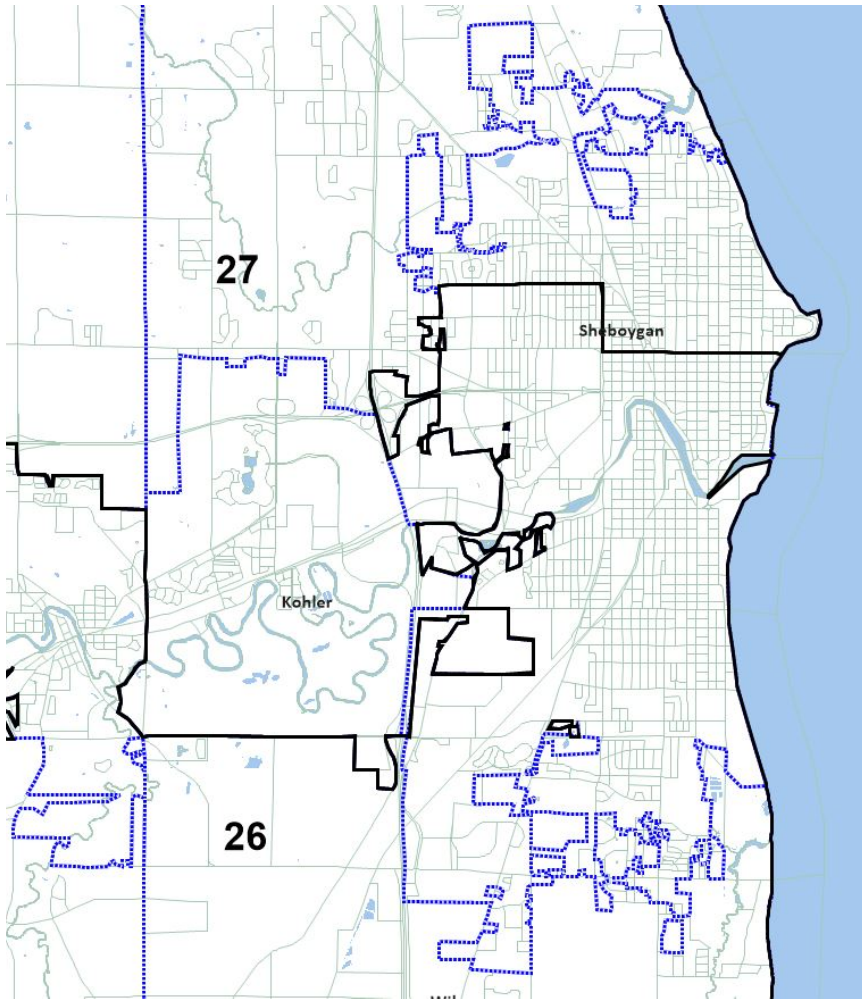


Figure 13– Act 43 Treatment of Sheboygan

2. Efficiency Gap Calculations for Act 43 and The Demonstration Plan

Recall that the efficiency gap is a measure of gerrymandering based on the difference in the number of "wasted votes." Votes cast for losing candidates are wasted, as are surplus votes for winning candidates above what is necessary to win. The gap is defined as the difference between the sum of wasted votes for the two parties, divided by the total number of votes cast in the election.

Comparing a hypothetical district plan (where vote totals are predicted) to an existing district plan (where vote totals are known) requires care, in large part because it can be difficult to know with certainty what districts will have incumbents (or how incumbents might rearrange themselves after a redistricting cycle), and because not every district will be contested in an actual election (Stephanopoulos and McGhee 2015).

Handling uncontested races is a straightforward problem; the key is applying a consistent rule to all plans being compared. In the efficiency gap calculation for my plan, I measure underlying partisan strength in each district by estimating the number of votes that would be cast for each party in an open seat election each district, *assuming that all races are contested*. In the actual 2012 Assembly elections, only 72 of 99 seats were contested by both major parties, leaving 27 uncontested races. Uncontested races by themselves will not necessarily have a dramatic effect on efficiency gap calculations as long as the number of races is small, or if uncontested districts are evenly split between the parties (as a rule, one uncontested race with only a Democrat will cancel out one uncontested race with only a Republican, conditioned on the number of votes cast in each race). But a significant imbalance in uncontested races will have a material effect on the results. Of the 27 uncontested races in 2012, 23 were in Democratic districts and only 4 in Republican districts.

In the academic redistricting literature, uncontested seats are typically handled by imputing what the vote totals would have been if a race had been contested (Gelman and King 1990), or assigning each uncontested race a 75%-25% vote split in favor of the party whose candidate ran unopposed (Gelman and King 1994; Stephanopoulos and McGhee 2015). Because I have direct measures of partisanship and vote predictions, I am able to generate accurate estimates of what the vote totals would have been in Act 43's uncontested districts had both parties fielded candidates. In applying this method to the uncontested districts in the 2012 State Assembly elections, I create two directly equivalent sets of data: one for the Demonstration Plan, with predicted values of open seat vote totals for all districts, and one for the districts created in Act 43, using open seat estimates for each district. Efficiency gap results for the two redistricting plans constructed this way can be compared directly.

Table 7 shows the full set of efficiency gap calculations for the Demonstration Plan, with incumbency effects removed. For each district I calculate an estimated Democratic and Republican vote total, and forecast a winner. The resulting columns show the number of "wasted votes," counting all votes cast for a losing candidates, and surplus votes for winning candidates (equal to ½ of the margin of victory). Totals for each party are summed, and the efficiency gap calculated as the Net Wasted Votes (here, Democratic Wasted Votes – Republican Wasted Votes) divided by the total number of votes cast in the election.

The data in Table 7 (on page 48) show that the Demonstration Plan results in 741,984 wasted Democratic votes (column E), obtained by adding the number of lost Democratic votes cast for losing candidates (566,634, column A) and the number of surplus Democratic votes cast for winners above what was necessary to win (175,350, column C). The same calculation for Republicans (using columns B and D) results in 689,570 wasted Republican votes. The difference between these two numbers, 781,984 - 689,570 = 62,414 net wasted Democratic votes. Dividing 62,414 by the predicted total number of votes 2,843,108, produces the baseline efficiency gap for my plan, .0220, or 2.20%.

Table 8 (on page 50) shows the same calculation for Act 43 districts, using estimated partisan vote totals with incumbent advantages removed. Act 43 resulted in a total of 332,552 net wasted Democratic votes. The efficiency gap of Act 43 is 11.69%, more than five times larger than the Demonstration Plan.

Table 9 (on page 52) shows the efficiency gap calculation for the partisan baseline prediction used by Dr. Gaddie during the drawing of the Act 43 districts, applying his partisanship division to the total number of votes predicted from my model in each district. As described above in section III(B)(1)(h) above, this is the predicted baseline partisanship measure of Act 43. It produces a forecast Efficiency Gap for Act 43 of 12.36%.

Table 10 summarizes these results:

	Table 10: Summary Statistics for Redistricting Plans		
	My Plan Baseline	Act 43 Baseline	Act 43 - Gaddie Measure
party split (R-D)	48-51	57-42	58-41
Wasted Republican Votes	679,570	544,893	535,057
Wasted Democratic Votes	741,984	877,445	886,403
Gap	62,414	332,552	351,346
Total Democratic Votes	1,454,117	1,454,717	1,394,018
Total Republican Votes	1,388,991	1,389,958	1,448,901
Total Votes	2,843,108	2,844,676	2,842,919
Efficiency Gap (gap/total votes)	**2.20%**	**11.69%**	**12.36%**

Three things are worth emphasizing. The first is that the predicted partisan effect of Act 43, represented by the Gaddie metric, produced an efficiency gap calculation (12.36%) that was very close to the actual partisan effect of Act 43, as measured by the efficiency gap calculation for the actual 2012 partisan baseline (11.69%). In brief, the architects of the Act 43 districts expected a partisan result that was almost identical to what actually occurred. The second is the large reduction in the efficiency gap that I am able to produce, which I have achieved without any departure from the core constitutional and statutory requirements of redistricting. The

Demonstration Plan is equivalent to Act 43 on all key criteria: population deviation, compactness, number of political subdivision splits, and compliance with the Voting Rights Act. At the same time, I have generated an efficiency gap score 82% smaller than the Act 43 gap. And third, I have reached this efficiency gap score with virtually identical numbers of Democratic and Republican voters as exist under Act 43. Given that my partisan estimates, once incumbency effects are removed, are *entirely exogenous to any particular district configuration*, these can be considered the same statewide set of voters. By placing the same voters as exist in Act 43 into a new set of districts designed to minimize the effects of gerrymandering while adhering to constitutional standards, I have generated a plan that is fair to both parties.

Figure 14 shows the distribution of baseline Republican vote predictions in the Demonstration Plan Assembly districts. The districts are far more balanced, with similar numbers of districts between 40% - 50% (twenty seven) and between 50% - 60% (twenty nine). There are also roughly equal numbers of districts above 65% (twelve) and below 35% (sixteen).

Figure 14: Predicted Vote - Demonstration Plan

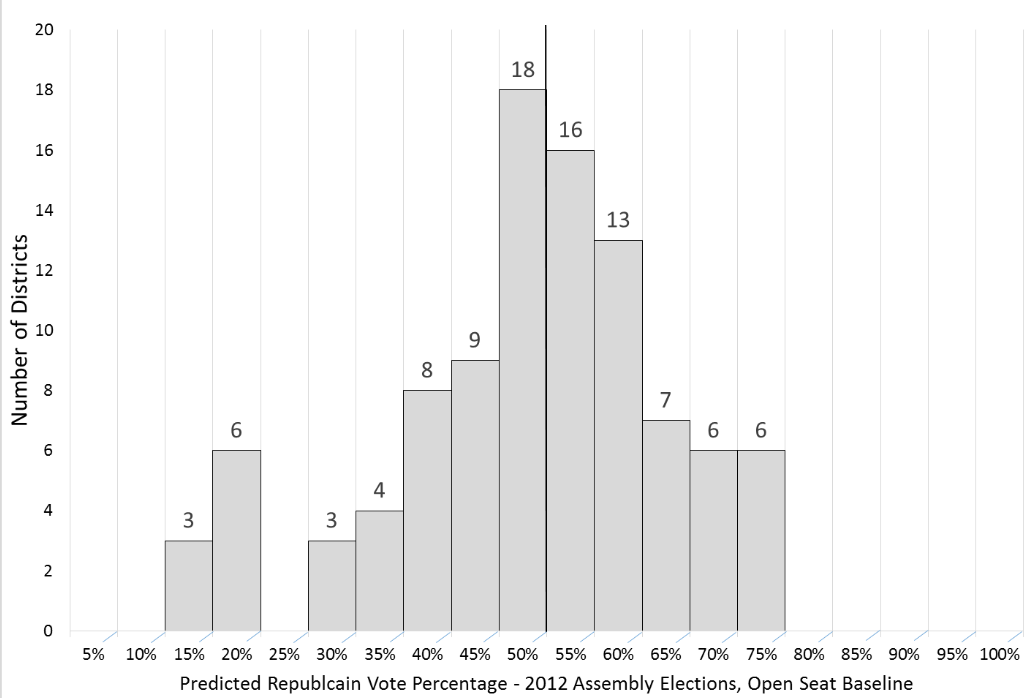


Table 7 - Efficiency Gap Calculation for Demonstration District Plan - No Incumbent Baseline

Assembly District	Predicted Democratic Votes	Predicted Republican Votes	Predicted Winning Party	A Lost Democratic Votes	B Lost Republican Votes	C Surplus Democratic Votes	D Surplus Republican Votes	E Wasted Democratic Votes (A + C)	F Wasted Republican Votes (B + D)	Net Wasted Votes (E - F)
1	16,259	16,414	Republican	16259	0	0	78	16259	78	16181
2	11,805	10,025	Democratic	0	10025	890	0	890	10025	-9136
3	11,243	17,807	Republican	11243	0	0	3282	11243	3282	7961
4	10,881	12,790	Republican	10881	0	0	955	10881	955	9926
5	13,497	13,845	Republican	13497	0	0	174	13497	174	13323
6	11,045	17,627	Republican	11045	0	0	3291	11045	3291	7753
7	22,822	10,214	Democratic	0	10214	6304	0	6304	10214	-3910
8	7,192	1,695	Democratic	0	1695	2749	0	2749	1695	1054
9	10,497	5,635	Democratic	0	5635	2431	0	2431	5635	-3205
10	25,348	3,270	Democratic	0	3270	11039	0	11039	3270	7769
11	22,374	4,855	Democratic	0	4855	8759	0	8759	4855	3904
12	20,041	4,039	Democratic	0	4039	8001	0	8001	4039	3962
13	15,950	16,510	Republican	15950	0	0	280	15950	280	15670
14	13,575	13,799	Republican	13575	0	0	112	13575	112	13464
15	13,412	14,901	Republican	13412	0	0	745	13412	745	12667
16	21,234	2,856	Democratic	0	2856	9189	0	9189	2856	6333
17	21,769	3,569	Democratic	0	3569	9100	0	9100	3569	5531
18	23,817	4,954	Democratic	0	4954	9431	0	9431	4954	4477
19	15,160	10,904	Democratic	0	10904	2128	0	2128	10904	-8776
20	14,118	12,901	Democratic	0	12901	609	0	609	12901	-12292
21	12,257	16,911	Republican	12257	0	0	2327	12257	2327	9930
22	18,335	14,831	Democratic	0	14831	1752	0	1752	14831	-13079
23	10,922	25,459	Republican	10922	0	0	7268	10922	7268	3654
24	8,667	25,868	Republican	8667	0	0	8601	8667	8601	66
25	12,179	18,248	Republican	12179	0	0	3034	12179	3034	9145
26	13,251	14,527	Republican	13251	0	0	638	13251	638	12613
27	14,935	11,755	Democratic	0	11755	1590	0	1590	11755	-10165
28	12,617	15,591	Republican	12617	0	0	1487	12617	1487	11131
29	14,180	12,954	Democratic	0	12954	613	0	613	12954	-12341
30	11,308	15,165	Republican	11308	0	0	1929	11308	1929	9379
31	11,304	16,117	Republican	11304	0	0	2406	11304	2406	8898
32	12,685	13,787	Republican	12685	0	0	551	12685	551	12135
33	14,609	10,151	Democratic	0	10151	2229	0	2229	10151	-7922
34	13,139	15,690	Republican	13139	0	0	1275	13139	1275	11864
35	11,288	16,503	Republican	11288	0	0	2607	11288	2607	8681
36	11,516	14,997	Republican	11516	0	0	1741	11516	1741	9775
37	9,222	22,240	Republican	9222	0	0	6509	9222	6509	2713
38	9,710	25,021	Republican	9710	0	0	7655	9710	7655	2055
39	10,747	17,526	Republican	10747	0	0	3390	10747	3390	7357
40	15,061	13,947	Democratic	0	13947	557	0	557	13947	-13391
41	16,784	13,120	Democratic	0	13120	1832	0	1832	13120	-11288
42	13,254	12,282	Democratic	0	12282	486	0	486	12282	-11796
43	12,658	13,606	Republican	12658	0	0	474	12658	474	12184
44	16,477	10,886	Democratic	0	10886	2795	0	2795	10886	-8091
45	16,352	13,589	Democratic	0	13589	1382	0	1382	13589	-12207
46	20,583	11,418	Democratic	0	11418	4582	0	4582	11418	-6835
47	20,208	9,888	Democratic	0	9888	5160	0	5160	9888	-4728

