

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WISCONSIN

WILLIAM WHITFORD, et al.

Plaintiffs,

Case No. 3:15-CV-00421-jdp

v.

BEVERLY R. GILL, et al.,

Defendants.

THE WISCONSIN ASSEMBLY DEMOCRATIC
CAMPAIGN COMMITTEE,

Plaintiff,

Case No. 3:18-CV-00763-jdp

v.

BEVERLY R. GILL, et al.,

Defendants.

**REPLY TO PLAINTIFFS' BRIEFS IN OPPOSITION TO
WISCONSIN STATE ASSEMBLY'S MOTION TO INTERVENE
PURSUANT TO FRCP 24(A) AND (B)**

INTRODUCTION

The United States Supreme Court has held that a state legislative body is a proper mandatory intervenor in a lawsuit challenging the constitutionality of the body's district lines even when there is another state defendant. It did this first in *Silver*, where the Court summarily affirmed a district court decision granting the

California State Senate mandatory intervention in a reapportionment action.¹ And it did so by decision in *Beens*, where the Minnesota State Senate was held to be a proper mandatory intervenor in a case involving the validity of its district lines.² Plaintiffs offer no reason why these cases do not control the issue before the Court; they do not even cite these cases.

Instead, Plaintiffs' opposition rests on the naked assertion that the Wisconsin State Assembly's participation will "derail the proceedings" and delay resolution of the case.³ (Opp. Br. at 3, 5). But the Assembly has already represented to the Court that it will operate within the time frames established by the Court. (*Whitford* Dkt. # 215, Tr. at 19:6-12; 20:20-21; 23:17-18). In short, the final resolution of this case will not be delayed due to the Assembly's participation.

The Wisconsin State Assembly is the true party at interest in this case. Its participation will assist in the fair resolution of Plaintiffs' claims. For these reasons and those that follow, the Assembly's intervention motion should be granted.

I. The Assembly's Motion for Mandatory or Permissive Intervention Is Timely.

Plaintiffs argue intervention is untimely because the Assembly was aware of the *Whitford* lawsuit three years ago. (Opp. Br. at 3). While true, the Assembly's awareness of the *Whitford* lawsuit does not render its motion to intervene untimely.

¹ *Silver v. Jordan*, 241 F. Supp. 576 (S.D. Cal. 1964), *aff'd*, 381 U.S. 415 (1965).

² *Sixty-Seventh Minn. State Senate v. Beens*, 406 U.S. 187, 190-94 (1972).

³ The *Whitford* plaintiffs filed an opposition brief (*Whitford* Dkt. # 217 (hereafter "Opp. Br.)) and ADCC joined in those arguments. (*ADCC* Dkt. # 19). The State Defendants do not oppose intervention. (*Whitford* Dkt. # 216; *ADCC* Dkt. # 18). Identical versions of this brief are being filed in both the *Whitford* and *ADCC* dockets.

First, the Assembly's knowledge of the *Whitford* case has no relevance to its intervention in the *ADCC* case, where the Assembly filed its motion to intervene on the same day the Defendants filed their answer. The motion in *ADCC*, filed at the case's inception, is unquestionably timely. (*ADCC* Dkt. ## 8, 11).

Second, with respect to *Whitford*, timeliness depends on consideration of all relevant circumstances, not just how long a proposed intervenor was aware of the case. Those circumstances include “the prejudice to the original parties caused by the delay, the resulting prejudice to the intervenor if the motion is denied, and any unusual circumstances.”⁴

Of these, “the ‘most important consideration’” is whether intervention will prejudice the existing parties to the case.⁵ To render a motion to intervene untimely, such prejudice must result *from the delay* in filing the motion to intervene—not from intervention itself.⁶ In other words, any prejudice or inconvenience to a party that would have occurred irrespective of *when* the motion to intervene was filed is not prejudice or inconvenience caused by untimeliness.⁷

The Plaintiffs cannot credibly claim that they will suffer prejudice because of the timing of the Assembly's motion to intervene. The Assembly will adhere to the timelines in the Court's scheduling order. (*Whitford* Dkt. # 215, Tr. at 19:6-12; 20:20-

⁴ *South v. Rowe*, 759 F.2d 610, 612 (7th Cir. 1985) (cleaned up to remove enumerations in list of factors).

⁵ *Nissei Sangyo Am., Ltd. v. United States*, 31 F.3d 435, 439 (7th Cir 1994) (quoting 7C CHARLES ALAN WRIGHT, ET AL., FEDERAL PRACTICE AND PROCEDURE § 1916 (2d ed. 1986)).

⁶ *Nissei Sangyo Am., Ltd.*, 31 F.3d at 439.

⁷ *Id.*

21; 23:17-18). Thus, the Assembly's participation will not delay the resolution of the matter.

Nonetheless, Plaintiffs attempt to manufacture prejudice by arguing that “[b]y attempting to file a motion to dismiss, the Proposed-Intervenor has already sought to raise collateral issues” that would “delay and disrupt this action.” (Opp. Br. at 4.) Had the Assembly intervened three years ago, it would have filed the same motion to dismiss after the Supreme Court's remand. The same is true with respect seeking to offer additional experts, deposing the brand-new plaintiffs, or *potentially* moving to stay proceedings.⁸ If these actions cause prejudice at all, it is not a prejudice caused by untimeliness.

⁸ Were the Assembly to move to stay, its position would be that staying the matter would bring about a final resolution of this case *sooner*, not later than the proposed schedule contemplates. At the scheduling conference, the Court acknowledged that these cases are heading for the Supreme Court, and this Court's order is designed to get them there during the 2019-2020 Term. (*Whitford* Dkt. # 215, Tr. 11:14-17). But now in the Supreme Court is *Rucho v. Common Cause*, No. 18-422 (U.S.) (electronic docket at <https://www.supremecourt.gov/search.aspx?filename=/docket/docketfiles/html/public/18-422.html>).

The *Rucho* Petitioners have asked the Court for plenary review of a matter involving the very same equal protection and First Amendment Claims at issue here. *Id.*, Jurisdictional Statement at 1-2 (available at https://www.supremecourt.gov/DocketPDF/18/18-422/65297/20181001123431336_2018-10-01%20Rucho%20v.%20Common%20Cause%20JS%20FINAL.pdf). If plenary review of the *Rucho* direct appeal is granted, then a decision should occur *this* Term (but likely after the scheduled trial here).

Over the past forty years, numerous standards for addressing political gerrymandering have been offered by justices and plaintiffs (if these claims are in fact justiciable), but none have commanded a majority. *Gill v. Whitford*, 138 S.Ct. 1916, 1926-29 (2018). Thus, if these claims are justiciable, it is highly probable that any standard adopted by the Supreme Court in *Rucho* will differ from the standard this Court may apply here, making a remand *and another new trial* likely. See, e.g., *Fisher v. Univ. of Tex. at Austin*, 570 U.S. 297, 314 (2013) (“[F]airness to the litigants” demands that a case “be considered and judged” under an identified legal standard). A stay would ensure that if another trial in this matter is necessary, there will only be one more, it will be on the proper legal standard, and it will occur on a date before a *third* trial would have occurred absent a stay.

Plaintiffs' concern about "new experts" is particularly unfounded. Plaintiffs themselves have offered new expert opinions to support both their vote dilution and association claims. Professor Chen's report offers an entirely new methodology for supporting Plaintiffs' vote dilution/equal protection claim, both as a statewide matter and as applied to the individual *Whitford* Plaintiff districts.⁹ Professor Mayer's new report opines not only on the *ADCC* (and possibly *Whitford*) Plaintiffs' new burden on association claims, but also provides a narrative analysis of district specific "cracking" and "packing" based on his analysis of Chen's new report.¹⁰

Plaintiffs had to offer these new expert opinions because the First Amendment theories in both *ADCC* and *Whitford* are *brand new*.¹¹ The Supreme Court's *Gill* decision undermines the statewide partisan gerrymandering theory that was the *Whitford* Plaintiffs' sole focus of the first trial.¹² The newly filed amended complaint thus reformulates the equal protection claim, giving it a new name and adding two

⁹ See generally Expert Report of Jowei Chen, Ph.D. (Oct. 15, 2018) (attached hereto as Exhibit A); and specifically p. 2 (outlining scope of work) and compare with the Reports of Professors Jackman and Mayer submitted in the first phases of this case (e.g., *Whitford* Dkt. ## 54, 62). We note that the Court previously sustained Defendants' objections to admitting exhibits and testimony relating to Professor Chen's work specifically addressing Act 43. See *Whitford v. Gill*, 218 F. Supp.3d 837, 918-19 & n.350 (W.D. Wis. 2016).

¹⁰ Expert Report of Kenneth R. Mayer (October 15, 2018) (attached as Exhibit B).

¹¹ Compare *Whitford* Dkt. # 201, ¶¶ 173-178 ("Burden on Right To Association" claim) with *Whitford* Dkt. # 1, ¶¶ 90-96 ("First Amendment Violation").

¹² While the Supreme Court's *Gill* decision was formally about standing, the Court effectively rejected the statewide partisan gerrymandering theory that was the sole focus of the first trial. As the Court noted, the right to vote is individual and personal in nature, and that an individual's vote may only be diluted in the individual's district. *Gill*, 138 S.Ct. at 1929-30. Correspondingly, an individual's legally protectible interest is about his or her vote in his or her district. As *Gill* held, the "fundamental problem with the plaintiffs' case as presented on this record" is that "[i]t is a case about group political interests, not individual legal rights.... The Court's constitutionally prescribed role is to vindicate the individual rights of the people appearing before it." *Id.* at 1933.

dozen pages of allegations that, while under the label “Parties,” make district-specific cracking and packing allegations and cite Chen’s report as providing the foundation.¹³

The Plaintiffs’ decision to inject new legal theories and new expert opinions to support them is reason alone to find that the Assembly’s motion to intervene will not prejudice the Plaintiffs. To be sure, the *Whitford* case was filed over three years ago, but—in large part due to the Plaintiffs’ choices—it is unlike any other case that is three years old. Nothing has been adjudicated.¹⁴ There was no scheduling order in place when the Assembly filed its motion. And since the Assembly filed its motion, Plaintiffs have added brand-new claims, brand-new Plaintiffs, and brand-new expert opinions in support of both new and old claims. (*See Whitford* Dkt. # 199 (ordering Plaintiffs’ new expert disclosures by October 15, 2018); # 209 (Motion to Intervene filed on October 4, 2018)).

Surely the existing Defendants have every right to address *for the first time* those new claims and expert opinions. And if the Plaintiffs have the right to enlist new experts, surely Defendants do too. Because the Assembly will comply with the same schedule as the existing Defendants, its participation can cause no timeliness-based prejudice.

¹³ *See Whitford* Dkt. # 201, ¶¶ 16-111 and Count I at p. 48 (“Intentional Vote Dilution”), and *compare with Whitford* Dkt. # 1, ¶¶ 15-27 (lacking district-specific cracking and packing allegations per plaintiff) and Count I at p. 24 (“Fourteenth Amendment Violation”).

¹⁴ As we explained in our brief supporting the motion to intervene, neither law of the case nor doctrines of preclusion apply here to the parties, much less a new party. *See Whitford* Dkt. # 210 at 4 & nn.13 & 14. We take the Court’s statement that we “are not starting over from scratch” (*Whitford* Dkt. # 215, Tr. at 11:5-17) to mean there are certain efficiencies to be gained from the first trial and pretrial discovery, and the Court has established an expeditious scheduling order accordingly.

Moreover, any complaint of timeliness-based prejudice caused by the addition of a new party rings hollow given the *Whitford* Plaintiffs added dozens of new parties to the case just 3 weeks before the Assembly moved to intervene, and then consented to the consolidation of the *Whitford* and *ADCC* cases. (*Whitford* Dkt. ## 201, 204). These actions necessitate significant new discovery.

What explains the inconsistency in Plaintiffs' position is simply that the new *Whitford* Plaintiffs and *ADCC* are aligned in interest with the original *Whitford* Plaintiffs and the Assembly is not. Plaintiffs are concerned that the Assembly could bring additional compelling argument or evidence to these proceedings. This is the very reason courts *allow* intervention, so that an otherwise absent party's protectable interests are not extinguished by litigation positions they do not control. By contrast, "we could have an increased chance of losing" is not a legitimate argument for denying intervention.

II. Mandatory Intervention: The Assembly Is Entitled to Intervene to Protect Its Unique Interests.

Beyond timeliness, the only objection Plaintiffs offer to mandatory intervention is an argument that the state adequately represents the Assembly's interests in the litigation.¹⁵ Plaintiffs' argument fails because the Supreme Court's decision in *Beens* holds that a state legislative body like the Assembly is entitled to mandatory intervention in the very same circumstances present here: where a state defendant is present, the intervenor is a state legislative body, and the challenge is

¹⁵ Plaintiffs do not argue that the Wisconsin State Assembly lacks an interest in the subject-matter of this action or that those interests will not be impaired by an adverse decision. To that end, Plaintiffs concede these components of mandatory intervention have been met.

to that body's district lines. Plaintiffs offer no reason why *Beens* does not control the question before the Court, and there is none.¹⁶

Beyond *Beens*, Plaintiffs do not address the current context of this case: these are political lawsuits¹⁷ whose defense is controlled by the attorney general, a partisan-elected official. In this phase of the case—unlike when the case was initially filed and appealed—an election will occur before trial. The potential for political realignment exists, and a major-party candidate for attorney general has already declared his intent to downsize the office responsible for defending Act 43 in the Supreme Court and expressed his belief that redistricting is better performed by entities other than legislative bodies. (*See* MTI Br. at 18-19 & nn.65 & 66). In similar cases, partisan officials have not vigorously defended the law or appealed. (*Id.* at 12 & nn.45, 47; 19 & n.69).

Further, Justice Kagan's concurring opinion in *Gill* suggests that “the evils of gerrymandering seep into the legislative process itself.”¹⁸ *ADCC*'s complaint runs with Justice Kagan's analysis and alleges that state policy has illegitimately shifted rightward as the result of Act 43. (*ADCC* Dkt. # 1, ¶ 31). Separate and apart from

¹⁶ *See* Fed. R. Civ. P. 24(a)(2) (1971) (intervention as a right requires that “the representation of an applicant's interest is or may be inadequate”). Since *Beens*, Rule 24(a)'s language changed into its current form (in relevant part) by a 1987 amendment. But the Advisory Committee notes indicate that the changes were “technical” and that “[n]o substantive change is intended.” *See* Fed. R. Civ. P. 24 (Advisory Committee Notes, 1987 Amendment).

¹⁷ *See Gill*, 138 S.Ct. at 1933 (stating *Whitford* is a “case about group political interests, not individual legal rights” and that Plaintiffs' case was concerned with the effect of gerrymanders not on individual interests, but “the fortunes of political parties”); *ADCC* Dkt. # 1, ¶¶ 8, 9 (identifying *ADCC*'s membership as the “thirty-five sitting Democratic representatives in the Wisconsin State Assembly” who have the goal of achieving “a Democratic majority in the Assembly”).

¹⁸ *Gill*, 138 S.Ct. at 1940 (Kagan, J., concurring).

defending the constitutionality of Act 43, the Assembly has a unique interest in defending itself against claims that attempt to cast doubt on the democratic legitimacy of its actions.

III. Permissive Intervention Is Appropriate.

In addition to Plaintiffs' "timeliness" arguments (addressed above), Plaintiffs contend that permissive intervention is not appropriate because the Wisconsin State Assembly is adequately represented by the state defendants. (Opp. Br. at 4 & n.4). But this is not the law. One fundamental difference between mandatory intervention under Rule 24(a) and permissive intervention under Rule 24(b) is that adequacy of representation is not a requirement under Rule 24(b).

Courts have allowed legislatures and legislators to permissively intervene under Rule 24(b) to defend the validity of laws passed by the body.¹⁹ And in cases involving the validity of districts, intervention is commonplace, even in the presence of a state defendant. For example, the Virginia House of Delegates was allowed to intervene in a racial gerrymandering case challenging the validity of its district lines in which the State Board of Elections was the party;²⁰ members of Congress were

¹⁹ See, e.g., *Commack Self-Service Kosher Meats, Inc. v. Rubin*, 170 F.R.D. 93, 106-07 (E.D.N.Y. 1996) (Speaker of New York Assembly permitted to intervene in his official capacity even though state defendants provided adequate representation).

²⁰ *Bethune-Hill v. Virginia State Bd. of Elections*, 137 S.Ct. 788, 796 (2017) (describing districting court as having granted intervention to Virginia House of Delegates). The district court order in the case does not specify whether intervention in that case was granted as a right or permissively. See *Bethune-Hill v. Virginia State Bd. of Elections*, No. 3:14-cv-852, (E.D. Va., Feb. 3, 2015) (Order granting intervention). Virginia's lower house moved for mandatory intervention, or in the alternative, permissive intervention. See Brief of Defendants, Dkt. # 13, *Bethune-Hill v. Virginia State Bd. Of Elections*, No. 3:14-cv-852 (E.D. Va. Jan. 23, 2015).

permitted to intervene in political gerrymandering case involving their districts;²¹ and even the chairman of a political party was granted intervention in a political gerrymandering case.²²

In a recent case cited in the Assembly's opening brief (and ignored entirely by Plaintiffs), the Sixth Circuit *reversed* a district court's denial of permissive intervention in a political gerrymandering case. There, like here, the proposed-intervenors (members of Congress) had a direct interest in defending the law, different than the state defendants' interests. This fact weighed in favor of permissive intervention.²³ And there, like here, an impending election had the potential of upsetting the adequacy of representation. This potential also augured in favor of intervention and showed why prompt intervention would promote the fair and efficient resolution of the case:

[A]ny delay attributable to allowing the Congressmen to intervene now is surely less than the delay that will occur if the Congressm[e]n must intervene in January 2019 [after a new Secretary of State takes office]. Under these unique circumstances, where timeliness [of resolving the gerrymandering dispute] is a particularly weighty concern, allowing intervention now may very well prove more efficient for all involved.²⁴

While plaintiffs feign ignorance as to how intervention “would contribute to a fair and efficient resolution of this lawsuit,” (Opp. Br. at 4) this Sixth Circuit decision

²¹ *League of Women Voters of Mich. v. Johnson*, 902 F.3d 572, 575 (6th Cir. 2018).

²² See *Gaffney v. Cummings*, 412 U.S. 735, 739 (1973). The defendants in *Gaffney* were “officials of the State of Connecticut responsible for enforcing its laws.” *Cummings v. Meskill*, 341 F. Supp. 139 (D. Conn. 1972), *rev'd sub nom. Gaffney v. Cummings*, 412 U.S. 735 (1973).

²³ *League of Women Voters of Mich.*, 902 F.3d at 579-80.

²⁴ *Id.* at 580.

shows why intervention would enhance efficiency, as was explained in the moving papers. (MTI Br. at 22-24).

Nor do plaintiffs offer any serious argument that it would be *inefficient* to allow intervention, relying instead on bald assertions the case would be “derailed.” (Opp. Br. at 3, 5). For example, Plaintiffs complain that allowing intervention might enable Defendants to “tag-team” depositions or make different legal arguments. (Opp. Br. at 5). But contrary to Plaintiffs’ argument, these are reasons *for* granting intervention, as they will result in a proceeding that is both more efficient and fairer.

Intervention that enables “tag teaming” depositions has the potential to make these proceedings more efficient. If the Court permits intervention, Defendants will have more lawyers available take 40 plaintiff depositions in *Whitford*, new expert depositions, and the depositions required in *ADCC* while adhering to this Court’s relatively compressed schedule.²⁵

As to fairness, Act 43’s constitutionality should not rise or fall on the limits the state defendants may place on this matter, whether due to litigation strategy, substantive choices to not make arguments with a more robust view of the proper scope of legislative power, or limited resources. As explained in the Assembly’s moving papers, the state defendants have not demonstrated a commitment to make the various arguments asserted by the Assembly in its proposed Motion to Dismiss: “Whether and to what degree the legislature is subject to court oversight [in

²⁵ Three lawyers have appeared in this matter for the state defendants. Three attorneys have now appeared in this matter for the Assembly. Plaintiffs, by our count, have 10 lawyers on this case. Simply put, the more lawyers there are, the more lawyers are available to conduct any deposition and the easier it will be to find dates to conduct depositions.

exercising is textually committed responsibility of redistricting] should not be determined exclusively by the arguments that disinterested officials *might* (but have not yet) set forth.” (MTI Br. at 17.)

Plaintiffs try to use the fact the Assembly proposed a motion to dismiss when the state did not as something that would cause delay, characterizing the motion as “rais[ing] collateral issues.” But those issues are not collateral; they are front and center in this case. And as the Sixth Circuit held in *League of Women Voters of Mich.*, raising affirmative defenses such as non-justiciability that are “common in redistricting cases” cannot prejudice a plaintiff.²⁶

In sum, permissive intervention is appropriate.

IV. The Court Should Not Impose Any Special Limitations on the Assembly’s Participation.

Plaintiffs argue that the Court has the authority to place additional limitations on the Assembly’s participation if the intervention is granted. (Opp. Br. at 6-7). Among other restrictions, the Plaintiffs propose that the Assembly be barred from bringing unilateral motions, raising any collateral issue or relitigating issues already decided, attending depositions where the state Defendants are also present, or moving to modify the scheduling order. (Opp. Br. at 6.) None of these proposed limitations is warranted.

Plaintiffs cite numerous cases for the proposition that courts have the ability to limit an intervenor’s participation. (Opp. Br. at 6 & n.7). We do not question that

²⁶ *League of Women Voters of Mich.*, 902 F.3d at 577-78.

the Court has considerable discretion to manage this litigation, and this may include imposing appropriate limitations on the original parties and intervening parties alike. But none of the cases cited by Plaintiffs involves preventing parties from filing appropriate motions or accelerating appeal deadlines. The one case Plaintiffs cite that involved an express limitation on pretrial discovery *reversed* a district court order that limited an intervenor's opportunity for discovery, noting that "[w]hile the efficient administration of justice is always an important consideration, fundamental fairness to every litigant is an even greater concern."²⁷

Plaintiffs' proposal that the Court should prevent the Assembly from "raising any collateral issues or from re-litigating any issue already decided in this suit" rests on a fundamental misunderstanding about what has been decided in this suit. (Opp. Br. at 7). *Nothing* has been conclusively decided. This Court's judgment was vacated because its decision was issued without jurisdiction.²⁸ Thus, there is no law of the case, and there is no issue or claim preclusion as it relates to the state defendants or to any other party. (MTI Br. at 4 & nn.12 & 13). We recognize that the proceedings to date will enable increased economy moving forward, but factual findings and legal conclusions issued by a Court without jurisdiction are a nullity.²⁹

²⁷ *Columbus-Am. Discovery Grp. v. Atl. Mut. Ins. Co.*, 974 F.2d 450, 470 (4th Cir. 1992).

²⁸ *Gill*, 138 S.Ct. at 1934.

²⁹ *See, e.g., Orff v. United States*, 358 F.3d 1137, 1149–50 (9th Cir. 2004) ("If jurisdiction was lacking, then the court's various orders were nullities." (cleaned up)); *Tobin v. Gluck*, 11 F. Supp. 3d 280, 291 n.4 (E.D.N.Y. 2014) ("[A]ny factual findings made by the civil court operating without proper jurisdiction should not be relied upon by either party."). Plaintiffs argue that in *League of Women Voters of N.C. v. Rucho*, 1:16-cv-1164 (M.D.N.C. July 18, 2018) (Dkt. # 135), the district court did not revisit merits determinations after the remand. This has no relevance here. In *Rucho*, there was never been a finding that the district court

Depriving the Assembly of the opportunity to take depositions alongside the state defendants would significantly curtail the Assembly's ability to develop a record on items at central to *ADCC* and *Whitford*. This would undermine the purpose of intervention. And it would do so without justification. The Federal Rules of Civil Procedure limit the *length* of depositions absent leave of court, not the attorneys who may take those depositions. Fed. R. Civ. P. 30(a)(2). Plaintiffs may thus be deposed for up to 7 hours—splitting those hours between the state defendants' attorneys and the Assembly's attorneys would cause no additional prejudice and would not delay the resolution of this case. By comparison, depriving the Assembly the opportunity to develop and test the critical issues these cases present would be highly prejudicial to the Assembly.

The Plaintiffs' proposal that the Court prohibit the Assembly from moving to modify the scheduling order is unnecessary. The Court made it absolutely clear that it expects the parties to meet the schedule it set. The Assembly has every intent to meet the schedule and expects that the Court is unlikely to look favorably on any requested modifications. At the same time, good cause for a modification might arise for reasons beyond the Assembly's control: Plaintiffs might not make witnesses available, personal tragedy may befall a lawyer or witness, a blizzard may make travel impossible, and so forth. In sum, a prophylactic order preventing a *request* that the Assembly knows would be disfavored and the Court is under no obligation to grant is both unnecessary and could, in some circumstances, work an injustice.

lacked jurisdiction over the *Rucho* plaintiffs that would vacate what had previously been done by the Court.

More broadly, there is no need to address any of the issues raised by Plaintiffs' proposed limitations in a vacuum with a prophylactic order. Should good cause exist to limit the scope, timing, or manner of discovery, Plaintiffs can simply move for a protective order and the court may address the issues within a proper factual context.³⁰ And of course, before doing so, Plaintiffs would confer with the Assembly and the state defendants, which may obviate the need for the Court's intervention.³¹

CONCLUSION

The Assembly has affirmed its intent to operate within the Court's scheduling Order. The Supreme Court has held a legislative body is a proper mandatory intervenor in cases involving the district lines of that body. This motion is timely. Respectfully, intervention should be granted.

³⁰ Fed. R. Civ. P. 26(c).

³¹ *Id.*

Respectfully submitted this 26th day of October, 2018.

BARTLIT BECK LLP

/s/ Adam K. Mortara _____

Adam K. Mortara, SBN 1038391

Joshua P. Ackerman

54 W. Hubbard Street

Chicago, IL 60654

Ph. 312-494-4400

Fax 312-494-4440

Email: adam.mortara@bartlitbeck.com

Email: joshua.ackerman@bartlitbeck.com

BELL GIFTOS ST. JOHN LLC

Kevin St. John, SBN 1054815

5325 Wall Street, Suite 2200

Madison, WI 53718-7980

Ph. 608-216-7990

Fax 608-216-7999

Email: kstjohn@bellgiftos.com

Attorneys for Wisconsin State Assembly

Exhibit A

EXPERT REPORT OF JOWEI CHEN, Ph.D.

October 15, 2018

I am an Associate Professor in the Department of Political Science at the University of Michigan, Ann Arbor. I am also a Research Associate Professor at the Center for Political Studies of the Institute for Social Research at the University of Michigan and a Research Associate at the Spatial Social Science Laboratory at Stanford University. In 2007, I received a M.S. in Statistics from Stanford University, and in 2009, I received a Ph.D. in political science from Stanford University. I have published academic papers on legislative districting and political geography in several political science journals, including *The American Journal of Political Science* and *The American Political Science Review*, and *Election Law Journal*. My academic areas of expertise include legislative elections, spatial statistics, geographic information systems (GIS) data, redistricting, racial politics, legislatures, and political geography. I have unique expertise in the use of computer simulations of legislative districting and to study questions related to political geography and redistricting.

I have provided expert reports in the following redistricting court cases: The League of Women Voters of Florida et al. v. Ken Detzner et al. (Fla. 2d Judicial Cir. Leon Cnty. 2012); Rene Romo et al. v. Ken Detzner et al. (Fla. 2d Judicial Cir. Leon Cnty. 2013); Missouri National Association for the Advancement of Colored People v. Ferguson-Florissant School District and St. Louis County Board of Election Commissioners (E.D. Mo. 2014); Raleigh Wake Citizens Association et al. v. Wake County Board of Elections (E.D.N.C. 2015); Corrine Brown et al. v. Ken Detzner et al. (N.D. Fla. 2015); City of Greensboro et al. v. Guilford County Board of Elections, (M.D.N.C. 2015); Common Cause et al. v. Robert A. Rucho et al. (M.D.N.C. 2016); The League of Women Voters of Pennsylvania et al. v. Commonwealth of Pennsylvania et al. (No. 261 M.D. 2017); Georgia State Conference of the NAACP et al v. The State of Georgia et al. (N.D. Ga. 2017); The League of Women Voters of Michigan et al. v. Ruth Johnson et al. (E.D. Mich. 2017). I have testified at trial in the following cases: Raleigh Wake Citizens Association et al. v. Wake County Board of Elections (E.D.N.C. 2015); City of Greensboro et al. v. Guilford County Board of Elections (M.D.N.C. 2015); Common Cause et al. v. Robert A. Rucho et al. (M.D.N.C. 2016); The League of Women Voters of Pennsylvania et al. v. Commonwealth of Pennsylvania et al. (No. 261 M.D. 2017). I am being compensated \$500 per hour for my work in this case.

I was asked by plaintiffs' counsel to perform the following five tasks:

1) Construct a 'Chen Composite Measure' for the purpose of measuring the Republican vote share of Wisconsin Assembly districts. Construct the measure by using all 2004-2010 statewide election results, as listed in the column headings of Exhibit 464 ("EXH 464.xlsx"), and applying a uniform swing such that the average Republican vote share of the 99 Assembly Districts in the Act 43 plan is identical to the 48.58% average Republican vote share across the 99 Assembly Districts, as reported in Exhibit 172 ("EXH 172.pdf").

2) Generate a large number of computer-simulated districting plans for Wisconsin's Assembly districts with the following characteristics: A) The same or lower magnitude of population deviations as the Act 43 Assembly map; B) Fewer split counties than the Act 43 map; C) Fewer split municipalities than the Act 43 map; D) At least as many majority-African-American and majority-Hispanic districts as the Act 43 map; E) Fewer paired incumbents than the Act 43 map.

3) Among these computer-simulated plans, identify only those plans with an Efficiency Gap between -0.5% and +0.5%, with districts' partisanship measured using the Chen Composite Measure. Among the computer-simulated plans with an Efficiency Gap between -0.5% and +0.5%, identify the most compact plan, as measured by average Reock score.

4) Describe the characteristics of this identified computer-simulated plan and compare it to the enacted Act 43 plan.

5) Identify the districts in the computer-simulated plan and the enacted Act 43 plan in which each of 31 plaintiffs resides.

1. Constructing the 'Chen Composite Measure' of District-Level Republican Vote Share

Plaintiffs' counsel informed me that the drafters of the Act 43 map used all 13 of Wisconsin's 2004-2010 statewide elections in measuring the partisanship of Assembly districts, as listed in the column headings of Exhibit 464 ("EXH 464.xlsx"). Plaintiffs' counsel also informed me that Exhibit 172 ("EXH 172.pdf") reports the Act 43 drafters' measure of partisanship for each of the 99 Assembly districts in a near-final version of the Act 43 map. Specifically, plaintiffs' counsel informed me the "Final Map" referenced in Exhibit 172 is identical to the Assembly plan currently in use for all but four districts: Assembly Districts 8 and 9 (which were adjusted after the *Baldus* litigation) and Assembly Districts 98 and 99 (which were adjusted after the "Final Map" was created but before Act 43 was enacted).

From this exhibit, I determined that the Exhibit 172 measure of partisanship has an average Republican vote share of 48.58% across the 99 Assembly Districts in the "Final Map" referenced in this Exhibit. In Table 1, the fourth column lists these district-level Republican vote shares, as taken from Exhibit 172, and represents the information I used to calculate this average Republican vote share of 48.58% across the 99 Assembly Districts.

Plaintiffs' counsel then asked me to construct a composite measure of partisanship having both of these aforementioned characteristics: Specifically, I was instructed to construct a composite measure of partisanship by using all 2004-2010 statewide election results and applying a uniform swing such that the average Republican vote share of the 99 Assembly Districts in the Act 43 plan is identical to the 48.58% average Republican vote share across the 99 Assembly Districts, as reported in Exhibit 172.

I constructed this composite measure of partisanship using ward-level election data from Wisconsin's 2004-2010 elections, downloaded in a zipped file ("20022010_WI_Election_Data_with_2017_Wards.zip") from Wisconsin's Legislative Technology Services Bureau website.¹ I summed up the total number of votes cast in favor of Republican candidates and Democratic candidates during all 2004-2010 statewide elections within each ward. For each Act 43 Assembly District, I then calculated the Republican share of the two-party votes cast in all 2004-2010 statewide elections. These raw Republican vote shares for all Act 43 districts are reported in the second column of Table 1. Across all 99 Assembly Districts in the Act 43 map, the average district-level Republican vote share in the 2004-2010 statewide elections is 46.78%, as reported at the bottom of Table 1.

I then adjusted this raw Republican vote share by a uniform swing in order to match the 48.58% average Republican vote share across the 99 Assembly Districts, as reported in Exhibit 172 (and reproduced in the fourth column of Table 1). The difference between 48.58% (the district-level average from Exhibit 172) and 46.78% (the district-level average raw Republican share in the 2004-2010 statewide elections) is +1.8%. Thus, I applied a uniform swing of +1.8% to each district's raw Republican share in the 2004-2010 statewide elections in order to arrive at a resulting partisan measure whose district-level average across the 99 Act 43 districts is 48.58%. This resulting uniform-swing-adjusted partisan measure is reported in the third column of Table 1 and is hereinafter referred to as the 'Chen Composite Measure.'

¹ Downloaded from: <https://data-ltsb.opendata.arcgis.com/datasets/2002-2010-wi-election-data-with-2017-wards>

The Chen Composite Measure closely mimics the Act 43 drafters' measure of partisanship, as reported in Exhibit 172, in three important ways. First, at the level of the Act 43 Assembly Districts, the statistical correlation between the Chen Composite Measure and the Exhibit 172 partisanship measure is over 0.99, indicating a near-perfect correlation between the two measures. Second, both measures agree about which Act 43 Assembly Districts favor Republicans versus Democrats: The 59 districts with over 50% Republican vote share as measured by the Exhibit 172 partisanship measure are also the same 59 districts that have over 50% Republican vote share using the Chen Composite Measure. Similarly, the 40 districts that are under 50% Republican vote share in Exhibit 172 also all have under 50% Republican vote share using the Chen Composite Measure. Finally, the Chen Composite Measure has, by design, exactly the same average score across the 99 Act 43 Assembly Districts as the Exhibit 172 partisanship measure has across the 99 "Final Map" districts listed in Exhibit 172.

Figure 1 provides a visual comparison of the Chen Composite Measure and the Exhibit 172 partisanship measure. In this Figure, each Assembly District's partisanship, as measured by Exhibit 172, is shown along the vertical axis. Each Assembly District's Republican vote share, as measured by the Chen Composite Measure, is shown along the horizontal axis. Figure 1 makes visually clear that among Wisconsin's 99 Assembly districts, all but four districts have an Exhibit 172 partisanship measure virtually identical to their Chen Composite Measure. The four districts for which the Exhibit 172 partisanship measure is not virtually identical to the Chen Composite Measure are Assembly Districts 8, 9, 98, and 99. As explained earlier, plaintiffs' counsel informed me that the boundaries of these four districts were adjusted after the creation of Exhibit 172. Therefore, the correlation between the Chen Composite Measure and the Exhibit 172 partisanship measure would be even higher, but for the changing of these four districts' boundaries.

2. Generating Computer-Simulated Assembly Districting Plans

Plaintiffs' counsel asked me to generate a large number of computer-simulated districting plans for Wisconsin's Assembly districts with the following characteristics: A) The same or lower magnitude of population deviations as the Act 43 Assembly map; B) Fewer split counties than the Act 43 plan; C) Fewer split municipalities than the Act 43 plan; D) At least as many majority-African-American and majority-Hispanic districts as the Act 43 map; E) Fewer paired incumbents than the Act 43 map. More specifically, plaintiffs' counsel instructed me to hold frozen Assembly Districts 8 and 9 from the Act 43 map (using the boundaries of these two districts as adjusted after

the *Baldus* litigation). Holding these two districts frozen has the effect of matching the Act 43 map's creation of one majority-Hispanic district.

Table 2 describes the characteristics of the Act 43 Assembly map along these various aforementioned criteria. Below, I describe how the computer simulation algorithm implements these criteria:

1) Geographic Contiguity: The computer simulation algorithm I use for this report requires districts to be contiguous by land, with no point contiguity. In other words, a district that combines two areas is considered contiguous only if those two areas share a common border of non-zero length. Even when a ward contains geographically non-contiguous fragments, the district in which the ward lies is nevertheless required to be contiguous. Where offshore islands exist, these islands are considered to be contiguous with the mainland portions of their respective wards.

2) Equal Population: As of the 2010 Census, Wisconsin has a total statewide population of 5,686,986, so each of the state's 99 Assembly districts has an ideal district population of 57,444.3. In the Act 43 map, Assembly District 8, with a population of 57,196, deviates from this ideal district population by 248.3, which is the largest deviation among all districts in the Act 43 map. Therefore, I program the computer-simulated districting algorithm to require that all simulated districts have a population deviation of less than 248.3.

3) Minimizing Split Counties: After ensuring district contiguity and compliance with the equal population threshold, the simulation algorithm then seeks to minimize the number of counties split in each simulated districting plan. As Table 2 reports, the Act 43 map splits apart 58 of Wisconsin's 72 counties. Table 6 lists these 58 split counties in the Act 43 map. Thus, the simulation algorithm intentionally produces plans that split fewer than 58 total counties.

4) Minimizing Split Municipalities: The simulation algorithm also seeks to minimize the number of municipalities split in each simulated districting plan. As Table 2 reports, the Act 43 map splits apart 67 of Wisconsin's municipalities, which include cities, towns, and villages. Table 5 lists these 67 split municipalities in the Act 43 map. Thus, the simulation algorithm intentionally produces plans that split fewer than 67 total municipalities.