48	24,457	8,840	Democratic	0	8840	7808	0	7808	8840	-1032
49	13,625	13,477	Democratic	0	13477	74	0	74	13477	-13403
50	12,289	13,709	Republican	12289	0	0	710	12289	710	11579
51	14,760	13,323	Democratic	0	13323	718	0	718	13323	-12605
52	12,376	19,416	Republican	12376	0	0	3520	12376	3520	8857
53	12,388	13,362	Republican	12388	0	0	487	12388	487	11902
54	14,032	12,240	Democratic	0	12240	896	0	896	12240	-11344
55	13,565	15,300	Republican	13565	0	0	868	13565	868	12697
56	12,553	14,518	Republican	12553	0	0	983	12553	983	11570
57	14,897	13,016	Democratic	0	13016	941	0	941	13016	-12075
58	9,325	21,180	Republican	9325	0	0	5927	9325	5927	3398
59	11,565	21,984	Republican	11565	0	0	5209	11565	5209	6356
60	8,756	22,415	Republican	8756	0	0	6830	8756	6830	1926
61	12,933	16,576	Republican	12933	0	0	1822	12933	1822	11112
62	15,181	9,999	Democratic	0	9999	2591	0	2591	9999	-7408
63	15,640	9,902	Democratic	0	9902	2869	0	2869	9902	-7033
64	15,089	13,470	Democratic	0	13470	810	0	810	13470	-12660
65	12,721	19,816	Republican	12721	0	0	3547	12721	3547	9173
66	16,286	6,362	Democratic	0	6362	4962	0	4962	6362	-1401
67	15,321	14,226	Democratic	0	14226	547	0	547	14226	-13678
68	11,958	12,124	Republican	11958	0	0	83	11958	83	11875
69	17,902	12,022	Democratic	0	12022	2940	0	2940	12022	-9083
70	18,661	12,266	Democratic	0	12266	3197	0	3197	12266	-9069
71	15,081	13,884	Democratic	0	13884	599	0	599	13884	-13285
72	11,180	16,542	Republican	11180	0	0	2681	11180	2681	8500
73	17,137	10,785	Democratic	0	10785	3176	0	3176	10785	-7609
74	17,712	14,219	Democratic	0	14219	1747	0	1747	14219	-12472
75	13,902	17,700	Republican	13902	0	0	1899	13902	1899	12002
76	30,929	6,811	Democratic	0	6811	12059	0	12059	6811	5248
77	26,708	6,059	Democratic	0	6059	10325	0	10325	6059	4266
78	24,413	9,847	Democratic	0	9847	7283	0	7283	9847	-2564
79	20,439	13,294	Democratic	0	13294	3572	0	3572	13294	-9722
80	20,179	11,644	Democratic	0	11644	4267	0	4267	11644	-7377
81	13,703	12,741	Democratic	0	12741	481	0	481	12741	-12260
82	9,871	21,201	Republican	9871	0	0	5665	9871	5665	4206
83	9,241	23,075	Republican	9241	0	0	6917	9241	6917	2324
84	11,990	22,700	Republican	11990	0	0	5355	11990	5355	6634
85	10,028	13,190	Republican	10028	0	0	1581	10028	1581	8448
86	13,853	13,494	Democratic	0	13494	180	0	180	13494	-13314
87	11,358	17,003	Republican	11358	0	0	2823	11358	2823	8535
88	14,209	11,142	Democratic	0	11142	1533	0	1533	11142	-9609
89	13,374	15,771	Republican	13374	0	0	1199	13374	1199	12175
90	11,349	17,468	Republican	11349	0	0	3059	11349	3059	8290
91	14,807	13,845	Democratic	0	13845	481	0	481	13845	-13364
92	14,907	14,594	Democratic	0	14594	157	0	157	14594	-14437
93	12,441	18,057	Republican	12441	0	0	2808	12441	2808	9633
94	16,171	11,759	Democratic	0	11759	2206	0	2206	11759	-9553
95	19,769	9,949	Democratic	0	9949	4910	0	4910	9949	-5040
96	14,665	13,836	Democratic	0	13836	415	0	415	13836	-13421
97	11,492	24,222	Republican	11492	0	0	6365	11492	6365	5128
98	9,864	24,773	Republican	9864	0	0	7454	9864	7454	2410
99	10,783	19,160	Republican	10783	0	0	4188	10783	4188	6594
TOTALS	**1,454,117**	**1,388,991**		**566,634**	**536,783**	**175,350**	**142,787**	**741,984**	**679,570**	**62,414**

Table 8 - Efficiency Gap Calculation for Act 43 - No Incumbent Baseline

				A	B	C	D	E	F	
Assembly District	Predicted Democratic Votes	Predicted Republican Votes	Predicted Winning Party	Lost Democratic Votes	Lost Republican Votes	Surplus Democratic Votes	Surplus Republican Votes	Wasted Democratic Votes (A + C)	Wasted Republican Votes (B + D)	Net Wasted Votes (E - F)
1	16,235	16,628	Republican	16235	0	0	197	16235	197	16038
2	12,398	16,357	Republican	12398	0	0	1980	12398	1980	10419
3	12,623	16,636	Republican	12623	0	0	2006	12623	2006	10617
4	13,926	15,576	Republican	13926	0	0	825	13926	825	13101
5	12,710	16,017	Republican	12710	0	0	1654	12710	1654	11056
6	10,929	14,938	Republican	10929	0	0	2005	10929	2005	8924
7	13,793	11,778	Democratic	0	11778	1007	0	1007	11778	-10771
8	7,342	1,738	Democratic	0	1738	2802	0	2802	1738	1064
9	10,023	4,533	Democratic	0	4533	2745	0	2745	4533	-1787
10	25,306	2,897	Democratic	0	2897	11205	0	11205	2897	8308
11	21,698	3,368	Democratic	0	3368	9165	0	9165	3368	5797
12	19,700	5,222	Democratic	0	5222	7239	0	7239	5222	2018
13	13,345	20,358	Republican	13345	0	0	3506	13345	3506	9839
14	14,499	21,025	Republican	14499	0	0	3263	14499	3263	11235
15	13,006	17,310	Republican	13006	0	0	2152	13006	2152	10853
16	22,293	2,342	Democratic	0	2342	9975	0	9975	2342	7633
17	24,088	4,047	Democratic	0	4047	10020	0	10020	4047	5973
18	22,204	2,692	Democratic	0	2692	9756	0	9756	2692	7064
19	22,759	10,364	Democratic	0	10364	6198	0	6198	10364	-4166
20	16,066	12,856	Democratic	0	12856	1605	0	1605	12856	-11252
21	12,566	15,324	Republican	12566	0	0	1379	12566	1379	11187
22	11,290	22,958	Republican	11290	0	0	5834	11290	5834	5456
23	14,260	21,633	Republican	14260	0	0	3687	14260	3687	10573
24	13,885	20,335	Republican	13885	0	0	3225	13885	3225	10659
25	12,032	15,933	Republican	12032	0	0	1950	12032	1950	10082
26	13,639	15,559	Republican	13639	0	0	960	13639	960	12679
27	14,709	16,360	Republican	14709	0	0	826	14709	826	13883
28	12,719	15,302	Republican	12719	0	0	1291	12719	1291	11428
29	12,909	14,662	Republican	12909	0	0	876	12909	876	12033
30	14,019	16,951	Republican	14019	0	0	1466	14019	1466	12553
31	13,273	15,615	Republican	13273	0	0	1171	13273	1171	12102
32	11,255	15,359	Republican	11255	0	0	2052	11255	2052	9203
33	11,226	18,298	Republican	11226	0	0	3536	11226	3536	7690
34	12,445	19,355	Republican	12445	0	0	3455	12445	3455	8991
35	12,270	15,525	Republican	12270	0	0	1628	12270	1628	10643
36	11,403	15,672	Republican	11403	0	0	2134	11403	2134	9269
37	12,707	16,202	Republican	12707	0	0	1747	12707	1747	10960
38	12,668	19,129	Republican	12668	0	0	3231	12668	3231	9437
39	11,491	17,211	Republican	11491	0	0	2860	11491	2860	8630
40	11,485	13,597	Republican	11485	0	0	1056	11485	1056	10429
41	11,719	14,492	Republican	11719	0	0	1387	11719	1387	10332
42	13,705	15,462	Republican	13705	0	0	879	13705	879	12826
43	17,380	13,075	Democratic	0	13075	2153	0	2153	13075	-10923
44	16,680	10,304	Democratic	0	10304	3188	0	3188	10304	-7116
45	15,153	9,691	Democratic	0	9691	2731	0	2731	9691	-6959
46	19,173	11,534	Democratic	0	11534	3819	0	3819	11534	-7714
47	21,609	9,340	Democratic	0	9340	6135	0	6135	9340	-3205
48	24,517	7,635	Democratic	0	7635	8441	0	8441	7635	806
49	12,307	13,621	Republican	12307	0	0	657	12307	657	11650

50	12,467	12,326	Democratic	0	12326	71	0	71	12326	-12256
51	14,173	13,048	Democratic	0	13048	563	0	563	13048	-12485
52	11,294	15,656	Republican	11294	0	0	2181	11294	2181	9113
53	9,875	16,753	Republican	9875	0	0	3439	9875	3439	6437
54	15,180	12,882	Democratic	0	12882	1149	0	1149	12882	-11733
55	12,634	16,971	Republican	12634	0	0	2169	12634	2169	10465
56	12,564	18,576	Republican	12564	0	0	3006	12564	3006	9559
57	14,387	11,676	Democratic	0	11676	1355	0	1355	11676	-10321
58	8,843	22,417	Republican	8843	0	0	6787	8843	6787	2055
59	8,784	21,725	Republican	8784	0	0	6471	8784	6471	2313
60	9,848	23,989	Republican	9848	0	0	7071	9848	7071	2778
61	13,145	16,481	Republican	13145	0	0	1668	13145	1668	11477
62	14,828	17,309	Republican	14828	0	0	1240	14828	1240	13588
63	13,233	16,830	Republican	13233	0	0	1799	13233	1799	11434
64	15,702	11,307	Democratic	0	11307	2198	0	2198	11307	-9109
65	15,105	7,929	Democratic	0	7929	3588	0	3588	7929	-4341
66	16,162	5,472	Democratic	0	5472	5345	0	5345	5472	-127
67	13,769	14,674	Republican	13769	0	0	453	13769	453	13316
68	13,663	13,005	Democratic	0	13005	329	0	329	13005	-12676
69	11,083	14,347	Republican	11083	0	0	1632	11083	1632	9451
70	12,211	14,387	Republican	12211	0	0	1088	12211	1088	11123
71	17,614	11,383	Democratic	0	11383	3115	0	3115	11383	-8267
72	14,294	13,895	Democratic	0	13895	199	0	199	13895	-13696
73	17,353	10,784	Democratic	0	10784	3284	0	3284	10784	-7500
74	17,095	13,772	Democratic	0	13772	1662	0	1662	13772	-12110
75	15,000	13,418	Democratic	0	13418	791	0	791	13418	-12627
76	30,939	6,805	Democratic	0	6805	12067	0	12067	6805	5262
77	26,925	6,041	Democratic	0	6041	10442	0	10442	6041	4402
78	24,163	9,857	Democratic	0	9857	7153	0	7153	9857	-2704
79	20,753	13,975	Democratic	0	13975	3389	0	3389	13975	-10586
80	20,369	12,604	Democratic	0	12604	3882	0	3882	12604	-8722
81	16,310	12,356	Democratic	0	12356	1977	0	1977	12356	-10379
82	12,168	18,085	Republican	12168	0	0	2959	12168	2959	9210
83	10,186	23,755	Republican	10186	0	0	6784	10186	6784	3401
84	12,503	18,765	Republican	12503	0	0	3131	12503	3131	9373
85	13,613	12,925	Democratic	0	12925	344	0	344	12925	-12581
86	13,425	17,152	Republican	13425	0	0	1863	13425	1863	11561
87	11,780	15,118	Republican	11780	0	0	1669	11780	1669	10111
88	13,141	14,380	Republican	13141	0	0	620	13141	620	12521
89	11,610	15,516	Republican	11610	0	0	1953	11610	1953	9658
90	12,080	7,309	Democratic	0	7309	2385	0	2385	7309	-4924
91	17,942	11,769	Democratic	0	11769	3086	0	3086	11769	-8683
92	14,285	11,441	Democratic	0	11441	1422	0	1422	11441	-10019
93	15,268	15,393	Republican	15268	0	0	62	15268	62	15206
94	17,408	12,954	Democratic	0	12954	2227	0	2227	12954	-10727
95	19,804	9,627	Democratic	0	9627	5088	0	5088	9627	-4539
96	10,950	14,873	Republican	10950	0	0	1962	10950	1962	8989
97	10,826	18,042	Republican	10826	0	0	3608	10826	3608	7219
98	10,182	21,855	Republican	10182	0	0	5837	10182	5837	4346
99	8,346	25,535	Republican	8346	0	0	8594	8346	8594	-248
TOTALS	**1,454,717**	**1,389,958**		**702,148**	**401,975**	**175,297**	**142,918**	**877,445**	**544,893**	**332,552**

Table 9 - Efficiency Gap Calculation for Act 43 2011 Gaddie Metric - No Incumbent Baseline

Assembly District	Predicted Democratic Votes	Predicted Republican Votes	Predicted Winning Party	A Lost Democratic Votes	B Lost Republican Votes	C Surplus Democratic Votes	D Surplus Republican Votes	E Wasted Democratic Votes (A + C)	F Wasted Republican Votes (B + D)	Net Wasted Votes (E - F)
1	15,857	16,651	Republican	15857	0	0	397	15857	397	15461
2	12,983	15,766	Republican	12983	0	0	1391	12983	1391	11591
3	12,976	16,236	Republican	12976	0	0	1630	12976	1630	11346
4	13,742	15,791	Republican	13742	0	0	1025	13742	1025	12717
5	13,134	15,593	Republican	13134	0	0	1230	13134	1230	11904
6	10,779	15,088	Republican	10779	0	0	2155	10779	2155	8624
7	13,967	11,604	Democratic	0	11604	1181	0	1181	11604	-10423
8	6,178	2,709	Democratic	0	2709	1735	0	1735	2709	-974
9	10,173	4,184	Democratic	0	4184	2995	0	2995	4184	-1189
10	24,623	3,547	Democratic	0	3547	10538	0	10538	3547	6992
11	20,235	4,927	Democratic	0	4927	7654	0	7654	4927	2728
12	18,066	6,856	Democratic	0	6856	5605	0	5605	6856	-1251
13	13,929	19,774	Republican	13929	0	0	2922	13929	2922	11007
14	14,693	20,831	Republican	14693	0	0	3069	14693	3069	11624
15	13,497	16,819	Republican	13497	0	0	1661	13497	1661	11835
16	22,223	2,618	Democratic	0	2618	9803	0	9803	2618	7184
17	22,553	5,582	Democratic	0	5582	8486	0	8486	5582	2904
18	21,176	3,719	Democratic	0	3719	8728	0	8728	3719	5009
19	23,838	9,284	Democratic	0	9284	7277	0	7277	9284	-2007
20	16,451	12,471	Democratic	0	12471	1990	0	1990	12471	-10482
21	13,125	14,765	Republican	13125	0	0	820	13125	820	12305
22	11,364	22,885	Republican	11364	0	0	5761	11364	5761	5603
23	15,182	20,658	Republican	15182	0	0	2738	15182	2738	12444
24	14,205	20,015	Republican	14205	0	0	2905	14205	2905	11299
25	13,065	14,887	Republican	13065	0	0	911	13065	911	12154
26	12,853	16,338	Republican	12853	0	0	1743	12853	1743	11110
27	13,611	17,458	Republican	13611	0	0	1923	13611	1923	11688
28	12,609	15,412	Republican	12609	0	0	1401	12609	1401	11208
29	13,519	14,054	Republican	13519	0	0	267	13519	267	13251
30	14,267	16,601	Republican	14267	0	0	1167	14267	1167	13101
31	12,616	16,273	Republican	12616	0	0	1829	12616	1829	10787
32	10,038	16,566	Republican	10038	0	0	3264	10038	3264	6773
33	11,274	18,247	Republican	11274	0	0	3487	11274	3487	7788
34	14,239	17,558	Republican	14239	0	0	1660	14239	1660	12579
35	13,067	14,729	Republican	13067	0	0	831	13067	831	12236
36	12,227	14,848	Republican	12227	0	0	1310	12227	1310	10917
37	12,110	16,799	Republican	12110	0	0	2345	12110	2345	9766
38	12,574	19,218	Republican	12574	0	0	3322	12574	3322	9251
39	10,899	17,782	Republican	10899	0	0	3442	10899	3442	7457
40	10,514	14,561	Republican	10514	0	0	2024	10514	2024	8490
41	11,761	14,467	Republican	11761	0	0	1353	11761	1353	10407
42	13,152	16,036	Republican	13152	0	0	1442	13152	1442	11710
43	17,339	13,113	Democratic	0	13113	2113	0	2113	13113	-10999
44	16,941	10,043	Democratic	0	10043	3449	0	3449	10043	-6595
45	14,886	9,957	Democratic	0	9957	2464	0	2464	9957	-7493
46	17,681	13,010	Democratic	0	13010	2336	0	2336	13010	-10674