5) Majority-Minority Assembly Districts: The simulation algorithm requires plans to contain six districts with at least 50% African-American VAP, matching the Act 43 map's number of majority-African-American districts. In calculating the Black Voting Age Population of each district, I include only individuals who identify as single-race African-American. Additionally,

Assembly Districts 8 and 9 from the Act 43 map are frozen in every simulated plan, thus producing one district in each plan (District 8) with a majority-Hispanic VAP.

6) Avoiding Paired Incumbents: Plaintiffs' counsel provided me with a list of all 96 incumbent Assembly members as of the November 2012 election; the remaining three districts (Assembly districts 60, 83, and 94) contained no incumbent as of 2012. I geocoded the residential addresses of each incumbent to identify the district in which each incumbent resides in the Act 43 map and the computer-simulated maps.

As reported in Table 2, the Act 43 map contains 22 incumbents who were placed into a district containing multiple incumbents; the remaining 74 incumbents were the only incumbents in their respective districts. Therefore, I programmed the simulation algorithm to guarantee that fewer than 22 incumbents were paired, or placed into a district with multiple incumbents. Table 9 identifies the 22 paired (or "Not Protected") incumbents and the 74 non-paired (or "Protected") incumbents under the Act 43 plan.

The Computer Simulation Algorithm: The simulation algorithm proceeds as follows: First, the algorithm begins with a set of base geographies to be used as building blocks for constructing a simulated plan. In creating Assembly districting plans, I primarily use ward boundaries as the building blocks; however, I split up non-contiguous portions of single wards into separate building blocks in order to avoid creating non-contiguous Assembly districts. Specifically, in constructing this set of base geographies, I used Wisconsin's 2012 ward-level shapefile, which I downloaded in a zipped file (named "2012_wi_precincts.zip") from Wisconsin's Legislative Technology Services Bureau website.² This shapefile, produced by the Wisconsin LTSB, uses the Wisconsin Transverse Mercator projected coordinate system.³ Thus, all subsequent calculations of district compactness of computer-simulated plans in this expert report are also based on this same projected coordinate system.

Second, the algorithm randomly divides up these geographies into an initial plan consisting of 97 simulated districts and two frozen districts (Assembly Districts 8 and 9 from the Act 43 map, as adjusted after the *Baldus* litigation). These 97 simulated districts are constructed in the following manner: First, the non-frozen portions of Wisconsin are randomly divided into two contiguous

² I downloaded the "2012_wi_precincts.zip" file on February 16, 2016. Although the file is no longer available on the Wisconsin LTSB website, a copy remains available on the following external URL:

<https://github.com/aaron-strauss/precinct-shapefiles/tree/master/wi>

³ Described at: <https://epsg.io/3071>

groups: One group consisting of 48/97ths of the total population, and the second group consisting of 49/97ths of the total population. Next, the 48/97ths group is randomly divided into two sub-groups, each consisting of 24/97ths of the total population. Meanwhile, the 49/97ths group is randomly divided into two subgroups, one consisting of 24/97ths and the second consisting of 25/97ths of the total population. These iterative sub-divisions continue until the non-frozen portions of Wisconsin are divided into 97 contiguous, equally-populated sub-groups.

Third, the computer then employs three Markov chain Monte Carlo (MCMC) algorithms to pursue various redistricting criteria. First, the algorithm evaluates a large number of randomly-proposed, iterative changes to the various boundaries between the districts; in each iteration, a proposed change is accepted only if the total number of majority-African-American districts does not decrease. These random, iterative changes continue until the districting map achieves a total of six majority-African-American VAP districts. The second MCMC algorithm considers yet more randomly-proposed, iterative changes to the district boundaries; proposed changes are accepted only if the number of paired incumbents does not increase and the number of majority-African-American VAP districts does not decrease. This second set of MCMC iterations continues until the number of paired incumbents falls below 22, which is the number of paired incumbents in the Act 43 map. Finally, the third MCMC algorithm accepts randomly-proposed, iterative changes to district boundaries only if the number of paired incumbents does not increase, the number of majority-African-American VAP districts does not decrease, and the total number of split county and municipality fragments does not increase. This third set of MCMC iterations continues until the plan contains significantly fewer than the 58 split counties and 67 split municipalities observed in the enacted Act 43 map. By considering and selectively implementing a large number of random iterative changes to the districts' boundaries, the algorithm thus gradually decreases the number of split counties, split municipalities, and paired incumbents in the plan, while matching the Act 43 map's six majority-African-American districts. These iterative changes result in a plan in which county and municipality boundaries are generally followed, except when splitting counties and municipalities is necessary for achieving one of the other aforementioned districting criteria.

In total, I conducted this entire simulation algorithm enough times to produce 9,452 separate districting plans. In the following section, I describe how I calculated certain characteristics of these simulated plans and identified one plan using a set of objective criteria.

3. Selecting a Single Simulated Assembly Plan

I was instructed by plaintiffs' counsel to identify, among the 9,452 computer-simulated plans, only those plans whose Efficiency Gap rounds to zero - that is, plans with an Efficiency Gap between -0.5% and +0.5%, with districts' partisanship measured using the Chen Composite Measure. I was further instructed to identify, among the computer-simulated plans with an Efficiency Gap between -0.5% and +0.5%, the most compact plan, as measured by average Reock score.

For each computer-simulated plan, I calculated each district's partisanship using the Chen Composite Measure by using the 2004-2010 statewide election votes and applying the same uniform swing described in the first section of this report. I then calculated the Efficiency Gap of each computer-simulated plan using the Chen Composite Measure to characterize each district's Republican vote share.

The Efficiency Gap is a commonly-used measure of a districting plan's partisan bias. To calculate the Efficiency Gap of each computer-simulated plan, I first calculated the number of Republican and Democratic voters within each district using the Chen Composite Measure, multiplied by the total number of two-party votes cast in statewide elections during 2004-2010. I then calculated each districting plan's Efficiency Gap using the method outlined in *Partisan Gerrymandering and the Efficiency Gap*⁴. Districts are classified as Democratic victories if, across these statewide elections, the sum total of Democratic votes in the district during these elections exceeds the sum total of Republican votes; otherwise, the district is classified as Republican. For each party, I then calculate the total sum of surplus votes in districts the party won and lost votes in districts where the party lost. Specifically, in a district lost by a given party, all of the party's votes are considered lost votes; in a district won by a party, only the party's votes exceeding the 50% threshold necessary for victory are considered surplus votes. A party's total wasted votes for an entire districting plan is the sum of its surplus votes in districts won by the party and its lost votes in districts lost by the party. The Efficiency Gap is then calculated as total wasted Democratic votes minus total wasted Republican votes, divided by the total number of two-party votes cast statewide across all 13 elections. Thus, a positive Efficiency Gap indicates more wasted Democratic than Republican votes, while a negative Efficiency Gap indicates more wasted Republican than Democratic votes.

⁴ Nicholas O. Stephanopoulos & Eric M. McGhee, *Partisan Gerrymandering and the Efficiency Gap*, 82 University of Chicago Law Review 831 (2015).

I calculated the Efficiency Gap of each of the 9,452 computer-simulated plans described in the previous section. I then identified only those plans with an Efficiency Gap between -0.5% and +0.5%. Among these plans, I then identified the most compact plan, as measured by average Reock score. This process led to the identification of Simulated Map 43995.

4. Characteristics of Simulated Map 43995

Table 3 provides the following information regarding each district in the enacted Act 43 Map: (1) its population; (2) its Black Voting Age Population share; (3) its Hispanic Voting Age Population share; (4) its Reock compactness score; (5) its Polsby-Popper compactness score; and (6) its Republican vote share as measured by the Chen Composite Measure. Table 4 provides the same information regarding each district in Simulated Map 43995. Figure 2 includes a statewide map of the Act 43 Map's districts (Figure 2a), as well as zoomed-in maps detailing the districts in Milwaukee, Brown, Dane, Racine, and Kenosha Counties (Figure 2b). Figure 3 includes a statewide map of Simulated Map 43995's districts (Figure 3a), as well as zoomed-in maps detailing the districts in Milwaukee, Brown, Dane, Racine, and Kenosha Counties (Figure 3b). In all of these maps in Figures 2 and 3, all districts are shaded by partisanship using the Chen Composite Measure, with Democratic-leaning districts shaded from dark blue (most heavily Democratic) to light blue (least Democratic) and Republican-leaning districts shaded from dark red (most heavily Republican) to light red (least Republican).

The maps in Figures 4 and 5 are all shaded at the ward level (using 2011 ward boundaries) by partisanship using the Chen Composite Measure, with Democratic-leaning wards shaded from dark blue (most heavily Democratic) to light blue (least Democratic) and Republican-leaning wards shaded from dark red (most heavily Republican) to light red (least Republican). In addition to shading each ward by its partisanship, Figure 4a contains black lines depicting the boundaries of the Act 43 Map's districts for all of Wisconsin, while Figure 4b contains zoomed-in maps detailing the Act 43 Map's districts in Milwaukee, Brown, Dane, Racine, and Kenosha Counties. Similarly, Figure 5a contains black lines depicting the boundaries of Simulated Map 43995's districts for all of Wisconsin, while Figure 5b contains zoomed-in maps detailing Simulated Map 43995's districts in Milwaukee, Brown, Dane, Racine, and Kenosha Counties.

Table 2 compares the plan-wide characteristics of the Act 43 Map and Simulated Map 43995. Simulated Map 43995 pairs 18 incumbents (compared to 22 in the Act 43 Map), splits 43 counties (compared to 58 in the Act 43 Map), splits 53 municipalities (compared to 67 in the Act 43

Map), and contains districts within 248.3 of the ideal district population (identical to the maximum population deviation of the Act 43 Map). Table 7 lists the 53 municipalities split by Simulated Map 43995, while Table 8 lists the 43 counties split by Simulated Map 43995. Furthermore, Simulated Map 43995 has an average Reock compactness score of 0.402 (compared to 0.375 in the Act 43 Map) and an average Polsby-Popper compactness score of 0.271 (compared to 0.250 in the Act 43 Map). Table 9 lists the 96 Assembly incumbents, as of 2012, and identifies the Act 43 district and the Simulated Plan 43995 district within which each incumbent resides, thus identifying whether each incumbent is non-paired ("Protected") or paired ("Not Protected") within each of these two plans.

To calculate the compactness scores of the enacted Act 43 map, I first downloaded a shapefile of the Act 43 Assembly district boundaries from the Wisconsin LTSB website.⁵ I found that this shapefile uses the World Geodetic System 1984 (WGS84) coordinate system.⁶ I thus calculated the Reock and Polsby-Popper compactness scores for the Act 43 plan using this shapefile and its WGS84 coordinate system. This WGS84 coordinate system is different from the coordinate system used in the Wisconsin LTSB's ward shapefile described earlier in this report. However, I found that regardless of whether the Act 43 Map's compactness is calculated using the WGS84 coordinate system or the Wisconsin Transverse Mercator projected coordinate system used in the Wisconsin LTSB's ward shapefile, the Act 43 Map remains less geographically compact than Simulated Map 43995.

Finally, Figure 6 displays the Efficiency Gap of Simulated Map 43995 under different uniform swing conditions. Specifically, to create this Figure, I applied various alternative uniform swings to the Chen Composite Measure, ranging from -5% to +5% (at intervals of 0.1%). I then recalculated the Efficiency Gap of Simulated Map 43995 under each of these uniform swing conditions, applying the same uniform swing to all districts in Simulated Map 43995. These Efficiency Gaps for each uniform swing condition are shown in Figure 6.

5. Plaintiffs' Districts in the Act 43 Map and Simulated Plan 43995

Plaintiffs' counsel provided me with a list of 31 plaintiffs, listed in Table 10, and their respective residential addresses. Plaintiffs asked me to identify the districts in the enacted Act 43 Map and in Simulated Plan 43995 in which each of these 31 plaintiffs resides.

⁵ <https://data-ltsb.opendata.arcgis.com/datasets/wisconsin-assembly-districts-2012>

⁶ <https://epsg.io/4326>

I geocoded each plaintiff's residential address and identified each plaintiff's district in the two plans. Table 10 specifies the following information about each of these 31 plaintiffs: (1) In which district in the Act 43 Map the plaintiff is located; (2) what this district's Republican vote share is using the Chen Composite Measure; (3) in which district in Simulated Plan 43995 the plaintiff resides; and (4) what this district's Republican vote share is using the Chen Composite Measure.

The end of this report contains a series of two maps for each of the 31 plaintiffs: One map depicting the plaintiff's residence within the plaintiff's Act 43 Assembly district, and a second map depicting the plaintiff's residence within the plaintiff's district in Simulated Plan 43995. In both maps, the plaintiff's district is shaded using the same blue-red color scale, based on the partisanship of the district (as measured by the Chen Composite Measure), as in Figures 2 and 3. In each map, the Republican vote share (as measured by the Chen Composite Measure) of the plaintiff's district is also reported in the third line in the third row of the header of the map.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge.

This 15th day of October, 2018.



Jowei Chen

Table 1: Comparison of Chen Composite Measure to Exhibit 172 Partisan Measure

Act 43 District:	Republican Share of 2004-2010 Statewide Election Votes:	Chen Composite Measure:	Exhibit 172 Partisan Measure (for "Final Plan"):
1	48.52%	50.32%	51.22%
2	52.60%	54.41%	54.84%
3	52.65%	54.46%	55.58%
4	51.88%	53.68%	53.47%
5	51.61%	53.41%	54.28%
6	55.21%	57.02%	58.33%
7	44.70%	46.50%	45.38%
8	22.57%	24.38%	30.48%
9	32.45%	34.25%	29.14%
10	12.35%	14.16%	12.59%
11	19.21%	21.01%	19.58%
12	27.17%	28.98%	27.51%
13	57.87%	59.67%	58.67%
14	57.78%	59.59%	58.64%
15	54.52%	56.32%	55.48%
16	10.45%	12.25%	10.54%
17	19.70%	21.50%	19.84%
18	14.85%	16.66%	14.94%
19	28.44%	30.25%	28.03%
20	42.28%	44.09%	43.12%
21	51.16%	52.96%	52.94%
22	64.45%	66.26%	66.82%
23	55.21%	57.01%	57.64%
24	56.33%	58.14%	58.49%
25	51.30%	53.10%	53.26%
26	54.53%	56.34%	55.97%
27	53.38%	55.19%	56.19%
28	52.22%	54.03%	55.00%
29	48.74%	50.54%	50.97%
30	51.50%	53.31%	53.78%
31	54.29%	56.10%	56.33%
32	59.49%	61.29%	62.28%
33	59.49%	61.30%	61.81%
34	52.77%	54.57%	55.22%
35	50.54%	52.35%	52.99%
36	51.59%	53.39%	54.84%
37	55.87%	57.68%	58.11%
38	57.98%	59.78%	60.45%
39	59.24%	61.04%	62.00%
40	55.13%	56.93%	58.07%
41	52.61%	54.42%	55.16%
42	53.01%	54.81%	54.94%
43	41.92%	43.72%	43.06%
44	36.51%	38.31%	37.22%
45	39.04%	40.84%	40.08%
46	40.57%	42.38%	42.39%
47	32.47%	34.27%	33.36%
48	27.45%	29.25%	27.56%
49	46.81%	48.61%	49.59%
50	50.39%	52.19%	52.06%

Act 43 District:	Republican Share of 2004-2010 Statewide Election Votes:	Chen Composite Measure:	Exhibit 172 Partisan Measure:
51	44.05%	45.85%	46.23%
52	56.87%	58.67%	59.06%
53	58.95%	60.76%	61.85%
54	45.29%	47.10%	45.22%
55	53.26%	55.06%	56.43%
56	56.55%	58.36%	57.59%
57	43.27%	45.08%	44.50%
58	67.34%	69.15%	70.54%
59	65.18%	66.99%	68.31%
60	66.45%	68.26%	69.52%
61	54.80%	56.60%	57.22%
62	54.36%	56.17%	56.56%
63	56.53%	58.33%	59.64%
64	41.70%	43.51%	42.72%
65	35.55%	37.36%	35.92%
66	31.20%	33.01%	31.71%
67	49.51%	51.31%	51.67%
68	47.10%	48.90%	49.38%
69	51.71%	53.52%	54.16%
70	48.63%	50.43%	50.73%
71	39.36%	41.17%	40.72%
72	49.05%	50.86%	51.49%
73	38.12%	39.93%	40.16%
74	40.53%	42.34%	42.89%
75	49.50%	51.30%	52.18%
76	15.00%	16.80%	14.49%
77	19.20%	21.00%	18.90%
78	30.39%	32.19%	31.38%
79	40.01%	41.81%	41.77%
80	37.40%	39.21%	38.55%
81	43.11%	44.91%	44.56%
82	55.33%	57.14%	57.08%
83	65.60%	67.40%	68.31%
84	56.22%	58.02%	57.10%
85	45.92%	47.73%	48.38%
86	52.32%	54.12%	55.08%
87	50.96%	52.77%	53.74%
88	51.34%	53.15%	53.19%
89	52.84%	54.65%	55.73%
90	39.82%	41.62%	40.40%
91	39.15%	40.96%	39.57%
92	42.15%	43.96%	44.30%
93	48.88%	50.69%	51.10%
94	49.87%	51.68%	51.91%
95	36.83%	38.63%	36.36%
96	44.44%	46.25%	46.40%
97	60.72%	62.53%	62.91%
98	64.90%	66.71%	74.85%
99	70.93%	72.74%	67.02%
Plan Average	46.78%	48.58%	48.58%

Table 2: Comparison of Act 43 Map and Computer-Simulated 43995 Map

	Act 43 Map:	Computer-Simulated Map 43995:
Total Assembly Districts:	99	99
Ideal District Population:	57,444.3	57,444.3
Maximum Population Deviation:	±248.3	±248.3
Districts Over 50% Black VAP:	6	6
Districts Over 50% Hispanic VAP:	1	1
Number of Paired Incumbents:	22	18
Number of Counties Split into Multiple Districts:	58	43
Number of Municipalities Split into Multiple Districts:	67	53
Mean Reock Compactness Score:	0.375	0.402
Mean Polsby-Popper Compactness Score:	0.250	0.271
Number of Republican-Leaning Districts (Using Chen Composite Measure):	59	47
Efficiency Gap (Using Chen Composite Measure):	-13.44%	+0.49%

Note: All calculations for both maps include Enacted Assembly Districts 8 and 9, which are frozen in Computer-Simulated Map 43995.

Table 3: District-Level Characteristics of the Act 43 Enacted Assembly Map

District	Total Population	Black Voting Age Population	Hispanic Voting Age Population	Reock Score	Polsby-Popper Score	Republican Vote Share (Chen Composite Measure)
1	57,220	0.33%	1.55%	0.158	0.077	50.32%
2	57,649	0.44%	1.36%	0.302	0.245	54.41%
3	57,444	0.50%	2.37%	0.410	0.205	54.46%
4	57,486	2.18%	1.99%	0.409	0.154	53.68%
5	57,470	0.39%	1.51%	0.399	0.252	53.41%
6	57,505	0.25%	1.79%	0.302	0.204	57.02%
7	57,498	4.31%	12.57%	0.304	0.202	46.50%
8	57,196	9.23%	67.68%	0.613	0.476	24.38%
9	57,283	6.01%	47.52%	0.405	0.193	34.25%
10	57,428	61.77%	3.73%	0.339	0.171	14.16%
11	57,503	61.54%	3.04%	0.349	0.188	21.01%
12	57,494	51.14%	4.17%	0.428	0.331	28.98%
13	57,452	2.18%	3.46%	0.215	0.258	59.67%
14	57,597	3.29%	1.85%	0.242	0.285	59.59%
15	57,372	2.08%	4.13%	0.228	0.336	56.32%
16	57,458	61.37%	4.65%	0.445	0.322	12.25%
17	57,354	61.09%	3.43%	0.403	0.368	21.50%
18	57,480	60.40%	5.36%	0.431	0.312	16.66%
19	57,546	5.23%	4.68%	0.244	0.161	30.25%
20	57,428	2.02%	8.66%	0.418	0.405	44.09%
21	57,449	2.15%	5.99%	0.542	0.511	52.96%
22	57,462	5.49%	1.52%	0.242	0.181	66.25%
23	57,579	1.84%	1.80%	0.237	0.170	57.01%
24	57,282	8.43%	2.06%	0.305	0.299	58.14%
25	57,322	0.48%	2.84%	0.356	0.385	53.10%
26	57,581	1.08%	5.39%	0.351	0.212	56.34%
27	57,536	0.60%	2.87%	0.516	0.248	55.19%
28	57,467	0.23%	1.22%	0.522	0.358	54.03%
29	57,537	0.62%	1.37%	0.313	0.351	50.54%
30	57,241	0.68%	1.54%	0.514	0.574	53.31%
31	57,244	2.16%	6.24%	0.450	0.231	56.10%
32	57,524	0.67%	8.65%	0.422	0.190	61.29%
33	57,566	0.37%	4.23%	0.226	0.178	61.30%
34	57,387	0.31%	0.72%	0.277	0.305	54.57%
35	57,562	0.24%	1.04%	0.425	0.454	52.35%
36	57,432	0.25%	1.22%	0.574	0.320	53.39%
37	57,507	0.69%	3.86%	0.174	0.145	57.68%
38	57,493	0.55%	2.81%	0.257	0.212	59.78%
39	57,387	0.51%	3.47%	0.500	0.333	61.04%
40	57,366	1.08%	1.89%	0.537	0.331	56.93%

District	Total Population	Black Voting Age Population	Hispanic Voting Age Population	Reock Score	Polsby-Popper Score	Republican Vote Share (Chen Composite Measure)
41	57,337	1.62%	3.92%	0.265	0.234	54.42%
42	57,285	1.63%	1.70%	0.376	0.208	54.81%
43	57,449	1.35%	3.57%	0.322	0.134	43.72%
44	57,385	2.29%	4.21%	0.489	0.062	38.31%
45	57,658	7.96%	8.43%	0.384	0.409	40.84%
46	57,458	2.98%	2.56%	0.370	0.226	42.38%
47	57,459	6.27%	10%	0.345	0.087	34.27%
48	57,512	7.58%	6.17%	0.349	0.050	29.25%
49	57,346	1.12%	1.05%	0.426	0.363	48.61%
50	57,624	1.30%	1.95%	0.425	0.269	52.19%
51	57,580	0.25%	2.01%	0.401	0.375	45.85%
52	57,232	1.78%	4.12%	0.298	0.264	58.67%
53	57,240	5.66%	1.45%	0.488	0.142	60.76%
54	57,250	1.26%	2.09%	0.419	0.066	47.10%
55	57,493	0.89%	3.09%	0.512	0.366	55.06%
56	57,582	0.51%	2.12%	0.262	0.178	58.36%
57	57,501	1.68%	4.89%	0.334	0.251	45.08%
58	57,227	0.59%	2.10%	0.482	0.152	69.15%
59	57,391	1.40%	1.79%	0.373	0.234	66.99%
60	57,385	0.61%	1.66%	0.442	0.255	68.26%
61	57,614	1.02%	3.99%	0.307	0.164	56.60%
62	57,345	4.39%	5%	0.237	0.341	56.17%
63	57,365	4.69%	4.46%	0.248	0.290	58.33%
64	57,270	7.73%	8.97%	0.181	0.076	43.51%
65	57,455	10.02%	15.44%	0.660	0.254	37.36%
66	57,545	23.99%	20.06%	0.314	0.171	33.01%
67	57,239	0.58%	0.90%	0.387	0.303	51.31%
68	57,266	1.65%	1.20%	0.451	0.253	48.90%
69	57,646	0.30%	3.05%	0.407	0.402	53.52%
70	57,554	0.82%	2.02%	0.216	0.163	50.43%
71	57,519	0.55%	1.91%	0.501	0.269	41.17%
72	57,449	0.37%	2.70%	0.417	0.371	50.86%
73	57,453	0.78%	0.87%	0.545	0.233	39.93%
74	57,494	0.15%	0.91%	0.420	0.143	42.34%
75	57,462	0.66%	1.29%	0.443	0.444	51.30%
76	57,617	4.42%	4.10%	0.208	0.240	16.80%
77	57,433	6.01%	6.76%	0.376	0.080	21.00%
78	57,548	4.90%	4.74%	0.559	0.065	32.19%
79	57,459	1.43%	2.61%	0.303	0.058	41.81%
80	57,585	1.49%	1.69%	0.505	0.351	39.21%
81	57,403	1.55%	2.92%	0.420	0.264	44.91%
82	57,430	4.02%	4.13%	0.539	0.444	57.14%

District	Total Population	Black Voting Age Population	Hispanic Voting Age Population	Reock Score	Polsby- Popper Score	Republican Vote Share (Chen Composite Measure)
83	57,423	0.29%	1.91%	0.286	0.228	67.40%
84	57,365	1.57%	5.28%	0.232	0.295	58.02%
85	57,480	0.81%	1.83%	0.369	0.194	47.73%
86	57,454	0.24%	1.13%	0.330	0.156	54.12%
87	57,358	0.27%	1.13%	0.305	0.341	52.77%
88	57,556	1.34%	6.22%	0.404	0.214	53.15%
89	57,634	0.49%	1.13%	0.288	0.170	54.65%
90	57,608	3.88%	13.23%	0.322	0.194	41.62%
91	57,359	0.92%	1.49%	0.365	0.072	40.96%
92	57,431	0.97%	3.18%	0.310	0.403	43.96%
93	57,546	0.28%	1.18%	0.212	0.176	50.69%
94	57,266	0.53%	0.89%	0.479	0.228	51.68%
95	57,372	1.70%	1.49%	0.248	0.086	38.63%
96	57,482	0.78%	1.31%	0.427	0.353	46.25%
97	57,279	1.63%	9.07%	0.374	0.245	62.53%
98	57,513	1.29%	4.51%	0.515	0.285	66.71%
99	57,528	0.44%	1.60%	0.422	0.309	72.74%

Table 4: District-Level Characteristics of Computer-Simulated Map 43995

District	Total Population	Black Voting Age Population	Hispanic Voting Age Population	Reock Score	Polsby-Popper Score	Republican Vote Share (Chen Composite Measure)
1	57,591	1.22%	6.18%	0.353	0.252	48.94%
2	57,503	7.30%	9.15%	0.364	0.107	36.13%
3	57,410	59.23%	3.17%	0.339	0.142	23.50%
4	57,574	2.18%	6.66%	0.359	0.189	47.81%
5	57,671	3.69%	2.83%	0.121	0.107	37.05%
6	57,378	0.45%	2.75%	0.534	0.419	64.11%
7	57,328	8.28%	12.70%	0.594	0.459	39.58%
8	57,623	1.07%	3.82%	0.422	0.268	44.92%
9	57,643	3.08%	7.15%	0.491	0.421	50.62%
10	57,617	1.78%	4.07%	0.501	0.210	58.86%
11	57,246	3.91%	5.91%	0.328	0.191	38.57%
12	57,484	0.81%	3.45%	0.429	0.359	68.48%
13	57,666	0.79%	10.54%	0.394	0.231	59.73%
14	57,333	1.52%	3.55%	0.407	0.168	40.15%
15	57,557	18.69%	9.54%	0.224	0.078	39.96%
16	57,408	16.15%	13.36%	0.272	0.183	45.74%
17	57,350	0.35%	1.68%	0.368	0.182	71.78%
18	57,246	54.25%	2.94%	0.324	0.204	24.93%
19	57,259	0.61%	2.08%	0.465	0.282	69.00%
20	57,256	0.39%	2.10%	0.372	0.123	66.81%
21	57,469	0.61%	0.96%	0.402	0.361	45.39%
22	57,521	2.59%	8.09%	0.347	0.154	50.65%
23	57,251	3.30%	4.99%	0.467	0.413	56.14%
24	57,494	1.53%	1.50%	0.544	0.355	66.18%
25	57,488	51.88%	2.91%	0.614	0.553	27.90%
26	57,265	0.28%	2.48%	0.394	0.288	52.61%
27	57,613	6.72%	9.94%	0.334	0.162	43.20%
28	57,445	5.04%	4.37%	0.460	0.118	25.30%
29	57,545	0.27%	1.03%	0.362	0.147	46.46%
30	57,327	2.07%	2.33%	0.233	0.164	44.00%
31	57,461	0.31%	2.10%	0.259	0.136	66.45%
32	57,440	0.53%	5.08%	0.437	0.338	59.60%
33	57,580	1.38%	4.18%	0.492	0.273	59.11%
34	57,361	4.93%	9.16%	0.231	0.146	40.05%
35	57,256	0.89%	1.75%	0.431	0.431	70.97%
36	57,311	6.54%	5.14%	0.392	0.112	31.16%
37	57,485	2.08%	4.82%	0.455	0.136	49.84%
38	57,673	1.43%	1.49%	0.457	0.306	57.54%
39	57,230	0.35%	2.20%	0.521	0.318	56.70%
40	57,257	12.03%	2.68%	0.416	0.188	47.30%

District	Total Population	Black Voting Age Population	Hispanic Voting Age Population	Reock Score	Polsby-Popper Score	Republican Vote Share (Chen Composite Measure)
41	57,673	0.27%	1.37%	0.332	0.267	55.81%
42	57,618	0.86%	2%	0.378	0.278	66.16%
43	57,361	2.12%	9.87%	0.355	0.089	60.29%
44	57,383	15.25%	11.89%	0.366	0.144	43.57%
45	57,313	9.62%	9.69%	0.354	0.327	43.25%
46	57,479	69.09%	4.49%	0.355	0.173	9.75%
47	57,360	54.56%	4.33%	0.269	0.109	15.24%
48	57,608	4.62%	2.77%	0.348	0.265	57.45%
49	57,530	0.20%	1.08%	0.549	0.533	52.95%
50	57,418	1.48%	3.51%	0.487	0.418	49.74%
51	57,331	1.38%	2.19%	0.421	0.252	55.58%
52	57,353	0.18%	1.01%	0.416	0.231	52.51%
53	57,284	2.09%	2.92%	0.393	0.210	54.84%
54	57,585	0.89%	4.16%	0.362	0.248	54.40%
55	57,524	1.04%	2.74%	0.300	0.169	54.93%
56	57,502	1.66%	2.53%	0.543	0.559	51.10%
57	57,463	0.57%	1.62%	0.503	0.334	56.40%
58	57,468	2.13%	1.43%	0.340	0.296	66.82%
59	57,357	1.01%	1.04%	0.347	0.170	45.29%
60	57,309	0.58%	2.10%	0.626	0.610	41.68%
61	57,413	0.41%	2.40%	0.324	0.151	57.95%
62	57,545	0.32%	3.04%	0.443	0.289	66.38%
63	57,593	1.81%	4.56%	0.369	0.160	45.42%
64	57,278	0.53%	2.11%	0.464	0.187	51.60%
65	57,583	1.93%	3.03%	0.358	0.244	36.29%
66	57,329	0.28%	0.91%	0.263	0.224	54.24%
67	57,341	0.22%	1.82%	0.437	0.375	56.78%
68	57,549	3.23%	1.99%	0.437	0.141	50.56%
69	57,280	4.28%	4.09%	0.666	0.502	58.18%
70	57,437	0.52%	2.58%	0.354	0.296	49.93%
71	57,417	0.63%	2.43%	0.488	0.347	66.41%
72	57,343	50.12%	4.36%	0.286	0.242	30.14%
73	57,371	1.37%	1.89%	0.348	0.264	50.97%
74	57,478	0.36%	1.83%	0.380	0.201	70.81%
75	57,445	1.50%	3.05%	0.314	0.252	48.47%
76	57,458	0.37%	0.75%	0.430	0.497	49.56%
77	57,501	0.42%	1.20%	0.234	0.175	49.49%
78	57,600	0.76%	0.86%	0.291	0.163	38.31%
79	57,541	6.29%	5.66%	0.403	0.185	27.45%
80	57,638	2.77%	3.81%	0.535	0.304	20.01%
81	57,409	1.01%	1.86%	0.521	0.207	52.18%
82	57,616	0.74%	1.52%	0.517	0.361	45.55%

District	Total Population	Black Voting Age Population	Hispanic Voting Age Population	Reock Score	Polsby-Popper Score	Republican Vote Share (Chen Composite Measure)
83	57,492	0.18%	2.93%	0.454	0.388	44.70%
84	57,552	0.28%	2.37%	0.390	0.396	45.31%
85	57,454	0.73%	0.99%	0.380	0.305	45.94%
86	57,672	0.57%	1.26%	0.441	0.260	49.81%
87	57,491	1.39%	1.91%	0.427	0.413	49.16%
88	57,557	0.66%	1.25%	0.456	0.577	51.18%
89	57,281	1.28%	1.37%	0.423	0.267	44.87%
90	57,406	0.54%	1.19%	0.304	0.238	45.70%
91	57,402	0.75%	1.70%	0.476	0.461	49.98%
92	57,555	1.09%	2.56%	0.318	0.278	46.42%
93	57,286	1.91%	1.07%	0.572	0.470	50.30%
94	57,523	0.18%	1.66%	0.343	0.277	52.99%
95	57,273	0.31%	1.49%	0.125	0.075	50.56%
96	57,288	2.59%	12.81%	0.434	0.328	48.03%
97	57,576	0.29%	1.20%	0.429	0.254	52.96%
E8	57,196	9.23%	67.68%	0.664	0.491	24.38%
E9	57,283	6.01%	47.52%	0.335	0.191	34.25%

Note: 'E8' and 'E9' denote the Enacted Act 43 Plan's Assembly Districts 8 and 9, which are frozen in Computer-Simulated Map 43995. The remaining 97 districts (numbered from 1 to 97), represent computer-simulated districts.

Table 5: List of 67 Municipalities Split into Multiple Districts in Enacted Act 43 Plan

De Pere city (2, 88)	Greenville town (55, 56)
Green Bay city (1, 4, 88, 90)	Little Chute village (3, 5)
Howard village (4, 5, 89)	Mequon city (23, 24)
Ledgeview town (2, 88)	Grant town (71, 72)
Eau Claire city (68, 91)	Burlington town (32, 63)
Cottage Grove town (46, 47)	Caledonia village (62, 63)
DeForest village (37, 42)	Mount Pleasant village (62, 63, 64)
Dunkirk town (43, 46)	Racine city (62, 64, 66)
Fitchburg city (47, 80)	Beloit city (31, 45)
Madison city (47, 48, 76, 77, 78)	Beloit town (31, 45)
Middleton city (78, 79)	Harmony town (31, 44)
Oregon village (43, 80)	Janesville city (31, 44)
Verona city (79, 80)	Richmond town (29, 30)
Verona town (79, 80)	Wisconsin Dells city (41, 81)
Windsor town (37, 42, 79)	Sheboygan city (26, 27)
Lowell town (37, 39)	Sheboygan Falls city (26, 27)
Eau Claire city (68, 91, 93)	East Troy town (32, 33, 83)
Calumet town (52, 59)	Hartford city (39, 59)
Fond du Lac town (52, 53)	Richfield village (22, 58)
Mount Pleasant town (45, 80)	Trenton town (58, 60)
Koshkonong town (33, 43)	Brookfield city (13, 14)
Kenosha city (61, 64, 65)	Brookfield town (13, 14)
Somers town (61, 64)	Genesee town (97, 99)
Shelby town (94, 95)	Lisbon town (22, 98)
Meeme town (25, 27)	Menomonee Falls village (22, 24)
Franklin city (21, 82, 83)	Mukwonago town (33, 97)
Glendale city (11, 24)	New Berlin city (15, 84)
Greenfield city (7, 82, 84)	Oconomowoc town (38, 99)
Milwaukee city (8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 22, 7, 84)	Summit village (38, 99)
Wauwatosa city (12, 13, 14)	Waukesha city (97, 98)
West Allis city (13, 15, 7)	Waukesha town (83, 97)
Appleton city (55, 56, 57)	Menasha town (55, 57)
Grand Chute town (55, 56, 57)	Oshkosh city (53, 54)
	Marshfield city (69, 86)

Table 6: List of 58 Counties Split into Multiple Districts in Enacted Act 43 Plan

Adams County (41, 72)	Milwaukee County (8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 7, 82, 83, 84)
Barron County (67, 75)	Monroe County (50, 70, 96)
Brown County (1, 2, 4, 5, 6, 88, 89, 90)	Oconto County (36, 6, 89)
Buffalo County (92, 93)	Oneida County (34, 35)
Burnett County (28, 73, 75)	Outagamie County (2, 3, 40, 5, 55, 56, 57, 6)
Calumet County (25, 27, 3, 59)	Ozaukee County (23, 24, 60)
Chippewa County (67, 68, 91)	Pierce County (30, 93)
Clark County (68, 69, 87)	Polk County (28, 75)
Columbia County (37, 41, 42, 81)	Portage County (70, 71, 72)
Dane County (37, 38, 42, 43, 46, 47, 48, 76, 77, 78, 79, 80, 81)	Racine County (32, 62, 63, 64, 66, 83)
Dodge County (37, 39, 42, 53)	Richland County (49, 50, 51)
Douglas County (73, 74)	Rock County (31, 43, 44, 45)
Dunn County (29, 67, 75, 93)	St. Croix County (28, 29, 30, 75, 93)
Eau Claire County (68, 91, 93)	Sauk County (41, 50, 51, 81)
Fond du Lac County (41, 42, 52, 53, 59)	Sawyer County (74, 87)
Forest County (34, 36)	Shawano County (35, 36, 40, 6)
Green County (45, 51, 80)	Sheboygan County (26, 27, 59)
Green Lake County (41, 42)	Trempealeau County (68, 92)
Iowa County (49, 51, 80, 81)	Vernon County (50, 96)
Jackson County (68, 70, 92)	Vilas County (34, 74)
Jefferson County (33, 37, 38, 43)	Walworth County (31, 32, 33, 43, 63, 83)
Juneau County (41, 50)	Washburn County (73, 75)
Kenosha County (32, 61, 64, 65)	Washington County (22, 24, 39, 58, 59, 60)
La Crosse County (94, 95)	Waukesha County (13, 14, 15, 22, 24, 33, 38, 83, 84, 97, 98, 99)
Lafayette County (49, 51)	Waupaca County (40, 6)
Langlade County (35, 36)	Waushara County (40, 41, 72)
Manitowoc County (1, 2, 25, 27)	Winnebago County (53, 54, 55, 56, 57)
Marathon County (35, 69, 85, 86, 87)	Wood County (69, 70, 72, 86)
Marinette County (36, 89)	
Marquette County (41, 42)	

Table 7: List of 53 Municipalities Split into Multiple Districts in Simulated Plan 43995

Allouez village (37, 53)	West Allis city (22, 9)
Green Bay city (37, 51, 96)	Appleton city (39, 50, 64)
Hobart village (2, 51, 61)	Grand Chute town (39, 50, 54, 64)
Blooming Grove town (2, 28, 36)	Kaukauna city (39, 64)
Bristol town (30, 87)	Grafton town (24, 71)
Burke town (2, 36)	Burlington town (33, 62)
Dunkirk town (11, 8)	Mount Pleasant village (16, 44)
Fitchburg city (11, 2)	Racine city (16, 23, 44)
Madison city (2, 28, 36, 65, 79, 80)	Janesville city (14, 63)
Madison town (2, 79, 80)	Sheboygan city (1, 71)
Middleton town (65, 79)	Sheboygan Falls city (1, 27, 38)
Sun Prairie city (2, 30)	Geneva town (13, 62)
Westport town (30, 36)	Lyons town (13, 62)
Eau Claire city (82, 90, 93)	Sugar Creek town (13, 63)
Union town (82, 90)	Germantown village (19, 35)
Fond du Lac town (10, 31)	Brookfield city (42, 58)
Exeter town (11, 84)	Delafield town (12, 17)
Kenosha city (27, 33, 61, 7)	New Berlin city (20, 42)
Pleasant Prairie village (27, 33)	Ottawa town (17, 74)
La Crosse city (59, 89)	Waukesha city (12, 43)
Onalaska town (59, 89)	Waukesha town (20, 43)
Stettin town (91, 97)	Weyauwega city (55, 67)
Franklin city (20, 69)	Weyauwega town (55, 67)
Greenfield city (20, 22)	Algoma town (54, 81)
Milwaukee city (15, 18, 22, 25, 3, 34, 40, 46, 47, 5, 72, E8, E9)	Menasha city (54, 68)
Oak Creek city (23, 4, 69)	Oshkosh city (53, 68, 81)
	Rushford town (55, 81)

Note: 'E8' and 'E9' denote the Enacted Act 43 Plan's Assembly Districts 8 and 9, which are frozen in Computer-Simulated Map 43995. The remaining 97 districts (numbered from 1 to 97), represent computer-simulated districts.