47	20,628	10,322	Democratic	0	10322	5153	0	5153	10322	-5169
48	23,290	8,861	Democratic	0	8861	7215	0	7215	8861	-1646
49	13,071	12,859	Democratic	0	12859	106	0	106	12859	-12752
50	11,887	12,908	Republican	11887	0	0	511	11887	511	11376
51	14,637	12,584	Democratic	0	12584	1026	0	1026	12584	-11558
52	11,034	15,918	Republican	11034	0	0	2442	11034	2442	8592
53	9,930	16,099	Republican	9930	0	0	3084	9930	3084	6846
54	15,372	12,690	Democratic	0	12690	1341	0	1341	12690	-11348
55	13,302	16,297	Republican	13302	0	0	1498	13302	1498	11804
56	12,809	18,326	Republican	12809	0	0	2759	12809	2759	10050
57	14,436	11,575	Democratic	0	11575	1431	0	1431	11575	-10145
58	9,211	22,056	Republican	9211	0	0	6422	9211	6422	2789
59	9,669	20,843	Republican	9669	0	0	5587	9669	5587	4083
60	10,307	23,508	Republican	10307	0	0	6601	10307	6601	3706
61	12,661	16,935	Republican	12661	0	0	2137	12661	2137	10524
62	13,959	18,175	Republican	13959	0	0	2108	13959	2108	11851
63	11,973	17,692	Republican	11973	0	0	2860	11973	2860	9113
64	15,452	11,524	Democratic	0	11524	1964	0	1964	11524	-9560
65	14,760	8,274	Democratic	0	8274	3243	0	3243	8274	-5031
66	14,776	6,861	Democratic	0	6861	3957	0	3957	6861	-2904
67	13,748	14,698	Republican	13748	0	0	475	13748	475	13273
68	13,508	13,177	Democratic	0	13177	165	0	165	13177	-13011
69	11,657	13,773	Republican	11657	0	0	1058	11657	1058	10599
70	13,105	13,493	Republican	13105	0	0	194	13105	194	12911
71	17,189	11,807	Democratic	0	11807	2691	0	2691	11807	-9116
72	13,674	14,514	Republican	13674	0	0	420	13674	420	13254
73	16,837	11,300	Democratic	0	11300	2769	0	2769	11300	-8531
74	17,628	13,239	Democratic	0	13239	2195	0	2195	13239	-11044
75	13,590	14,829	Republican	13590	0	0	620	13590	620	12970
76	32,275	5,469	Democratic	0	5469	13403	0	13403	5469	7934
77	26,627	6,339	Democratic	0	6339	10144	0	10144	6339	3804
78	23,528	10,492	Democratic	0	10492	6518	0	6518	10492	-3974
79	20,211	14,516	Democratic	0	14516	2848	0	2848	14516	-11668
80	20,251	12,704	Democratic	0	12704	3773	0	3773	12704	-8931
81	15,887	12,770	Democratic	0	12770	1559	0	1559	12770	-11211
82	12,985	17,269	Republican	12985	0	0	2142	12985	2142	10843
83	10,756	23,185	Republican	10756	0	0	6215	10756	6215	4541
84	13,414	17,854	Republican	13414	0	0	2220	13414	2220	11194
85	13,703	12,843	Democratic	0	12843	430	0	430	12843	-12413
86	15,780	14,789	Democratic	0	14789	495	0	495	14789	-14294
87	12,413	14,420	Republican	12413	0	0	1004	12413	1004	11409
88	12,882	14,638	Republican	12882	0	0	878	12882	878	12004
89	12,009	15,118	Republican	12009	0	0	1554	12009	1554	10455
90	11,556	7,833	Democratic	0	7833	1861	0	1861	7833	-5972
91	18,044	11,816	Democratic	0	11816	3114	0	3114	11816	-8701
92	14,313	11,383	Democratic	0	11383	1465	0	1465	11383	-9919
93	15,014	15,690	Republican	15014	0	0	338	15014	338	14676
94	14,601	15,761	Republican	14601	0	0	580	14601	580	14022
95	18,730	10,701	Democratic	0	10701	4014	0	4014	10701	-6687
96	13,841	11,982	Democratic	0	11982	930	0	930	11982	-11052
97	10,706	18,158	Republican	10706	0	0	3726	10706	3726	6979
98	10,566	21,472	Republican	10566	0	0	5453	10566	5453	5113
99	8,517	25,349	Republican	8517	0	0	8416	8517	8416	102
TOTALS	**1,448,901**	**1,394,018**		**726,238**	**402,334**	**160,165**	**132,723**	**886,403**	**535,057**	**351,346**

D. Conclusions

In this report, I have outlined a method that generates accurate estimates of underlying partisanship using the 2012 presidential election vote, demographics, incumbency, and geographic features to explain patterns of voting in Assembly elections. This method is accurate, as demonstrated by its ability to forecast vote totals at both the individual ward and district levels, and I demonstrate that it generates valid out of sample estimates. It produces results that are very similar to those derived by the expert witness retained by the state legislature during its development of the redistricting map implemented in Act 43.

The results demonstrate that Act 43 was an egregious gerrymander, packing Democratic voters into a small number of districts and distributing Republican voters efficiently in a large number of districts in which they constituted safe majorities. As I demonstrated with the treatment of the city of Sheboygan in Act 43, areas of Democratic strength large enough to constitute majorities in single districts were unnecessarily split and then combined with larger Republican populations to create additional Republican districts and eliminate Democratic districts. The city, which had been in a single Democratic Assembly district since 1992, was split into two Republican districts. This packing and cracking was so successful that Republicans won 61% of Assembly seats in 2012, while obtaining only 46.5% of the statewide presidential vote.

The scope of the gerrymander is demonstrated by the efficiency gap calculation for Act 43: 11.69%. Based on the baseline partisanship estimates produced by Dr. Ronald Keith Gaddie during the drawing of the Act 43 plan, this was the intended outcome: using Gaddie's baseline estimates, Act 43 had an expected efficiency gap of 12.36 %.

However, I drew a demonstration districting plan that was equivalent to Act 43 on population deviation, municipal splits, and compliance with the Voting Rights Act, and better on compactness, with a dramatically lower efficiency gap score of 2.20%. This proves that Act 43's extreme partisan effects were not required by these constitutional or statutory mandates.

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I. Data Issues

The largest errors in the Legislative Technology Services Bureau (LTSB) data occurred because the two data sets used to create this data do not precisely overlap. In GIS argot, the two sets of data are not reported in the same geography. The LTSB files contained data at the individual ward level, while the official election data is aggregated by reporting unit. Wisconsin elections are administered at the ward level, but are often tabulated and released in *reporting units* consisting of multiple wards.[1] Of Wisconsin's roughly 6,530 populated wards, only about a third report election results at the individual ward level; the rest report results by combining wards into reporting units. As one example, the city of Manitowoc (2010 population 33,736) has 25 wards, but reports election results in 10 reporting units of between 2 and 6 wards each.[2]

In order to generate data at the ward level, my understanding is that the LTSB disaggregated reporting unit results to individual wards based on the fraction of Voting Age Population in each ward comprising the reporting unit. In the process a number of anomalies crept into the data. The LTSB file for 2012 contains wards where the number of votes cast exceeds the voting age population; wards with large voting age populations and an unusually low number of votes, often zero, recorded; wards, municipalities, and districts with vote totals that differ substantially from what the Government Accountability Board (GAB) reports; votes allocated to the wrong district; incorrectly numbered and duplicated wards; and wards in uncontested Assembly districts with votes recorded for both political parties.

[1] Wisconsin Statutes 5.15(6)(b) allows municipalities with a population under 35,000 to combine wards for purposes of using a common polling place, and allows for the tabulation and reporting of combined ward vote totals.
[2] In 2012 the reporting units were Wards 1-2; 5-6; 7-8; 9-10; 11-12; 13-14; 15-16; 3, 4, and 22; and 17-18, 21, and 23-25.

In most cases, correcting the errors in the LTSB data involved manually changing the incorrect ward totals to reflect GAB results. When the GAB data were combined into reporting units, I allocated votes to each ward in the unit based on the ward's share of the voting eligible population, removing noncitizen and prison populations.[3] This process generated more accurate ward level data, and is a standard technique when allocating votes into different geographic levels (McDonald 2014; Pavia and López-Quílez 2013). At times, however, the LTSB and GAB data could not be reconciled, because of wards that appeared in one file but not in the other, or discrepancies in ward geography. The votes I was not able to allocate constituted only 0.21% of the total votes cast in the 2012 Assembly election, and have no effect on any subsequent analysis or my conclusions.

The following table shows some of the problems with the data recorded by the LTSB. It displays the errors in the LTSB 2012 presidential vote totals for the city of Mequon. The GAB Reports columns show the vote totals for each of the city's reporting units taken from the 2014 Wisconsin Blue Book, which I take to be authoritative.[4] The LTSB Data columns show the results of combining the individual ward data in the LTSB ward file into the GAB reporting units. The Difference columns show the errors in the LTSB data. While the vote totals for the municipality are the same in both data sets, every ward total is different.

[3] The voting eligible population (VEP) adjusts the voting age population by removing adults who are not eligible to vote. In Wisconsin, the two largest categories of ineligible adults are noncitizens and adults in prison for felonies. Noncitizens were removed using the 2008-2012 5 year American Community Survey county level noncitizen estimates (available at http://www.census.gov/acs/www/data_documentation/2012_release/. Institutionalized prison populations were identified and removed using Census Bureau "Advanced Group Quarters" files for Wisconsin, available at http://www2.census.gov/census_2010/02-Advance_Group_Quarters/, and described in http://www.census.gov/newsroom/releases/archives/2010_census/cb11-tps13.html.

[4] Table: Vote for President and Vice President by Ward, November 6, 2012 General Election, 938.

Differences Between GAB Reports and LTSB Data
2012 Presidential Election Results for Mequon, WI (Ozaukee County)

	GAB Reports			LTSB Data			Difference		
Reporting Unit (wards)	Obama Votes	Romney Votes	Total Votes	Obama Votes	Romney Votes	Total Votes	Obama Votes	Romney Votes	Total Votes
1	534	890	1424	849	1,522	2,371	315	632	947
2	120	391	511	240	633	873	120	242	362
3,4	637	1,249	1886	415	833	1,248	(222)	(416)	(638)
5, 7B	205	603	808	155	311	466	(50)	(292)	(342)
6, 7A	392	909	1301	292	589	881	(100)	(320)	(420)
8 ,9,10	737	1,245	1982	477	956	1,433	(260)	(289)	(549)
11, 12	635	1,126	1761	527	1,057	1,584	(108)	(69)	(177)
13, 14	353	770	1123	253	506	759	(100)	(264)	(364)
15	380	494	874	579	896	1,475	199	402	601
16	221	491	712	357	766	1,123	136	275	411
17	336	459	795	517	824	1,341	181	365	546
18	204	368	572	322	607	929	118	239	357
19,20,21	639	1,331	1970	410	826	1,236	(229)	(505)	(734)
Totals	5,393	10,326	15,719	5,393	10,326	15,719	0	0	0

Correcting these totals required manually changing the single-ward vote counts to match the GAB data, and allocating votes in reporting units to the individual wards based on the voting-eligible population in each ward in the unit (in the following table, wards in a reporting unit are framed together):

Allocation of Reporting Unit Data to Ward Data

City of Mequon, 2012 Presidential Vote

	GAB Data				Data Used in Voting Model		
Ward	**Obama Votes**	**Romney Votes**	**Ward Voting Eligible Population**	**Ward Share of Reporting Unit VEP**	**Obama Votes**	**Romney Votes**	**Total Votes**
1	534	890	-	-	534	890	1,424
2	120	391	-	-	120	391	511
3	637	1249	1063	53%	336	658	994
4			954	47%	301	591	892
5	205	603	501	67%	137	402	539
7B			250	33%	68	201	269
6	392	909	1240	87%	343	794	1,137
7A			179	13%	49	115	164
8	737	1245	599	26%	192	324	516
9			457	20%	146	247	393
10			1247	54%	399	674	1,073
11	635	1126	1530	60%	380	673	1,053
12			1029	40%	255	453	708
13	353	770	761	63%	221	482	703
14			455	37%	132	288	420
15	380	494	-	-	380	494	874
16	221	491	-	-	221	491	712
17	336	459	-	-	336	459	795
18	204	368	-	-	204	368	572
19	639	1331	908	46%	291	606	897
20			776	39%	249	518	767
21			310	16%	99	207	306
Totals	5,393	10,326			5,393	10,326	15,719

I repeated this process for every instance of inaccurate vote totals in the LTSB, using GAB data as the reference.

II. Full Regression Results

Republican vote totals (bold variables have $p<.05$)

Independent Variable: Assembly Republican Votes

Dependent Variable	Coefficient	Robust Std. Error	t-statistic	P-value
Total Voting Eligible Population	0.01	0.01	1.32	0.19
Black Voting Eligible Population	-0.03	0.02	-1.21	0.229
Hispanic Voting eligible Population	-0.01	0.03	-0.26	0.796
Democratic Presidential Votes	0.01	0.02	0.42	0.677
Republican Presidential Votes	**0.95**	**0.01**	**110.00**	**0**
Democratic Assembly Incumbent	**-0.02**	**0.01**	**-3.63**	**0.001**
Republican Assembly Incumbent	**0.01**	**0.00**	**2.62**	**0.011**
Adams	-7.27	7.24	-1.00	0.319
Ashland	3.07	7.81	0.39	0.695
Barron	-11.03	7.13	-1.55	0.126
Bayfield	-0.59	7.77	-0.08	0.94
Brown	**-17.12**	**8.29**	**-2.07**	**0.042**
Buffalo	-7.93	7.35	-1.08	0.284
Burnett	-1.97	7.31	-0.27	0.789
Calumet	**17.29**	**7.31**	**2.36**	**0.021**
Chippewa	4.20	10.58	0.40	0.693
Clark	6.23	7.74	0.81	0.423

Columbia	15.01	10.08	1.49	0.141
Crawford	**28.20**	**7.24**	**3.90**	**0**
Dane	1.55	8.53	0.18	0.857
Dodge	8.54	7.88	1.08	0.282
Door	**16.98**	**7.23**	**2.35**	**0.022**
Douglas	-3.14	7.65	-0.41	0.682
EauClaire	0.47	7.83	0.06	0.953
Florence	-7.34	7.52	-0.98	0.332
FondduLac	4.74	8.07	0.59	0.559
Forest	-1.91	7.39	-0.26	0.796
Grant	**24.64**	**7.23**	**3.41**	**0.001**
Green	14.41	9.95	1.45	0.152
GreenLake	11.96	7.36	1.62	0.109
Iowa	15.04	8.08	1.86	0.067
Iron	**20.54**	**7.68**	**2.67**	**0.009**
Jackson	5.74	7.53	0.76	0.449
Jefferson	2.37	8.41	0.28	0.779
Juneau	-4.31	7.29	-0.59	0.556
Kenosha	3.73	7.99	0.47	0.642
Kewaunee	-14.13	7.24	-1.95	0.055
LaCrosse	**-26.58**	**8.43**	**-3.15**	**0.002**
Lafayette	**18.18**	**7.29**	**2.49**	**0.015**
Langlade	4.35	8.30	0.52	0.602
Lincoln	-0.38	7.53	-0.05	0.96
Manitowoc	**19.35**	**9.36**	**2.07**	**0.042**
Marathon	2.01	8.56	0.24	0.815
Marinette	**19.89**	**8.04**	**2.48**	**0.016**
Marquette	6.91	7.26	0.95	0.344
Menominee	-3.08	7.32	-0.42	0.675
Milwaukee	1.96	11.98	0.16	0.871
Monroe	**19.47**	**7.72**	**2.52**	**0.014**
Oconto	3.21	7.95	0.40	0.687
Oneida	12.01	7.95	1.51	0.136
Outagamie	1.90	8.02	0.24	0.814
Ozaukee	13.71	8.82	1.55	0.125
Pepin	-9.83	7.27	-1.35	0.181
Pierce	-9.31	7.18	-1.30	0.199
Polk	-3.47	7.24	-0.48	0.633
Portage	**-20.74**	**7.71**	**-2.69**	**0.009**
Price	5.25	7.75	0.68	0.501
Racine	-6.90	8.23	-0.84	0.404
Richland	16.24	8.55	1.90	0.062
Rock	9.24	8.32	1.11	0.27

Rusk	3.71	7.37	0.50	0.616
SaintCroix	13.80	9.31	1.48	0.143
Sauk	**16.68**	**8.27**	**2.02**	**0.048**
Sawyer	-0.90	7.40	-0.12	0.903
Shawano	2.70	7.86	0.34	0.733
Sheboygan	-6.50	15.54	-0.42	0.677
Taylor	9.96	7.30	1.37	0.176
Trempealeau	1.29	7.21	0.18	0.859
Vernon	**31.54**	**7.29**	**4.33**	**0**
Vilas	3.61	7.64	0.47	0.638
Walworth	-2.00	8.17	-0.24	0.807
Washburn	-10.80	7.31	-1.48	0.144
Washington	14.16	12.70	1.12	0.269
Waukesha	1.18	7.93	0.15	0.882
Waupaca	-8.08	7.26	-1.11	0.27
Waushara	-3.47	7.30	-0.48	0.636
Winnebago	30.00	17.09	1.76	0.084
Wood	-7.60	8.96	-0.85	0.399
Constant	-0.92	7.52	-0.12	0.903

N	5282.00
R-squared	0.9903
Root MSE	15.823

Democratic vote totals

Independent Variable: Assembly Democratic Votes

Dependent Variable	Coefficient	Robust Std. Error	t-statistic	P-value
Total Voting Eligible Population	-0.01	0.01	-0.65	0.52
Black Voting Eligible Population	-0.02	0.04	-0.49	0.63
Hispanic Voting Eligible Population	**-0.15**	**0.05**	**-3.01**	**0.00**
Democratic Presidential Votes	**0.93**	**0.03**	**33.33**	**0.00**
Republican Presidential Votes	0.01	0.01	0.98	0.33
Democratic Assembly Incumbent	**0.03**	**0.01**	**3.85**	**0.00**
Republican Assembly Incumbent	**-0.01**	**0.01**	**-2.77**	**0.01**
Adams	**-14.45**	**6.73**	**-2.15**	**0.04**
Ashland	-4.78	5.58	-0.86	0.40
Barron	**14.57**	**4.04**	**3.60**	**0.00**
Bayfield	-2.82	5.58	-0.50	0.62
Brown	**-21.57**	**7.80**	**-2.77**	**0.01**
Buffalo	5.10	4.86	1.05	0.30
Burnett	-3.84	4.69	-0.82	0.42
Calumet	**-26.32**	**5.81**	**-4.53**	**0.00**
Chippewa	0.98	9.53	0.10	0.92
Clark	-6.83	4.80	-1.42	0.16
Columbia	**-19.51**	**8.15**	**-2.39**	**0.02**
Crawford	**-32.57**	**4.33**	**-7.51**	**0.00**
Dane	-9.39	7.20	-1.31	0.20
Dodge	-8.49	5.27	-1.61	0.11
Door	**-11.92**	**4.51**	**-2.64**	**0.01**
Douglas	-7.18	5.40	-1.33	0.19
EauClaire	1.05	7.22	0.14	0.89
Florence	**-13.53**	**5.33**	**-2.54**	**0.01**
FondduLac	**-25.18**	**4.92**	**-5.12**	**0.00**
Forest	-10.83	6.06	-1.79	0.08

Grant	**-23.14**	**4.26**	**-5.43**	**0.00**
Green	**-15.68**	**6.63**	**-2.36**	**0.02**
GreenLake	**-17.01**	**4.65**	**-3.66**	**0.00**
Iowa	**-19.48**	**4.91**	**-3.96**	**0.00**
Iron	**-30.91**	**5.54**	**-5.58**	**0.00**
Jackson	-12.37	6.44	-1.92	0.06
Jefferson	**-17.18**	**7.09**	**-2.42**	**0.02**
Juneau	-5.78	4.55	-1.27	0.21
Kenosha	1.78	5.33	0.33	0.74
Kewaunee	**17.69**	**4.41**	**4.01**	**0.00**
LaCrosse	**25.17**	**6.69**	**3.76**	**0.00**
Lafayette	**-22.66**	**4.58**	**-4.95**	**0.00**
Langlade	**-22.20**	**6.05**	**-3.67**	**0.00**
Lincoln	**-13.42**	**5.15**	**-2.61**	**0.01**
Manitowoc	**-15.90**	**5.49**	**-2.90**	**0.01**
Marathon	-5.64	6.20	-0.91	0.37
Marinette	**-26.28**	**4.22**	**-6.23**	**0.00**
Marquette	**-15.87**	**4.48**	**-3.54**	**0.00**
Menominee	**-61.44**	**4.41**	**-13.95**	**0.00**
Milwaukee	**-29.20**	**6.47**	**-4.51**	**0.00**
Monroe	**-26.83**	**5.44**	**-4.93**	**0.00**
Oconto	**-12.99**	**4.42**	**-2.94**	**0.00**
Oneida	**-35.94**	**5.19**	**-6.92**	**0.00**
Outagamie	**-14.60**	**6.94**	**-2.10**	**0.04**
Ozaukee	**-17.19**	**5.83**	**-2.95**	**0.00**
Pepin	6.62	4.52	1.46	0.15
Pierce	**12.49**	**4.00**	**3.12**	**0.00**
Polk	5.81	4.32	1.35	0.18
Portage	-0.04	5.13	-0.01	0.99
Price	**-14.62**	**5.64**	**-2.59**	**0.01**
Racine	4.42	5.29	0.83	0.41
Richland	**-26.22**	**5.30**	**-4.95**	**0.00**
Rock	-4.48	8.87	-0.50	0.62
Rusk	-8.01	4.90	-1.64	0.11
SaintCroix	-6.89	6.67	-1.03	0.31
Sauk	**-19.42**	**6.51**	**-2.98**	**0.00**
Sawyer	-6.06	4.64	-1.30	0.20
Shawano	**-14.93**	**4.58**	**-3.26**	**0.00**
Sheboygan	15.96	17.17	0.93	0.36
Taylor	-6.81	4.56	-1.49	0.14
Trempealeau	-3.89	4.29	-0.91	0.37
Vernon	**-32.42**	**4.52**	**-7.18**	**0.00**
Vilas	**-27.14**	**5.48**	**-4.95**	**0.00**

Walworth	0.34	5.26	0.07	0.95
Washburn	6.43	4.74	1.36	0.18
Washington	**-19.23**	**9.75**	**-1.97**	**0.05**
Waukesha	**-17.63**	**5.55**	**-3.18**	**0.00**
Waupaca	**-10.48**	**4.37**	**-2.40**	**0.02**
Waushara	0.21	4.64	0.04	0.97
Winnebago	**-32.12**	**15.94**	**-2.02**	**0.05**
Wood	8.14	6.01	1.35	0.18
Constant	9.80	5.39	1.82	0.07

N	5282.00
R-squared	0.9843
Root MSE	17.675

III. Plan characteristics

A. Population deviation

Assembly District	Population	Deviation from Ideal	% Deviation
1	57,487	43	0.07%
2	57,590	146	0.25%
3	57,686	242	0.42%
4	57,406	-38	-0.07%
5	57,633	189	0.33%
6	57,480	36	0.06%
7	57,208	-236	-0.41%
8	57,196	-248	-0.43%
9	57,420	-24	-0.04%
10	57,195	-249	-0.43%
11	57,455	11	0.02%
12	57,420	-24	-0.04%
13	57,248	-196	-0.34%
14	57,333	-111	-0.19%
15	57,514	70	0.12%
16	57,282	-162	-0.28%
17	57,437	-7	-0.01%
18	57,241	-203	-0.35%
19	57,313	-131	-0.23%
20	57,410	-34	-0.06%
21	57,434	-10	-0.02%
22	57,526	82	0.14%
23	57,476	32	0.06%
24	57,369	-75	-0.13%
25	57,480	36	0.06%
26	57,552	108	0.19%
27	57,191	-253	-0.44%
28	57,515	71	0.12%
29	57,300	-144	-0.25%
30	57,407	-37	-0.06%
31	57,429	-15	-0.03%
32	57,349	-95	-0.17%
33	57,391	-53	-0.09%
34	57,651	207	0.36%
35	57,528	84	0.15%
36	57,377	-67	-0.12%

37	57,671	227	0.40%
38	57,572	128	0.22%
39	57,457	13	0.02%
40	57,495	51	0.09%
41	57,671	227	0.40%
42	57,559	115	0.20%
43	57,444	0	0.00%
44	57,434	-10	-0.02%
45	57,242	-202	-0.35%
46	57,463	19	0.03%
47	57,494	50	0.09%
48	57,568	124	0.22%
49	57,389	-55	-0.10%
50	57,465	21	0.04%
51	57,247	-197	-0.34%
52	57,384	-60	-0.10%
53	57,444	0	0.00%
54	57,443	-1	0.00%
55	57,446	2	0.00%
56	57,342	-102	-0.18%
57	57,404	-40	-0.07%
58	57,436	-8	-0.01%
59	57,554	110	0.19%
60	57,547	103	0.18%
61	57,605	161	0.28%
62	57,632	188	0.33%
63	57,299	-145	-0.25%
64	57,266	-178	-0.31%
65	57,601	157	0.27%
66	57,459	15	0.03%
67	57,378	-66	-0.11%
68	57,254	-190	-0.33%
69	57,424	-20	-0.03%
70	57,415	-29	-0.05%
71	57,228	-216	-0.38%
72	57,654	210	0.37%
73	57,491	47	0.08%
74	57,320	-124	-0.22%
75	57,255	-189	-0.33%
76	57,586	142	0.25%
77	57,398	-46	-0.08%
78	57,579	135	0.24%
79	57,341	-103	-0.18%

80	57,385	-59	-0.10%
81	57,266	-178	-0.31%
82	57,641	197	0.34%
83	57,612	168	0.29%
84	57,375	-69	-0.12%
85	57,529	85	0.15%
86	57,477	33	0.06%
87	57,661	217	0.38%
88	57,533	89	0.15%
89	57,490	46	0.08%
90	57,617	173	0.30%
91	57,374	-70	-0.12%
92	57,421	-23	-0.04%
93	57,280	-164	-0.29%
94	57,509	65	0.11%
95	57,496	52	0.09%
96	57,406	-38	-0.07%
97	57,487	43	0.07%
98	57,485	41	0.07%
99	57,657	213	0.37%

B. Compactness (Reock or smallest circle measure)

Assembly District	Smallest Circle Measure
1	0.44
2	0.46
3	0.42
4	0.55
5	0.39
6	0.35
7	0.52
8	0.66
9	0.39
10	0.45
11	0.39
12	0.36
13	0.28
14	0.44
15	0.49
16	0.52
17	0.52

18	0.30
19	0.30
20	0.44
21	0.40
22	0.34
23	0.42
24	0.42
25	0.57
26	0.49
27	0.53
28	0.31
29	0.49
30	0.50
31	0.60
32	0.45
33	0.30
34	0.42
35	0.49
36	0.43
37	0.34
38	0.24
39	0.30
40	0.51
41	0.39
42	0.33
43	0.29
44	0.43
45	0.37
46	0.35
47	0.26
48	0.43
49	0.35
50	0.44
51	0.53
52	0.56
53	0.27
54	0.28
55	0.37
56	0.57
57	0.26
58	0.40
59	0.37
60	0.55

61	0.39
62	0.25
63	0.43
64	0.27
65	0.32
66	0.32
67	0.56
68	0.52
69	0.31
70	0.28
71	0.34
72	0.35
73	0.28
74	0.37
75	0.36
76	0.23
77	0.39
78	0.51
79	0.59
80	0.33
81	0.55
82	0.37
83	0.26
84	0.28
85	0.58
86	0.36
87	0.35
88	0.35
89	0.56
90	0.52
91	0.49
92	0.49
93	0.42
94	0.44
95	0.42
96	0.39
97	0.32
98	0.41
99	0.30

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Unintentional Gerrymandering: Political Geography and Electoral Bias in Legislatures

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ABSTRACT

While conventional wisdom holds that partisan bias in U.S. legislative elections results from intentional partisan and racial gerrymandering, we demonstrate that substantial bias can also emerge from patterns of human geography. We show that in many states, Democrats are inefficiently concentrated in large cities and smaller industrial agglomerations such that they can expect to win fewer than 50% of the seats when they win 50% of the votes. To measure this "unintentional

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gerrymandering,'' we use automated districting simulations based on precinct-level 2000 presidential election results in several states. Our results illustrate a strong relationship between the geographic concentration of Democratic voters and electoral bias favoring Republicans.

In majoritarian political systems like the United States, the extent to which electoral support for a party translates into legislative representation is driven by the geographic distribution of votes across districts. For instance, in a set of hotly contested U.S. states including Florida, Michigan, Ohio, Missouri, Indiana, and Pennsylvania, the Democrats have had far more statewide success in winning presidential, U.S. Senate, and gubernatorial races than in winning control of state legislatures. Party strategists and pundits as well as academics (King and Gelman, 1991; Hirsch, 2003; McDonald, 2009a) have noticed that this disconnect between statewide partisanship and representation is driven by a disadvantageous distribution of Democratic voters across legislative districts. A window into this phenomenon is provided by Florida's notorious tied presidential election of November 2000, in which votes for George W. Bush outnumbered votes for Al Gore in 68% of Florida's Congressional districts.