Table 8: List of 43 Counties Split into Multiple Districts in Simulated Plan 43995:

Bayfield County (29, 78)	Milwaukee County (15, 18, 20, 22, 23, 25, 3, 34, 4, 40, 46, 47, 5, 69, 72, 9, E8, E9)
Brown County (2, 37, 51, 53, 61, 96)	Oconto County (41, 51, 52)
Burnett County (49, 78)	Oneida County (29, 66, 76)
Calumet County (3, 38, 61)	Outagamie County (39, 50, 54, 64)
Chippewa County (67, 77, 93)	Ozaukee County (24, 60, 71)
Clark County (26, 90)	Portage County (55, 60, 71)
Columbia County (48, 87)	Price County (29, 94)
Dane County (11, 2, 28, 30, 36, 46, 65, 79, 8, 80, 87)	Racine County (16, 23, 33, 44, 62)
Dodge County (48, 6)	Rock County (14, 45, 63, 84)
Dunn County (77, 82, 86)	Rusk County (93, 94)
Eau Claire County (82, 90, 93)	St. Croix County (57, 86)
Fond du Lac County (10, 31, 42, 53, 81)	Sauk County (75, 81, 92)
Grant County (21, 85, 92)	Shawano County (41, 67)
Green County (11, 84)	Sheboygan County (1, 27, 38, 71)
Green Lake County (48, 55)	Walworth County (13, 62, 63)
Jackson County (56, 83, 92)	Washburn County (78, 88)
Jefferson County (32, 8)	Washington County (19, 31, 35, 58, 59, 60)
Juneau County (50, 73, 75)	Waukesha County (12, 17, 20, 42, 43, 58, 74)
Kenosha County (27, 33, 61, 7)	Waupaca County (55, 67)
La Crosse County (59, 89)	Winnebago County (53, 54, 55, 68, 81)
Manitowoc County (38, 70, 95)	Wood County (26, 73)
Marathon County (86, 91, 94, 97)	

Note: 'E8' and 'E9' denote the Enacted Act 43 Plan's Assembly Districts 8 and 9, which are frozen in Computer-Simulated Map 43995. The remaining 97 districts (numbered from 1 to 97), represent computer-simulated districts.

Table 9: Incumbent Representatives as of November 2012

2002 Enacted Plan District:	Incumbent Name:	Act 43 Enacted Plan District:	Simulated Plan 43995 District:
1	Garey Bies	1 (Protected)	95 (Protected)
2	Andre Jacque	88 (Not Protected)	53 (Protected)
3	Al Ott	3 (Protected)	61 (Protected)
4	Chad Weininger	4 (Protected)	37 (Protected)
5	Jim Steineke	5 (Protected)	64 (Protected)
6	Gary Tauchen	6 (Protected)	41 (Protected)
7	Margaret Krusick	7 (Not Protected)	15 (Protected)
8	JoCasta Zamarripa	8 (Protected)	E8 (Protected)
9	Josh Zepnick	7 (Not Protected)	22 (Protected)
10	Elizabeth Coggs	10 (Protected)	46 (Protected)
11	Jason Fields	11 (Protected)	25 (Protected)
12	Fredrick Kessler	22 (Not Protected)	72 (Protected)
13	David Cullen	14 (Not Protected)	03 (Not Protected)
14	Dale Kooyenga	14 (Not Protected)	42 (Protected)
15	Tony Staskunas	15 (Protected)	09 (Protected)
16	Leon Young	16 (Protected)	47 (Protected)
17	Barbara Toles	17 (Protected)	03 (Not Protected)
18	Tamara Grigsby	18 (Protected)	40 (Protected)
19	Jon Richards	19 (Protected)	05 (Not Protected)
20	Christine Sinicki	20 (Protected)	34 (Protected)
21	Mark Honadel	21 (Protected)	04 (Protected)
22	Sandy Pasch	23 (Not Protected)	05 (Not Protected)
23	Jim Ott	23 (Not Protected)	24 (Protected)
24	Dan Knodl	24 (Protected)	35 (Not Protected)
25	Bob Ziegelbauer	25 (Protected)	70 (Protected)
26	Mike Endsley	26 (Protected)	01 (Protected)
27	Steve Kestell	27 (Protected)	38 (Protected)
28	Erik Severson	28 (Protected)	49 (Protected)
29	John Murtha	29 (Protected)	86 (Protected)
30	Dean Knudson	30 (Protected)	57 (Protected)
31	Steve Nass	33 (Not Protected)	63 (Not Protected)
32	Tyler August	31 (Not Protected)	13 (Protected)
33	Chris Kapenga	99 (Protected)	17 (Protected)
34	Dan Meyer	34 (Protected)	66 (Protected)
35	Tom Tiffany	35 (Protected)	76 (Protected)
36	Jeff Mursau	36 (Protected)	52 (Not Protected)
37	Andy Jorgensen	33 (Not Protected)	08 (Protected)
38	Joel Kleefisch	38 (Protected)	74 (Protected)
39	Jeff Fitzgerald	39 (Protected)	06 (Protected)
40	Kevin Petersen	40 (Protected)	67 (Protected)
41	Joan Ballweg	41 (Protected)	48 (Protected)

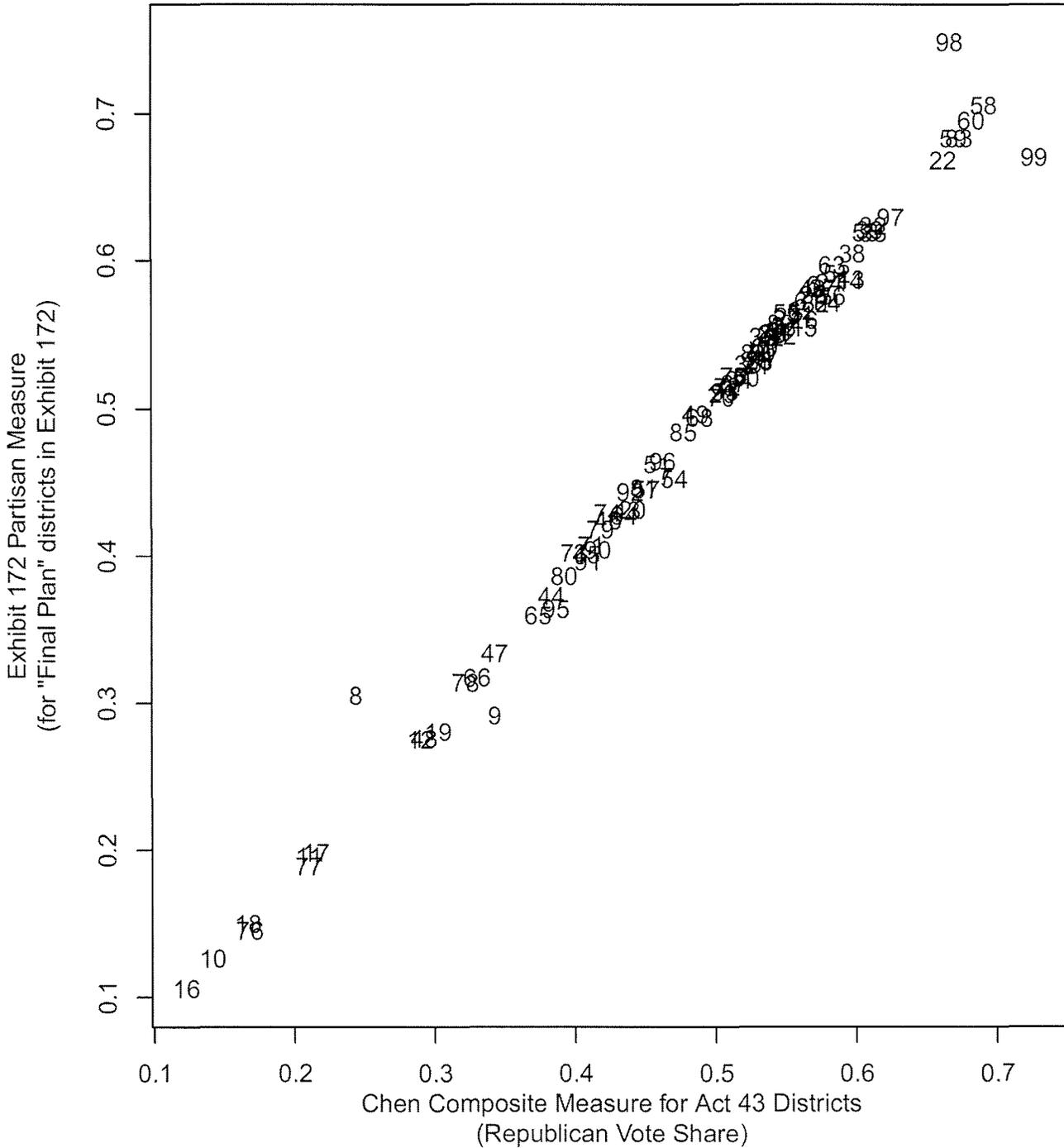
2002 Enacted Plan District:	Incumbent Name:	Act 43 Enacted Plan District:	Simulated Plan 43995 District:
42	Fred Clark	81 (Protected)	92 (Not Protected)
43	Evan Wynn	43 (Protected)	63 (Not Protected)
44	Joe Knilians	44 (Protected)	14 (Protected)
45	Amy Loudenbeck	31 (Not Protected)	45 (Protected)
46	Gary Hebl	46 (Protected)	02 (Protected)
47	Keith Ripp	42 (Protected)	30 (Protected)
48	Joe Parisi	48 (Not Protected)	28 (Protected)
49	Travis Tranel	49 (Protected)	21 (Protected)
50	Ed Brooks	50 (Protected)	75 (Protected)
51	Howard Marklein	51 (Protected)	92 (Not Protected)
52	Jeremy Thiesfeldt	52 (Protected)	10 (Protected)
53	Richard Spanbauer	53 (Protected)	54 (Protected)
54	Gordon Hintz	54 (Protected)	81 (Protected)
55	Dean Kaufert	55 (Protected)	68 (Not Protected)
56	Michelle Litjens	56 (Protected)	68 (Not Protected)
57	Penny Bernard Schaber	57 (Protected)	50 (Protected)
58	Patricia Strachota	58 (Protected)	19 (Protected)
59	Daniel LeMahieu	59 (Protected)	71 (Protected)
60	VACANT		
61	Robert Turner	66 (Protected)	16 (Protected)
62	Cory Mason	62 (Protected)	44 (Protected)
63	Robin Vos	63 (Protected)	62 (Protected)
64	Peter Barca	64 (Protected)	07 (Protected)
65	John Steinbrink	61 (Not Protected)	27 (Protected)
66	Samantha Kerkman	61 (Not Protected)	33 (Protected)
67	Tom Larson	67 (Protected)	77 (Protected)
68	Kathy Bernier	68 (Protected)	93 (Protected)
69	Scott Suder	69 (Protected)	26 (Not Protected)
70	Amy Sue Vruwink	70 (Protected)	26 (Not Protected)
71	Louis Molepske, Jr.	71 (Protected)	60 (Protected)
72	Scott Krug	72 (Protected)	73 (Protected)
73	Nick Milroy	73 (Protected)	78 (Protected)
74	Janet Bewley	74 (Protected)	29 (Protected)
75	Roger Rivard	75 (Protected)	88 (Protected)
76	Terese Berceau	77 (Protected)	79 (Not Protected)
77	Brett Hulse	78 (Protected)	79 (Not Protected)
78	Mark Poca	76 (Protected)	80 (Protected)
79	Sondy Pope-Roberts	79 (Protected)	65 (Protected)
80	Janis Ringhand	45 (Protected)	84 (Protected)
81	Kelda Helen Roys	48 (Not Protected)	36 (Protected)
82	Jeff Stone	82 (Protected)	69 (Protected)
83	VACANT		
84	Mike Kuglitsch	84 (Protected)	20 (Protected)

2002 Enacted		Act 43 Enacted Plan	Simulated Plan 43995
Plan District:	Incumbent Name:	District:	District:
85	Donna Seidel	85 (Protected)	91 (Protected)
86	Jerry Petrowski	86 (Protected)	97 (Protected)
87	Mary Williams	87 (Protected)	94 (Protected)
88	John Klenke	88 (Not Protected)	96 (Protected)
89	John Nygren	89 (Not Protected)	52 (Not Protected)
90	Karl Van Roy	89 (Not Protected)	51 (Protected)
91	Chris Danou	92 (Not Protected)	83 (Protected)
92	Mark Radcliffe	92 (Not Protected)	56 (Protected)
93	Warren Petryk	93 (Protected)	82 (Protected)
94	VACANT		
95	Jennifer Shilling	95 (Protected)	89 (Protected)
96	Lee Nerison	96 (Protected)	85 (Protected)
97	Bill Kramer	97 (Protected)	43 (Protected)
98	Paul Farrow	98 (Protected)	12 (Protected)
99	Don Pridemore	22 (Not Protected)	35 (Not Protected)

Table 10: Act 43 Districts and Simulated Plan 43995 Districts in which 31 Plaintiffs Reside

Plaintiff	Republican Vote Share of		Republican Vote Share of	
	Act 43 District	Act 43 District (Chen Composite Measure)	Simulated Plan 43995 District	Simulated District (Chen Composite Measure)
Graham Adsit	38	59.78%	8	44.92%
Roger Anclam	31	56.10%	45	43.25%
Warren Braun	13	59.67%	40	47.30%
Hans Breitenmoser	35	52.35%	76	49.56%
Judith Brey	50	52.19%	75	48.47%
Sandra Carlson-Kaye	18	16.66%	15	39.96%
Guy Costello	21	52.96%	4	47.81%
Timothy B. Daley	63	58.33%	16	45.74%
Daniel Dieterich	70	50.43%	60	41.68%
Mary Lynne Donohue	26	56.34%	1	48.94%
Leah Dudley	77	21.00%	2	36.13%
Jennifer Estrada	25	53.10%	70	49.93%
Barbara Flom	29	50.54%	86	49.81%
Helen Harris	22	66.25%	72	30.14%
Gail Hohenstein	88	53.15%	96	48.03%
Elizabeth Lentini	23	57.01%	5	37.05%
Norah McCue	62	56.17%	44	43.57%
Janet Mitchell	66	33.01%	44	43.57%
Deborah Patel	24	58.14%	18	24.93%
Jane Pedersen	67	51.31%	86	49.81%
Nancy Petulla	86	54.12%	91	49.98%
Robert Pfundheller	93	50.69%	82	45.55%
Sara Ramaker	4	53.68%	37	49.84%
Rosalie Schnick	95	38.63%	59	45.29%
Allison Seaton	42	54.81%	87	49.16%
James Seaton	42	54.81%	87	49.16%
Linea Sundstrom	10	14.16%	5	37.05%
Michael Switzenbaum	23	57.01%	5	37.05%
Jerome Wallace	23	57.01%	5	37.05%
Edward Wohl	80	39.21%	21	45.39%
Ann Wolfe	80	39.21%	21	45.39%

Figure 1:
Comparison of Chen Composite Measure (for Act 43 Districts)
to Exhibit 172 Partisan Measure (for "Final Plan")
(Numbers indicate district numbers)



**Figure 2a:
Act 43 Assembly District–Level Republican Vote Share
(Chen Composite Measure)**

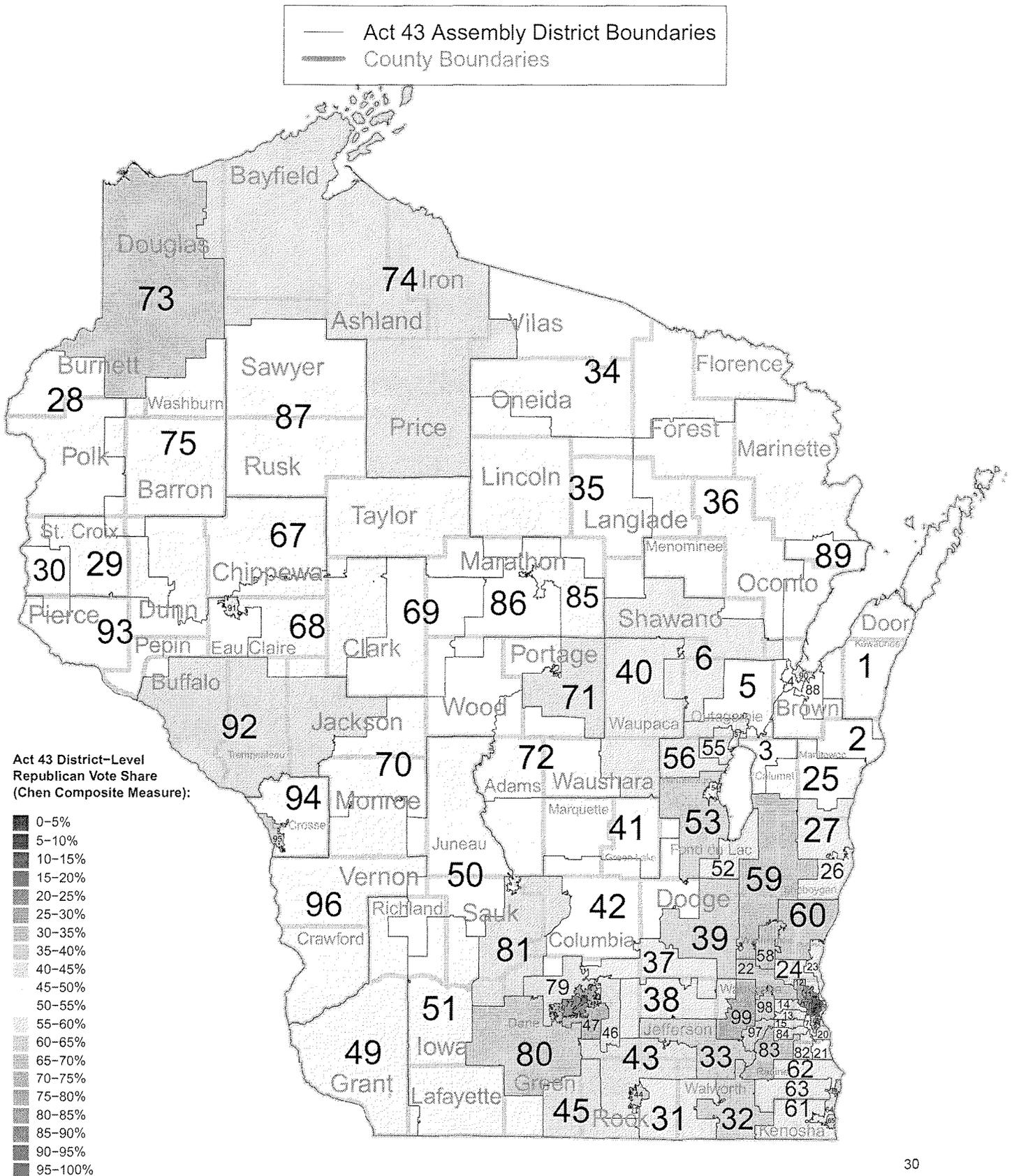
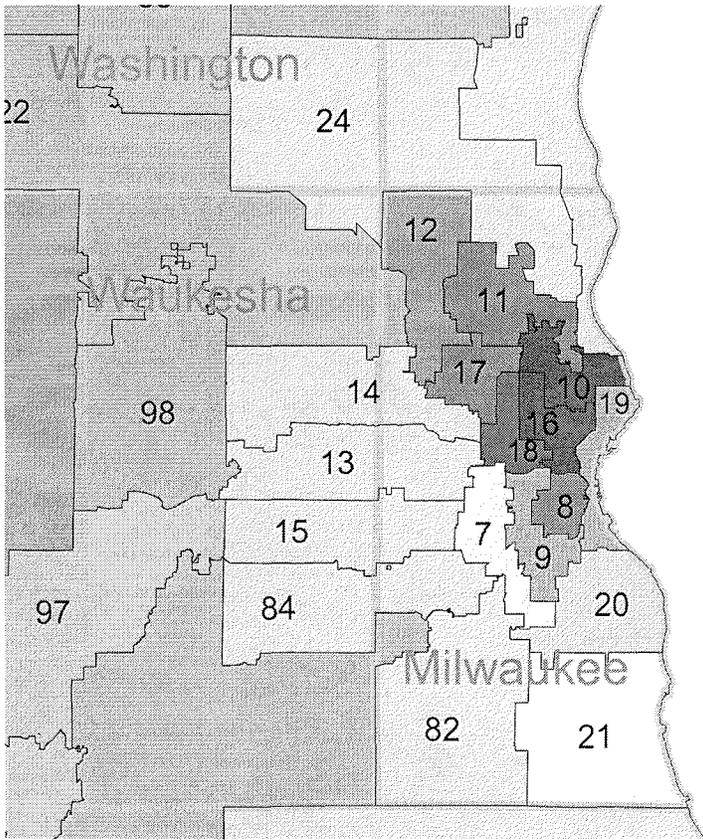
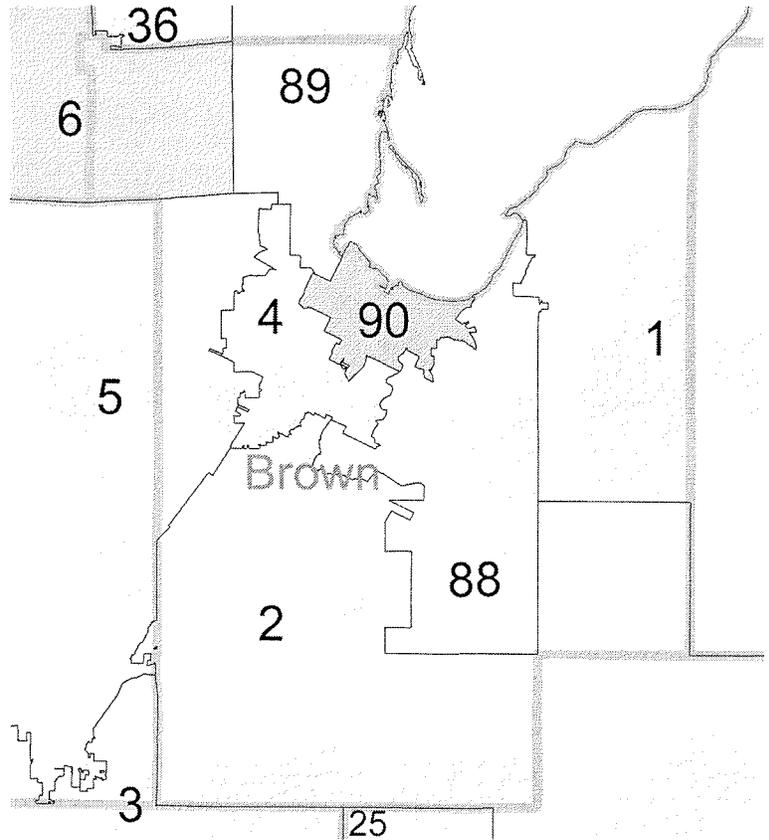


Figure 2b: Act 43 Map District-Level Republican Vote Share
(Chen Composite Measure)

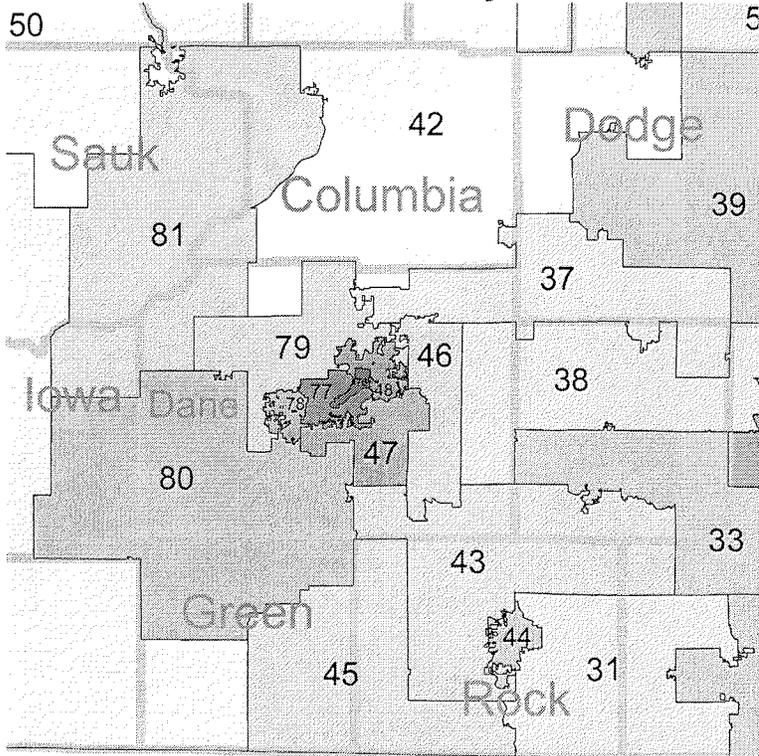
Milwaukee County



Brown County



Dane County



Racine and Kenosha Counties

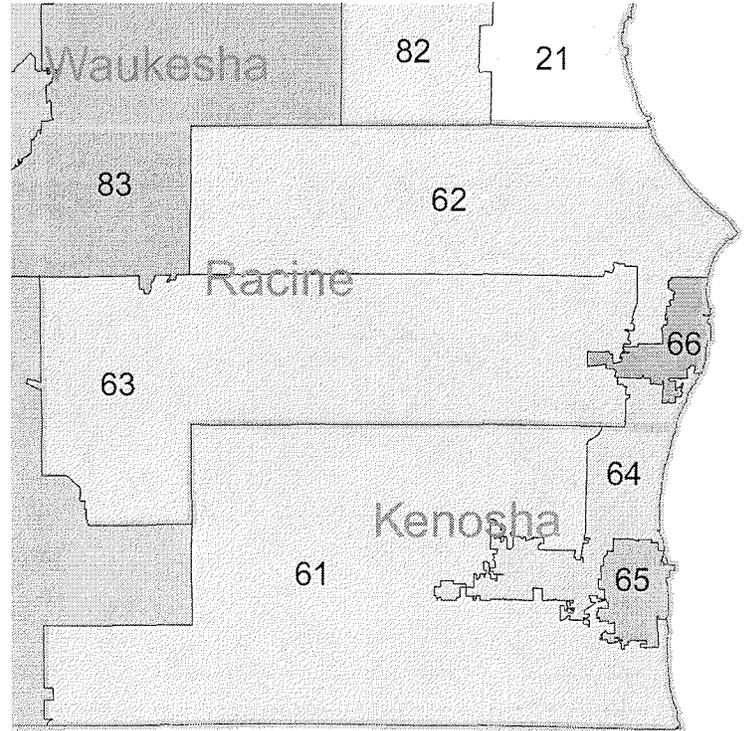


Figure 3a: Simulated Plan 43995 District-Level Republican Vote Share (Chen Composite Measure)

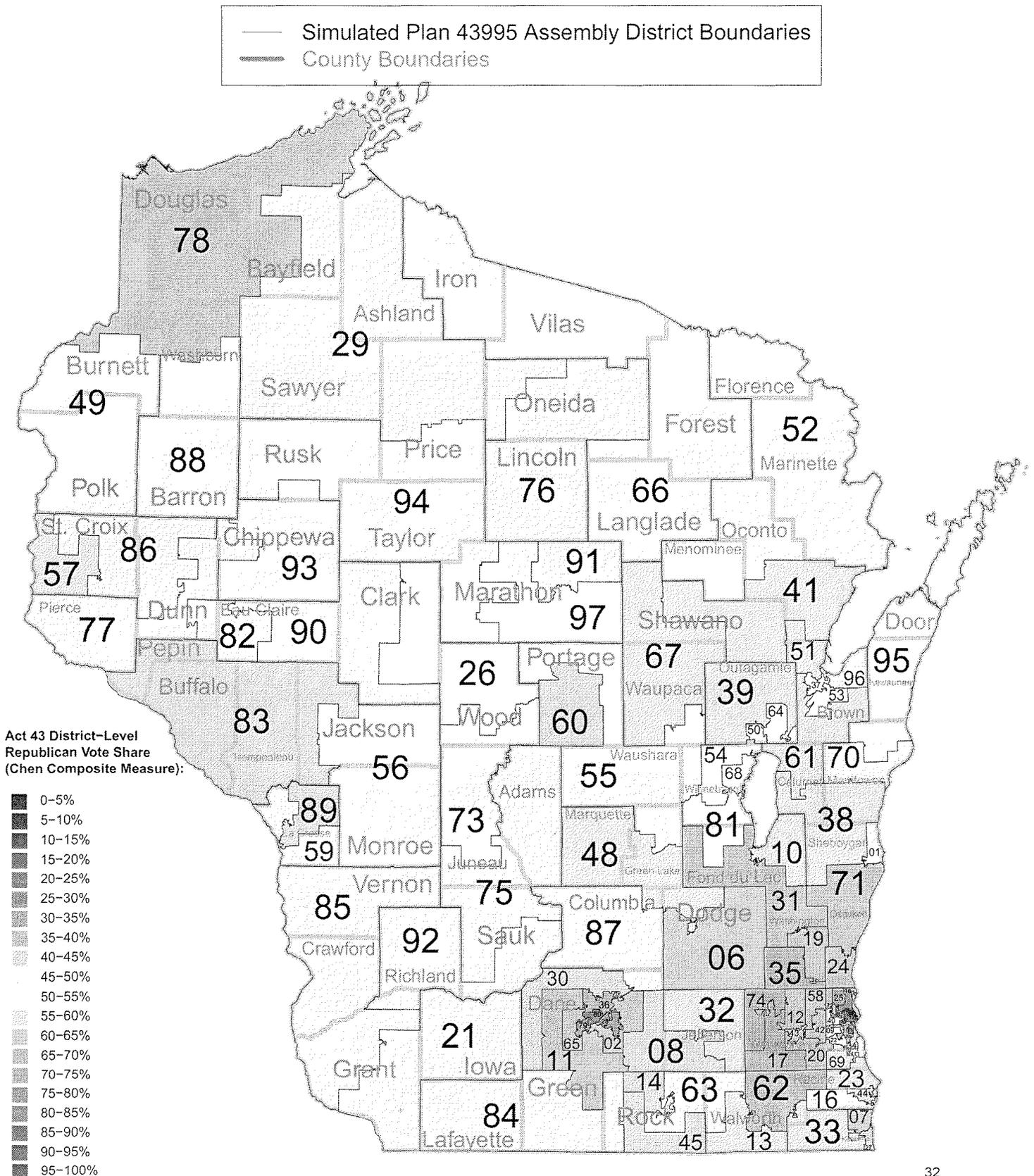
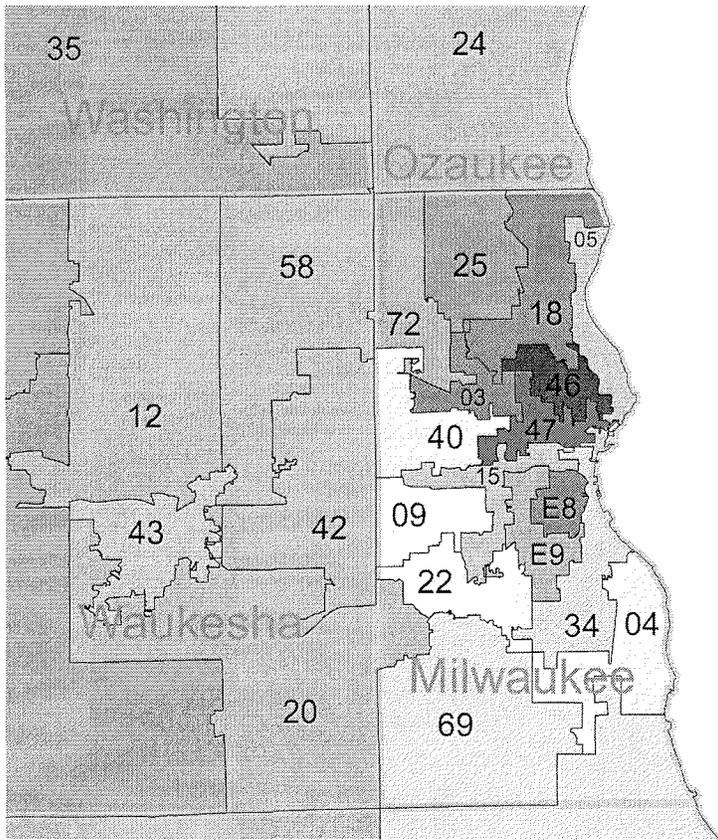
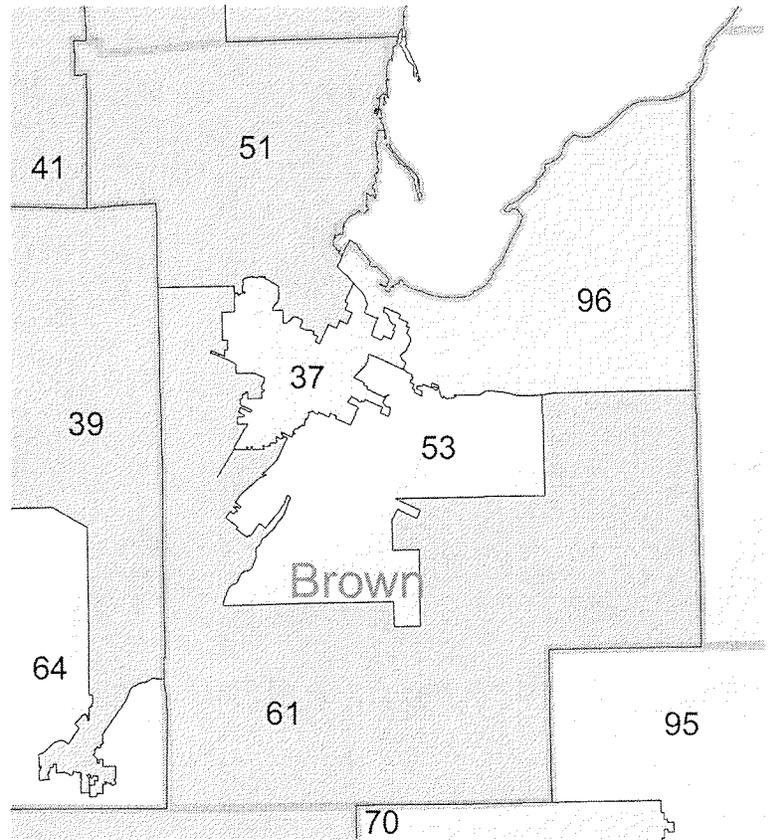


Figure 3b: Simulated Plan 43995 District-Level Republican Vote Share
(Chen Composite Measure)