Why does this type of electoral bias emerge? One source of bias is intentional gerrymandering, whereby district maps are drawn to favor partisan or racial groups. Another source is unintentional gerrymandering, whereby one party's voters are more geographically clustered than those of the opposing party due to residential patterns and human geography.

Ever since Elbridge Gerry proposed his famous Massachusetts district, the U.S. literature on electoral bias has been dominated by the notion of intentional gerrymandering. The machinations of politically motivated cartographers take center stage in the theory literature (e.g., Gilligan and Matsusaka, 1999; Gul and Pesendorfer, 2010) as well as in empirical studies (e.g., Abramowitz, 1983; Cain, 1985; Cox and Katz, 2002; Herron and Wiseman, 2008; McCarty *et al.*, 2009). Likewise, studies of racial gerrymandering have used theoretical (e.g., Shotts, 2001, 2003) and empirical analyses (e.g., Brace *et al.*, 1988; Hill, 1995; Lublin, 1997; Cameron *et al.*, 1996; Griggs and Katz, 2005) to show that efforts at enhanced minority representation inexorably pack Democrats into relatively few districts.

A significant reform movement in the United States is predicated on the notion that observed electoral bias stems from intentional gerrymandering.

Districting reformers in many states have advanced various statutory and constitutional proposals to prohibit partisan gerrymandering and enforce more neutral, objective criteria and procedures in the redistricting process. In Florida, for example, in response to a striking pattern of pro-Republican electoral bias, a coalition of left-wing interest groups invested significant energy and resources into passing Amendments 5 and 6, which voters approved in November 2010. These ballot initiatives mandate that newly drawn congressional and state legislative districts be compact and contiguous in shape, and the initiatives prohibit redistricting plans drawn with the intent to favor either political party.

Such reforms are based on the assumption that human geography plays no significant role in generating electoral bias. Reformers are betting that the inefficient distribution of Democrats across districts in a number of states would disappear if the process of districting could only be sufficiently insulated from Republican cartographers and minority interest groups.

This article examines the possibility that human geography plays a far greater role in generating electoral bias in the United States than commonly thought. Building on existing literature, we explore the argument that Democrats are often more clustered in space than Republicans as a result of the industrial revolution, great migration, and subsequent patterns of suburbanization (Fenton, 1966; Dixon, 1968; Erikson, 1972, 2002; Jacobson, 2003; McDonald, 2009a, 2009b). This argument dovetails with the emphasis on similar aspects of human geography in the comparative literature (e.g., Johnston, 1976; Taylor and Gudgin, 1976; Gudgin and Taylor, 1979; Johnston and Hughes, 2008; Rodden, 2010).

We show that in many urbanized states, Democrats are highly clustered in dense central city areas, while Republicans are scattered more evenly through the suburban, exurban, and rural periphery. We illuminate this pattern with an in-depth case study of Florida and demonstrate that it holds up in many other states. Precincts in which Democrats typically form majorities tend to be more homogeneous and extreme than Republican-leaning precincts. When these Democratic precincts are combined with neighboring precincts to form legislative districts, the nearest neighbors of extremely Democratic precincts are more likely to be similarly extreme than is true for Republican precincts. As a result, when districting plans are completed, Democrats tend to be inefficiently packed in homogeneous districts.

This observation raises some vexing empirical questions: To what extent is observed pro-Republican electoral bias a function of human geography rather than intentional gerrymandering? To what extent might pro-Republican bias persist in the absence of partisan and racial gerrymandering?

The main contribution of this paper is to answer these questions by generating a large number of hypothetical alternative districting plans that are blind as to party and race, relying only on criteria of geographic contiguity and compactness. We achieve this through a series of automated districting simulations. The simulation results provide a useful benchmark against which to contrast observed districting plans. We show that in general, pro-Republican partisan bias is quite persistent in the absence of intentional gerrymandering. Moreover, consistent with our argument about human geography, we demonstrate that the highest levels of electoral bias against Democrats occur in states where Democratic voters are most concentrated in urban areas.

1 Political Geography and the Roots of Electoral Bias in the United States

Electoral maps from recent U.S. presidential elections illustrate clearly that in much of the United States, support for Democrats is highly clustered in densely populated city centers, declines gradually as one traverses the suburbs and exurbs, and levels off in moderately Republican rural areas. Additionally, in the rural periphery, there are scattered pockets of strong support for Democrats in smaller agglomerations associated with nineteenth century industrial activity along railroad lines, canals, lakes, and rivers, as well as in college towns.

To illustrate the relationship between population density and voting behavior, we match precinct-level results from the 2000 presidential election to precinct boundary files produced by the U.S. Census. We are able to obtain such 2000 precinct-level data for 20 states. We then generate block group estimates of election results, which we plot against population density data from the census in Figure 1. The relationship between population density and Democratic voting is generally widespread, but there is some cross-state heterogeneity. This relationship is most pronounced in the most industrialized and urbanized states, but it is less pronounced or absent in less industrialized Southern states with large rural African American populations and in relatively sparse Western states.

It is important to note that the densely populated urban block groups in the lower-right corners of the scatter plots in Figure 1 are not randomly

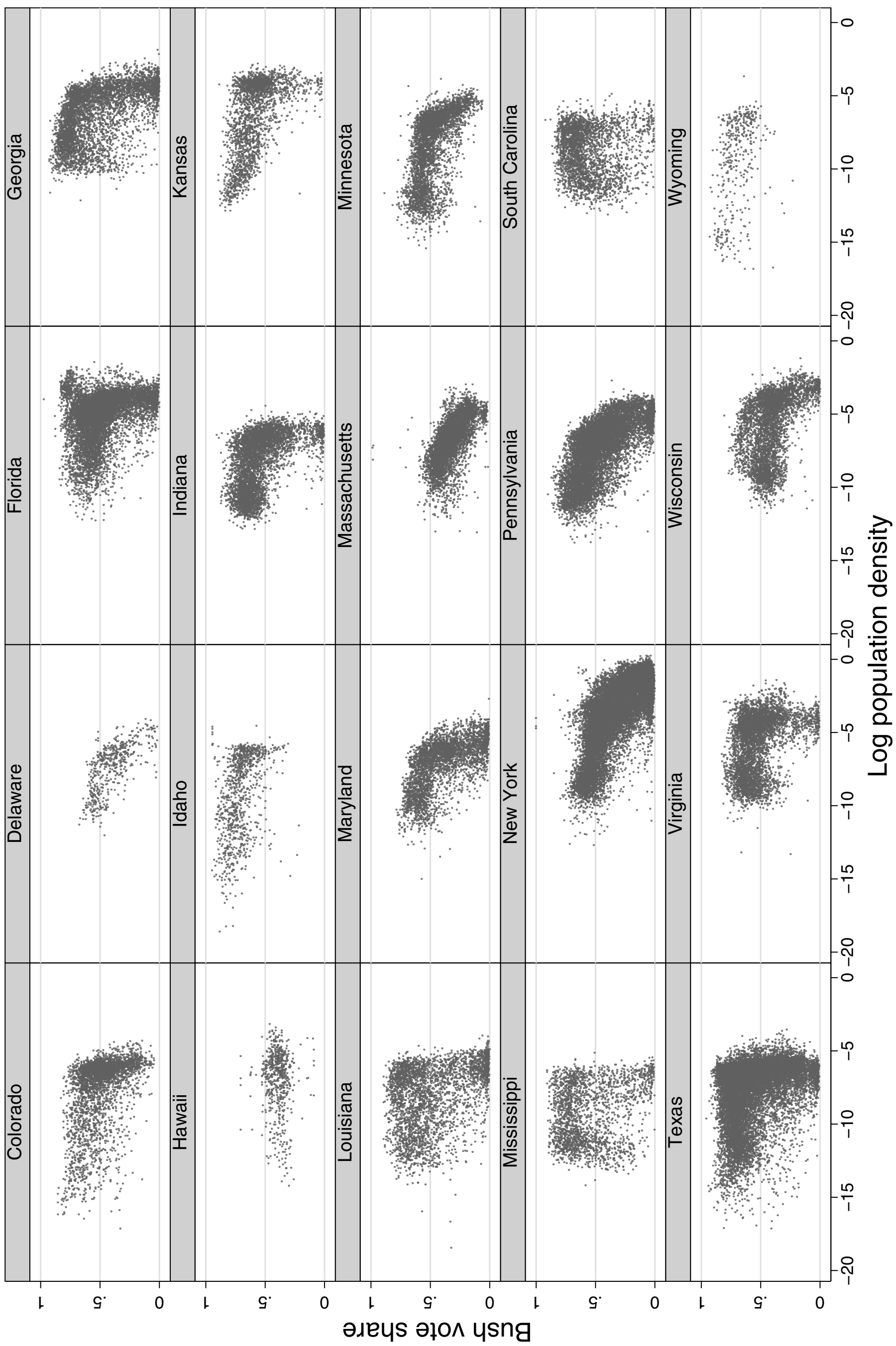

Figure 1. Population density and Republican Presidential Vote Share, census block groups.

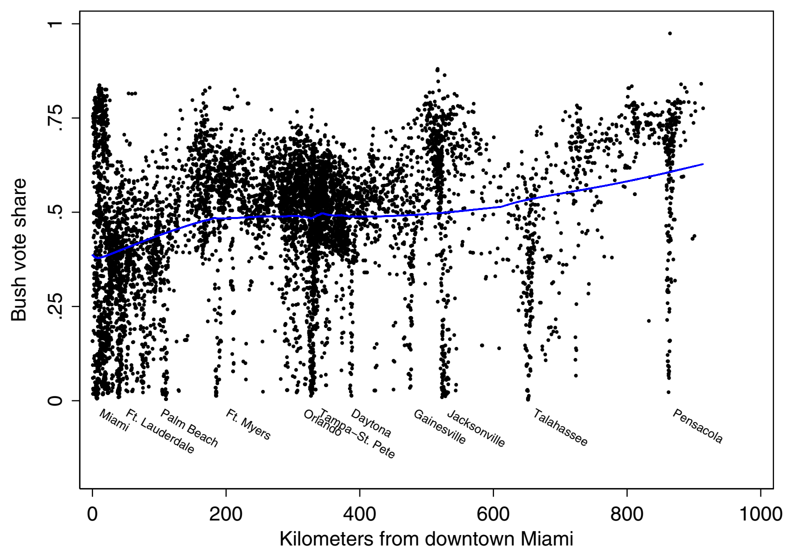

Figure 2. The spatial arrangement of partisanship in Florida.

distributed in space; many of them are in close proximity to one another. For example, support for Democrats in Florida is highly concentrated in downtown Miami and the other coastal cities to its immediate North, as well as downtown Orlando, Tampa, St. Petersburg, Daytona, Gainesville, Jacksonville, Tallahassee, and Pensacola, as well as a few other smaller railroad and college towns. The suburbs of these cities, along with rural Florida, are generally Republican, but only moderately so.

Figure 2 displays the distance in kilometers between the center of Miami's central business district and the location of every census block group in Florida. Figure 2 displays this distance on the horizontal axis, and the vertical axis displays the block group's Bush vote share. Block groups toward the right of this plot are further away from Miami, and the extreme right side of the plot depicts block groups in the Florida panhandle. The lower left corner of the plot displays the large number of overwhelmingly Democratic precincts in downtown Miami, Ft. Lauderdale, and Palm Beach. Above these urban cores in the graph are more heterogeneous suburban neighborhoods where the Bush vote share, on average, only slightly exceeds 50%.

The tips of each of the other ''stalactites'' in Figure 2 are city centers where Al Gore's vote share in November 2000 often exceeded 90%. In each case, as one moves outward from the city center, the Bush vote increases, and each city is surrounded first by a very mixed area, second by a suburban periphery that produced solid but not overwhelming support for Bush, and then finally by a rather heterogeneous but moderately Republican periphery. Analogous plots are quite similar in all of the other states that are characterized by high correlations between population density and voting in Figure 1.

These depictions illustrate two important patterns with consequences for districting. First, Democrats are far more clustered within homogeneous precincts than are Republicans. For example, while Bush received over 80% of the vote in only 80 precincts, Gore received over 80% in almost 800 precincts. Second, the stalactite shape of cities and their surroundings in Figure 2 illustrate that Democratic precincts tend to be closer to one another in space than Republican precincts. That is, the nearest neighbors of predominantly Democratic precincts are more likely to be predominantly Democratic than is the case for Republican precincts.

Some simple spatial statistics allow us to demonstrate this. First, we can identify the nearest neighbor of every precinct, defined as the precinct with the most proximate centroid, and ask whether that neighbor has the same partisan disposition. For any reasonable cut-off used to differentiate ‘‘Democratic’’ and ‘‘Republican’’ precincts (e.g., lower than 40th vs. higher than 60th percentile values of Bush share, 30th vs. 70th, etc.), we find that indeed, the nearest neighbors of Democratic precincts are significantly more likely to be Democratic than is the case for Republicans, whose neighbors are more heterogeneous.

Alternatively, rather than forcing precinct partisanship to be binary, it is useful to examine the extent to which each precinct's election results are correlated with those of its neighbors, and ask whether the extent of this spatial autocorrelation is higher in Democratic than in Republican districts. Anselin's (1995) local Moran's I is well suited to this task. For each precinct i, the local Moran's I is given by:

$$I_i = \frac{Z_i}{m_2} \sum_j W_{ij} Z_j$$

where

$$m_2 = \frac{\sum_i Z_i^2}{N}$$

and Z_i is the deviation of Bush share with respect to the mean across all precincts, N is the number of precincts, and W_{ij} is a matrix of weights with ones in position i, j whenever precinct i is a neighbor of precinct j,

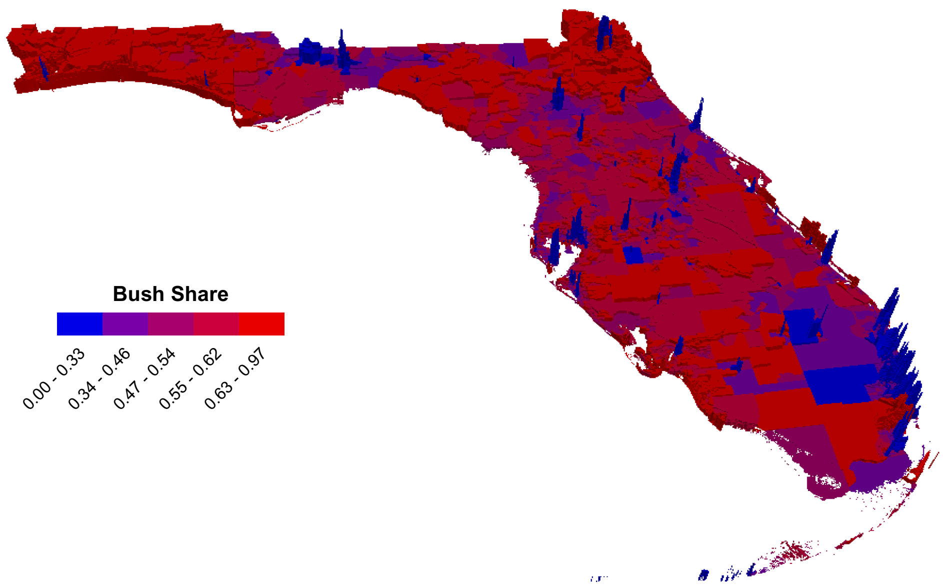

Figure 3. 2000 Bush vote share. Colors correspond to Bush vote share, heights correspond to local Moran's I.

and zero otherwise. We define neighbors as precincts that share any part of any boundaries or vertices (Queen Contiguity), although we get very similar results when using Rook contiguity or distance-based spatial weights.