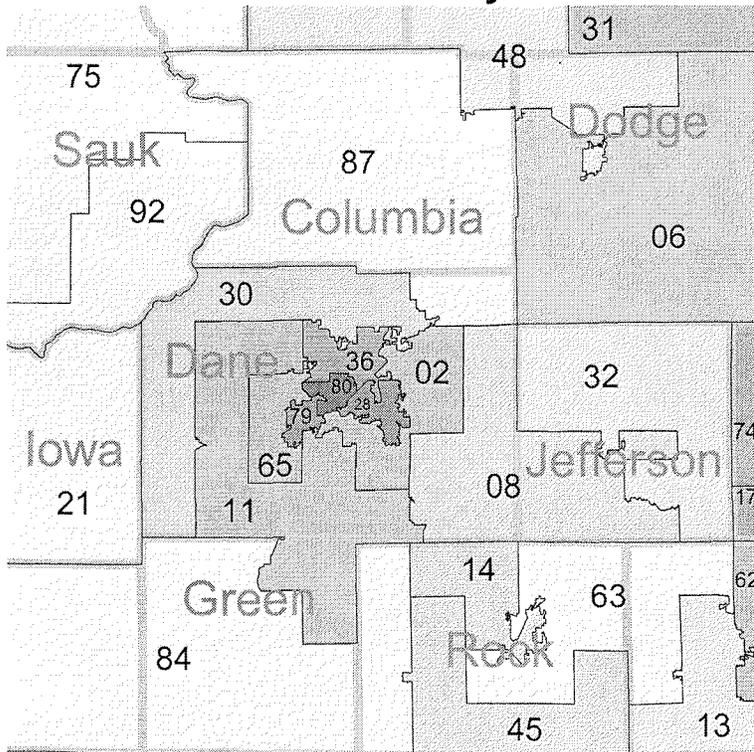
Milwaukee County



Brown County



Dane County



Racine and Kenosha Counties

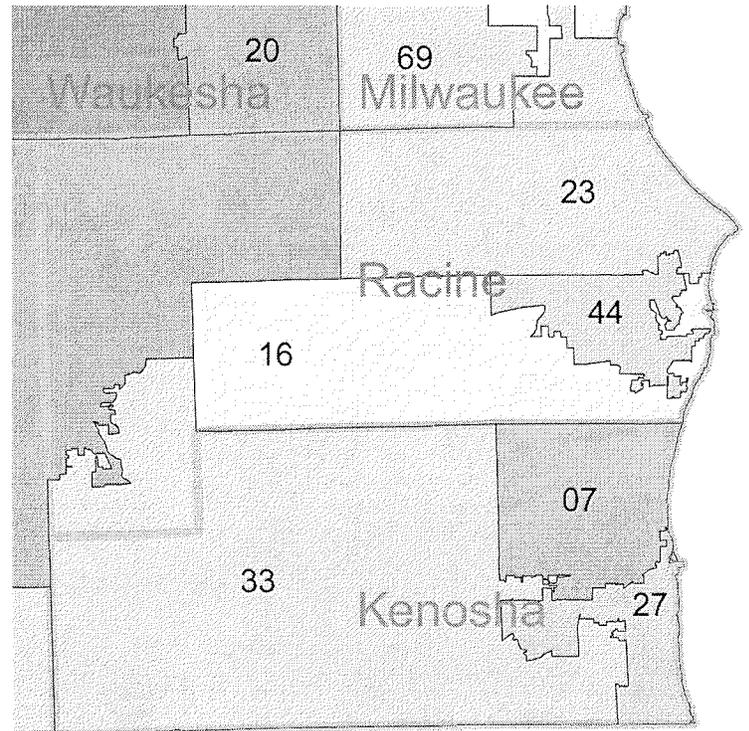


Figure 4a: Ward-Level Republican Vote Share (Chen Composite Measure)

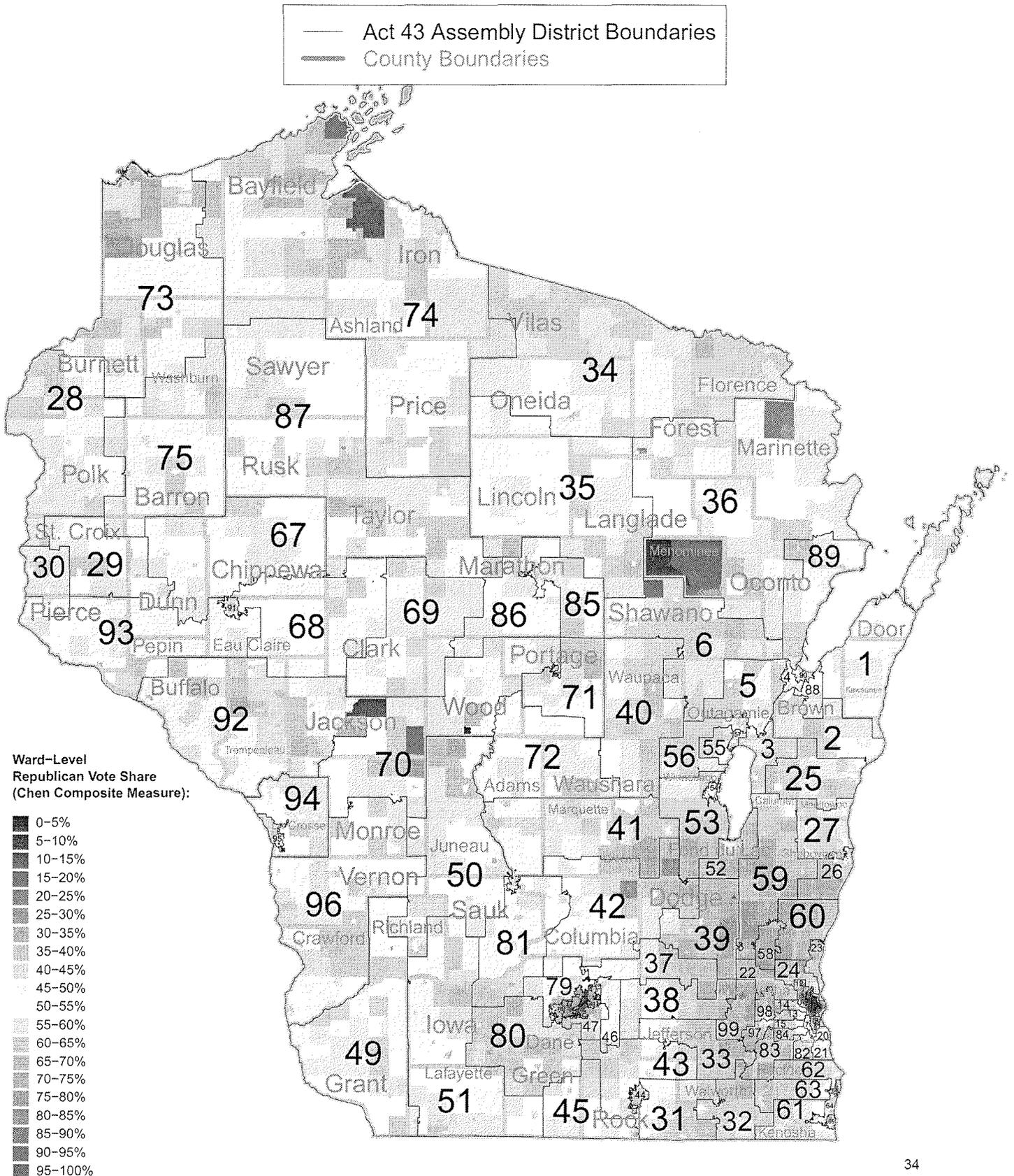
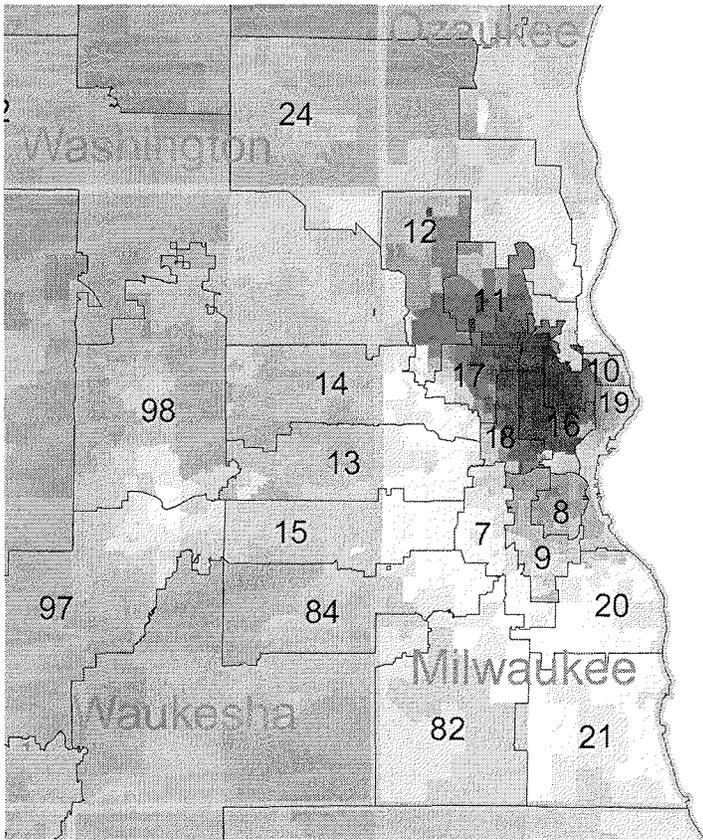
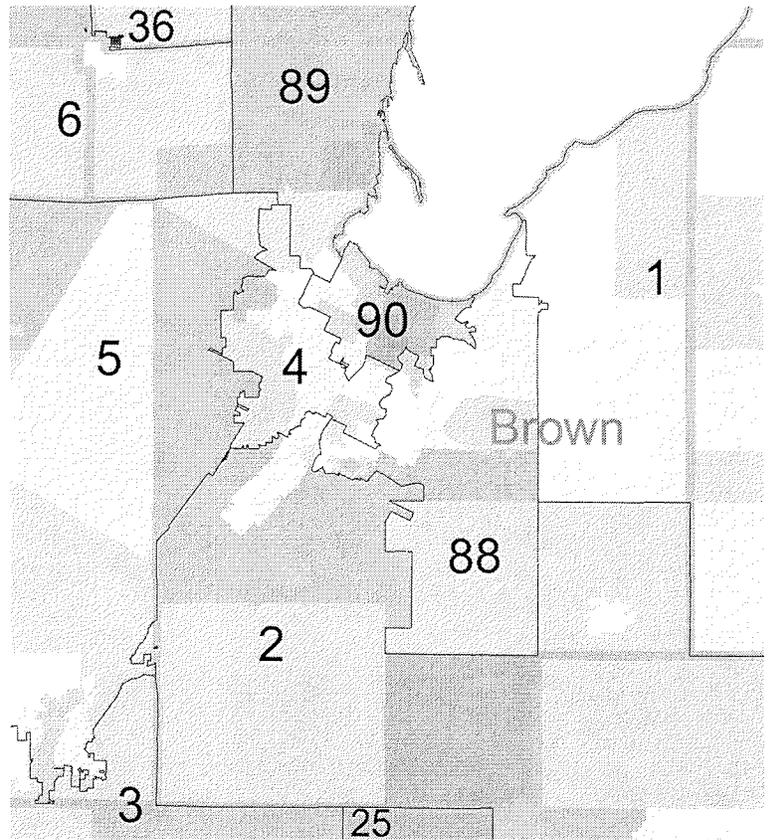


Figure 4b: Ward-Level Republican Vote Share (Chen Composite Measure)
And Act 43 District Boundaries

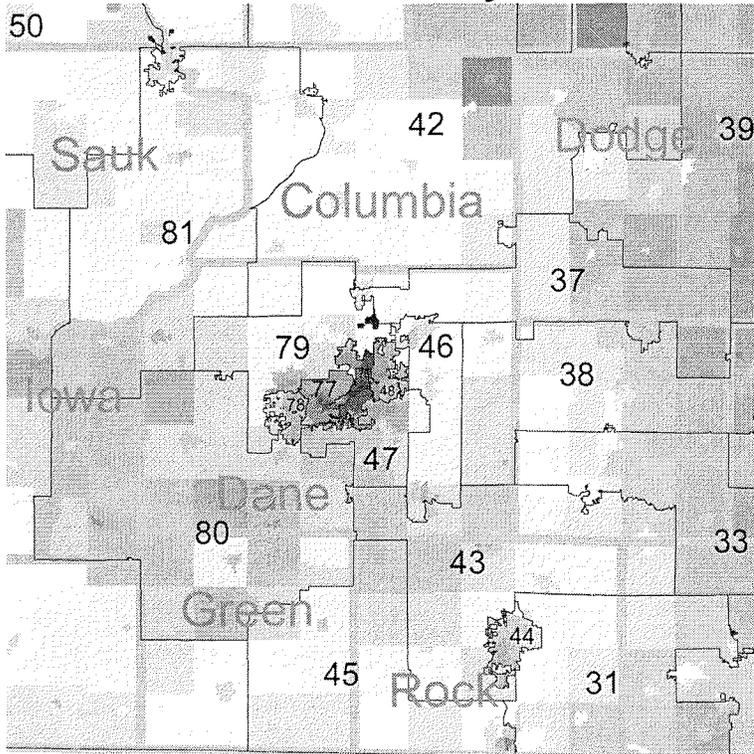
Milwaukee County



Brown County



Dane County



Racine and Kenosha Counties

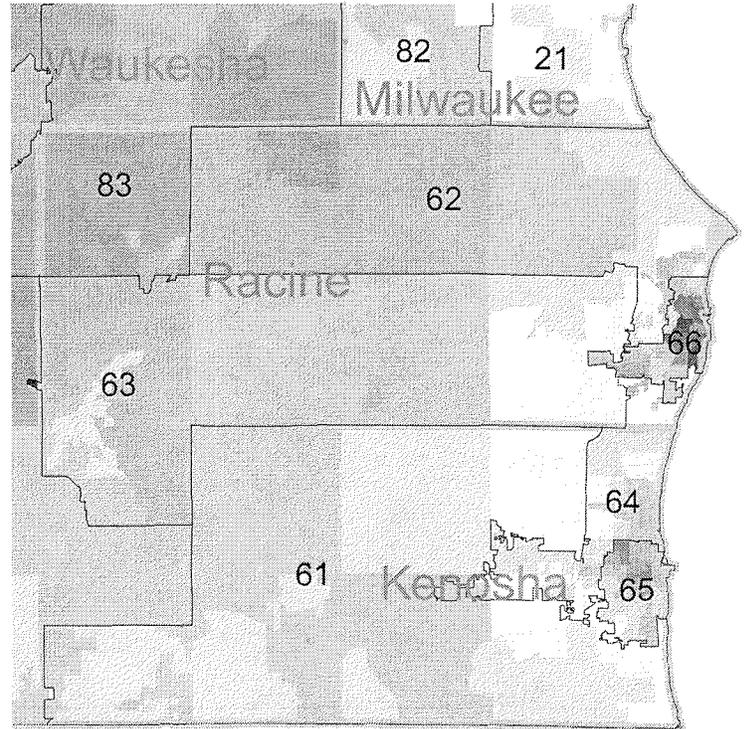


Figure 5a: Ward-Level Republican Vote Share (Chen Composite Measure)

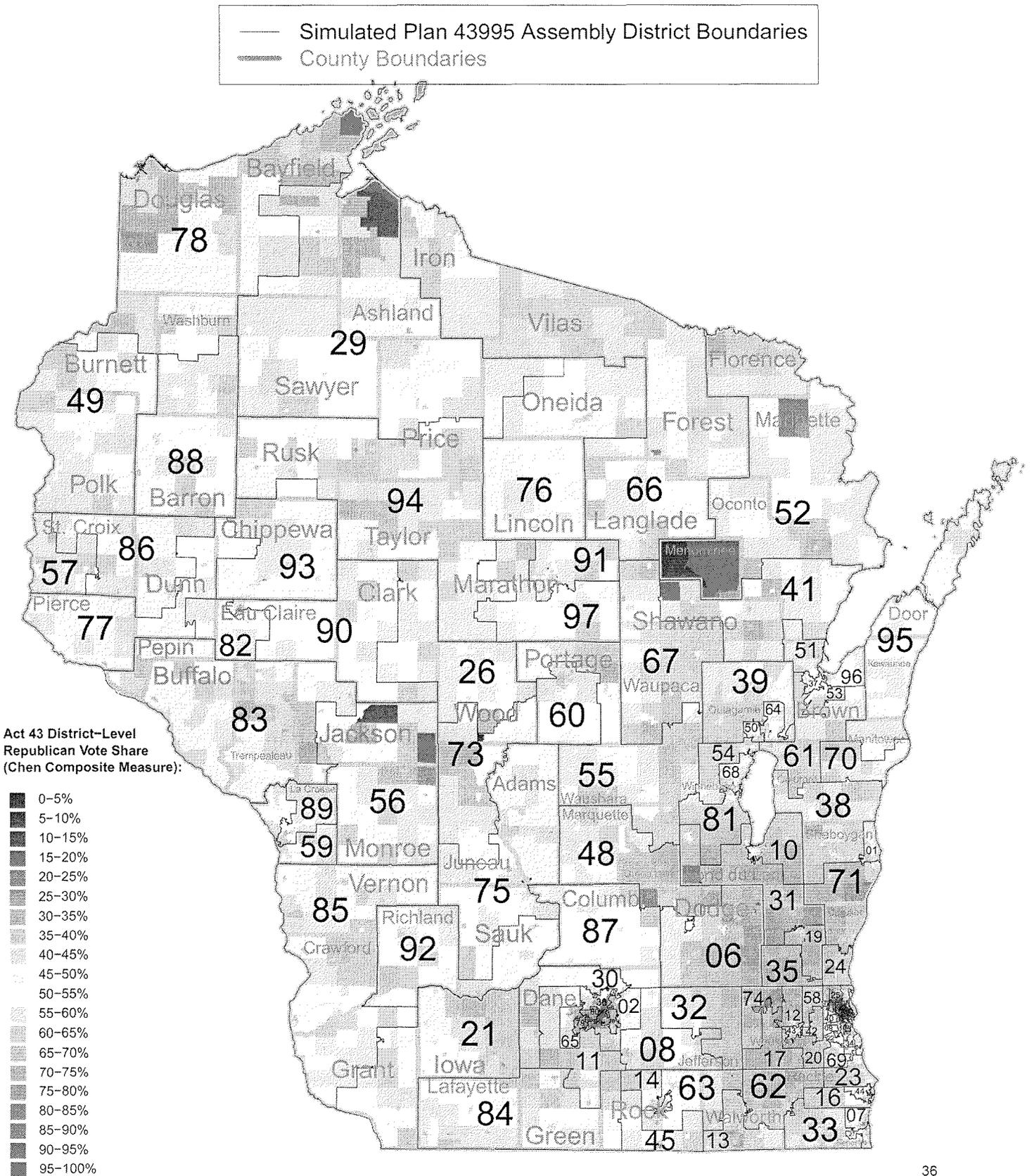
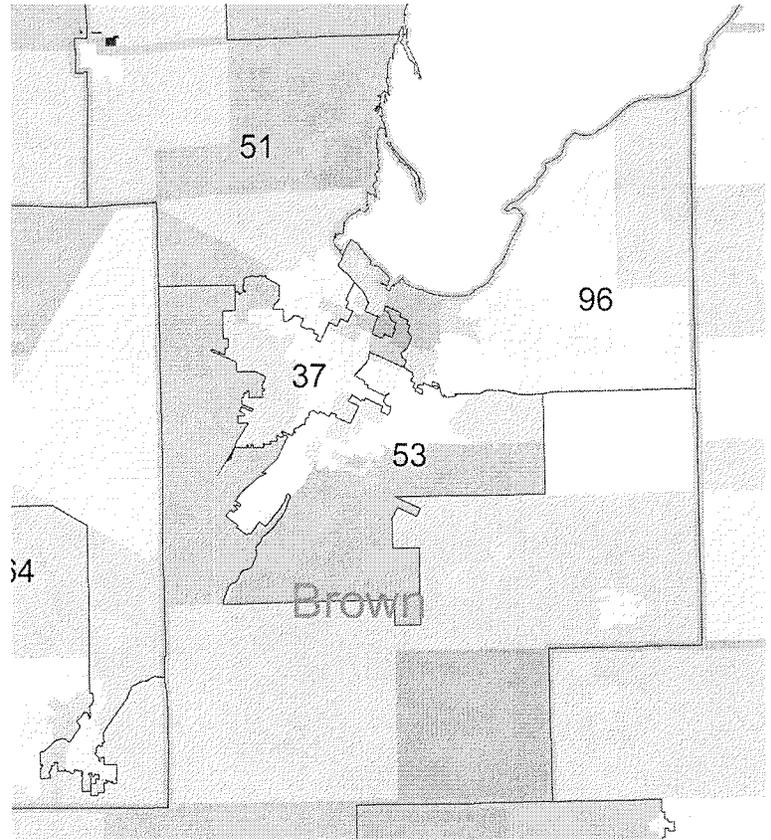
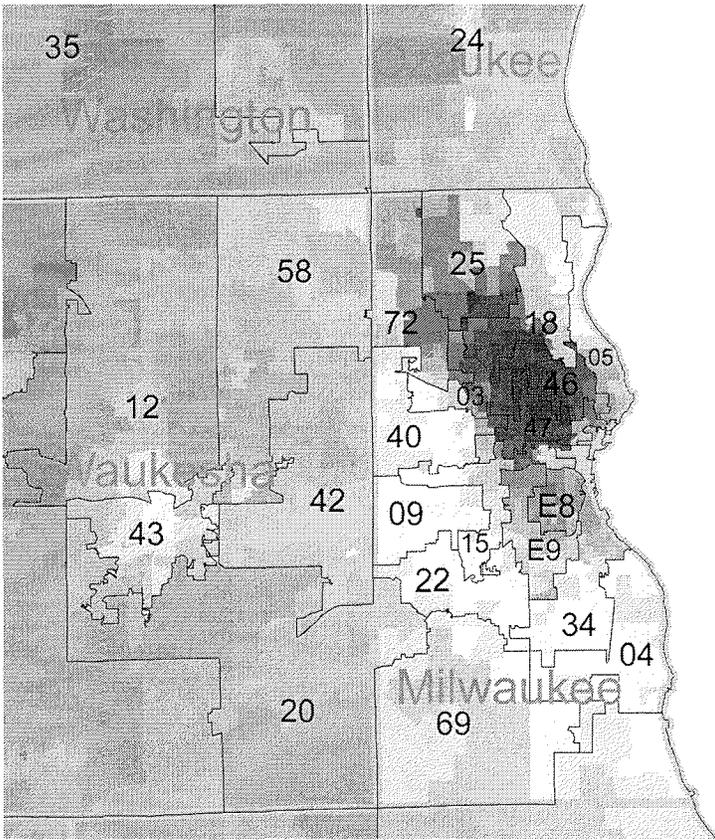
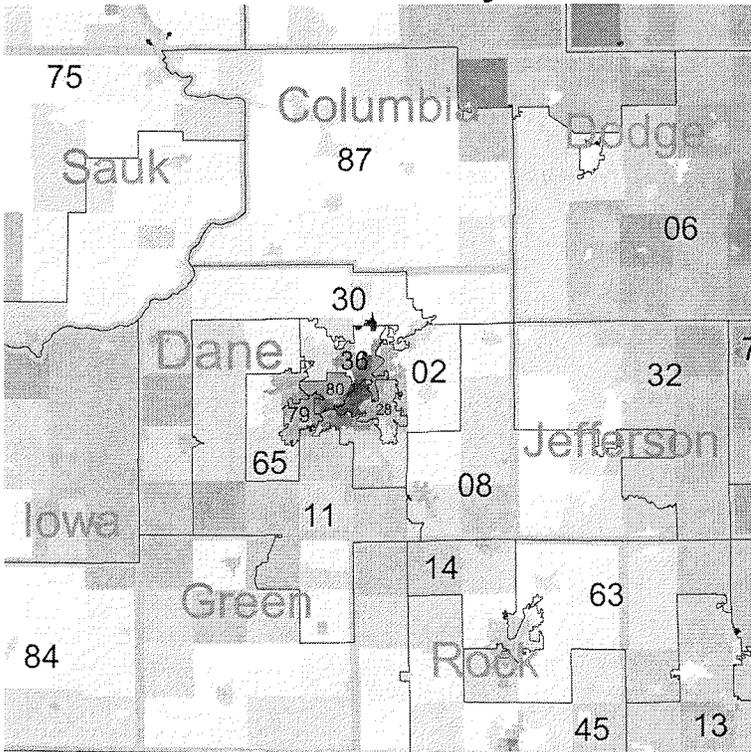


Figure 5b: Ward-Level Republican Vote Share (Chen Composite Measure)
And Simulated Plan 43995 District Boundaries
Milwaukee County **Brown County**



Dane County



Racine and Kenosha Counties

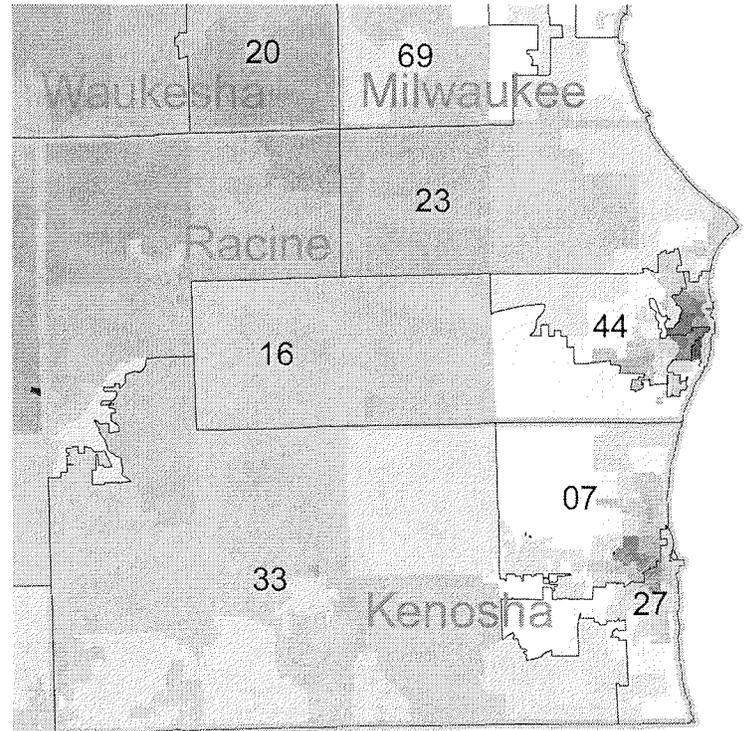
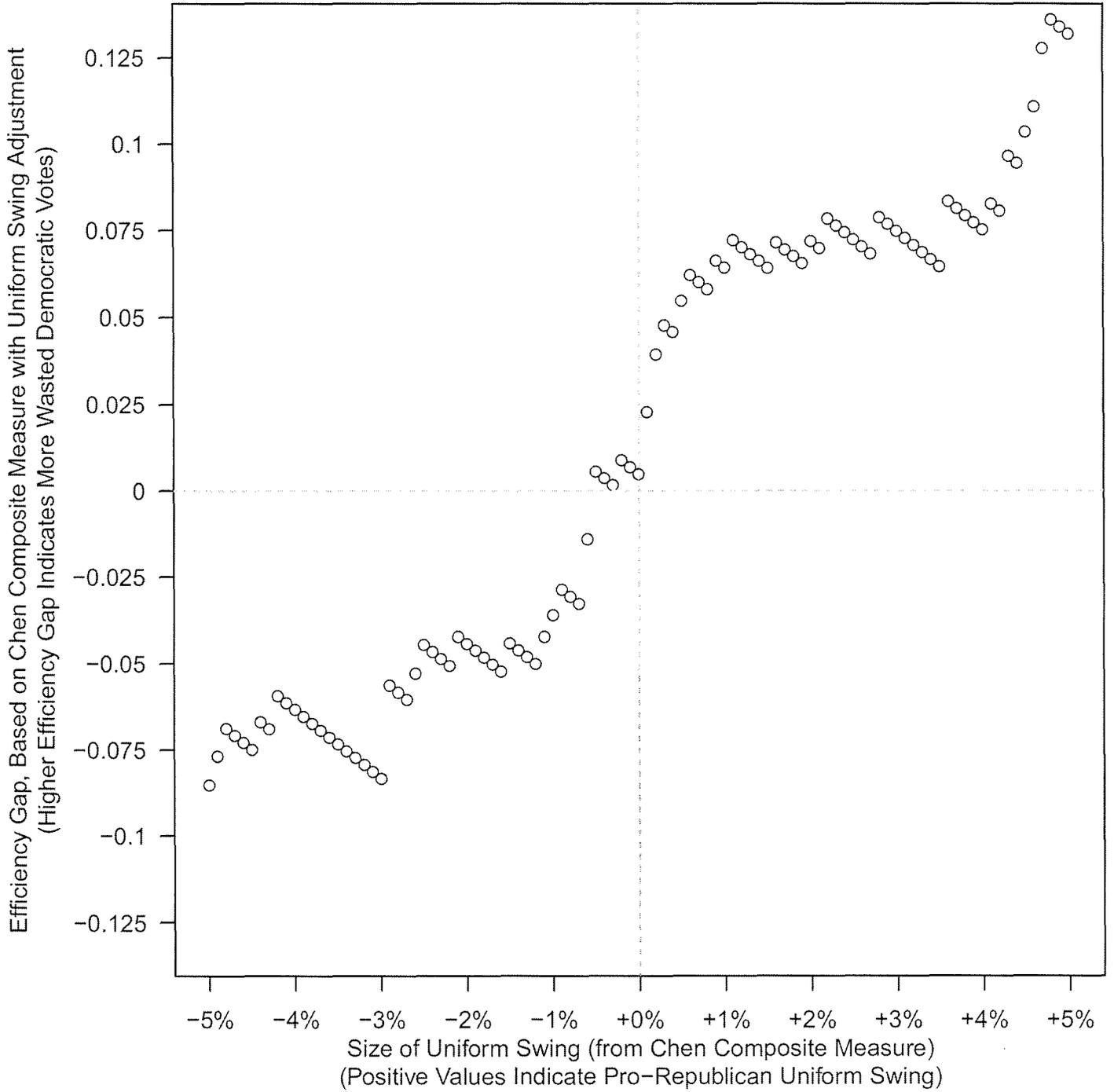
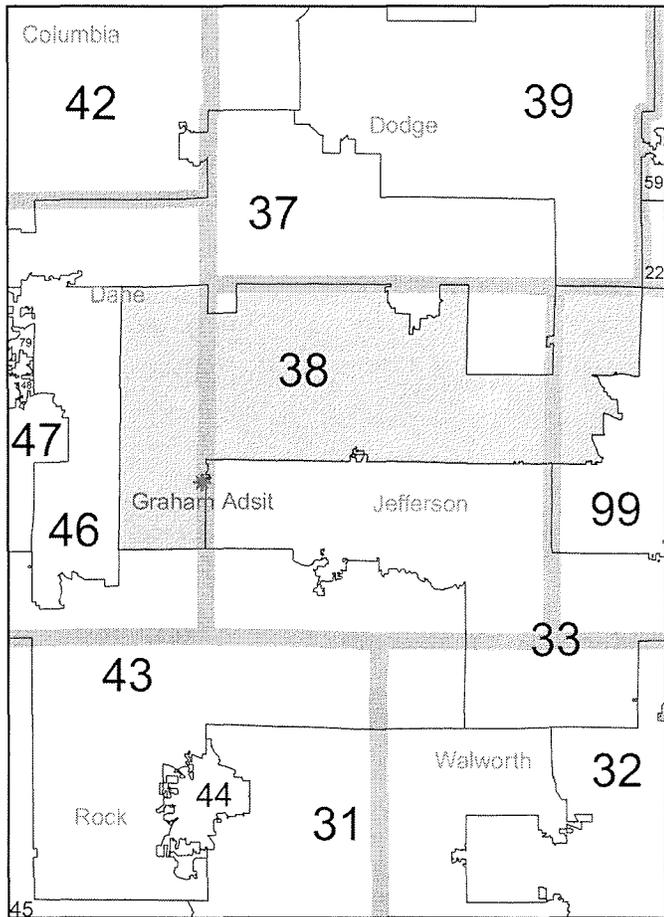


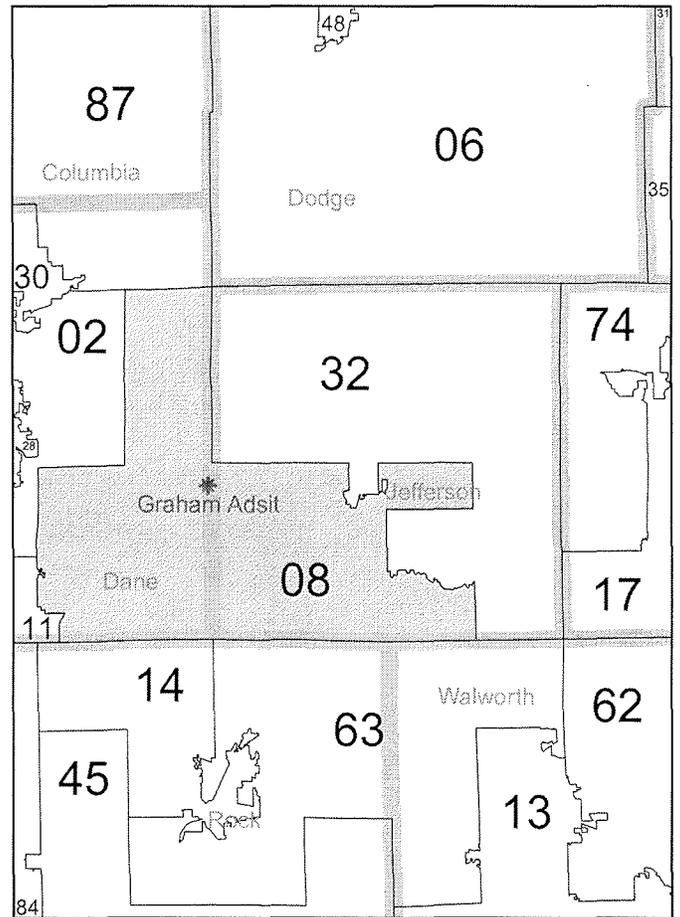
Figure 6:
Efficiency Gap of Simulated Plan 34995 with Different Uniform Swings



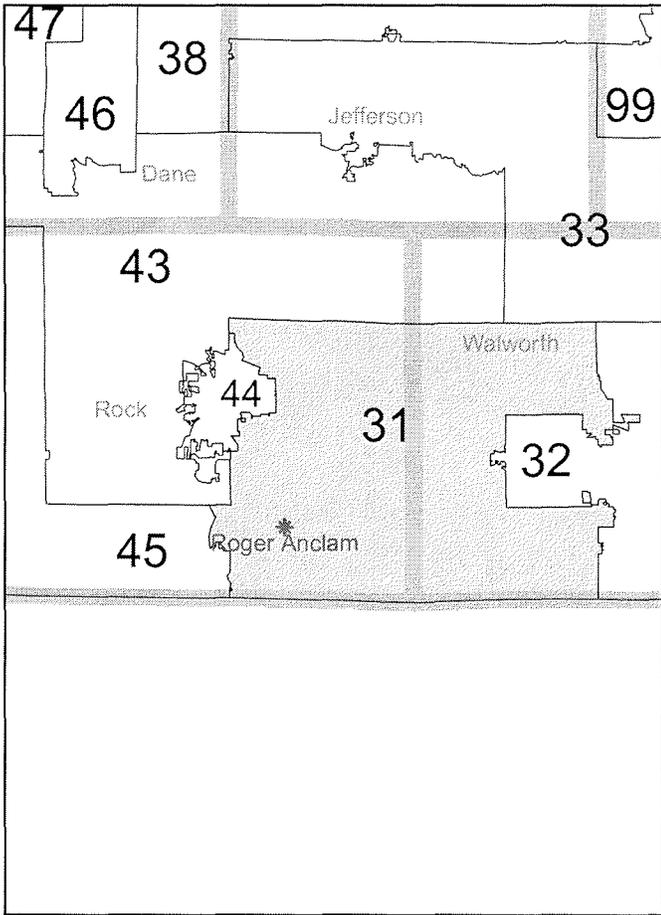
Plaintiff: Graham Adsit (Cambridge, WI)
District 38 of Act 43 Assembly Plan
(59.78% Republican Vote Share)



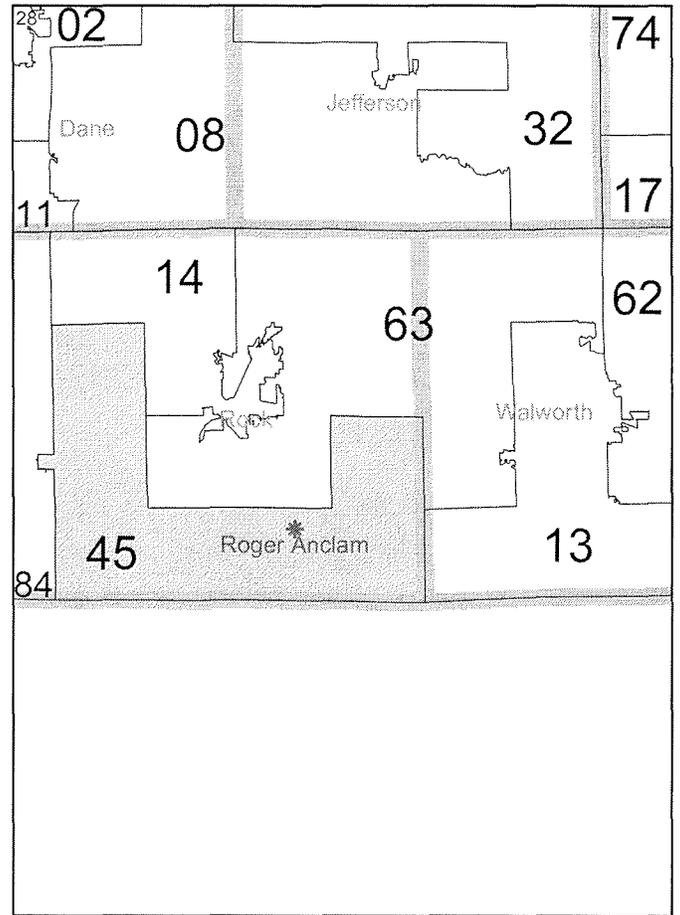
Plaintiff: Graham Adsit (Cambridge, WI)
District 8 of Simulated Plan 43995
(44.92% Republican Vote Share)