Overall, I_i is much higher for majority-Democratic precincts than for Republican precincts, indicating that Democratic precincts are far more spatially clustered. Figure 3 displays I_i for each precinct using an extruded map, in which the height of each extrusion corresponds to the extent of spatial autocorrelation, and the color moves from blue to red as the precinct's Bush vote share increases. Figure 3 illustrates clearly that the most Democratic precincts in Florida's city centers are also those with the highest levels of local spatial autocorrelation; that is, they are surrounded by other very Democratic precincts. While there are some Republican-leaning areas of high spatial autocorrelation in little Havana, suburban Jacksonville, and the Panhandle, Republican precincts overall tend to be located in more heterogeneous neighborhoods.

The process of building electoral districts involves someone — incumbent politicians, judges, or districting boards — stringing together contiguous census blocks. Drawing on the rhetoric of reform advocates, let us consider a districting process in which these census blocks are assembled without political or racial manipulation. To illustrate, consider a process of randomly selecting one of the dots in Figure 2 and randomly connecting it with surrounding dots until enough dots have been selected to form a state legislative district or Congressional district.

This process is likely to undermine the representation of Democrats for three reasons. First, suppose that the initial seed is a precinct in one of the stalactites representing Florida's large cities, such as Miami, Jacksonville, or Tampa. Such a city is sufficiently large that this process will likely combine extremely Democratic districts with other extremely Democratic districts, thereby forming a district that is overwhelmingly Democratic.

Second, outside of little Havana, it is difficult to find a Florida precinct that, when randomly chosen as the initial seed, would produce an analogously extreme Republican district. In addition to being more internally heterogeneous, Republican precincts tend to be located in heterogeneous suburban and rural areas of the state where their nearest neighbors are more diverse. For instance, suppose the initially chosen precinct is rural and extremely pro-Republican. If one strings together neighboring precincts until reaching the population threshold for a district, this will usually require the inclusion of some rather heterogeneous precincts, often including pockets of Democrats in small cities or towns and on the fringes of larger cities.

A third reason concerns the locations of small Democratic-leaning towns throughout Florida. Although dense, pro-Democratic cities are often combined together to form Democratic districts along the Eastern Coast, there are also small, isolated, inland pockets of Democratic voters in the manufacturing and transportation agglomerations that sprung up along railroad tracks in the nineteenth century, such as Ocala or Pensacola, and the college towns of Tallahassee and Gainesville. When the size of districts is large relative to these small clusters of Democrats, these towns are often subsumed into predominantly rural, moderately Republican districts, thus wasting Democratic votes in districts that are won by Republicans.

The roots of unintentional gerrymandering in Florida can be summarized as follows. The complex process of migration, sorting, and residential segregation that generated a spatial distribution of partisanship has left the Democrats with a more geographically concentrated support base than Republicans. When compact, contiguous districts are imposed onto this geography without regard for partisanship, the result will be a skew in the distribution of partisanship across districts such that with 50% of the votes, Democrats can expect fewer than 50% of the seats.

2 Automated Districting and Electoral Bias

Studies of electoral bias typically flow from the normative premise that in a two-party system, a party with 50% of the votes should receive 50% of the seats. Empirical studies use either aggregate data over several elections or transformations of district-level data from individual elections to examine the seat share that would be obtained by the parties under a hypothetical scenario of a tied election. Our goal is different. Rather than examining the bias associated with existing districting plans, many of which were undoubtedly influenced by efforts at partisan and racial gerrymandering, we seek to estimate the electoral bias that would emerge under hypothetical districting plans that are not intentionally gerrymandered.

Rather than using information from existing districts to simulate hypothetical tied elections, we use information from precinct-level election results, and we perform a large number of automated, computer-based simulations of legislative districting plans. Our computer simulations construct these districting plans in a random, partisan-blind manner, using only the traditional districting criteria of equal apportionment and geographic contiguity and compactness of single-member legislative districts. For each of these simulated districting plans, we calculate the Bush–Gore vote share of each simulated single-member district, and we use this vote share to determine whether the district would have returned a Democratic or Republican majority. We begin with Florida's 2000 presidential race because of its unique quality as a tied election.

Since the early 1960s, scholars have suggested automated districting as a solution to the problem of partisan gerrymandering (e.g., Vickrey, 1961; Weaver and Hess, 1963; Nagel, 1965). More recently, scholars have used hypothetical districting experiments to examine partisan polarization (McCarty *et al.*, 2009), partisan representation (Altman, 1998), and the impact of various districting criteria (McDonald, 2009b). These previous studies have often used automated redistricting in order to obtain a baseline against which to detect the intentions of those drawing the lines. Cirincione *et al.* (2003) use a simulated districting algorithm to detect racial gerrymandering in South Carolina's congressional districting plan, while Altman and McDonald (2004) propose an enhanced method of this algorithm for detecting partisan gerrymandering. Johnston and Hughes (2008) apply an automated districting algorithm in Brisbane, Australia in order to gain a baseline against which to compare the boundaries chosen by neutral commissioners. Extending this past work, we use simulations to examine the electoral consequences of a hypothetical districting process without any intentional partisan or racial gerrymandering.

As of the November 2000 election, Florida consisted of 6,045 voting precincts. These precincts are the smallest geographic unit at which election results are publicly announced, so we use the precinct as the building block for our simulations. Hence, a complete districting plan consists of assigning each one of Florida's precincts to a single legislative district. Florida voters cast 5.96 million Presidential election ballots in 2000, so the average precinct cast a total of 986 presidential votes.

Our goal is to design a districting algorithm that uses only traditional geographic criteria of the kind favored by reform advocates. Our challenge is to guarantee equal apportionment of population while requiring geographic contiguity for all simulated districts, paying no attention to either voter partisanship or any demographic information other than simple population counts. Another concern is geographic compactness. Many districting reform proposals include explicit (if vague) compactness requirements, and reformers sometimes equate compactness with fairness. Moreover, an algorithm that makes no attempt to achieve compactness might create districts that seem too far removed from the real world. On the other hand, if we build some strict compactness criteria into the algorithm, we run the risk that any pro-Republican bias observed in the simulated plans could be driven exclusively by compactness criteria that, for instance, force the most extreme Democratic precincts in Miami to be joined together.

Our approach is to experiment with alternative algorithms that approach compactness in different ways or ignore it altogether. Due to space constraints, we focus here on two algorithms: one that aims for compactness and one that does not.

Our procedure for simulating compact districts is as follows. Suppose that we begin with n precincts and wish to create d districts with equal population.

(1) To begin the simulation procedure, each of the n precincts represents a single district. Hence, there are n districts, each containing only one precinct at the outset.

(2a) Randomly select one of the n districts and denote it as district i.

(2b) Among the neighboring districts that border district i, select the one that is geographically closest, and denote it as district j. Geographic proximity is measured as the distance between district i's centroid and the respective centroids of i's neighboring districts.

(2c) Merge district i together with district j in order to form a single, new district. There are now $n - 1$ total districts remaining.

Steps 2a through 2c are repeated until the total number of districts is exactly d. At this point in the procedure, these d districts are geographically contiguous and reasonably compact, due to the nearest distance criterion employed in step 2b. However, the districts are not guaranteed to be equally populated. Hence, repeated iterations of steps 3a through 3c are designed to achieve an equitable distribution of population across the simulated districts. These steps iteratively reassign precincts to different districts until equally populated districts are achieved.

(3a) Among all pairs of districts that border one another, identify the pair with the greatest disparity in district population. Within this pair, let us denote the more populated district as i and the less populated district as j.

(3b) Identify the set of all precincts currently within district i that could be reassigned to district j without violating the geographic contiguity of either district i or j.

(3c) For each precinct p satisfying the criterion in step 3b, define D_p as precinct p's geographic distance to the centroid of district i, minus precinct p's distance to the centroid of district j.

(3d) Among the set of precincts satisfying the criteria in step 3b, select the precinct, p, with the highest value of D_p. Reassign this precinct from district i to district j.

Steps 3a through 3d are repeated until every district's population is within 5% of the ideal district population. The ideal district population is defined as the statewide population, divided by d, the total number of districts. Hence, these steps iteratively reassign precincts in order to achieve equal population across the districts. However, steps 3c and 3d perform such precinct reassignment in a manner that preserves the geographic compactness of the districts. Compactness is preserved because step 3d generally reassigns a precinct that was geographically distant from its old district's centroid and geographically close to the centroid of its new district.

In order to simulate non-compact districts, steps 1 and 2a are performed in the same manner as in the compact districting algorithm. The procedure for non-compact districts then proceeds as follows:

(2b) Select one of district i's bordering districts at random and denote it as district j.
(2c) Merge district i together with district j in order to form a single, new district. There are now $n - 1$ total districts remaining.

Steps 2a through 2c are repeated until the total number of groups is exactly d. At this point in the procedure, these d districts are geographically contiguous but not guaranteed to be equally populated. Hence, repeated iterations of steps 3a through 3c are designed to achieve an equitable distribution of population across the simulated districts.

(3a) Identify the most populated district and denote it as district i.
(3b) Randomly select one of the precincts lying within district i and denote it as precinct p.
(3c) If precinct p can be reassigned from district i to a new district without violating the geographic contiguity of either this new district or district i, then reassign p to this new district. If two or more new districts satisfy this criterion, then reassign precinct p to one of these new districts at random.

Steps 3a through 3c are repeated until every district's population is within 5% of the ideal district population. The ideal district population is defined as the statewide population, divided by d, the total number of districts.

In order to help illustrate the output of these simulations, the Appendix displays sample maps of both compact and non-compact plans for Florida's 25 Congressional districts, as well as maps that zoom in on Miami and Jacksonville.

3 Simulation Results

For each procedure, we perform 25 simulations of Florida districting plans for each of a range of reasonable legislature sizes, ranging from 2 to 200 districts. For each simulation, we can simply aggregate the precinct-level Bush–Gore vote counts within each district and count up the number of districts in

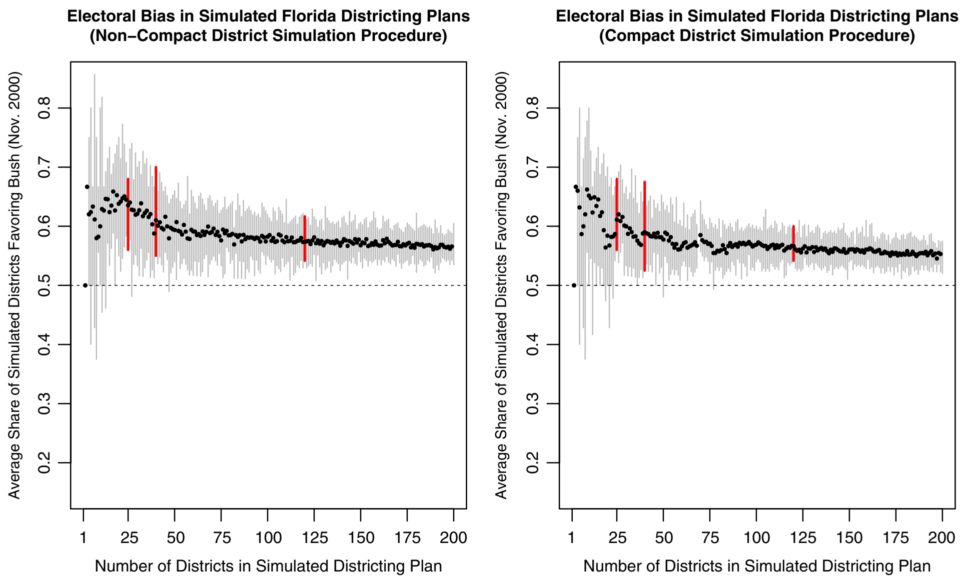

Figure 4. Republican electoral bias in simulated Florida districting plans.
Note: Black dots indicate the average share of simulated districts that have pro-Bush majorities in the simulated plans. Gray bars depict the entire range of pro-Bush district shares that were observed across all simulations for each given legislature size. Red bars depict the range of simulated outcomes for legislatures of 25 districts (Florida's Congressional Delegation), 40 districts (the Florida State Senate), and 120 districts (the Florida State House).

which Bush received a majority. The expectation is that if there is no partisan bias, the average share of pro-Bush districts should be around 50%.

Our simulations reveal pro-Republican bias in the partisan distribution of seats in any realistically sized legislature; that is, significantly over one-half of the legislative seats have Republican majorities. Figure 4 summarizes the distribution of seat shares produced under our simulations. The left panel presents results using the non-compact procedure, and the right panel reports results for the compact procedure. In this figure, the horizontal axis represents the number of single-member districts in each simulated plan. The vertical axis reports the percentage of these districts that have Republican majorities. For each different hypothetical legislature size, the dot represents the average share of simulated districts with pro-Bush majorities across all simulated plans, and the gray bars depict the entire range observed across all simulations for each given legislature size. The red colored bars depict the entire range of simulated outcomes for legislatures of 25 districts (Florida's Congressional Delegation), 40 districts (the Florida State Senate), and 120 districts (the Florida State House).

The figure illustrates, for example, that when we conducted random simulations that divided Florida into 25 districts using the compact procedure, Republicans won an average of 61% of the seats. The most biased of the simulated plans gave the Republicans 68% of the seats, and the least biased plan gave them 56%. Overall, this plot illustrates the significant pro-Republican bias that results from a districting procedure that is based solely on geography and population equality. Moreover, this result is not driven by the compactness of the simulated districts. The results are just as striking when we use the non-compact simulation procedure.

We find that the real-life districting plans enacted by the Republican-controlled Florida legislature in 2002 are all within the range of districting plans produced by our simulation procedures. For example, in 2002, the state legislature enacted a Congressional districting plan in which Bush voters outnumbered Gore voters in 17 out of 25 districts, or 68%. This level of pro-Republican electoral bias falls just within the tail of the distribution of electoral biases produced across all of the randomly simulated, compact districting plans (56–68%), as illustrated in Figure 4. Hence, because the enacted districting plan falls within the range of plans produced by our compact districting procedure, we are simply unable to prove beyond a doubt that the enacted districting plan represents an intentional, partisan, Republican gerrymander.

Both panels of Figure 4 show that a legislature consisting of only two single-member districts will always have exactly one Democratic and one Republican seat, a result that follows naturally from Florida's 50–50 Bush–Gore vote share. But as the legislature grows in size, the partisan division of legislative seats quickly begins to favor the Republicans. When the simulated legislature has 25 seats — the size of Florida's Congressional delegation after the 2000 reapportionment — Republicans win an average of 61.2% of the districts when we use the compact procedure and 63.5% of the districts when we use the non-compact procedure.

As the size of the legislature increases further, some of the medium-density Democratic clusters in suburbs and small towns that had previously been subsumed in their surrounding Republican peripheries begin to win their own seats, and thus the Republican seat share slowly declines. However, a striking result is that the Republicans always continue to control over one-half of the total seats. For any districting plan of realistic size, the pro-Republican bias exhibited in our simulations is significant. With only a few exceptions, the entire range of simulations produces a hypothetical legislature with a solid Republican majority in spite of the tied election.

To provide a closer illustration of the distribution of districting plans produced by the simulations, we conduct 250 independent simulations in which Florida is divided into 25 congressional districts using the non-compact procedure. Figure A6 in the Online Appendix depicts the partisan breakdown of districts produced under these 250 simulations.