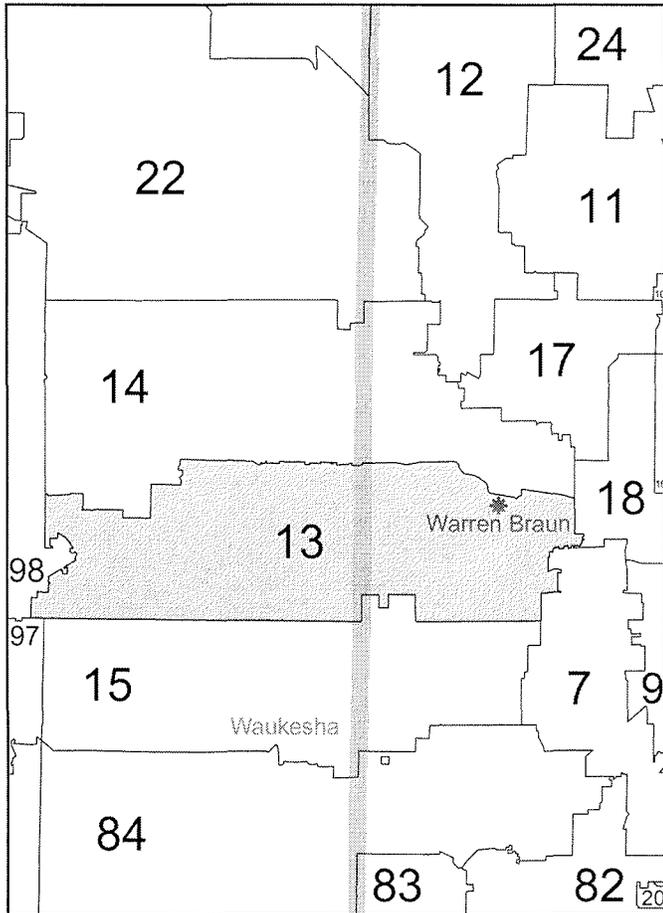
Plaintiff: Roger Anclam (Beloit, WI)
District 31 of Act 43 Assembly Plan
(56.1% Republican Vote Share)



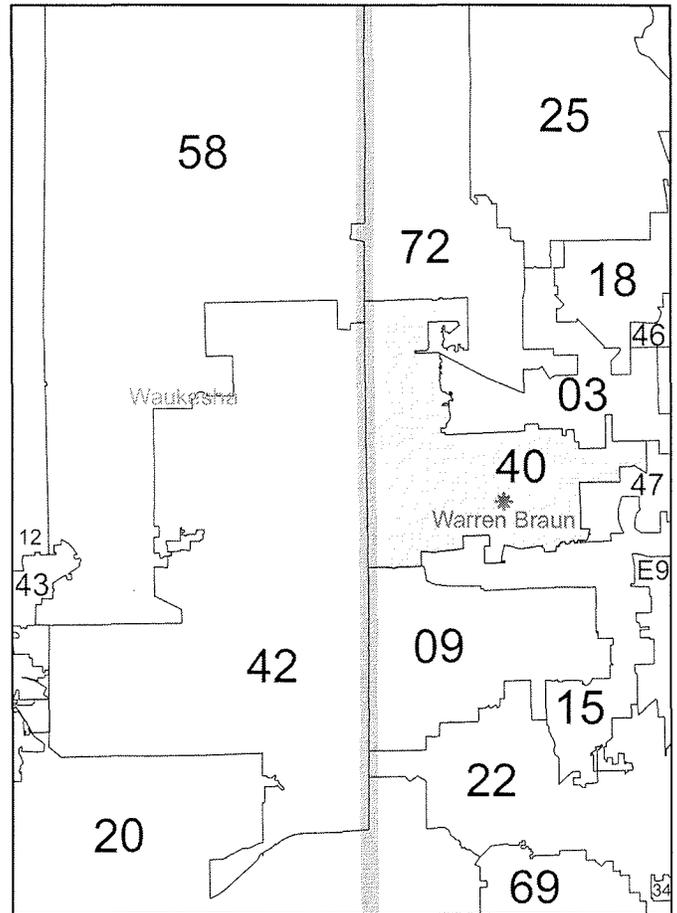
Plaintiff: Roger Anclam (Beloit, WI)
District 45 of Simulated Plan 43995
(43.25% Republican Vote Share)



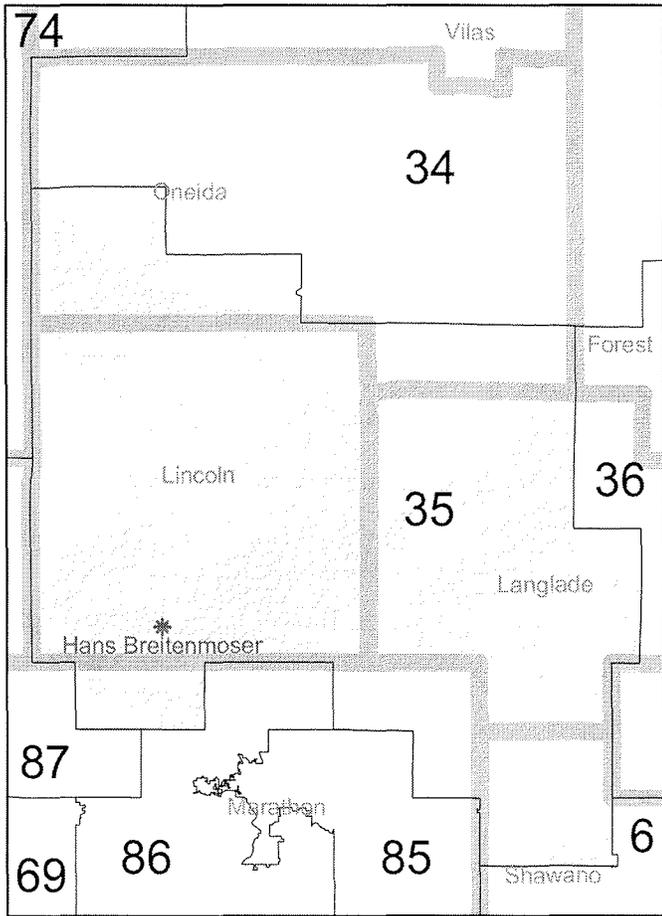
Plaintiff: Warren Braun (Wauwatosa, WI)
District 13 of Act 43 Assembly Plan
(59.67% Republican Vote Share)



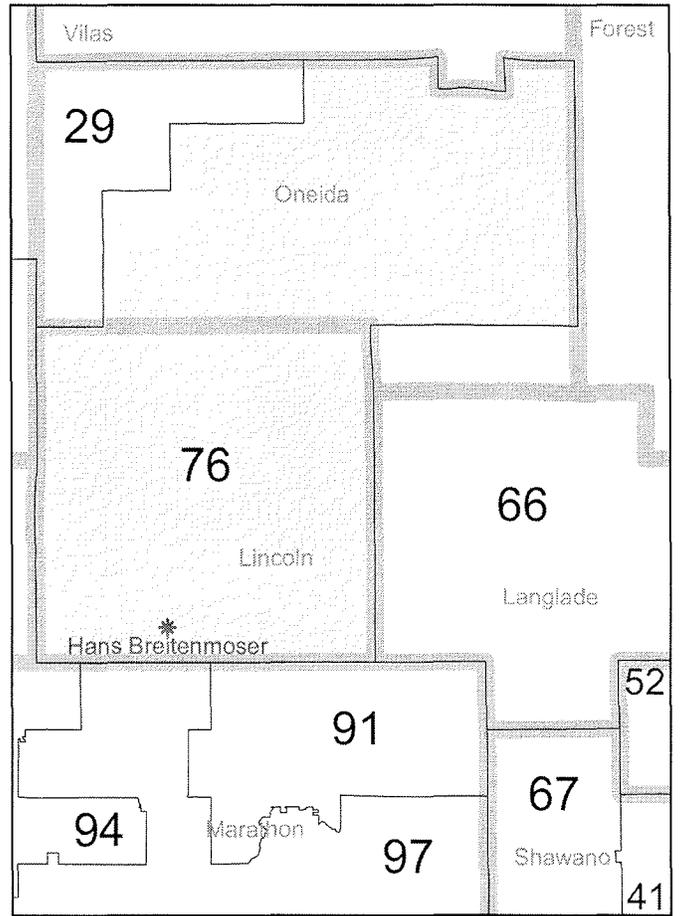
Plaintiff: Warren Braun (Wauwatosa, WI)
District 40 of Simulated Plan 43995
(47.3% Republican Vote Share)



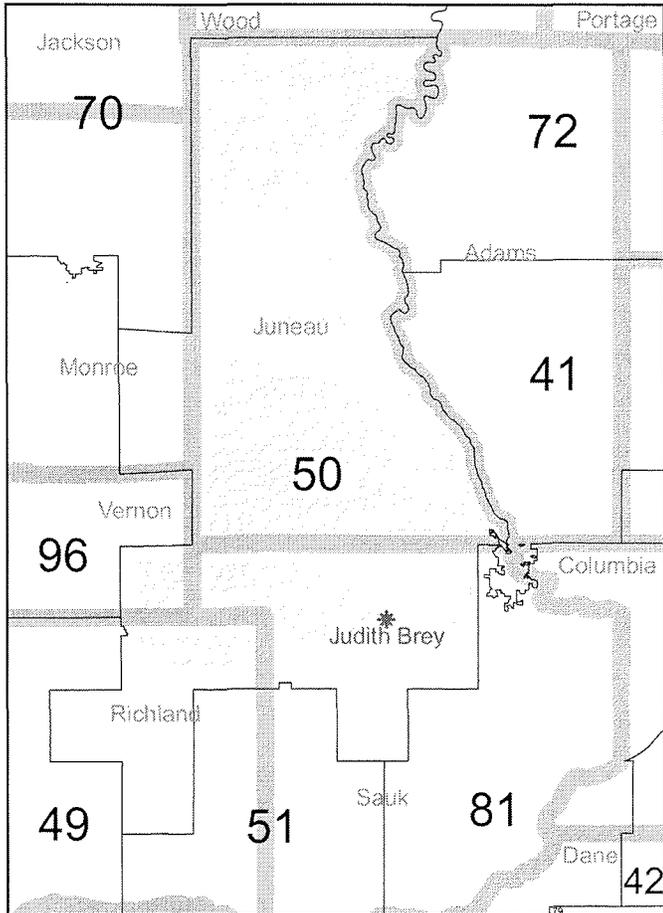
Plaintiff: Hans Breitenmoser (Merrill, WI)
District 35 of Act 43 Assembly Plan
(52.35% Republican Vote Share)



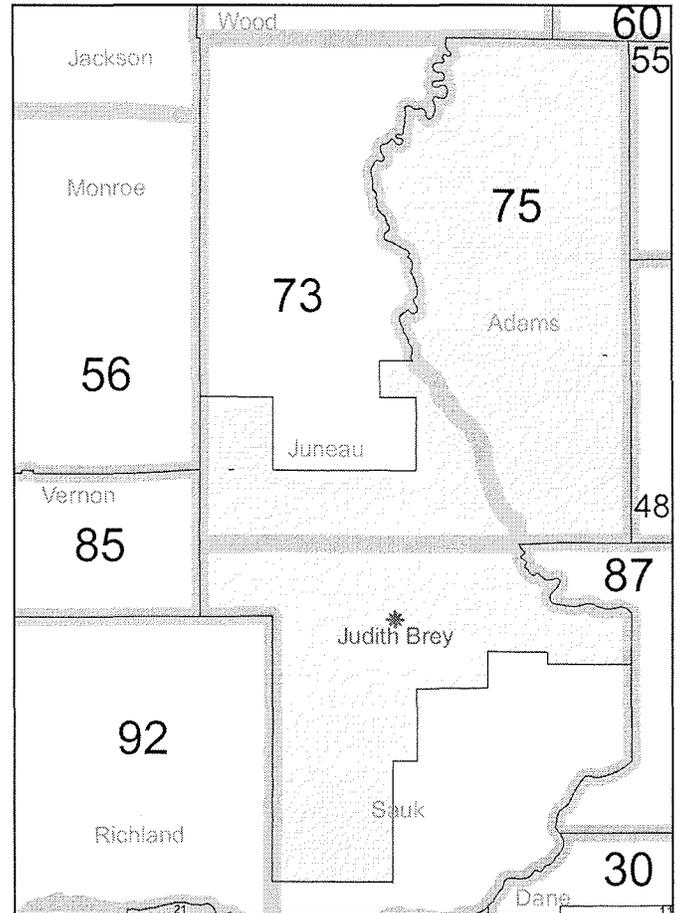
Plaintiff: Hans Breitenmoser (Merrill, WI)
District 76 of Simulated Plan 43995
(49.56% Republican Vote Share)



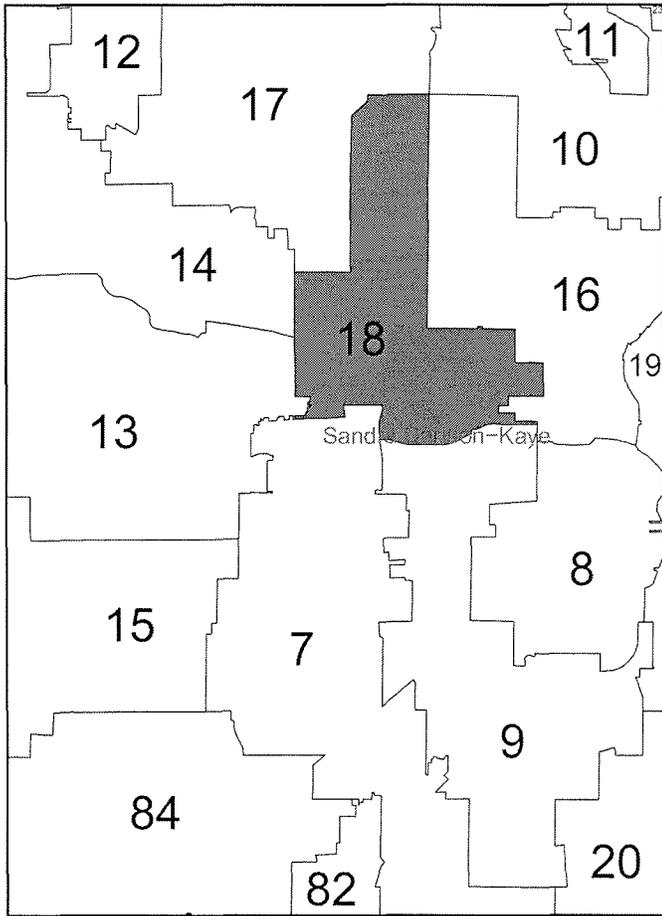
**Plaintiff: Judith Brey (Reedsburg, WI)
District 50 of Act 43 Assembly Plan
(52.19% Republican Vote Share)**



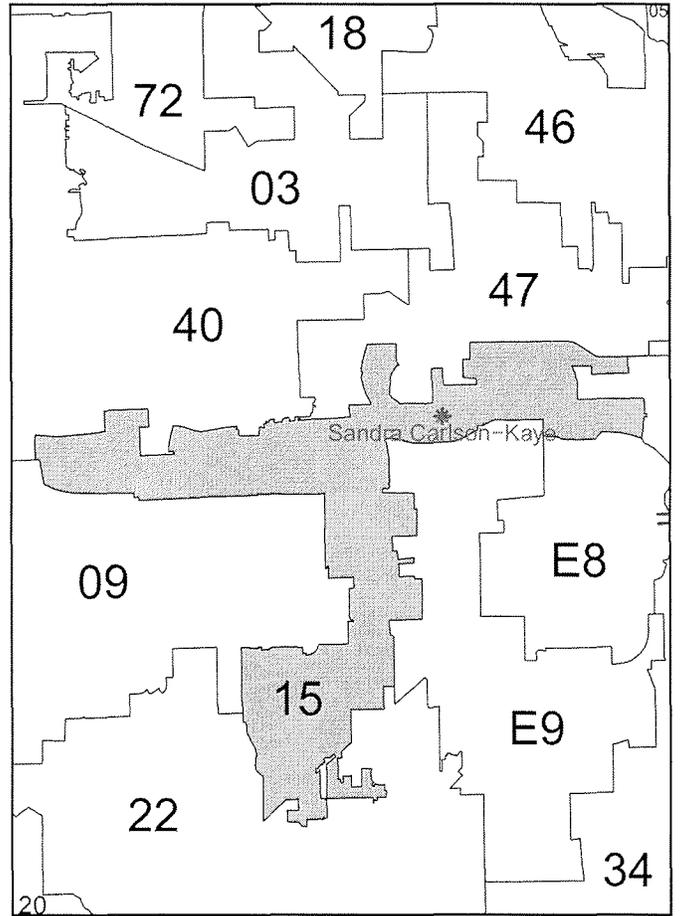
**Plaintiff: Judith Brey (Reedsburg, WI)
District 75 of Simulated Plan 43995
(48.47% Republican Vote Share)**



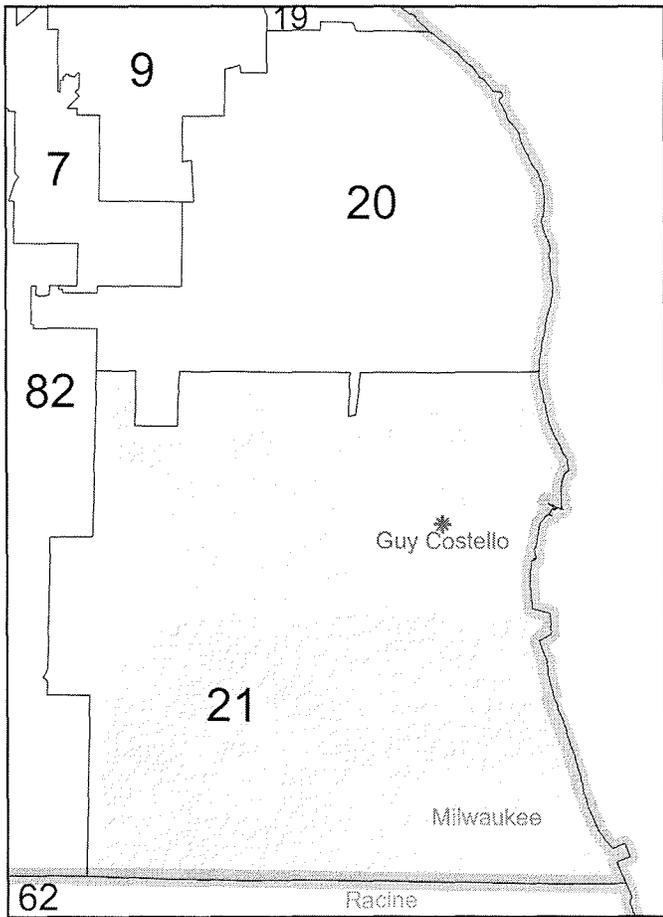
Plaintiff: Sandra Carlson-Kaye (Milwaukee, WI)
District 18 of Act 43 Assembly Plan
(16.66% Republican Vote Share)



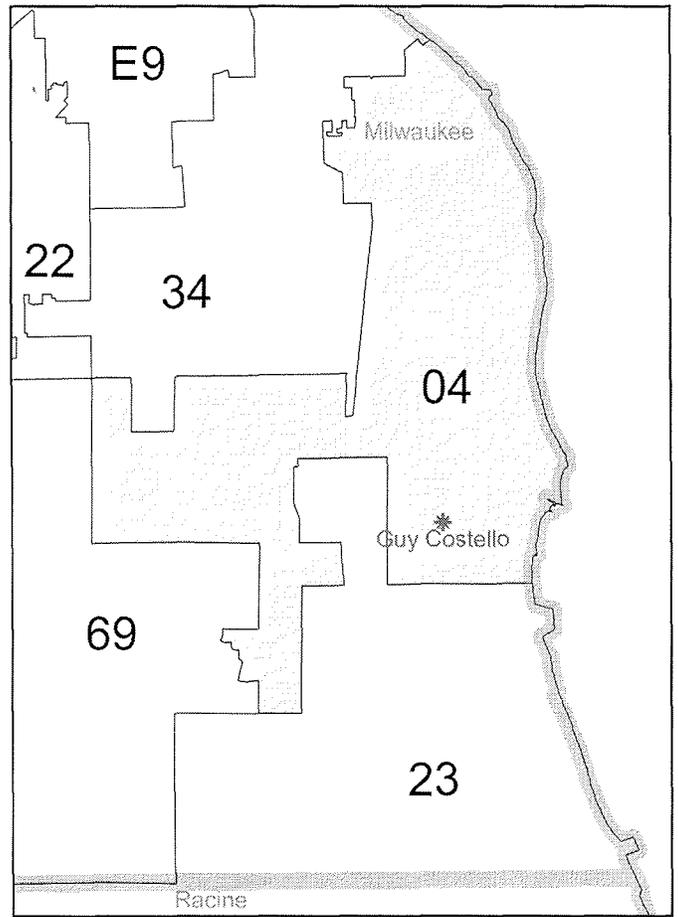
Plaintiff: Sandra Carlson-Kaye (Milwaukee, WI)
District 15 of Simulated Plan 43995
(39.96% Republican Vote Share)



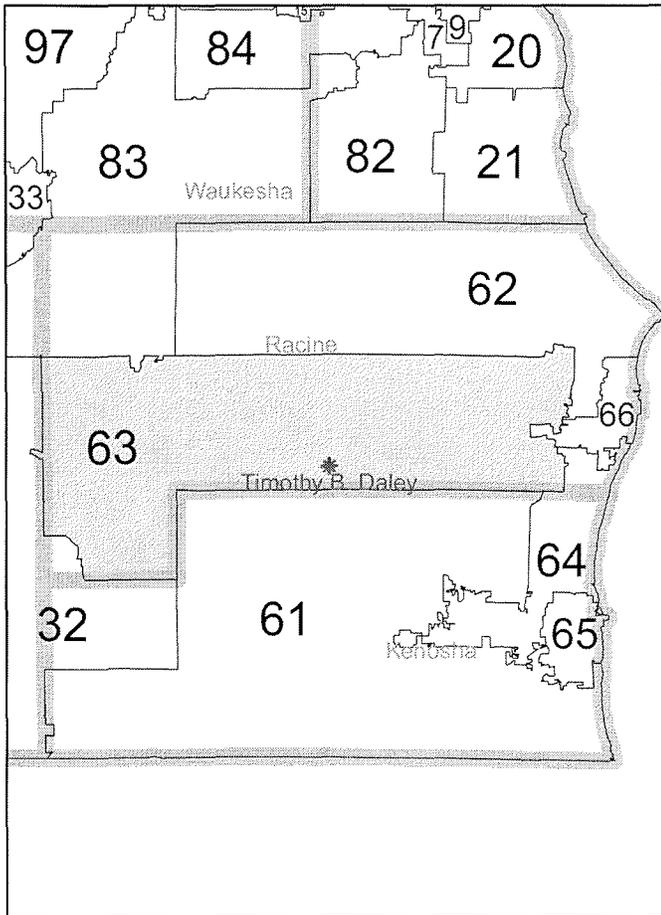
Plaintiff: Guy Costello (South Milwaukee, WI)
District 21 of Act 43 Assembly Plan
(52.96% Republican Vote Share)



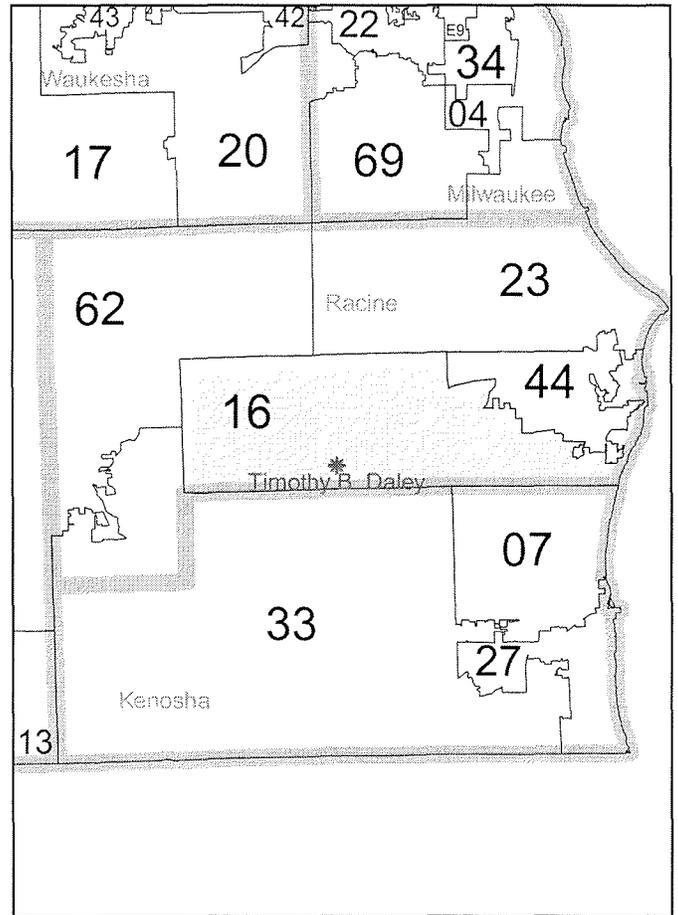
Plaintiff: Guy Costello (South Milwaukee, WI)
District 4 of Simulated Plan 43995
(47.81% Republican Vote Share)



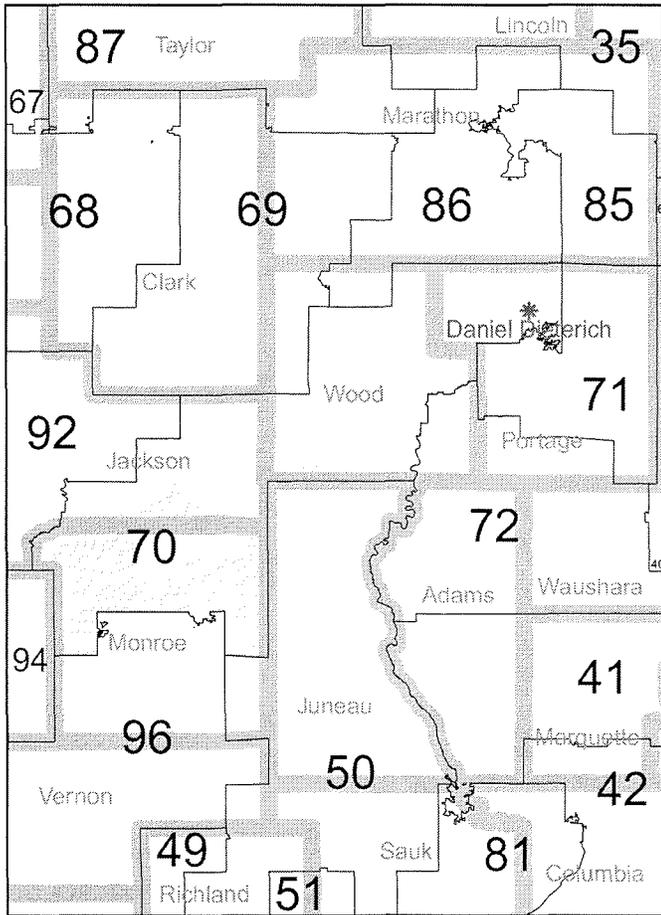
Plaintiff: Timothy B. Daley (Union Grove, WI)
District 63 of Act 43 Assembly Plan
(58.33% Republican Vote Share)



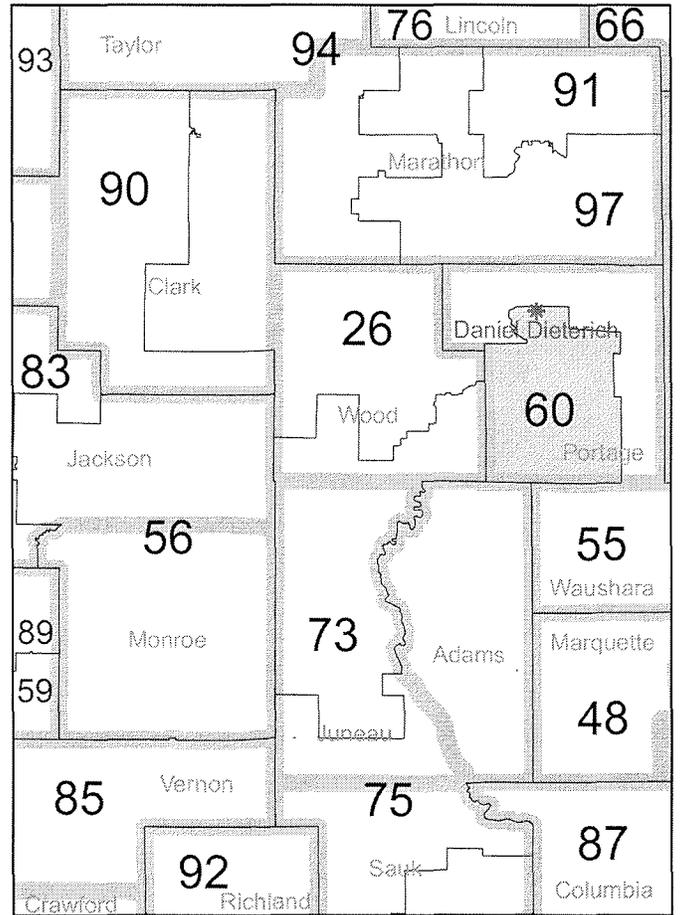
Plaintiff: Timothy B. Daley (Union Grove, WI)
District 16 of Simulated Plan 43995
(45.74% Republican Vote Share)



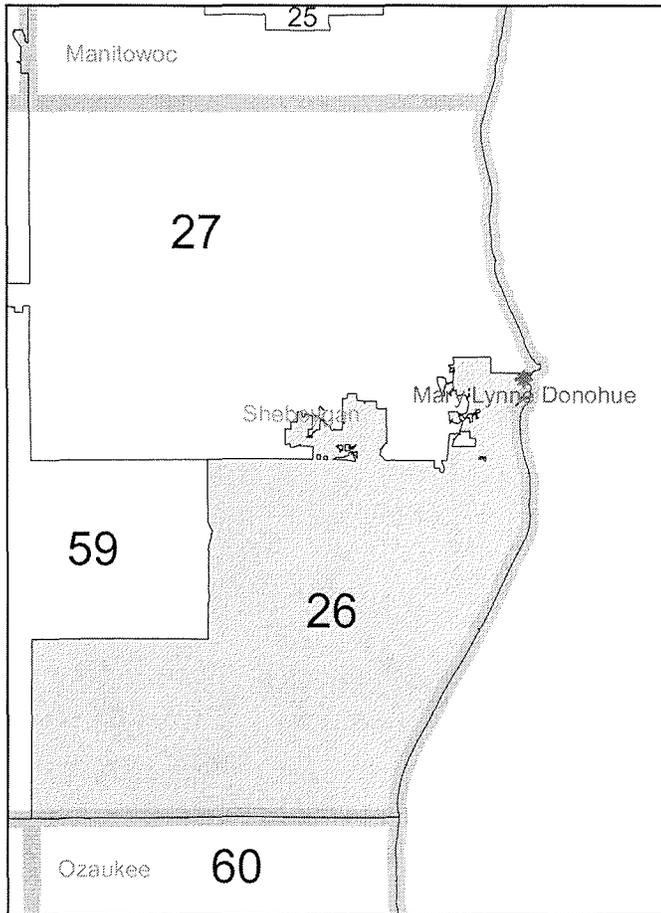
Plaintiff: Daniel Dieterich (Stevens Point, WI)
District 70 of Act 43 Assembly Plan
(50.43% Republican Vote Share)



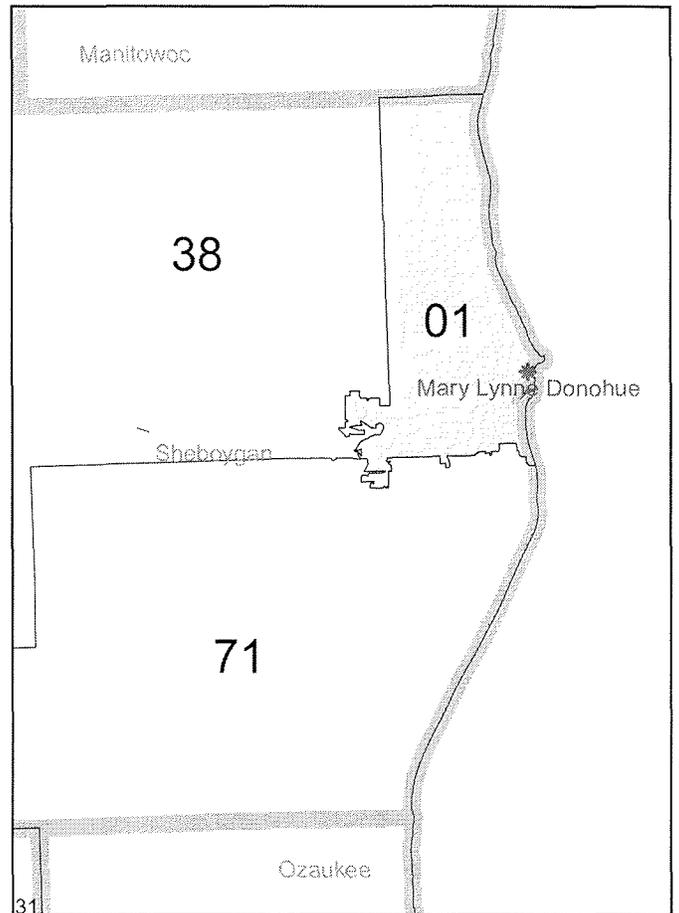
Plaintiff: Daniel Dieterich (Stevens Point, WI)
District 60 of Simulated Plan 43995
(41.68% Republican Vote Share)



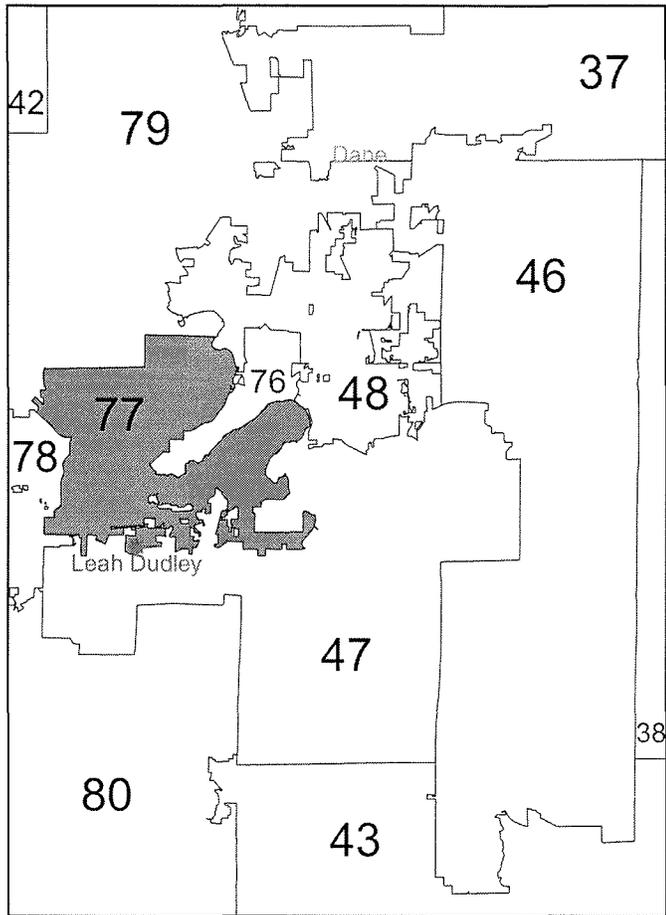
Plaintiff: Mary Lynne Donohue (Sheboygan, WI)
District 26 of Act 43 Assembly Plan
(56.34% Republican Vote Share)



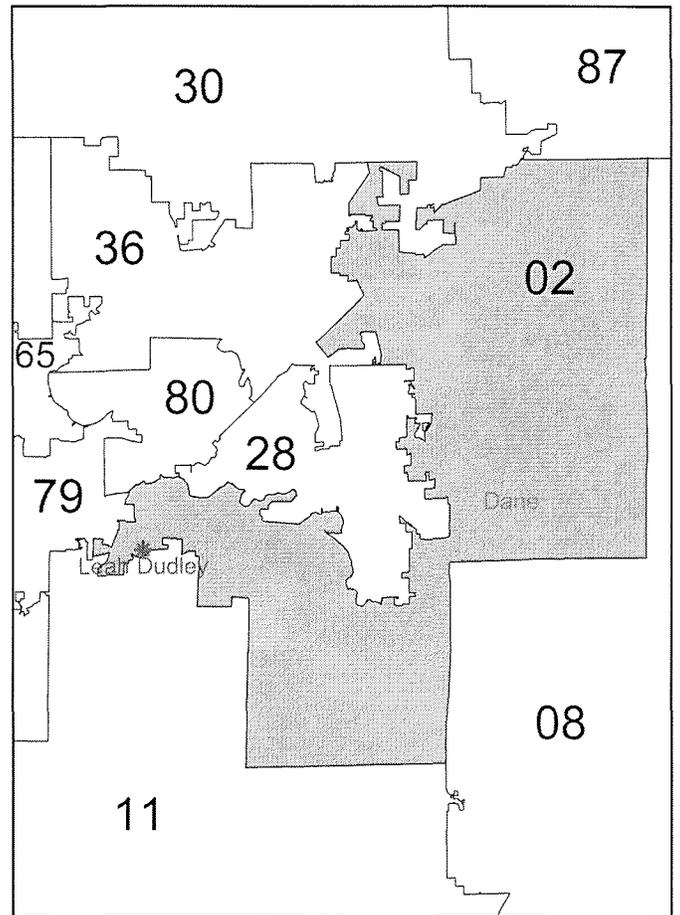
Plaintiff: Mary Lynne Donohue (Sheboygan, WI)
District 1 of Simulated Plan 43995
(48.94% Republican Vote Share)



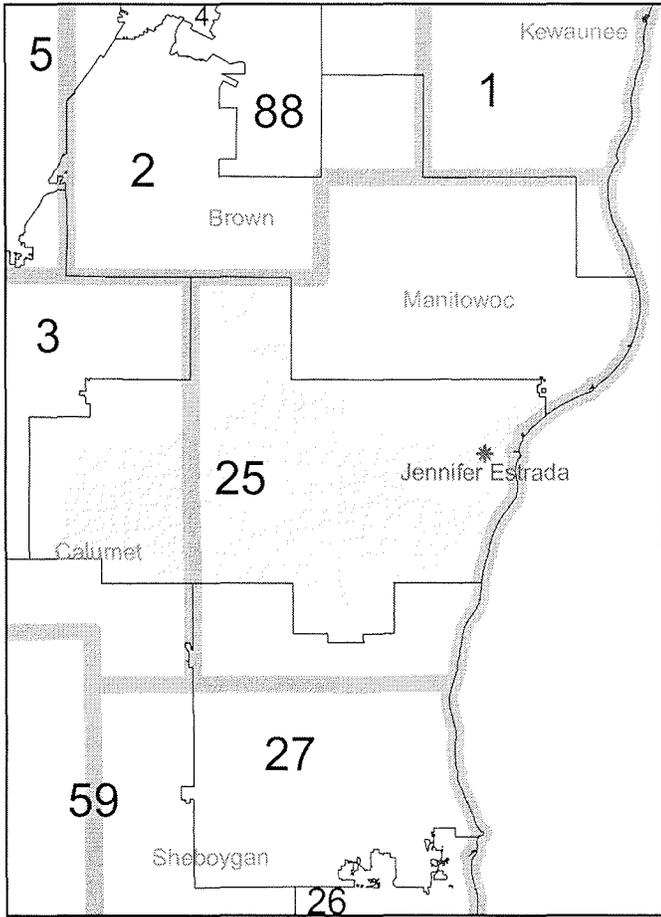
Plaintiff: Leah Dudley (Madison, WI)
District 77 of Act 43 Assembly Plan
(21% Republican Vote Share)



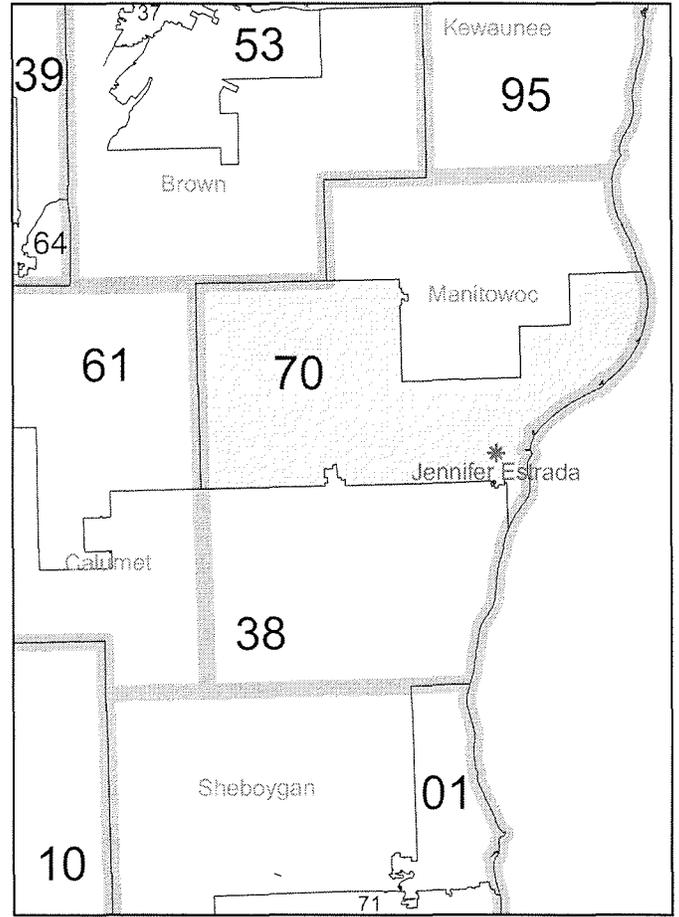
Plaintiff: Leah Dudley (Madison, WI)
District 2 of Simulated Plan 43995
(36.13% Republican Vote Share)



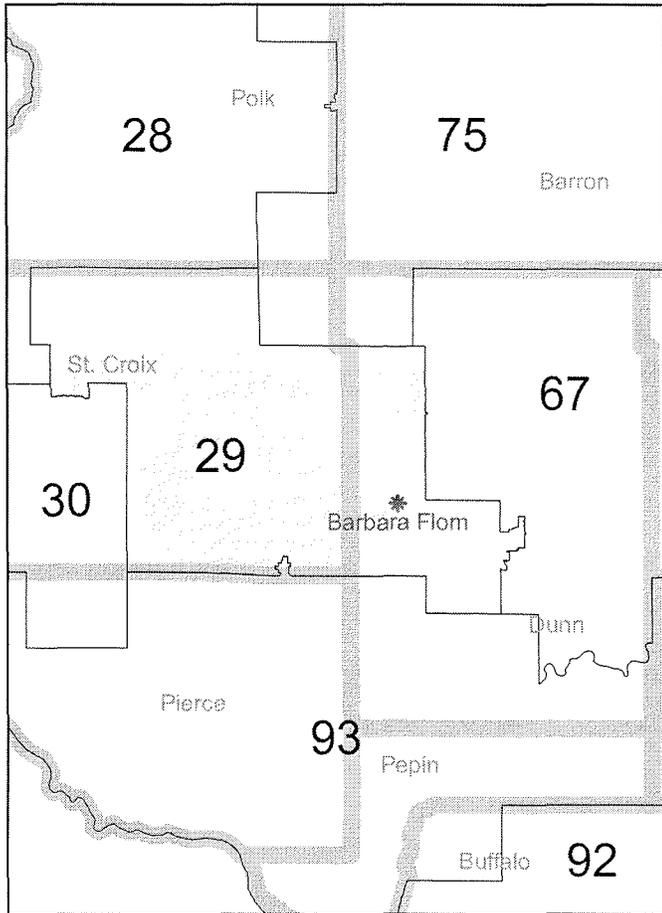
Plaintiff: Jennifer Estrada (Manitowoc, WI)
District 25 of Act 43 Assembly Plan
(53.1% Republican Vote Share)



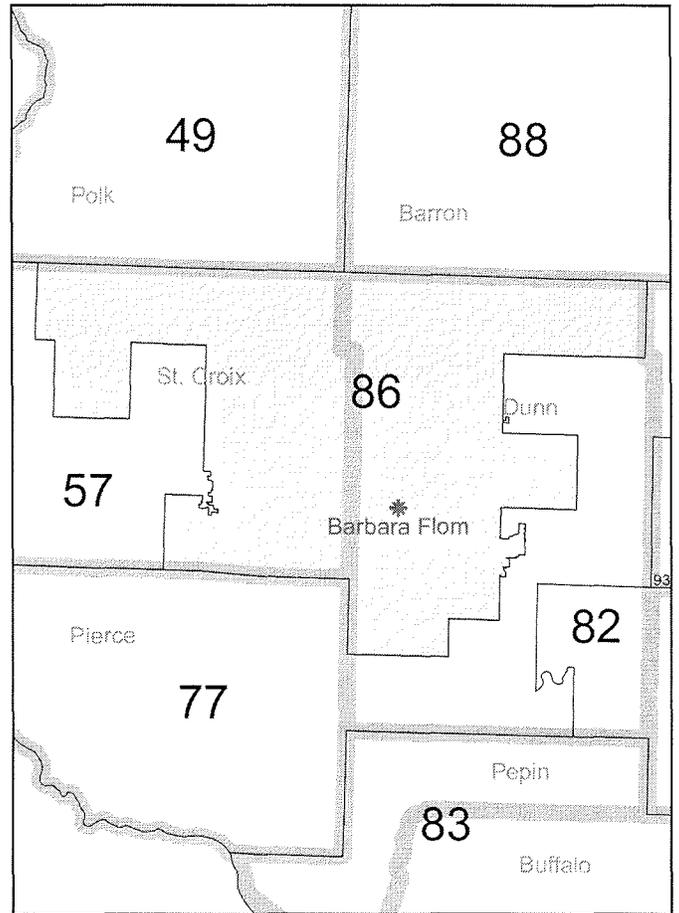
Plaintiff: Jennifer Estrada (Manitowoc, WI)
District 70 of Simulated Plan 43995
(49.93% Republican Vote Share)



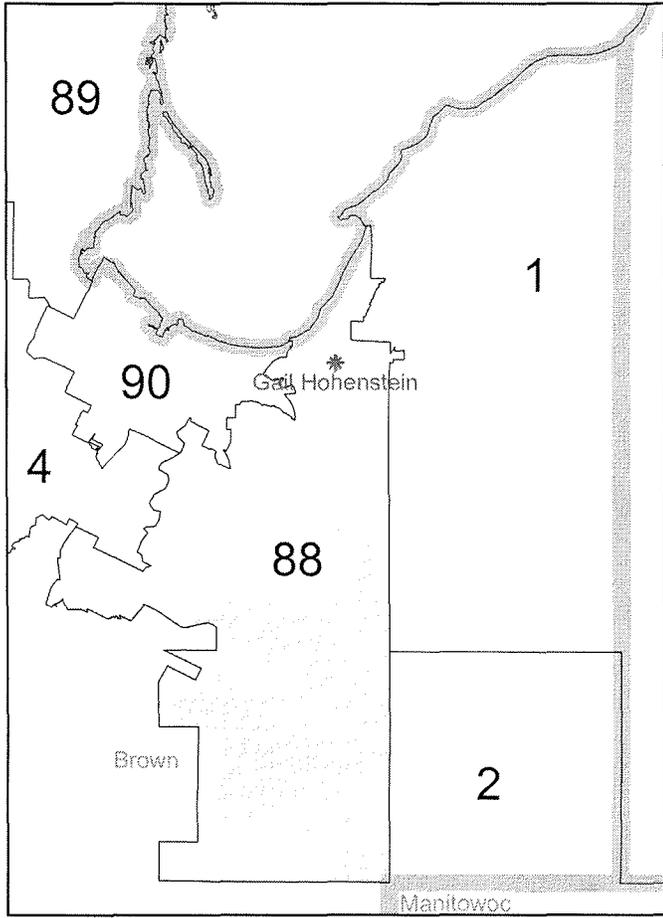
Plaintiff: Barbara Flom (Knapp, WI)
District 29 of Act 43 Assembly Plan
(50.54% Republican Vote Share)



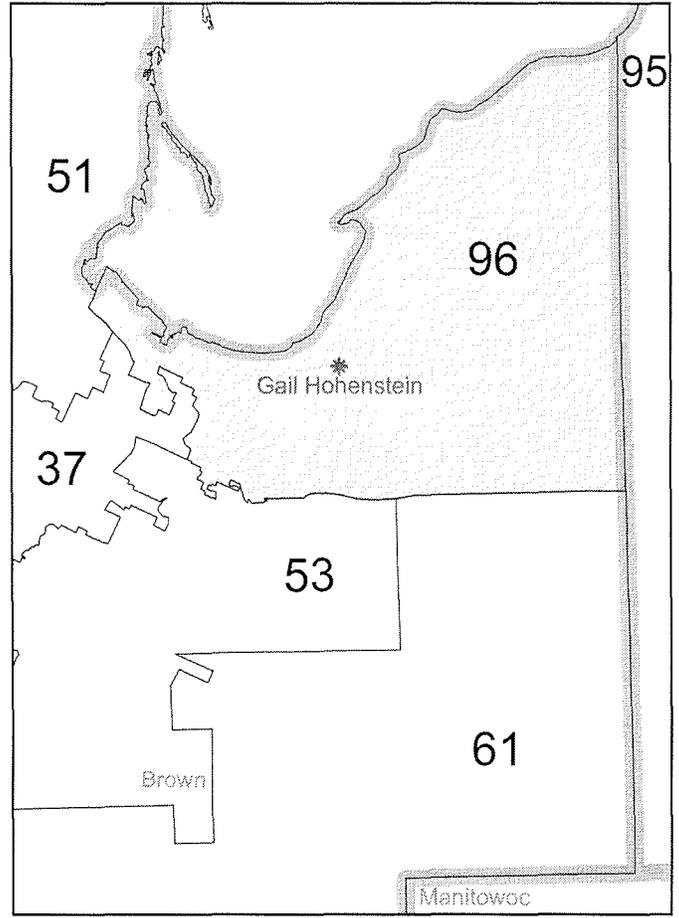
Plaintiff: Barbara Flom (Knapp, WI)
District 86 of Simulated Plan 43995
(49.81% Republican Vote Share)



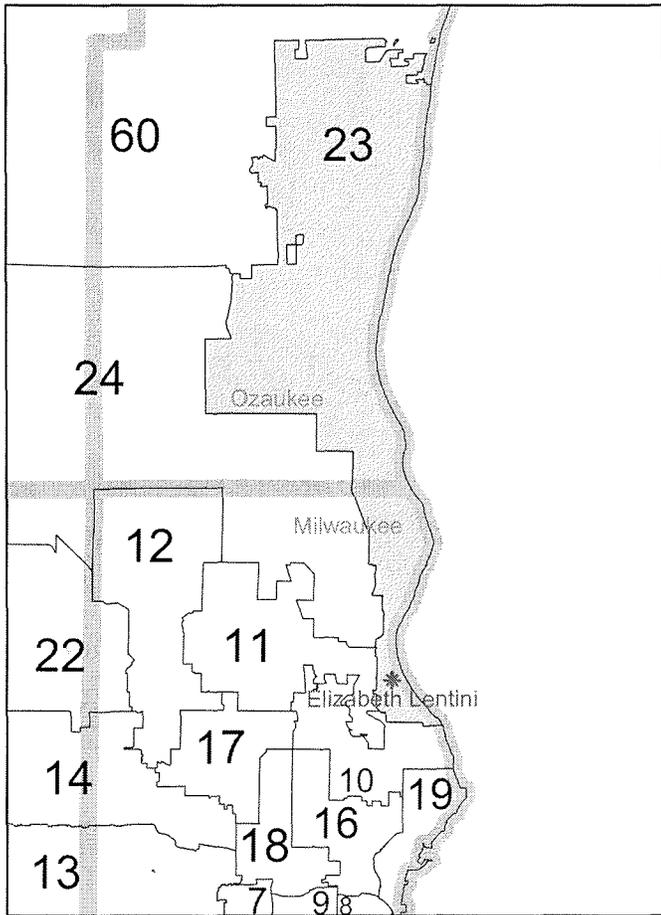
Plaintiff: Gail Hohenstein (Green Bay, WI)
District 88 of Act 43 Assembly Plan
(53.15% Republican Vote Share)



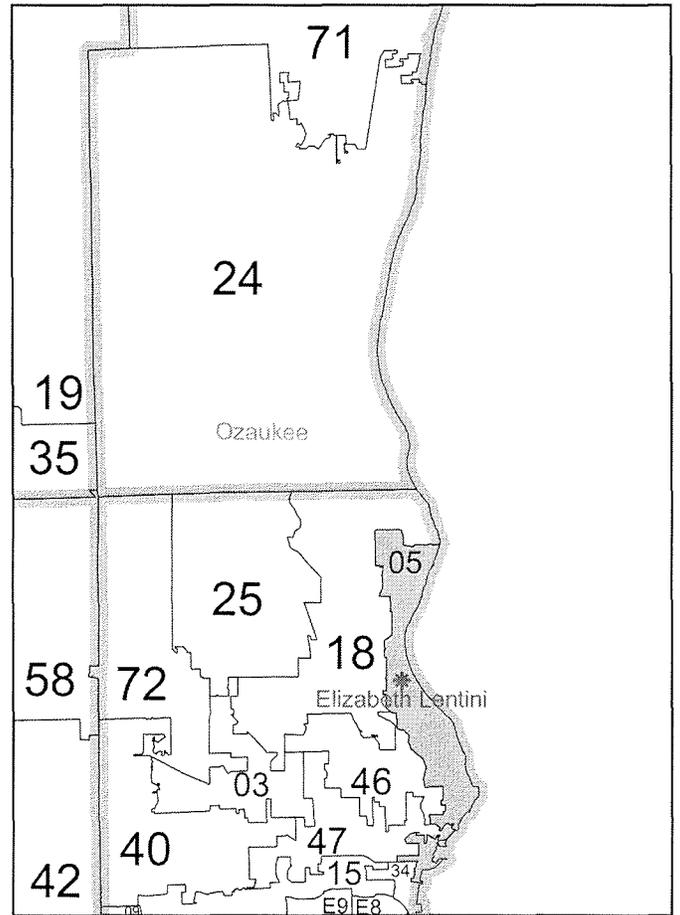
Plaintiff: Gail Hohenstein (Green Bay, WI)
District 96 of Simulated Plan 43995
(48.03% Republican Vote Share)



Plaintiff: Elizabeth Lentini (Whitefish Bay, WI)
District 23 of Act 43 Assembly Plan
(57.01% Republican Vote Share)

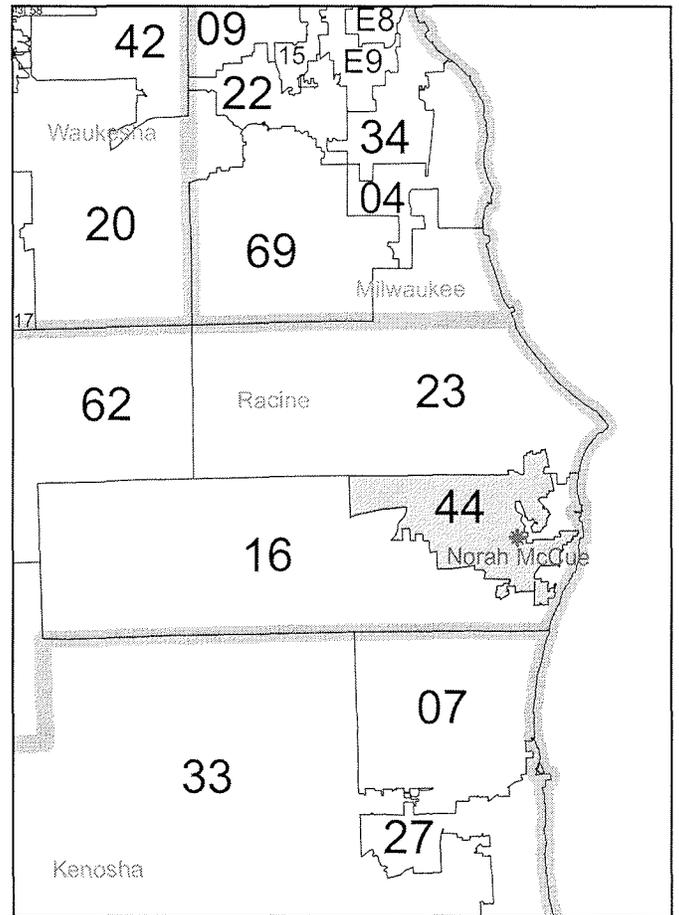
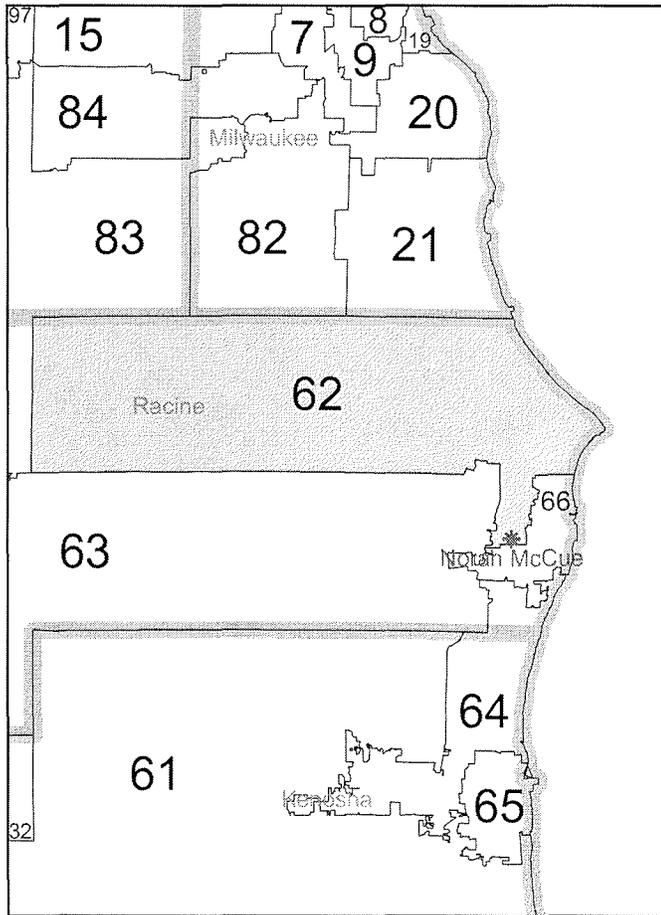


Plaintiff: Elizabeth Lentini (Whitefish Bay, WI)
District 5 of Simulated Plan 43995
(37.05% Republican Vote Share)

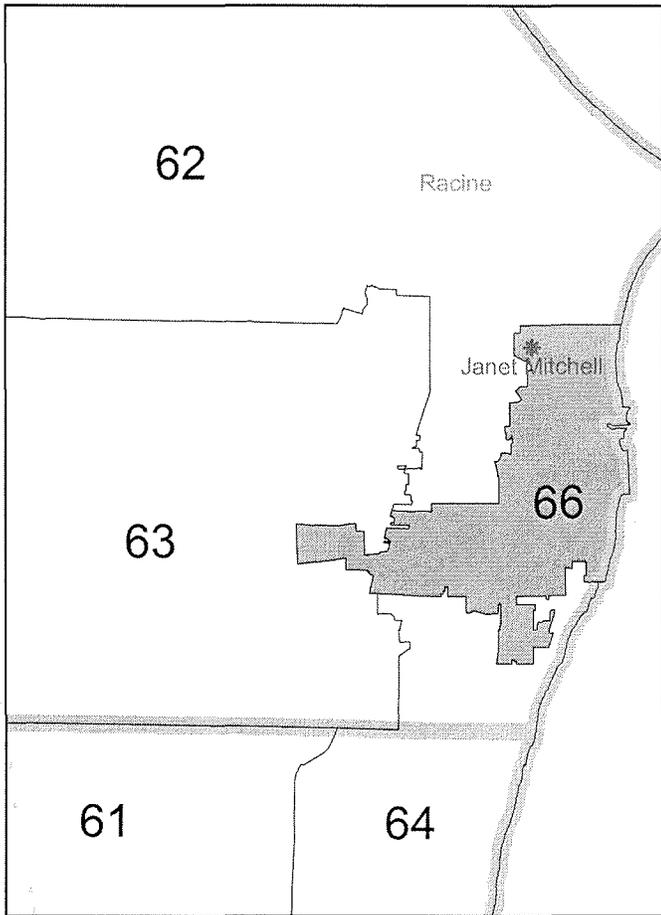


Plaintiff: Norah McCue (Racine, WI)
District 62 of Act 43 Assembly Plan
(56.17% Republican Vote Share)

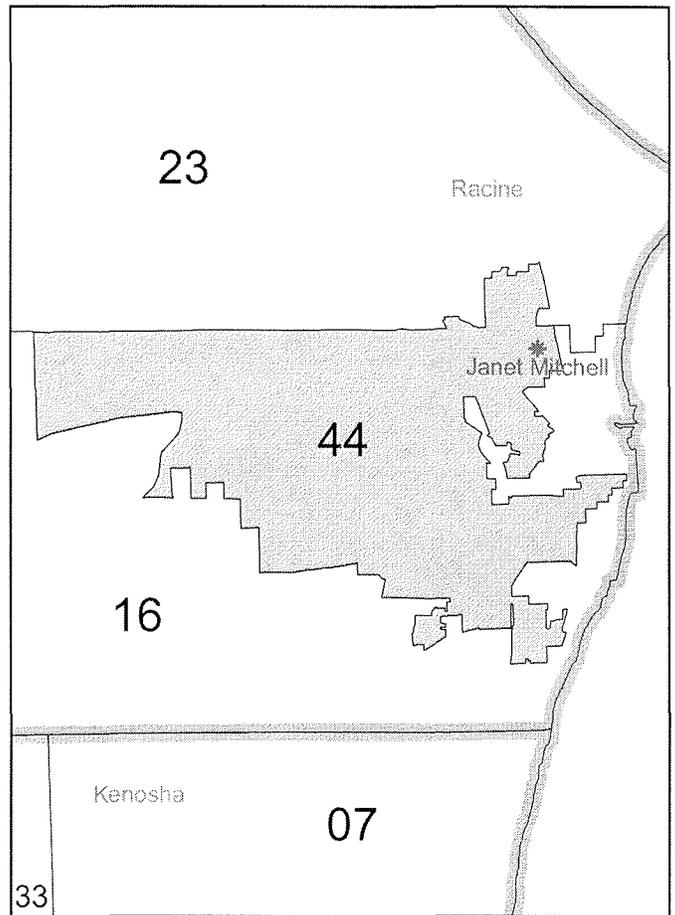
Plaintiff: Norah McCue (Racine, WI)
District 44 of Simulated Plan 43995
(43.57% Republican Vote Share)



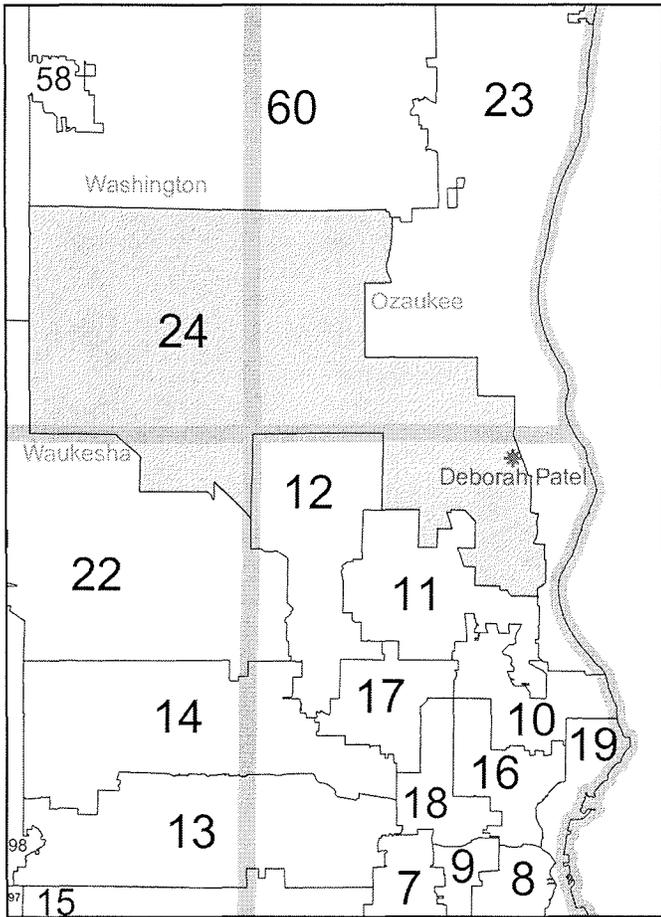
Plaintiff: Janet Mitchell (Racine, WI)
District 66 of Act 43 Assembly Plan
(33.01% Republican Vote Share)



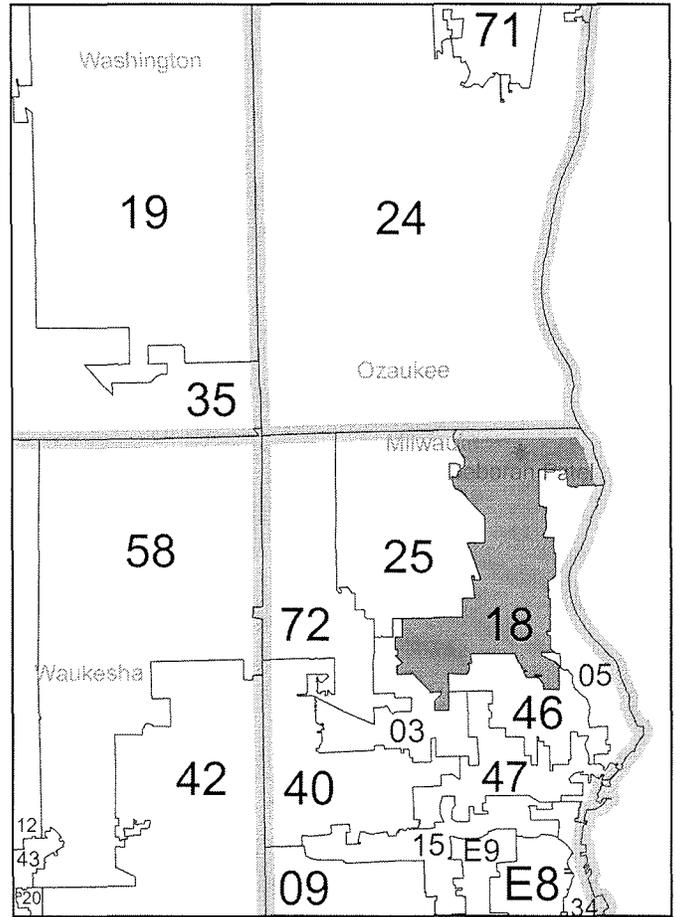
Plaintiff: Janet Mitchell (Racine, WI)
District 44 of Simulated Plan 43995
(43.57% Republican Vote Share)



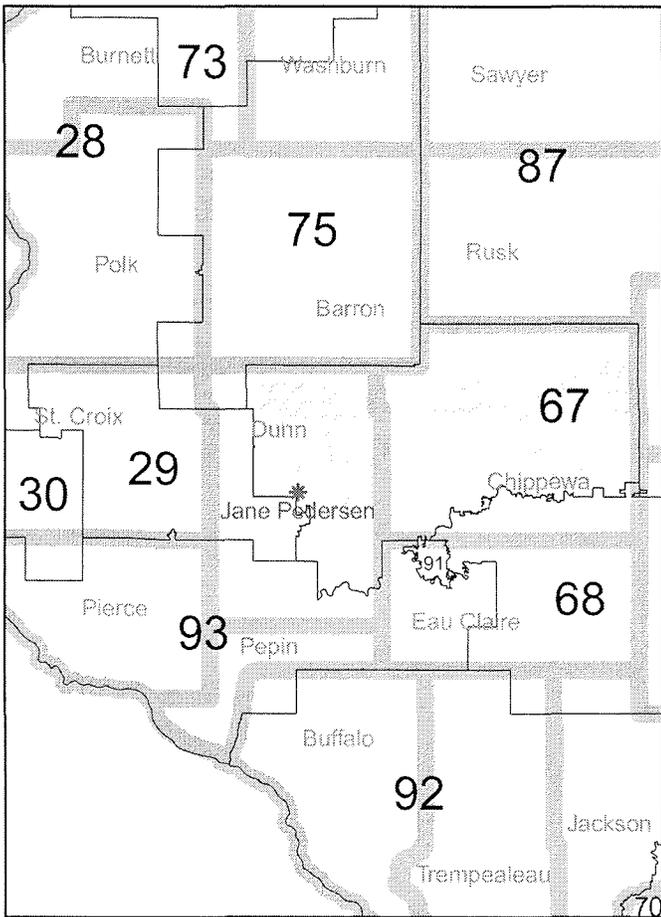
Plaintiff: Deborah Patel (Milwaukee, WI)
District 24 of Act 43 Assembly Plan
(58.14% Republican Vote Share)



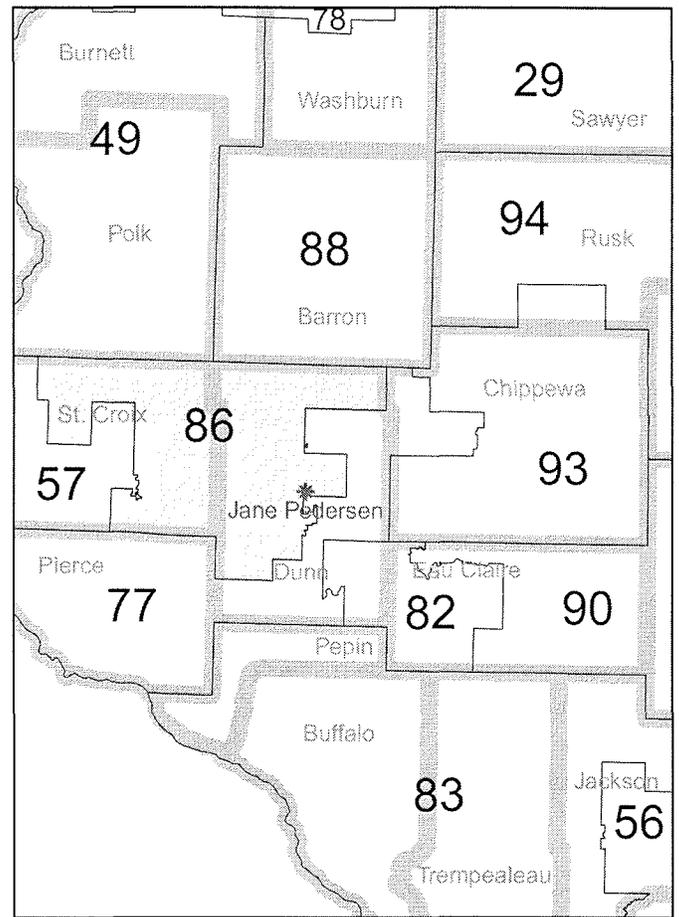
Plaintiff: Deborah Patel (Milwaukee, WI)
District 18 of Simulated Plan 43995
(24.93% Republican Vote Share)



**Plaintiff: Jane Pedersen (Menomonie, WI)
District 67 of Act 43 Assembly Plan
(51.31% Republican Vote Share)**

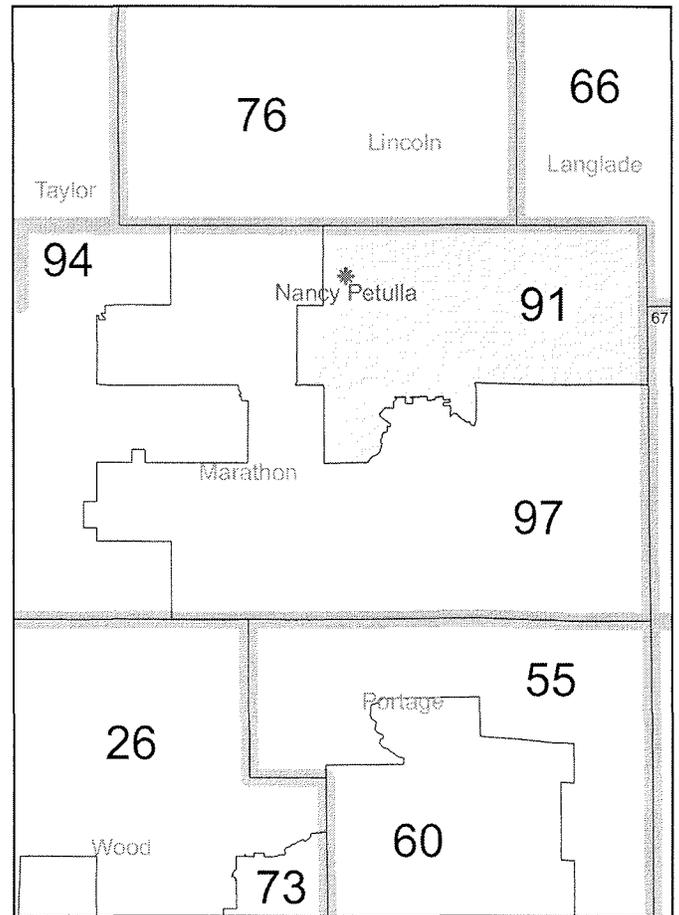
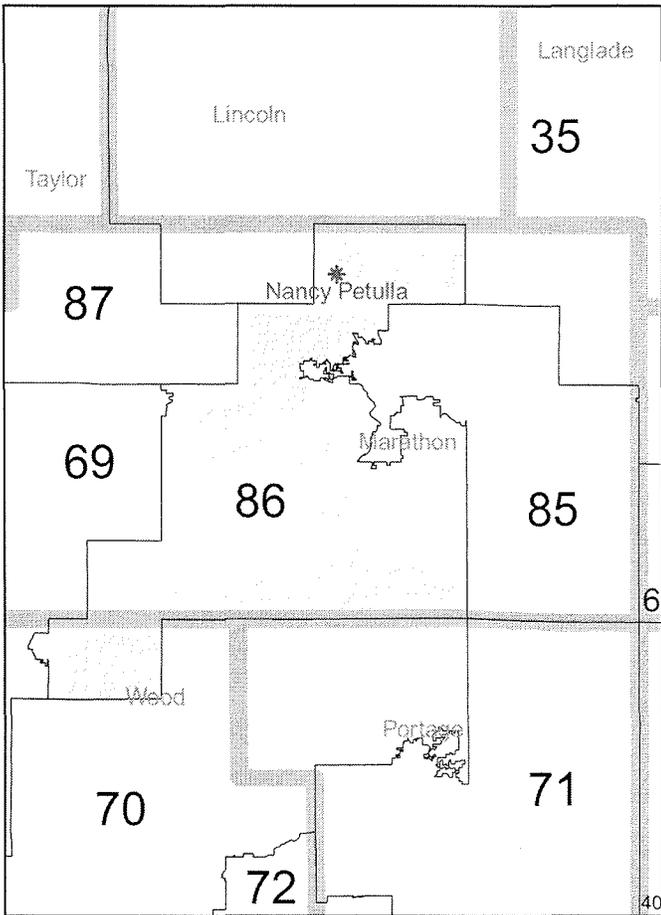