This figure illustrates that all of the 250 simulated plans result in pro-Republican electoral bias: In each plan, at least 14 of the 25 districts (56%), and as many as 19 of the 25 districts (76%), have a pro-Bush majority. Moreover, the figure reveals that the distribution of partisan bias across the simulations follows a normal distribution. Most of the simulations resulted in the production of 15, 16, or 17 pro-Bush districts. Drawing 14 or 18 pro-Bush districts was a rarer outcome, and only an exceedingly small number of simulations produced as many as 19 Bush-leaning districts. Hence, these simulations demonstrate that a range of partisan outcomes is achievable under the simulations, but most of the simulations result in a predictable partisan distribution of seats that indicates significant pro-Republican electoral bias.

4 A Closer Look at Political Geography

Next, we use the simulation results to take a closer look at political geography as an explanation for this persistent Republican advantage. In Figure 5, we present the results of 200 independent random simulations in which Florida is divided into 25 districts.

Each plotted point in Figure 5 represents one of Florida's 6,045 precincts, and we plot high, medium, and low density precincts separately, referring to them loosely as urban, suburban/town, and rural. For each plotted point, the horizontal axis measures the partisanship of the precinct, as measured by Bush–Gore vote share in November 2000. The vertical axis measures the average partisanship of the 200 simulated districts to which the precinct was assigned during our simulations.

The patterns of spatial autocorrelation reported above give rise to the generally positive correlation between the partisanship of a precinct and the

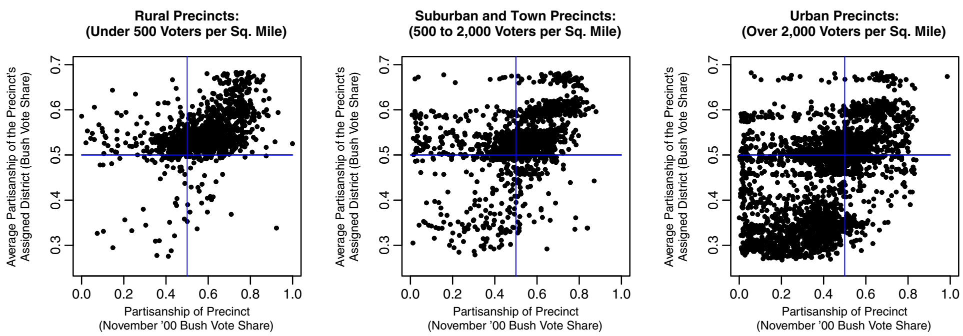

Figure 5. The partisanship of precincts' assigned districts.

Note: Each point represents a single Florida precinct. The horizontal axis indicates the precinct's partisanship, as measured by George Bush's November 2000 share of the two-party vote. The vertical axis measures the average partisanship (George Bush vote share) of the simulated district to which the precinct was assigned. This measure is based on 25 independent random simulations of dividing Florida into 40 Senate districts, using the non-compact simulation algorithm.

partisanship of the legislative district to which the precinct was assigned. In other words, pro-Bush precincts are typically assigned to pro-Bush districts. In particular, the left and middle plots reveal that outside of dense city centers, pro-Bush precincts were almost always assigned to majority-Bush districts. Hence, the lower-right quadrants of these plots — where pro-Republican precincts are assigned to majority-Democratic districts — are generally empty.

By contrast, majority-Gore precincts outside of dense urban neighborhoods are often in the upper-left quadrant of the plots. In other words, rural, small town, and suburban precincts that lean Democratic are often subsumed into moderately Republican districts. As described above, there are isolated pockets of support for Democrats in African-American enclaves in the suburbs of big cities and in smaller towns with a history of railroad industrialization or universities. However, these Democratic pockets are generally surrounded by Republican majorities, thus wasting these Democratic votes. As a result, the Democrats are poorly situated to win districts outside of the urban core.

Figure 5 illustrates that pro-Gore precincts in urban areas are generally assigned to overwhelmingly Democratic districts in our simulations. There is a large cluster of observations at the bottom of the lower-left quadrant of the bottom graph, indicating that Democratic precincts are assigned to extremely Democratic districts. By contrast, there are very few corresponding Republican precincts in the extreme upper right of any of the plots. Taken together, these plots show that because of their geographic support distribution, Democrats not only waste more votes in the districts they lose, but they also accumulate more surplus votes in the heavily Democratic districts they win. These two phenomena explain the rather extreme pro-Republican bias revealed by our simulations.

5 Does Geography Constrain Partisan Gerrymandering?

Taken together, the simulation results presented thus far suggest that residential geography alone generates significant partisan bias in Florida's districting plans. As Figure 4 illustrates, almost the entire range of simulated districting plans for every reasonable legislature size produces at least some pro-Republican bias. Among all of the randomly simulated plans consisting of 25 districts (U.S. Congressional delegation), 40 districts (Florida Senate), and 120 districts (Florida House), not a single simulated plan produces at least as many Gore-leaning districts as Bush-leaning districts. Hence, both the compact and the non-compact simulation procedures are unable to produce a single Congressional, Senate, or House districting plan for Florida that is either neutral or pro-Democratic in its distribution of seats. This finding reflects the significant pro-Republican bias in Florida that results from the geographic constraint that each district must be contiguous, even if non-compact district shapes are permitted. Our simulation results show that this contiguity requirement alone is sufficient to consistently produce pro-Republican districting outcomes in Florida.

Could a sufficiently creative Democratic gerrymander work around these geographic constraints and produce a neutral or pro-Democratic districting plan in Florida? In theory, it seems that a clever Democratic cartographer might generate radial districts emanating from the city centers so as to break up the major agglomerations and create snake-like districts to connect some of the smaller cities. Such a hypothetically contorted districting arrangement would possibly neutralize the inherent Republican advantages in geographic districting. Is such a hypothetically neutral or pro-Democratic gerrymander achievable in real-life practice?

First, the key finding of our simulation results is that for the Florida Congressional, Senate, or House districts, our two simulated districting procedures are unable to produce a single districting plan that is neutral or pro-Democratic in terms of electoral bias. Hence, a real-life Democratic gerrymanderer would have to draw districting maps with even more creativity than our simulated non-compact districting plans in order to achieve a hypothetically neutral outcome. Moreover, human geography makes the task of a Democratic cartographer far more difficult than that facing a Republican-favoring cartographer, whom we have shown can do strikingly well by literally choosing precincts at random.

Second, to determine whether an electorally neutral districting plan in Florida is achievable in real-life practice, we examine the districting plans proposed by Democrats in the state legislature. Even though Florida's state legislature was controlled by the Republican Party during the 2002 redistricting cycle, Democratic legislators are nevertheless permitted to propose their own districting plans, and many did so in 2002. We examine these Democrat-proposed districting plans in order to measure how the most Democrat-favorable districting proposals fared in terms of electoral bias.

Specifically, we obtained district-level statistics for every proposed districting plan submitted to the Florida Senate during the 2002 redistricting cycle. To see how these real-world districting proposals compare against our non-compact, simulated districting plans, Figure 6 displays the number of Bush-leaning districts in the Congressional (Figure 6A) and Florida Senate (Figures 6B) districting plans adopted by the Republican-dominated legislature in 2002. Additionally, Figure 6 also displays the number of Bush-leaning districts in each of the alternative districting proposals submitted during the redistricting process by various Republican legislators, by various Democratic legislators, and by the League of Women Voters (hereinafter: LWV) in the Florida legislature.[1]

Figure 6 displays the share of majority-Republican seats generated by each proposed plan and each computer-simulated plan, as well as a histogram displaying the distribution of Republican seat shares generated by 100 of our simulations. Figure 6A displays plans for the Florida delegation

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[1] The Florida Senate provides information on all plans submitted to the Senate Committee on Reapportionment by Senators or the public at archive.flsenate.gov, accessed on September 20, 2012.

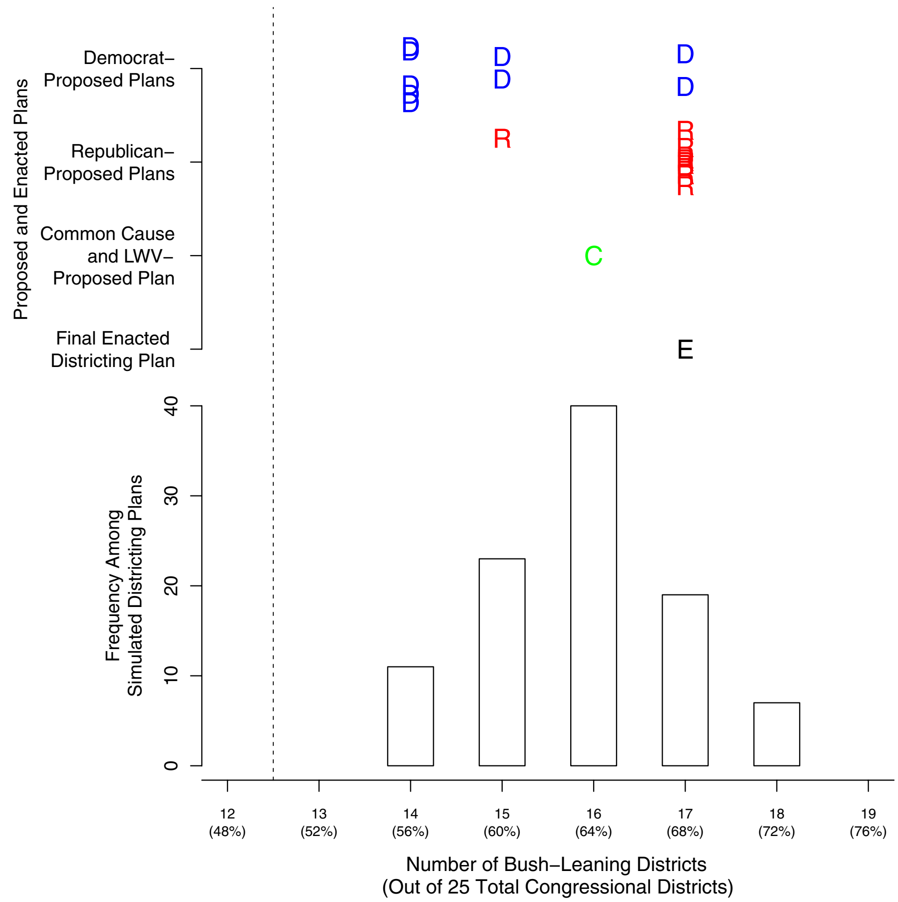


Figure 6A. Enacted, proposed, and simulated districting plans for Florida's 25 congressional districts.

Note: Proposed plans include all Congressional districting plans submitted for consideration to the Florida State Senate Committee on Reapportionment in 2002.

to the U.S. House, and Figure 6B displays plans for the Florida Senate. In terms of electoral bias, every one of the submitted plans falls well within the range of the simulated districting plans. Not surprisingly, the Republican plans tend to produce larger Republican majorities than Democratic or LWV plans, but remarkably, not a single unbiased or pro-Democratic plan was submitted by any of the Democratic legislators. Of course, we cannot conclude from Figure 6 that Democrats submit biased plans solely because

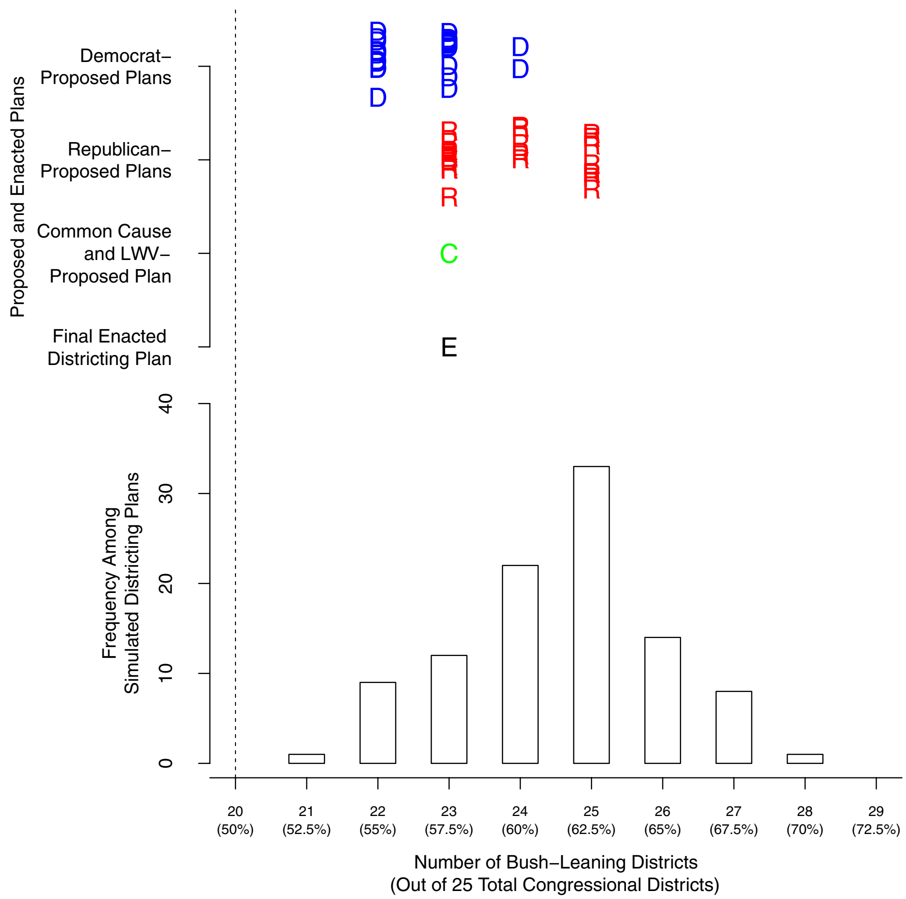


Figure 6B. Enacted, proposed, and simulated districting plans for Florida's Senate (40 districts).

Note: Proposed plans include all Senate districting plans submitted for consideration to the Florida State Senate Committee on Reapportionment in 2002.

of the constraints generated by human geography. However, at a minimum, Figure 6 suggests that the level of bias produced in the real world of strategic partisan cartographers, courts, and the Voting Rights Act is not radically different from that produced by human geography alone.

We acknowledge, however, that various political considerations may have influenced the drawing of the various Democrat-submitted plans. For example, important considerations for Democratic cartographers include minority representation and protection of incumbents, especially those incumbents submitting the districting proposals. An additional possibility is that Democratic mapmakers understood that a pro-Democratic redistricting plan would never secure passage in the Republican-controlled state legislature; hence, perhaps only plans with built-in Republican bias were even worth submitting.