**Plaintiff: Jane Pedersen (Menomonie, WI)
District 86 of Simulated Plan 43995
(49.81% Republican Vote Share)**

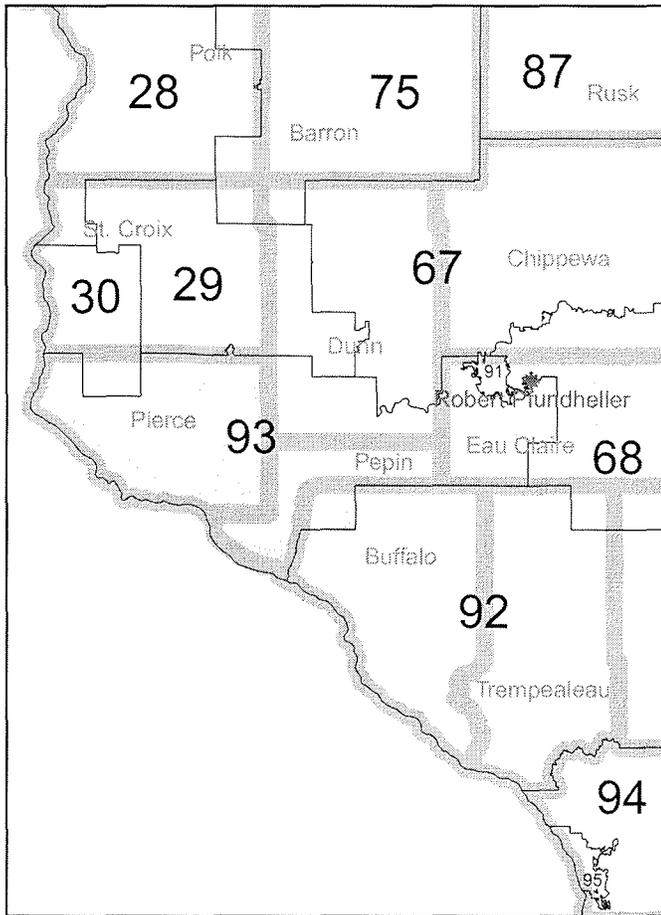


Plaintiff: Nancy Petulla (Merrill, WI)
District 86 of Act 43 Assembly Plan
(54.12% Republican Vote Share)

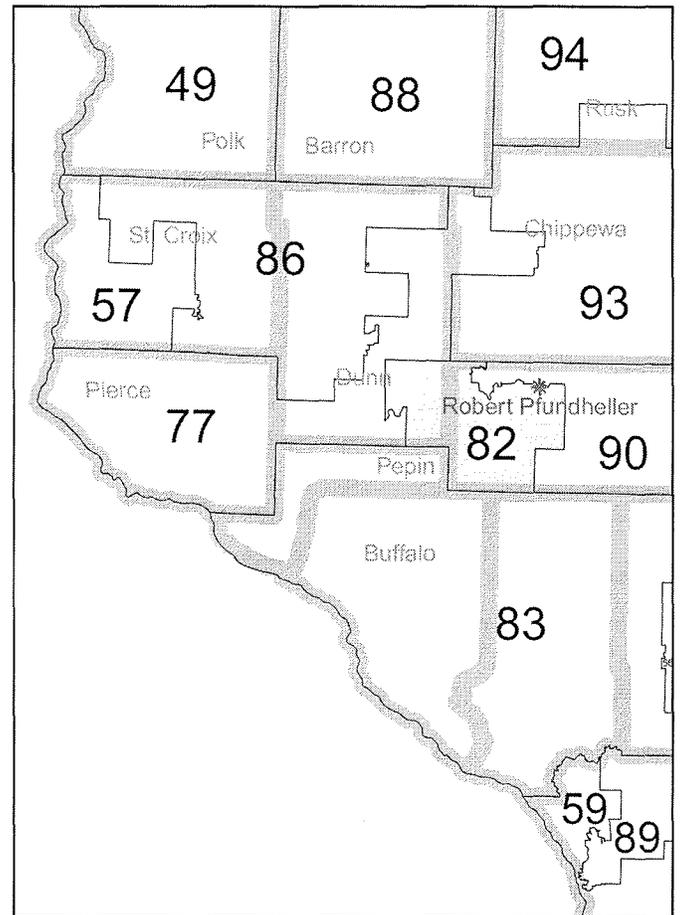
Plaintiff: Nancy Petulla (Merrill, WI)
District 91 of Simulated Plan 43995
(49.98% Republican Vote Share)



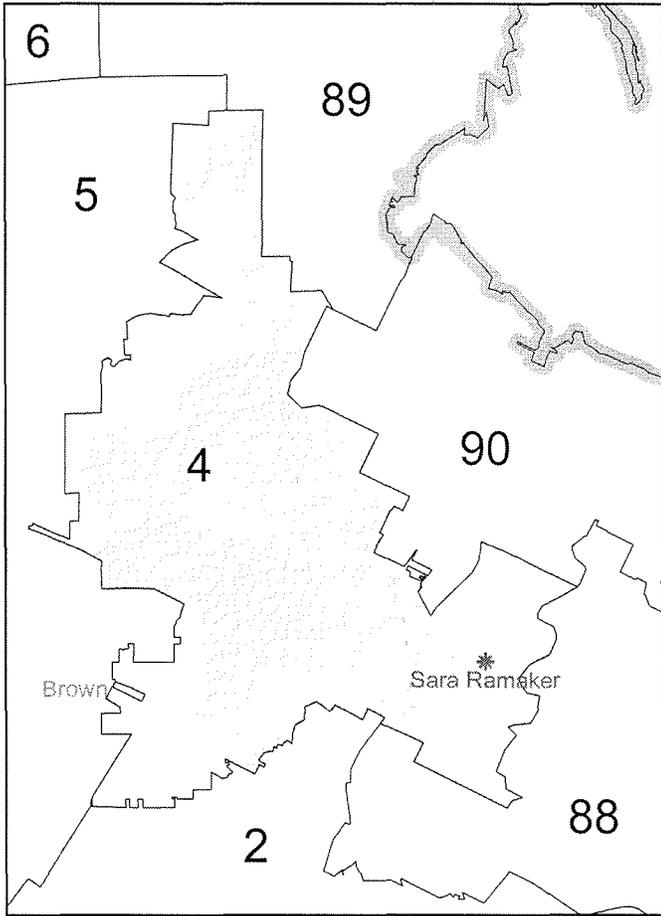
Plaintiff: Robert Pfundheller (Altoona, WI)
District 93 of Act 43 Assembly Plan
(50.69% Republican Vote Share)



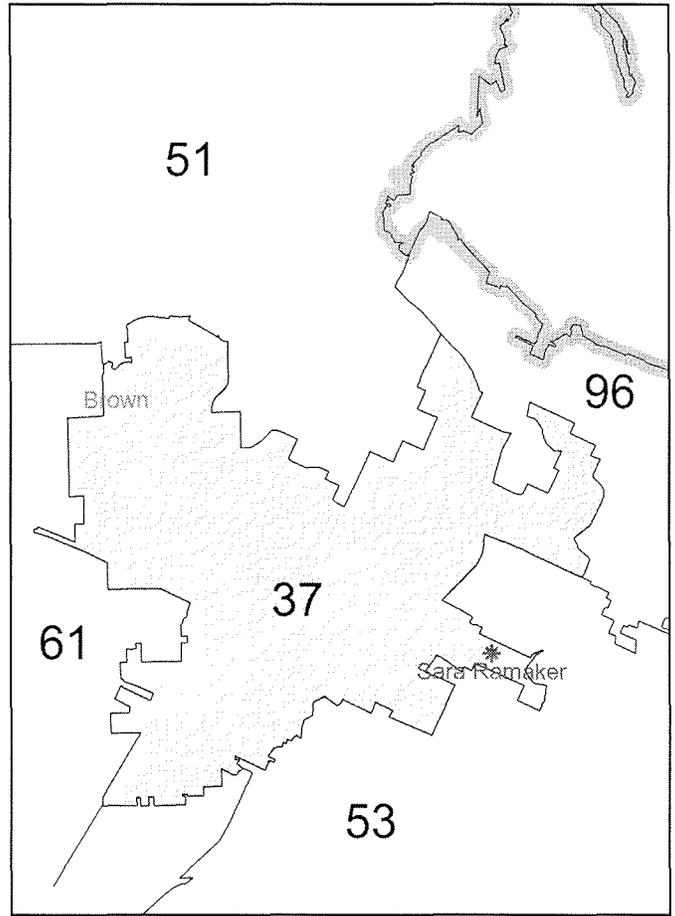
Plaintiff: Robert Pfundheller (Altoona, WI)
District 82 of Simulated Plan 43995
(45.55% Republican Vote Share)



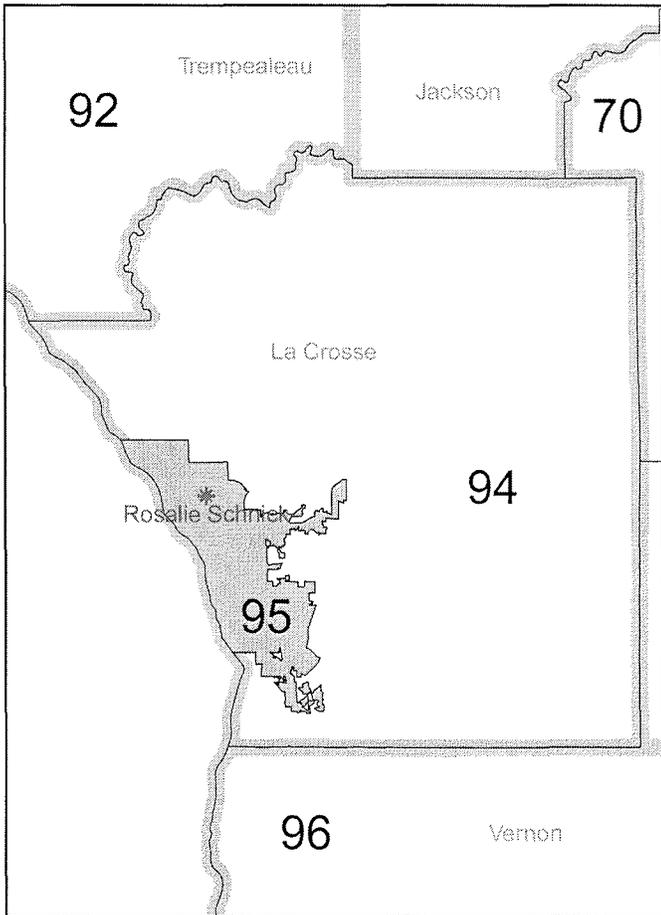
Plaintiff: Sara Ramaker (Green Bay, WI)
District 4 of Act 43 Assembly Plan
(53.68% Republican Vote Share)



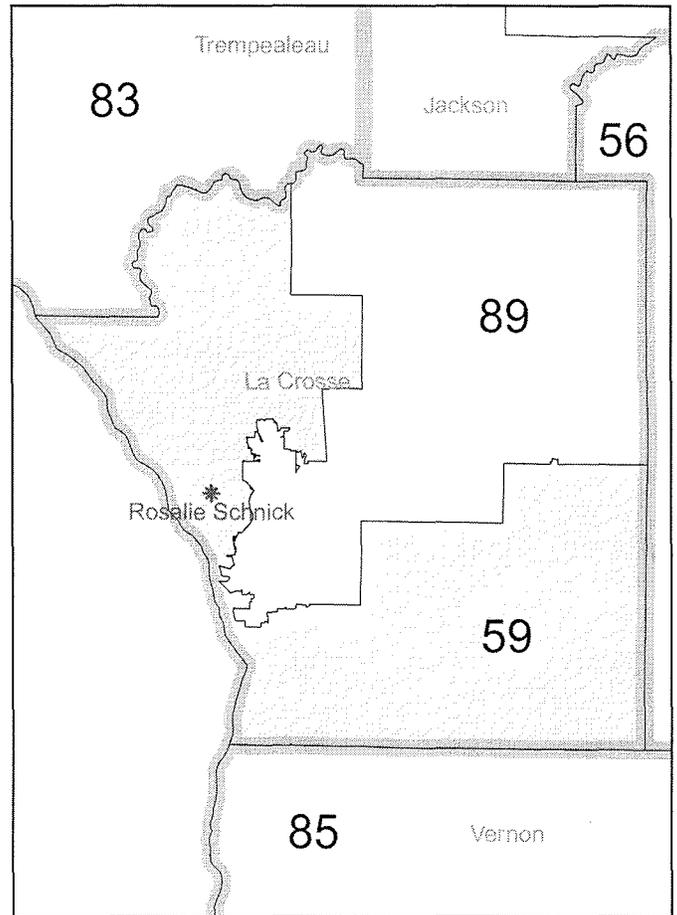
Plaintiff: Sara Ramaker (Green Bay, WI)
District 37 of Simulated Plan 43995
(49.84% Republican Vote Share)



Plaintiff: Rosalie Schnick (LaCrosse, WI)
District 95 of Act 43 Assembly Plan
(38.63% Republican Vote Share)

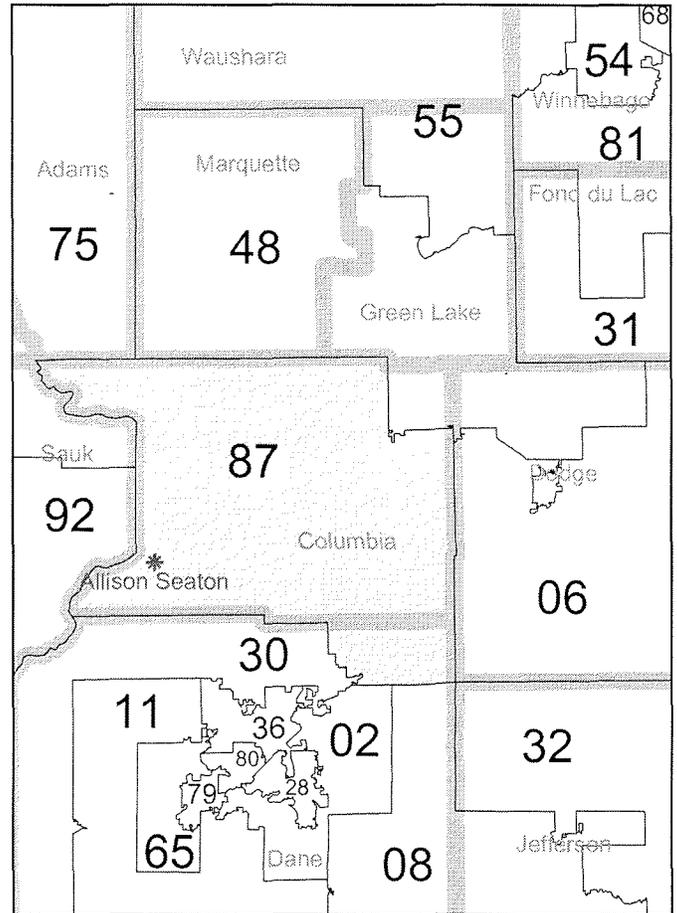
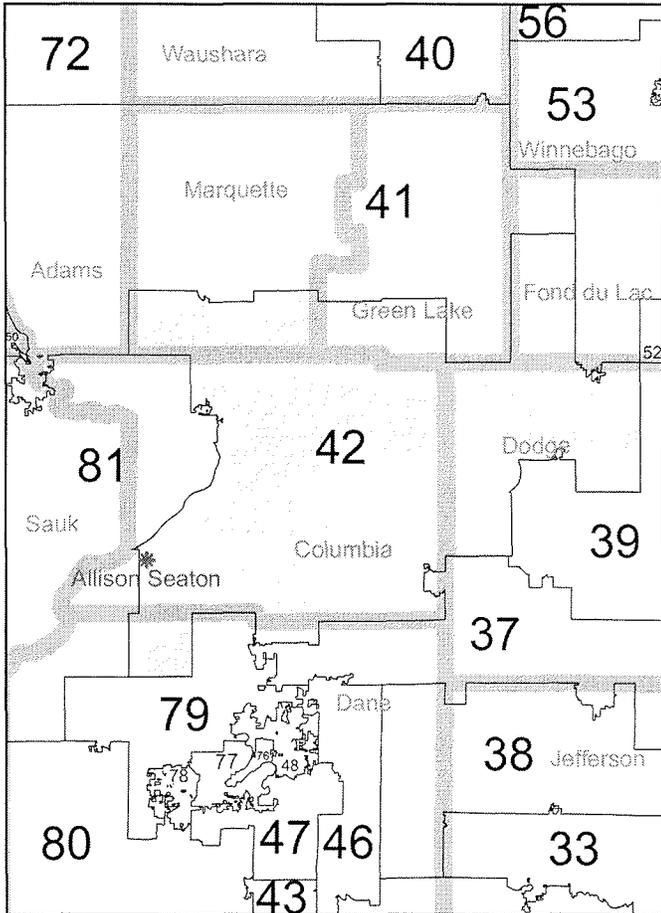


Plaintiff: Rosalie Schnick (LaCrosse, WI)
District 59 of Simulated Plan 43995
(45.29% Republican Vote Share)

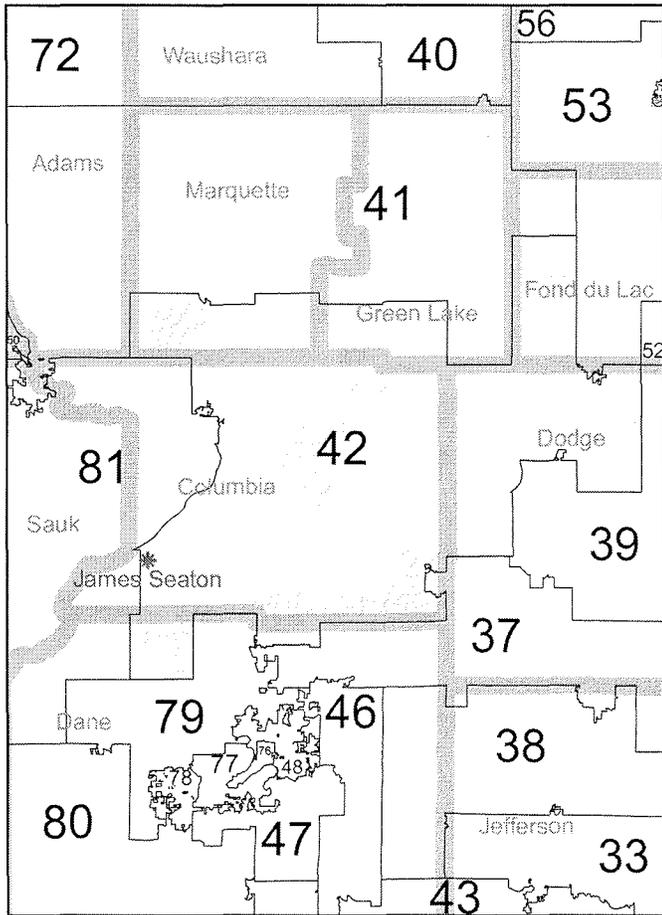


Plaintiff: Allison Seaton (Lodi, WI)
District 42 of Act 43 Assembly Plan
(54.81% Republican Vote Share)

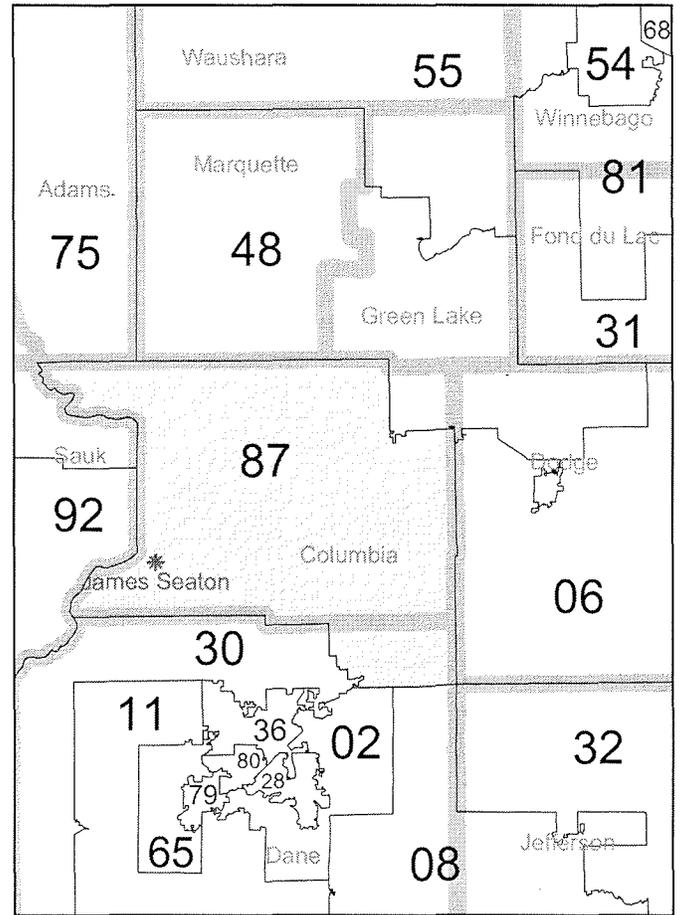
Plaintiff: Allison Seaton (Lodi, WI)
District 87 of Simulated Plan 43995
(49.16% Republican Vote Share)



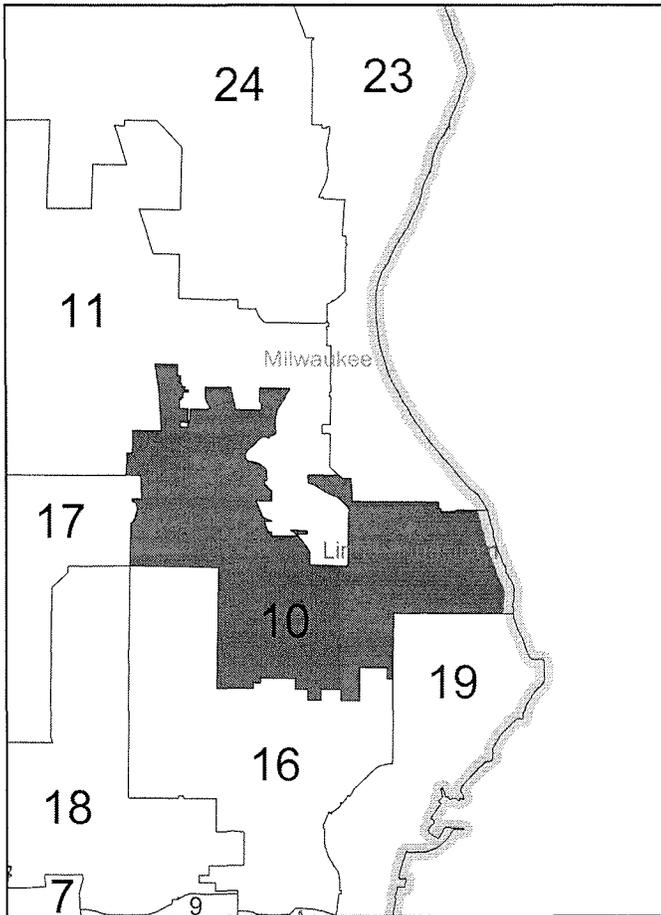
**Plaintiff: James Seaton (Lodi, WI)
 District 42 of Act 43 Assembly Plan
 (54.81% Republican Vote Share)**



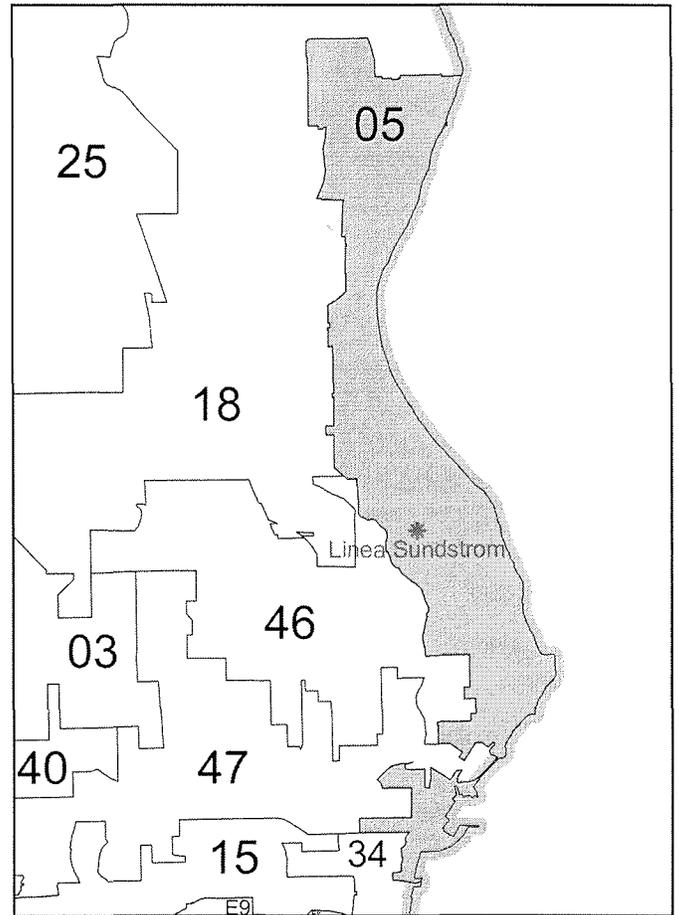
**Plaintiff: James Seaton (Lodi, WI)
 District 87 of Simulated Plan 43995
 (49.16% Republican Vote Share)**



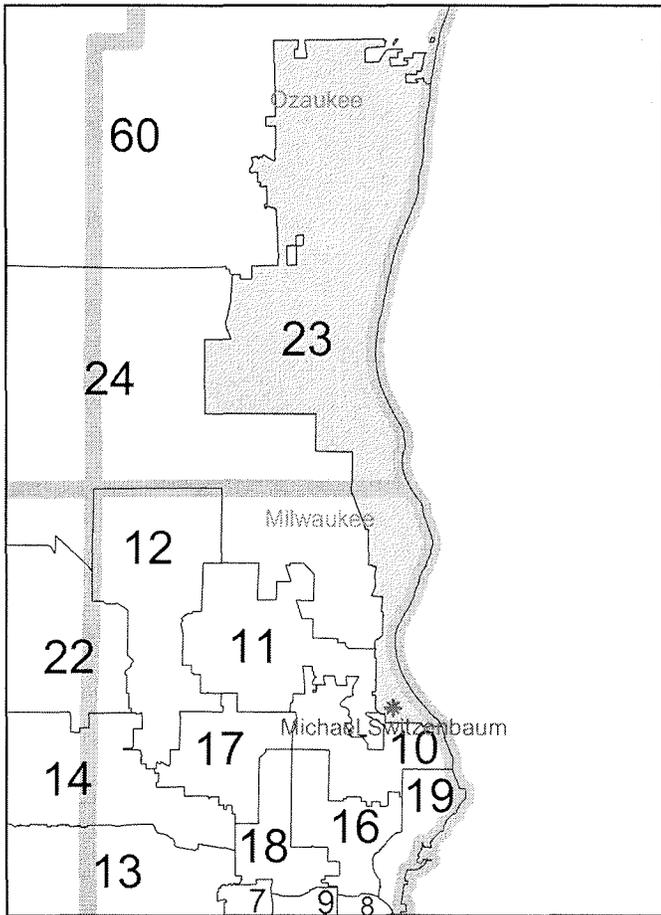
Plaintiff: Linea Sundstrom (Shorewood, WI)
District 10 of Act 43 Assembly Plan
(14.16% Republican Vote Share)



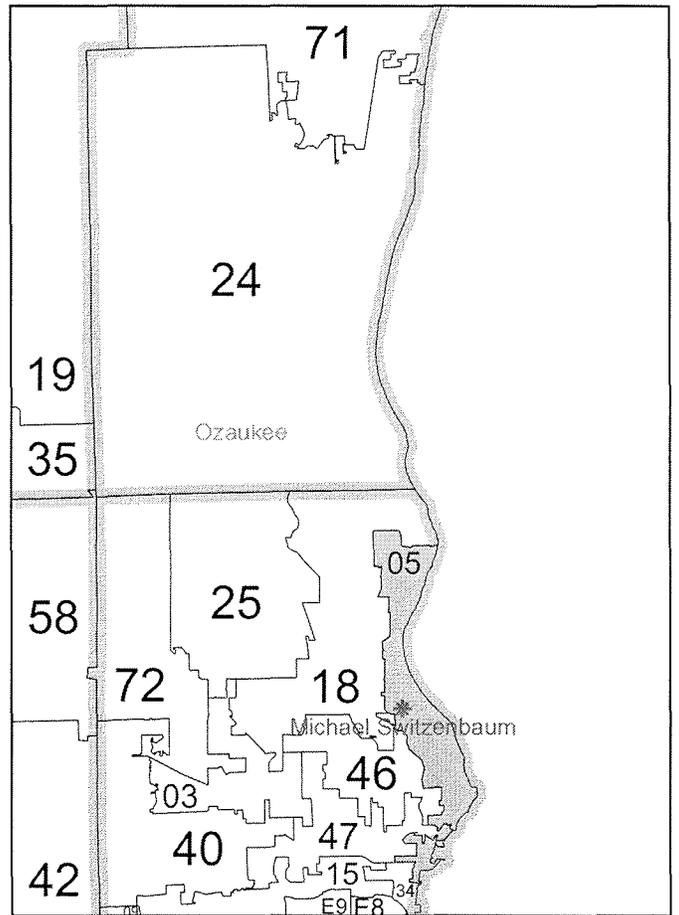
Plaintiff: Linea Sundstrom (Shorewood, WI)
District 5 of Simulated Plan 43995
(37.05% Republican Vote Share)



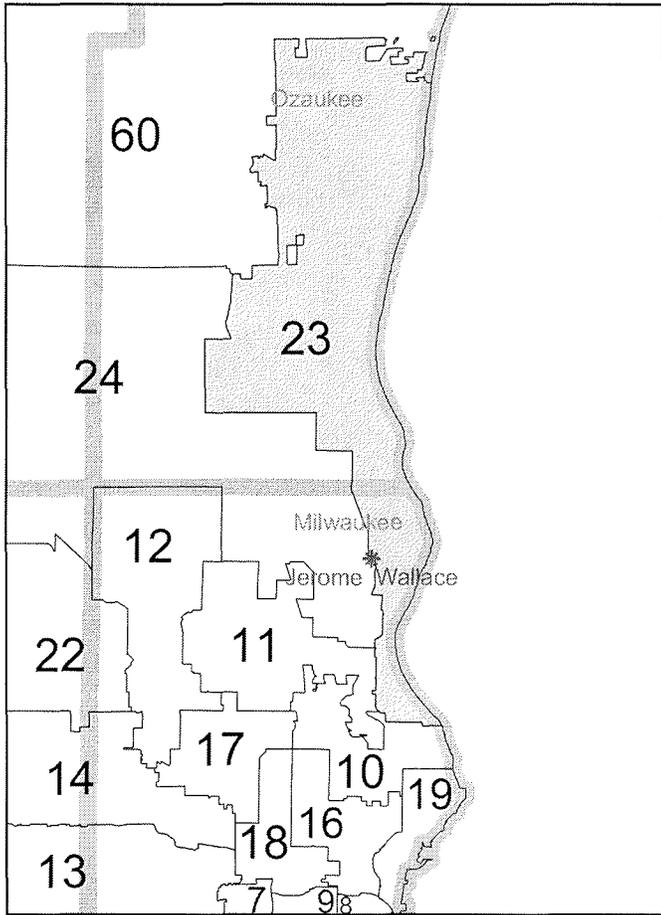
Plaintiff: Michael Switzenbaum (Whitefish Bay, WI)
District 23 of Act 43 Assembly Plan
(57.01% Republican Vote Share)



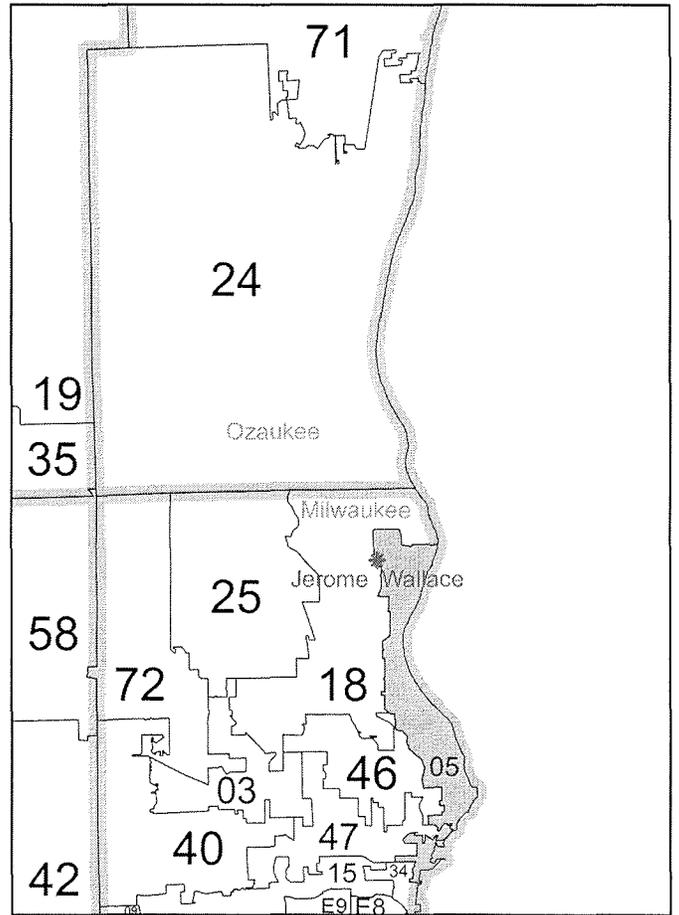
Plaintiff: Michael Switzenbaum (Whitefish Bay, WI)
District 5 of Simulated Plan 43995
(37.05% Republican Vote Share)



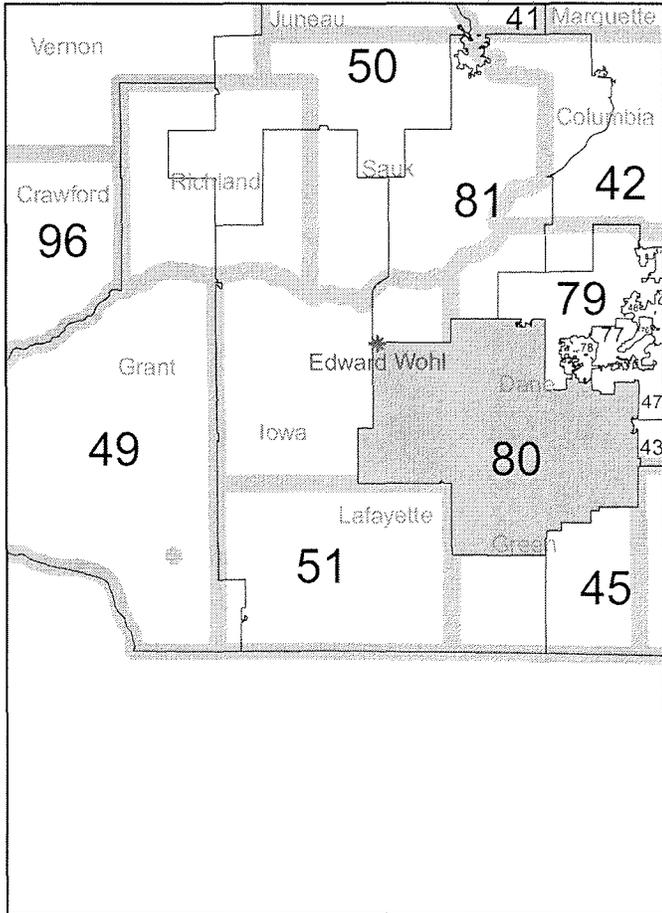
Plaintiff: Jerome Wallace (Fox Point, WI)
District 23 of Act 43 Assembly Plan
(57.01% Republican Vote Share)