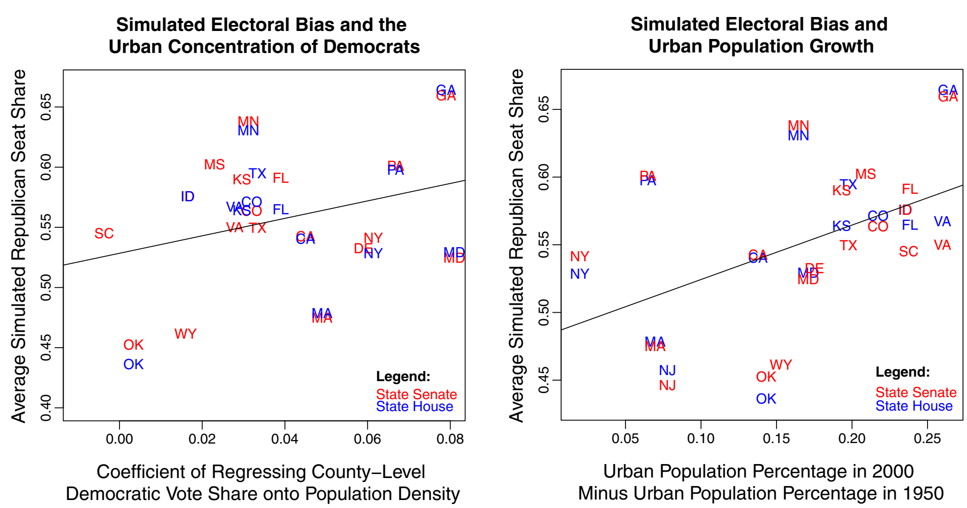
6 Simulation Results across U.S. States

The most striking result thus far is the rather consistent size of the pro-Republican bias in Florida; additionally, much of this bias would have occurred with a simple, random districting scheme that is blind to race or partisanship. This finding raises at least two broad questions. First, to what extent does an urban concentration of Democrats generate a similar political geography of electoral bias in other states? Second, building upon Figure 6, to what extent does the electoral bias that would be generated by our automated districting algorithm track electoral bias observed in actual districting plans?

In order to provide the necessary cross-state perspective, we have linked November 2000 precinct-level data reported by county governments with corresponding GIS boundary files provided by the U.S. Census Bureau. The reprecincting and the use of completely different precinct identifiers in the two data sets make this a difficult challenge. While improved coordination between the census department and state election officials will soon allow for a more complete data set for more recent elections, for the November 2000 elections we have been able to match 20 states. We have applied exactly the same automated districting algorithm introduced above and produced graphs like those in Figure 4.

The only difference is that because elections in other states were not tied, before performing the simulations we applied a uniform swing to the precinct-level results in order to examine the seat share in a ''hypothetical'' tied election. We then calculate the average bias estimates across all simulations corresponding to the number of districts in each state's lower chamber, its upper chamber, and its U.S. Congressional delegation. A useful feature of the 2000 presidential election is the fact that it was very close in a number of states, so that the uniform swing used to achieve a hypothetical tie is not a far stretch of the imagination. However, in consistently lopsided states like Massachusetts or Oklahoma, close statewide elections are less frequent.

Figure 1 revealed that the extent to which Democrats are spatially concentrated in urban areas varies considerably across states. We capture this heterogeneity in a simple way by using block group-level data and regressing, state by state, the Democratic vote share in the 2000 presidential election on logged population density, weighting by the block group's population. The coefficient from this regression is displayed on the horizontal axis of the first panel of Figure 7. The vertical axis displays the average estimated Republican vote share obtained from 50 simulations of the state's Congressional and state legislative districts. Observations above 0.5 indicate that on average, the districting algorithm produced districts that would turn tied elections into Republican legislative majorities.



(a) (b)

Figure 7. Simulated electoral bias in state legislatures and the urban concentration of democrats.

Note: The solid lines represent least-squares regression fits. The horizontal axis in the left plot is measured as the estimated coefficient of population density when county-level Gore (November 2000) vote share is regressed onto county-level population density within each state. The vertical axis represents the simulated electoral bias for state legislative chambers, measured as the percentage of simulated congressional districts with Republican majorities when the statewide Republican vote share is exactly 50%.

Figure 7 suggests that Florida is not an outlier. The correlation between population density and Democratic voting is even higher in several other states, and in most of them, the simulations consistently produced similar or even higher levels of pro-Republican bias than in Florida. Average bias in favor of Republicans is substantial — surpassing 5% of legislative seats — in around half the states for which simulations were possible. It appears that in some of the largest and most urbanized U.S. states, even without overt racial or partisan gerrymandering, the Democrats are at a disadvantage in translating votes to seats simply because their voters are inefficiently clustered in urban areas. According to the simulations, this problem is less severe for the Democrats in Western and Southern states, where their voters are more efficiently spread out in space. The second panel in Figure 7 provides a different perspective on urbanization and electoral bias by plotting the simulation results against the extent to which the state has urbanized since 1950, suggesting that the Democrats face the most inefficient geographic support distributions in states that have experienced the most urbanization.

Next, we compare the bias generated by our simulated plans to that created by the districting plans that were in place both before and after the 2002 redistricting cycle. To calculate the latter, we superimpose the actual legislative district boundaries on the November 2000 precinct-level presidential election results and aggregate Bush and Gore votes, then apply the uniform swing in order to examine the share of districts that would be won by Bush in a hypothetical tied state legislature election. In Figure 8, this quantity is plotted on the vertical axis, and the simulated Republican seat shares are plotted on the horizontal axis, with lower chambers displayed in red and the upper chambers in blue.

The positive correlation between the simulation estimates and those based on actual districts suggests the strong ability of our simulations to predict the direction and extent of electoral bias across states. In general, the states where the simulations produced large pro-Republican bias, like Texas and Pennsylvania, are the same states where the actual districting plans produced similar bias. As with the simulations, observed electoral bias in these states tends to favor Republicans, sometimes quite dramatically so.

Figure 8 plots include a 45-degree line, such that any observation above (below) the line indicates that the observed pro-Republican bias associated with the existing plan exceeds (falls short of) the bias found in our race- and partisan-blind simulations. Most of the districting plans are clustered fairly close to this 45-degree line, suggesting that in most states, observed

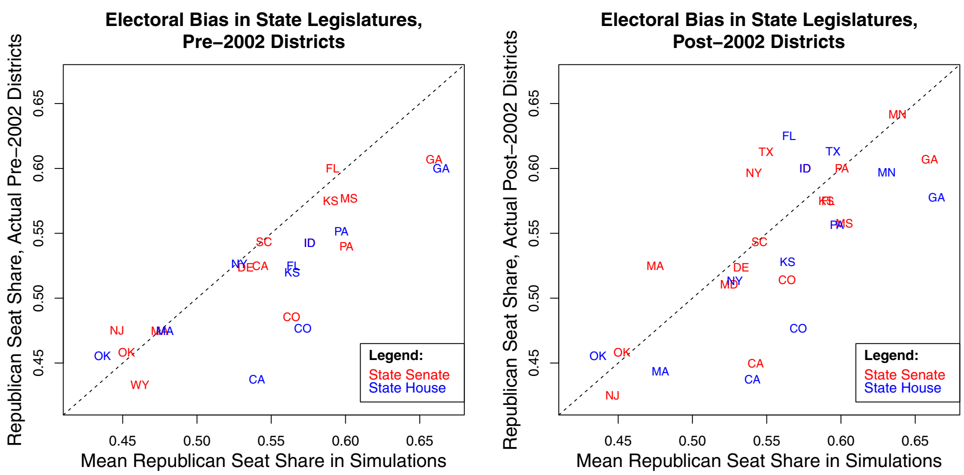


Figure 8. Electoral bias in simulated districting plans versus actual districting plans.

Note: In both plots, the horizontal axis plots estimates of the share of seats in the legislature that would have Republican majorities from districting simulations under the hypothetical scenario of a tied statewide 2000 presidential vote. Also using 2000 presidential results, the vertical axis plots the percent of seats that would be won by Republicans after applying the uniform swing to votes aggregated to the level of actual districting plans. Each measure is displayed separately for the upper and lower chambers of each state's legislature.

electoral bias would not necessarily disappear in the absence of intentional partisan and racial gerrymandering. Moreover, the 45-degree line provides a useful benchmark against which to compare observed districting plans. For instance, the plans drawn by Democrats in California and Georgia are friendlier to Democrats than the average of the simulated plans. Yet, in a state like Georgia, where the simulations reveal an especially bad geography for Democrats, even an aggressive pro-Democratic gerrymander was unable to completely erase the built-in pro-Republican bias. The simulations also identify cases, like the Florida House of Representatives and the Texas State Senate, where Republican cartographers appear to have done better for themselves than would be predicted from the simulations.

We must stop short of characterizing the deviation from the 45-degree line in Figure 8 as a measure of partisan gerrymandering because this deviation is also driven by a variety of factors including court interventions and efforts at racial representation. Nevertheless, automated districting simulations place observed plans into useful perspective. If one encounters a districting plan characterized by 7 or 8% pro-Republican bias in a state like Georgia or Pennsylvania, one cannot necessarily infer that partisan manipulation has taken place. Nor can one necessarily infer that efforts at minority representation are to blame, because party- and race-blind simulations produce even larger levels of bias.

On the other hand, in a state like New Jersey, Democrats are evenly dispersed throughout an urban corridor that lacks a sprawling and heterogeneous rural periphery, thus avoiding the phenomenon described in the Florida example above. As a result, the simulations predict modest pro-Democratic bias in New Jersey, and this is reflected in the actual adopted plans. If Republicans in New Jersey and neighboring Pennsylvania submitted plans that produced an identical 10% bias in their favor, claims of partisan manipulation should carry more weight in New Jersey.

7 Discussion

This article has demonstrated that in contemporary Florida and several other urbanized states, voters are arranged in geographic space in such a way that traditional districting principles of contiguity and compactness will generate substantial electoral bias in favor of the Republican Party. This result is driven by a partisan asymmetry in voters' residential patterns: Democrats live disproportionately in dense, homogeneous neighborhoods in large cities that aggregate into landslide Democratic districts, or they are clustered in minor agglomerations that are small relative to the surrounding Republican periphery. Republicans, on the other hand, live in more sparsely populated suburban and rural neighborhoods that aggregate into districts that are geographically larger, more politically heterogeneous, and moderately Republican. We have explained how these geographic patterns can explain a large part of the pro-Republican bias observed in recent legislative elections in Florida and several other states.

Together, our theoretical explanation and our simulation results contribute to the literature on legislative districting and electoral bias in three ways. First, we have built upon and extended the work of political geographers who have noticed that electoral bias emerges in two-party systems when one party's voters are more concentrated in space. For example, Gudgin and Taylor (1979) show that in a competitive two-party system, if the cross-district support distributions of the two parties are skewed, the party with too many of its supporters packed into the districts of the tail of the distribution will suffer in the transformation of votes to seats. Writing in the 1970s about Britain, they conjecture that due to the inevitability of densely packed support in coalfields and manufacturing districts, the Labour Party faced a right-skewed support distribution, causing it to suffer from a less efficient transformation of votes to seats than the Conservatives. Rydon (1957) and Johnston (1976) provide similar descriptive accounts of pro-Conservative electoral bias in Australia and New Zealand, respectively.

Erikson (1972, 2002), Jacobsen (2003), and McDonald (2009a, 2009b) have made similar observations about the relative concentration of Democrats in urban U.S. House districts in the post-war period. However, perhaps because the process of redistricting is typically more politicized in the United States than in Commonwealth countries, the U.S. literature tends to focus overwhelmingly on the partisan and racial motivations of those drawing the lines. This article has attempted to provide a window into the role of human geography in U.S. electoral bias through the use of automated simulations. It shows that pro-Republican bias can be quite pronounced even in the absence of intentional gerrymandering, and is greatest in states where Democratic voters are more geographically concentrated than Republican voters. A goal for future research is to complete simulations for all 50 states, and develop more sophisticated explanations for cross-state and time-series variation in the partisan bias owing to human geography.

Second, our findings show that voter geography confounds the traditionally hypothesized relationship between gerrymandering and the partisan control of legislatures. Past scholars have taken sharp positions in favor (e.g., Carson *et al.*, 2007) and against (Abromowitz *et al.*, 2006; Mann, 2007; McCarty *et al.*, 2009) the hypothesis that gerrymandering affects polarization in the House of Representatives, and scholars have also examined the impact of gerrymandering on the incumbency advantage (Friedman and Holden, 2009). Other studies have analyzed the effect of racial gerrymandering (e.g., Hill, 1995; Shotts, 2001, 2003) and respect for municipal boundaries (e.g., McDonald, 2009b) on electoral bias.

Our findings caution that the relationships between intentional gerrymandering and observed electoral bias are not necessarily identical across different states. Rather, the nexus between districting strategies and partisan control of legislatures is confounded by the electoral bias that emerges from underlying residential patterns in each state. Because geographic patterns of Democratic voter concentration vary widely across states, each state has a different baseline partisan seat distribution that would emerge under a districting process without overt gerrymandering. Hence, our work suggests the possibility that each state's unique voter geography may either open up or restrict opportunities for mapmakers wishing to implement politically motivated gerrymandering strategies. Simulation results like those presented in this article might provide a useful baseline for future empirical studies.

Third, our simulation results offer insight into the likely effect of various redistricting reforms, such as Amendments 5 and 6 in Florida, that attempt to mandate the seemingly objective districting criteria of compactness, contiguity, and respect for municipal boundaries. Our simulation method mimics the type of districting process mandated by such reforms. Our results suggest that in Florida, New York, Pennsylvania, and other urbanized states with substantial rural peripheries, such reforms are likely to lock in a powerful source of pro-Republican electoral bias that emanates from the distinct voter geography of these states. Hence, our simulations suggest that reducing the partisan bias observed in such states would require reformers to give up on what Dixon (1968) referred to as the ''myth of non-partisan cartography,'' focusing not on the *intentions* of mapmakers, but instead on an empirical standard that assesses whether a districting plan is likely to treat both parties equally (e.g., King *et al.*, 2006; Hirsch, 2009).

Although presidential and statewide elections have been quite close over the last decade, the Republicans have consistently controlled between 60 and 70% of the seats in Florida's state legislature and Congressional delegation. Beyond the electoral bias in the transformation of votes to seats that we illustrate in this paper, Ansolabehere *et al.* (2012) describe another, more subtle impact of the asymmetric distribution of partisans across districts. It is conceivable that because of the extent to which liberals are packed into urban districts, the Democratic platform, or at least its perception by Florida voters, is driven by its legislative incumbents — a small group of leftists from Miami–Dade and Broward counties who never face Republican challengers — which in turn makes it difficult for the party to compete in the crucial moderate districts. This hypothesis may help to explain why the Democrats consistently receive higher vote shares in presidential than in state races.

It is striking that political geography can turn a party like the Florida Democrats, with a persistent edge in statewide registration and presidential voting, into something approaching a permanent minority in legislative races. One might imagine that a future Supreme Court would entertain the notion that this situation reaches the rather high bar for justiciability of partisan gerrymandering laid out in *Davis v. Bandemer* (1986), where a gerrymander must be shown to have essentially locked a party out of power in a way that frustrates ''the will of the majority.'' The recent opinions of the pivotal justices, however, suggest that a claimant would need to demonstrate that an ''egregious'' gerrymander is intentional. Proving such intent in court will be difficult in states where equally egregious electoral bias can emerge purely from human geography.

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Affiliations	*Senate D / R / oth*	*Assembly D / R / oth*
1974	19 / 14	63 / 36
1976	23 / 10	66 / 33
1978	21 / 12	60 / 39
1980	20 / 13	59 / 40
1982	22 / 11	59 / 40
1984	19 / 14	52 / 47
1986	19 / 14	54 / 45
1988	20 / 13	56 / 43
1990	19 / 14	58 / 41
1992	18 / 15[2]	52 / 47
1994	16 / 17[3]	48 / 51
1996	17 / 16[4]	47 / 52
1998	17 / 16	44 / 55
2000	18 / 15	43 / 56
2002	15 / 18	41 / 58
2004	14 / 19	39 / 60
2006	18 / 15	47 / 52

NOTES

1. Redistricting of existing districts in multi-district counties only.
2. As a result of special elections the Republicans won control on April 20, 1993, 17–16.
3. As a result of a special election on June 16, 1996, the Democrats took control of the Senate, 17–16
4. As a result a special election on April 19, 1998, Republicans won control of the Senate, 17–16.

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