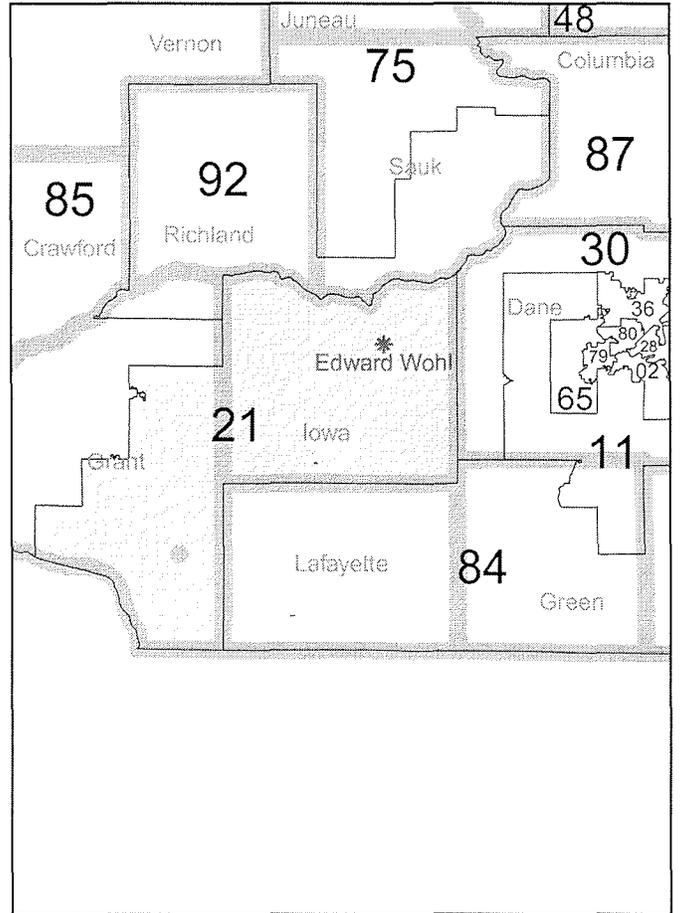
Plaintiff: Jerome Wallace (Fox Point, WI)
District 5 of Simulated Plan 43995
(37.05% Republican Vote Share)



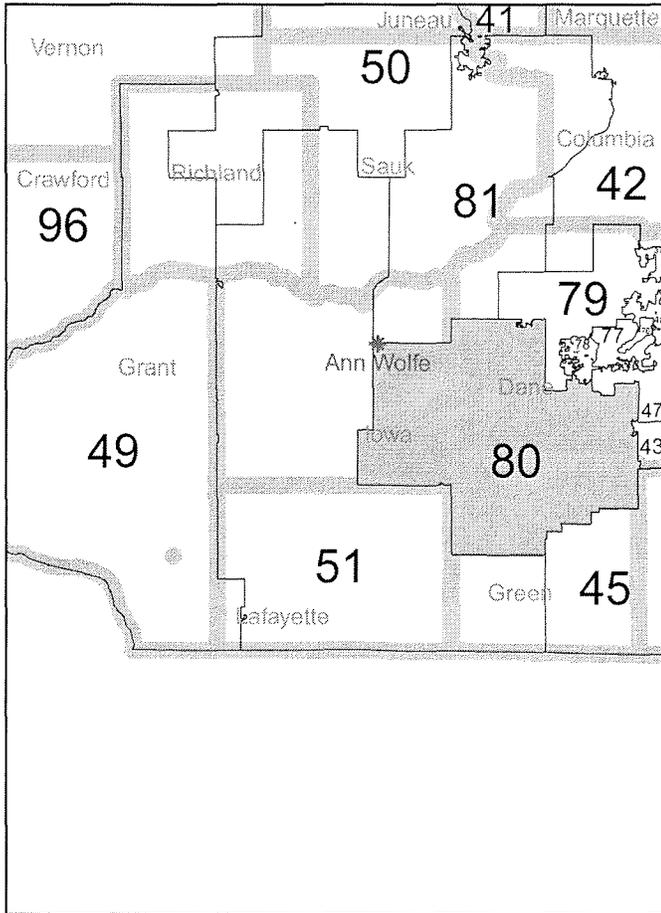
**Plaintiff: Edward Wohl (Ridgeway, WI)
District 80 of Act 43 Assembly Plan
(39.21% Republican Vote Share)**



**Plaintiff: Edward Wohl (Ridgeway, WI)
District 21 of Simulated Plan 43995
(45.39% Republican Vote Share)**



**Plaintiff: Ann Wolfe (Ridgeway, WI)
District 80 of Act 43 Assembly Plan
(39.21% Republican Vote Share)**



**Plaintiff: Ann Wolfe (Ridgeway, WI)
District 21 of Simulated Plan 43995
(45.39% Republican Vote Share)**

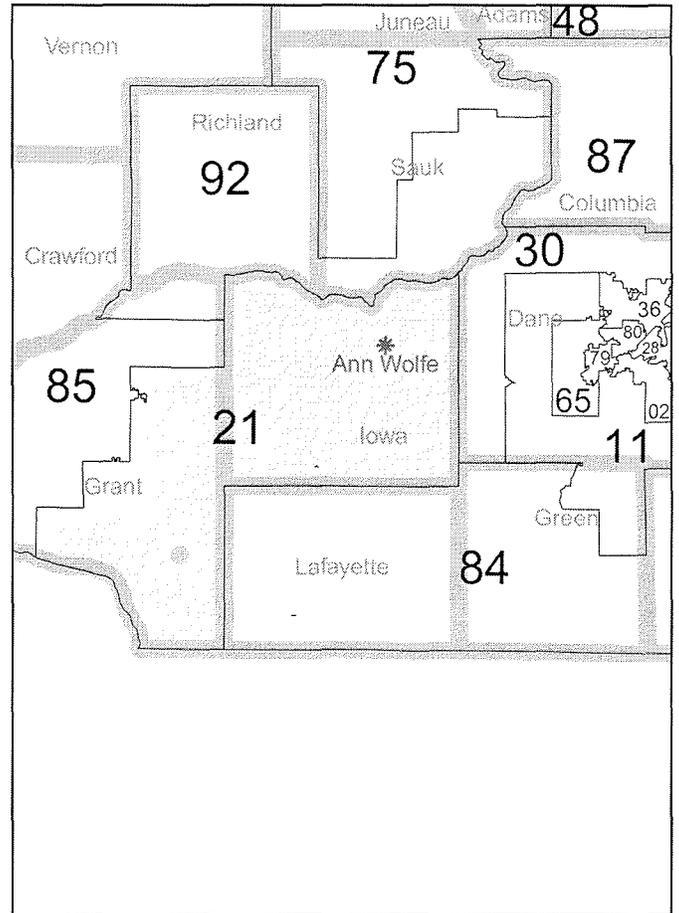


Exhibit B

Expert Report of Kenneth R. Mayer

Kenneth R. Mayer, Ph.D.
Department of Political Science
University of Wisconsin-Madison
October 15, 2018

Kenneth R. Mayer

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 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 Act 43 had a concrete aggregate effect on the Assembly Democratic Caucus, and to analyze specific Assembly districts created by Act 43 to determine whether evidence exists of packing and cracking of Democratic voters.

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:

- Act 43
- Census Block, ward, municipality, and district-level baseline partisanship measures calculated by Dr. Jowei Chen
- An alternative map (Plan 43,995) drawn by Dr. Jowei Chen, with block, ward, and district assignments
- Data on party committee and Assembly candidate fundraising collected by the National Institute on Money in State Politics
- Data from the 2008 to 2016 Cooperative Congressional Election Study
- Election results from the Wisconsin State Elections Commission
- Measures of state level policy liberalism created by Caughey and Warshaw (2016)
- The peer-reviewed academic literature cited in this report.

II. Background and Qualifications

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. I have been on the faculty of the political science department at the University of Wisconsin-Madison since August 1989.

All publications that I have authored and published in the past ten years appear in my curriculum vitae. 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*, *Political Research Quarterly*, 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*.

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My work on election administration has been published in the *Election Law Journal*, *American Journal of Political Science*, *Public Administration Review*, *Political Research Quarterly*, and *American Politics Research*. I was part of a research group retained 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 United States 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. 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 U.S. Government Accountability Office, and by legislative research offices in Connecticut and Wisconsin.

In the past eight years, I have testified as an expert witness in trial, deposition or via report in the following cases:

Federal: *Tyson v. Richardson Indep. Sch. Dist.*, No. 3:18-cv-212-K (N.D. Tex. 2018); *League of Women Voters of Mich. v. Johnson*, No. 2:17-cv-14148-DPH-SDD (S.D. Mich. 2018); *One Wis. Inst., Inc. v. Thomsen*, 198 F. Supp. 3d 896 (W.D. Wis. 2016); *Whitford v. Gill*, 218 F. Supp. 3d 837 (W.D. Wis. 2016); *Baldus v. Members of the Wis. Gov't Accountability Bd.*, 849 F. Supp. 2d 840 (E.D. Wis. 2012); *McComish v. Brewer*, No. CV-08-1550, 2010 WL 2292213 (D. Ariz. Jan. 20, 2010).

State: *Priorities USA v. Missouri*, No. 19AC-CC00226 (Circuit Court of Cole County, Mo. 2018); *Milwaukee Branch of the NAACP v. Walker*, N.W.2d 262 (Wis. 2014); *Kenosha Cty. v. City of Kenosha*, No. 11-CV-1813 (Wis. Circuit Ct., Kenosha, WI 2011).

Courts consistently have accepted my expert opinions, and the basis for those opinions. See *Whitford v. Gill*, 218 F. Supp. 3d 837 (W.D. Wis. 2016); *One Wis. Inst., Inc. v. Thomsen* 198 F. Supp. 3d 896 (W.D. Wis. 2016); *Baldus v. Members of the Wis. Gov't Accountability Bd.*, 849 F. Supp. 2d 840 (E.D. Wis. 2012); *Milwaukee Branch of the NAACP v. Walker*, 851 N.W. 2d 262 (Wis. 2014); *Baumgart v. Wendelberger*, 2002 WL 34127471 (E.D. Wis. 2002).

I am being compensated at a rate of \$300 per hour.

III. Opinions

A. Summary

- The essence of a partisan gerrymander is that the party drawing district lines wins more legislative seats than it would have under a neutral plan. In a concrete sense, the result is that the disadvantaged party is intentionally deprived of seats that it would otherwise have won.
- In 2012, the gerrymandering of Act 43 likely deprived Democrats of between 12 and 13 Assembly seats compared to a neutral map. The result could easily have deprived Democrats of a legislative majority in 2012 (instead of the 39 seats they won).

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- The immediate effect of a gerrymandered map is that a disadvantaged party has fewer legislators than it would otherwise have. In majoritarian legislatures organized along party lines, this significantly reduces that party's ability to affect legislative outcomes.
- Intentionally depriving a party of seats it otherwise would likely win also reduces that party's ability to compete for political power: forcing the disadvantaged party to run against more incumbents in unfavorable districts, creating less competitive elections, undercutting the party's ability to raise campaign funds, making it difficult to recruit quality challengers, and demobilizing party supporters.
- Analysis of specific districts in Act 43 demonstrates classic (and obvious) examples of packing and cracking. In case after case, Democratic voters are either unnecessarily concentrated in districts with overwhelming Democratic support (packing), or are carefully combined with even more strongly Republican regions to insure that Democratic voters will constitute a minority in a district (cracking).
- Simulated Plan 43995 (the "Alternative Map") demonstrates in every case that it was possible to create more neutral and balanced districts.

B. Aggregate Effects on the Assembly Democratic Caucus

As an empirical matter, there is no question that Act 43 districts were drawn in a way that significantly increases the number of Assembly seats that Republicans won (and will continue to win at any plausible aggregate vote share), and to put Democratic Party organizations, candidates, and voters at a disadvantage. The immediate – and indisputable – consequence is that Democrats won fewer Assembly seats than they *would* have won under a less-gerrymandered map. In 2012, I estimated that Democrats won 51.1% of the statewide Assembly vote under a baseline analysis; Democrats won 53.5% of the 2012 presidential vote.¹ These statewide majorities resulted in the Democrats winning only 39 of 99 seats, or 39.4%.

In the Demonstration Map I drew, under the same aggregate vote totals but with a much smaller Efficiency Gap, Democrats would have won 51 of 99 seats (51.5%). Plan 43,995, an alternative map created by Dr. Jowei Chen using automated and nonpartisan methods, creates Democratic majorities in 52 Districts (52.5%). Not only does this demonstrate that under a neutral map the Democratic Party would have won more seats than it did under the Act 43 map (in the range of 12 to 13 seats), but in a very real sense, Act 43 very likely had the effect of denying the Democratic Party a *majority* of seats in the Assembly in 2012.

Reducing by design the number of seats a political party wins will have consequences for that party's ability to compete for office and influence legislative outcomes. The reduced ability to compete results from fewer incumbents, more difficulty in recruiting quality challengers to run against incumbents in the other party, less ability to attract campaign contributions, and fewer subsequent opportunities to win seats. The reduced influence over legislative outcomes is the result of holding fewer seats, and of being stuck in a legislative minority position. These two forces – reduced competitiveness and reduced influence – reinforce each other in a regressive feedback loop: less ability to compete leads to less legislative influence, which in turns leads to less competitiveness, and so on. It is one thing, of course, when this cycle is the result of a lack of public

¹ Analysis of the Efficiency Gap of Wisconsin's Current Legislative District Plan and Plaintiff's Demonstration Plan. July 3, 2015

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support (or votes). It is another when this cycle is the result of intentional action by a political party (e.g., drawing a legislative map) that renders the other party *unable* – because its supporters have been cracked and packed – to translate public support and votes into seats.

1. Expectations from the Academic Literature

I begin with a brief survey of the academic literature on the effects of reduced seat shares and political influence on a legislative party. By “legislative party,” I mean the aggregate institutional expression of a party in a legislative chamber, often expressed as the party’s recognized and aggregated organizational form. In the present case, I am referring to the Assembly Democratic Campaign Committee, one of four such organizations in the Wisconsin State Legislature (one for each party-chamber combination).

All of these expectations are complimentary, in that they tend to reinforce each other. A political party intentionally placed at a disadvantage will have difficulty winning elections against incumbents, which makes it harder to win enough seats to achieve majority status (even when it has majority support in the electorate). A party in this situation will have more difficulty raising funds and attracting experienced candidates, which makes it harder to win elections, which in turn relegates a party to nearly certain minority status, which eliminates its ability to meaningfully affect legislative outcomes and policy. And perpetual minority status feeds back into step 1, meaning that a party intentionally placed at a disadvantage through gerrymandering is likely to stay at a disadvantage.

a. Fewer Incumbents

If there is one universal finding in the academic literature on legislative elections, it is that incumbents have significant advantages over challengers (Hogan 2004). Incumbents are more well-known to voters than challengers, raise more campaign funds, have more campaign experience, are able to leverage the advantages of legislative office to provide constituency services, claim credit, obtain public funds for local projects, and demonstrate their effectiveness to constituents. Incumbents who run for reelection almost always win.

Incumbency, for the most part, is a self-perpetuating benefit. Incumbents have significant advantages from the start, and often can discourage credible challengers from even coming forward by demonstrating their political strength (Hogan 2001; Ban, Llaudet, and Snyder 2016).

A gerrymandered redistricting plan that reduces the number of seats a party can win puts that party at a significant disadvantage, because by definition it reduces the number of incumbents who can run under the party label and increases the number of incumbents of the other party. Because incumbents are difficult to defeat, this makes it harder for a political party to meaningfully compete for legislative influence, and further solidifies the advantage to the party doing the gerrymandering.

b. Less Competitive Elections

An immediate implication – both theoretically expected and empirically validated – is that elections become less competitive under a gerrymandering scheme. Even when a party creates more marginal seats where it has safe, but not overwhelming, advantages, an incumbent winning makes the district less competitive in subsequent election cycles.

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Incumbents almost always win, frequently run unopposed, and win by larger margins than candidates in open seats (Squire 2000). Gerrymandering increases the likelihood of uncontested districts in state legislative elections (Forgette, Garner, and Winkle 2009). Quantitative analyses consistently show district partisan baseline to be a significant determinant of which party wins a district (indeed, manipulating district partisan strength is the entire point of partisan gerrymandering).

The causes of uncontested elections likely vary between minority and majority parties. In a system in which Democratic voters are packed into a small number of districts, Republicans may see no need to contest every district since there is little point to expending effort and money in areas where winning is unlikely. There is also little to gain: expending money and effort to obtain a 62nd or 65th seat is far less important than protecting the incumbents a party has.

For the minority party, the incentive structure is somewhat different. The only way to regain majority status is to flip enough districts controlled by the majority party. Leaving majority party districts uncontested is more likely to reflect futility and lack of resources than a deliberate strategy.

c. Decreased Ability to Recruit Competitive Challengers

The political science literature agrees that political actors are *strategic* in that they balance the costs and benefits of political action. In the electoral and campaign context, it means that candidates – particularly challengers – weigh the benefits of running for office against the costs. The two parts of the benefit side of the calculation are (1) the probability of winning, and (2) the value of winning and holding office.² The value of winning stems from, in part, the ability to influence policy, the benefits of a career in politics, and the potential for further professional advancement.

Any factor that raises (or lowers) either (1) or (2) will raise (or lower) the overall expected benefits from running for office, and make running more (or less) attractive to potential candidates.

The *probability of winning* is affected, obviously, by the partisan composition of a district. A district with a built-in partisan advantage will be harder for a candidate from the other party to win, as will a district where a challenger must run against an incumbent.

The *value of holding office* goes up when a seat is more influential. In this context, the marginal value of an additional seat is significantly higher when that seat means the difference between a legislative minority and a legislative majority. In a 99 seat legislature, increasing a party's seat count from 30 to 31 does not appreciably change the legislative balance of power. Increasing a party's seat count from 49 to 50 is immensely more valuable, because it changes a minority party into a majority party. Similarly, as seat counts approach majority status, each additional seat becomes more valuable.

The key to this analytical framework is that when either the probability of winning or the value of holding office *go down*, high-quality candidates are less likely to assume the costs and risks of running for office. More competitive districts, open seats, a chance of obtaining majority status, and favorable electoral conditions are more likely to attract high-quality candidates (Jacobson and Kernell 1981; Ban, Llaudet and Snyder 2016; Moncrief 1999; Van Dunk 1997). Party efforts, as measured by spending, increase if there is a prospect of achieving majority status (Hogan 2004).

² Formally, the benefit calculation is simply the (value of winning x probability of winning).

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Legislative party organizations play a crucial role in the process of recruiting candidates (Sanbonmatsu 2006), and are therefore affected in the aggregate by gerrymandering strategies designed to put them at a disadvantage.

A party locked into perpetual minority status, with little plausible opportunity to win a legislative majority, needing to unseat incumbents, and facing a district map intentionally drawn to put it at a disadvantage, will likely have difficulty attracting high-quality challengers.

d. Decreased Fundraising Capacity

Coincident with a decline in overall political prospects that result from gerrymanders, the disadvantaged party will face difficulties raising campaign funds.

While donors have multiple motivations to contribute to parties and candidates, several patterns are observable. One is that the ability to raise funds (by either parties or candidates) is strongly related to expectations of success: that is, candidates and parties that have greater expectations of *winning* will be able to raise more campaign funds.

The logic is straightforward: a key reason to contribute to a party or candidate is because a donor wants to see those parties and candidates *win*. Donors who contribute to a winning candidate benefit from supporting an officeholder likely to support (and potentially be in a position to implement) their policy preferences (Barber 2016). Interest groups use campaign contributions as a strategy to both increase the number of officeholders who share the groups' policy agendas, and as a way to obtain access and legislative support (Powell 2013). Majority legislative parties and candidates raise more money than minority parties and candidates; indeed, majority status is by itself a key determinant of how much a party can raise (Cox and Magar 1999).

e. Voter and Volunteer Engagement

Gerrymandered districts can have the effect of reducing voter engagement, by severing connections between representatives and constituents (Winburn and Wagner 2010; Hayes and McKee 2009). Being relegated to consistent minority status, and facing few competitive elections, can reduce turnout and other forms of political engagement among the disadvantaged partisans (Leighley and Nagler 2014, 121-123).

f. Reduced Ability to Affect Legislative Policy Outcomes

A political party that wins fewer seats under a gerrymandered plan than it would have won under a neutral plan is, quite obviously, at a disadvantage in its ability to affect legislative outcomes. A political party that would have had a *majority* under a neutral plan, but which is relegated to minority status under a gerrymandered plan, is at an even more serious disadvantage.

The Wisconsin Assembly, like all partisan legislative bodies, is organized on the basis of legislative majorities.³ The majority party is granted crucial procedural powers (electing a Speaker who has the authority to determine the partisan composition of committees, set legislative schedules, refer bills to committees). The majority party – and particularly a majority party with a 64-35 advantage – has complete control over the legislative agenda, committee decisions, and passage of bills.

³ <https://docs.legis.wisconsin.gov/2017/related/rules/assembly>.

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The additional problem of a legislative majority elected through gerrymandering is the increased likelihood that it is not representative of the electorate. Caughey, Tausonovitch and Warshaw have shown that the magnitude of the Efficiency Gap in a state has a large effect on whether a legislature becomes more conservative or liberal (as measured by the ideology of the median legislator) and whether enacted policies are more conservative or liberal. Moreover, large efficiency gaps – which necessarily imply large differences in how individual votes are weighted and their influence on electoral outcomes – push legislators away from the median voter and toward the ideological extremes of the party doing the gerrymandering. “In sum,” they write (2017, 456)

partisan gerrymandering does not merely make it easier for one party to win elections. Rather, by biasing the relationship between votes and seats, it also undermines congruence with voters’ preferences, skewing the ideological composition of the legislature and the ideological character of policymaking away from the preferences of the median voter (and thus from a majority of the electorate).

2. Observed Effects in Wisconsin

In this section I provide evidence and data consistent with the conclusion that the extreme partisan gerrymandering of the Wisconsin Assembly at the core of Act 43 has placed Democratic party organizations, candidates, and voters at a disadvantage.

Some of these effects are directly observable and indisputable, especially those related to electoral competitiveness, uncontested districts, and campaign contributions. Others, such as candidate recruitment and quality, voter engagement, and involvement with party activities are difficult to observe directly. There are, for example, no recent data on the public or elected experience of Wisconsin Assembly challengers, or the number of quality candidates the Democratic Party has unsuccessfully attempted to recruit for office.⁴

a. Campaign Contributions

A party’s ability to raise campaign funds is fundamental to its ability to compete effectively for office. As noted above, the probability of electoral success, and majority status, are key factors shaping how much a party organization can raise. Table 1, using data from the National Institute on Money in State Politics⁵, shows the total amount raised in each election cycle from 2008 through 2018. The pattern is apparent, indicating that the Democratic Assembly Campaign Committee shifted from outraising its Republican counterpart by significant amounts in the 2008, 2010, and 2012 cycles (by nearly a 3-1 margin), to being consistently outraised by the Republican Assembly Campaign Committee since 2014.

Since 2014, the Democratic Assembly Campaign Committee has raised a total of \$3.33 million, compared to the \$4.12 million raised by the Republican Assembly Campaign Committee (or 24% less). This represents a significant change that was affected by the electoral consequences of Act 43.

⁴ In State Senate campaigns, on the other hand, experience is frequently measured by whether a challenger had previously served in the state’s lower chamber (Werner and Mayer 2007).

⁵ <https://www.followthemoney.org/>.

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Table 1 Party Committee Fundraising				
	Assembly Democratic Campaign Committee		Republican Assembly Campaign Committee	
Cycle	Contributors	Total	Contributors	Total
2018	2,868	\$1,024,050	1,803	\$1,525,421
2016	5,599	\$1,673,633	3,098	\$1,791,723
2014	4,123	\$630,166	2,165	\$803,342
2012	5,947	\$624,852	1,560	\$349,250
2010	4,920	\$922,854	1,012	\$294,506
2008	3,986	\$863,878	1,036	\$321,802

A second metric is the fundraising ability of candidates. Table 2 shows the total amount raised by all Democratic and Republican Assembly candidates in each cycle since 2008. The pattern here is similar to that of the party committees: in 2012, Democratic candidates fell far behind their Republican counterparts, stayed far behind in 2014, and remained behind in 2016. Since 2012, Republican Assembly candidates have raised almost 50% more than Democratic candidates.

Table 2 Total Contributions to State Assembly Candidates, 2000-2016		
	Democratic Candidates	Republican Candidates
Cycle	Total	Total
2016	\$ 4,065,646	\$ 4,826,714
2014	\$ 2,562,082	\$ 4,846,347
2012	\$ 3,436,394	\$ 5,034,613
2010	\$ 3,093,729	\$ 4,365,760
2008	\$ 4,325,947	\$ 4,419,238

Table 3 shows the effect of incumbency (one reason why the aggregate contribution data indicate a significant Republican advantage). The data reveal a significant increase in the average amount Republican incumbents have raised, with no similar increase among Democratic incumbents. Notably, the amounts Republican incumbents raised, on average, increased by over 73% between 2010 and 2012, and has been consistently higher in every cycle since.

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Table 3				
Average Contributions by Party and Candidate Status Wisconsin Assembly Elections				
Cycle	Republican Incumbent	Democratic Challenger	Democratic Incumbent	Republican Challenger
2016	\$66,210	\$45,860	\$36,188	\$16,648
2014	\$48,805	\$18,648	\$36,796	\$43,034
2012	\$66,746	\$21,702	\$34,441	\$26,470
2010	\$38,463	\$22,989	\$39,483	\$29,465

b. Competitiveness and Candidate Recruitment

As noted above, there is no reliable quantitative data about the candidate pool for Wisconsin State Assembly Elections. We can, however, observe the effects of recruitment patterns by examining uncontested elections and incumbent reelection rates.

Data on uncontested races (Table 4) show that even prior to 2012, Republicans left some Democratic districts uncontested. The pattern for Democrats was more varied: since 2008, especially in presidential election years, Democrats ran in most districts held by Republicans, leaving only 6 uncontested in 2008 and 4 in 2012. But this changed in 2014, when Democrats failed to run a candidate in 29 Republican districts, and in 2016 when they did not field a candidate in 21. The most plausible explanation for this is that the electoral environment of Assembly elections became increasingly unfavorable: Republican incumbents whose districts were solidified in 2012 benefitted from the incumbency advantage, a lack of resources among Democrats, and the unlikely prospect of the Democratic Party regaining majority status.

Table 4		
Number of Uncontested Assembly Districts		
Cycle	Uncontested by Democrats	Uncontested by Republicans
2016	21	28
2014	29	23
2012	4	23
2010	17	14
2008	6	24
2006	14	25

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In 2014, 96.2% of Wisconsin Assembly incumbents who ran were reelected (75 of 78). In 2016, the incumbent reelection rate was 100%. Act 43 had the effect of locking in this advantage, making it in effect impossible for Democrats to capture a majority absent a historic (and unlikely) swing.

3. Engagement

The Cooperative Congressional Election Study (CCES) is a large-scale national survey conducted during election years.⁶ Its samples are large enough (50,000+) to produce reliable estimates of opinions at the state level. Among the questions in each cycle are those measuring voter engagement: whether a respondent has attended a local political or government meeting; put up a political sign or bumper sticker; donated money to a campaign, party, or other political organization; or worked for a candidate or campaign.

The data below show a consistent decline in engagement between 2008 and 2016 (and from 2010 to 2016). Democrats in Wisconsin became less likely to engage in any of these forms of political activity.

Cycle	Attended Local Political Meeting	Put Up a Political Sign	Donated Money to a Candidate, Campaign or Organization	Worked for a Candidate or Campaign
2008	12.3%	45.1%	34.5%	18.3%
2010	17.3%	23.7%	21.7%	11.1%
2012	13.8%	30.8%	23.9%	10.4%
2014	11.3%	21.5%	23.4%	7.3%
2016	10.3%	18.4%	22.3%	6.5%

Caution is important in interpreting these results, because they cannot be tied to the consequences of Act 43; many of the patterns will reflect national more than state forces. In addition, most forms of engagement among Republican voters showed similar declines. Nevertheless, this trend is consistent with an overall lack of Democratic engagement.

4. Policy

As noted above, Act 43 produced additional Republican seats in the Assembly relative to more neutral plan. While the effects on legislation could be inferred absent any data, it is possible to measure the policy effects of being intentionally denied legislative seats through gerrymandering.

⁶ <https://cces.gov.harvard.edu/>.

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Table 6 shows a measure of state policy (Caughey, and Warshaw 2016).⁷ It is based on a large set of policies across 10 domains, and provides annual measures of “state policy liberalism” (2016, 903). Their measure is broadly consistent with previous measures of policy liberalism, and has the advantage of generating estimates over time.

Table 6 – Measures of Policy Liberalism		
Year	Caughey-Warshaw Policy Median	Standard Deviation
2010	1.04	0.25
2011	0.89	0.25
2012	0.85	0.24
2013	0.68	0.29
2014	0.67	0.30

The table shows how Wisconsin policy outputs became more conservative in 2011 when Republicans obtained a majority in the state Assembly. The measure shows that since 2010, policy has moved consistently in the conservative direction. After Republicans controlled the governorship and the state legislature in 2011, the liberalism measure changed from 1.04 (roughly equivalent to Minnesota, New Mexico, and Washington) to 0.89, a change of one-half of a standard deviation. In successive years, policy continued to shift in the conservative direction, particularly after the 2012 elections, when the index shifted from 0.85 in 2012 to 0.68 in 2013, and 0.67 in 2014 (in the range that year of Iowa and New Hampshire, and closer to Montana than to Minnesota on the scale). The key to interpreting these numbers is that they do not represent an absolute scale (in that a measure of 1 or -0.5 corresponds to a specific set of policy decisions, or that a state with a measure of 2.0 is “twice as liberal” as a state with a measure of 1.0), but rather allow for comparison over time and across states.

The overall change from 2010 to 2014 to is the largest 4-year conservative shift (from 1.04 to .67, or 0.37) in Wisconsin since the 1930s. Without question, the legislature’s priorities have moved policy toward the conservative end of this scale, and away from Democratic priorities. From the standpoint of the aggregate interests and views of the Democratic party, this constitutes a harm.

⁷ In this index, higher positive values reflect more liberal policies, lower values more conservative.

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C. Analysis of Challenged Act 43 Districts

The core of partisan gerrymandering is packing and cracking. The party that controls how district lines are drawn concentrates voters of the opposing party in small number of districts where it wins by overwhelming numbers (packing), and disperses opposition voters so that they constitute a minority of voters in other districts (cracking). Although the strategies are universally recognized as inherent in the gerrymandering process, Bullock's (2010) description is informative:

Packing occurs when "[t]hose in charge of redistricting set out to minimize the number of seats that the minority can win by placing as many members of the minority into a single district" (2010, 16).⁸

Cracking involves "dividing a population that if put into a single district would be sufficient to determine the outcome of elections. Dividing a group into two or more districts, so that it is less than a majority in any district, denies the party or group an opportunity to elect its preference" (2010, 14).

In the following analysis of each of 27 challenged Assembly districts in Act 43, I begin with a map that shows district lines (in black) and the partisan baseline of wards or municipalities in and around the districts. Partisanship is measured using the Democratic baseline calculated by Dr. Jowei Chen. In the maps, Democratic wards and municipalities are shaded blue, with darker shading an indicator of higher Democratic baselines. Republican wards and municipalities are, similarly, shaded red, with darker shades indicating lower Democratic baselines.

The patterns that emerge are stark: in case after case of cracking, Democratic areas are split into multiple districts (often as many as six or seven), and combined with larger populations of strongly Republican voters to render Democratic voters a minority unable to influence outcome. Alternatively, districts are drawn to link together separate Democratic areas, often at the edges of a district, bringing them into districts with far larger Republican populations. These cracked districts often include irregular jogs or notches that sweep Democratic areas into Republican districts, or that include additional Republican areas sufficient to guarantee a Republican majority.

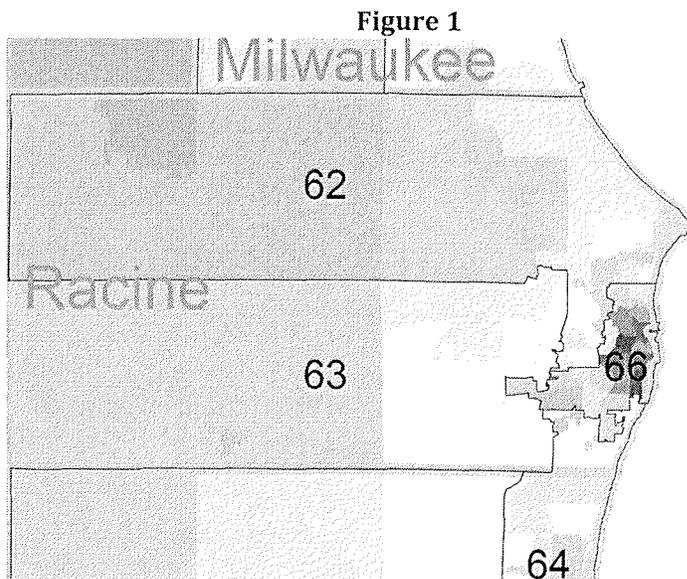
In cases of packing, lines are drawn to concentrate the most Democratic areas into a single district, often as a complement to cracking in an adjacent district.

I proceed by region, based on the classifications used by the Act 43 map drawers in Trial Exhibit 283.

⁸ In this context, "minority" refers to voters of the party that has a majority in the legislative body drawing district lines, which is not necessarily the party that has the most support in the electorate.

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Region 1: Assembly Districts 62 (cracked), 63 (cracked), and 66 (packed)



The 62nd, 63rd, and 66th Assembly Districts are all in Racine County.⁹ The largest municipality in the region is the City of Racine, with a population of 78,860 and a Democratic baseline of 63.7%. AD 62 has a Democratic baseline of 43.8%, AD 63 a baseline of 41.7%, and AD 66 a baseline of 67.0%. These 3 districts combined have a Democratic baseline of 49.0%. The Act 43 map drawers turned this roughly 50-50 area into one packed Democratic district and 2 safe Republican districts.

The Act 43 map drawers achieved the partisanship of these three districts by packing Democratic voters into District 66, and cracking Democratic voters in the remainder of Racine and areas around the city. This was achieved through classic examples of packing and cracking.

The packing occurred in District 66. Because the City of Racine has a population (78,860) greater than the ideal Assembly district population (57,444), it had to be split into two districts. However, the Act 43 map drawers split the city into three Assembly districts: the 66th (population 57,545, Democratic baseline 67.0%) the 62nd (population 18,350, Democratic baseline 55.8%) and the 64th (population 2,965, Democratic baseline 66.6%). This had the effect of packing Democratic voters into the 66th district, and cracking the remaining Democratic populations in Racine into two Republican districts (the 62nd and 63rd).

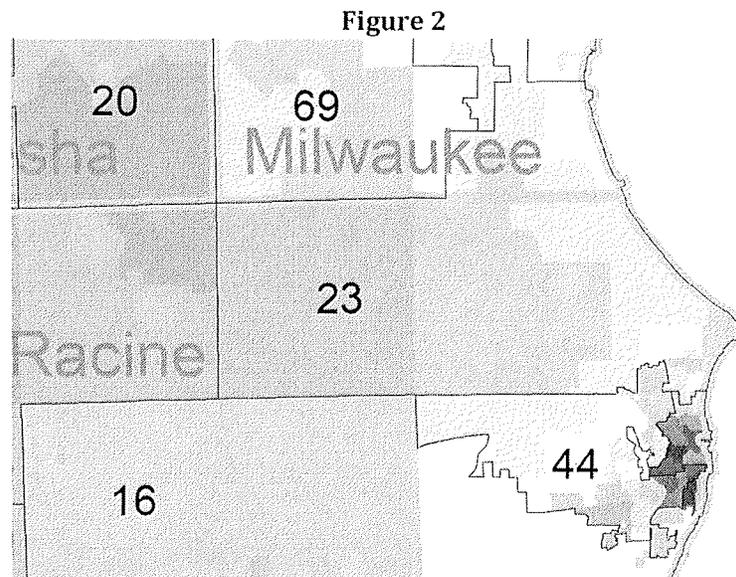
In AD 62, eight Democratic majority wards in Racine and one in the Village of Mount Pleasant have a total population of 19,665 and an aggregate Democratic baseline of 55.4%. The map above clearly shows that District 62 extends into the City of Racine and Village of Mount Pleasant to pick up these areas. The rest of District 62 consists of the Village of Caledonia (population 23,898 and Democratic baseline of 42.4%), the Town of Norway (population 7,948 and Democratic baseline of 30.2%), the Town of Raymond (population 3,870 and Democratic baseline of 34.1%), the Village of Wind Point (population 1,723 and Democratic baseline of 38.0%), and the Village of North Bay (population 241 and Democratic baseline of 40.9%). Outside of Racine and Mount Pleasant, the rest of AD 62 has 37,680 people and a Democratic baseline of 38.8%.

⁹ The 63rd District includes one unpopulated ward in Walworth County (to the west of Racine County), ward 9 in the city of Burlington.

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AD 63 consists of the bulk of Racine County to the west of the City of Racine. It also extends into parts of the Village of Mount Pleasant, picking up five majority Democratic wards, and what amounts to a 50-50 partisan split in one other.¹⁰ These six wards have a population of 5,791 and a Democratic baseline of 51.0%. This population of Democratic voters was combined with a population of 51,574 voters elsewhere in the district, with a Democratic baseline of 40.4%, resulting in the district's overall Democratic baseline of 41.7%.

The Alternative Map created three districts in the region, covering most of the same geography: the 16th (Democratic baseline 54.3%), the 23rd (Democratic baseline 43.9%), and the 44th (Democratic baseline 56.4%). The combined baseline partisanship of these three districts is 51.0%. At a minimum, this demonstrates that it was possible to draw two Democratic districts and one Republican district in the region, instead of the 2-1 Republican advantage created in Act 43.

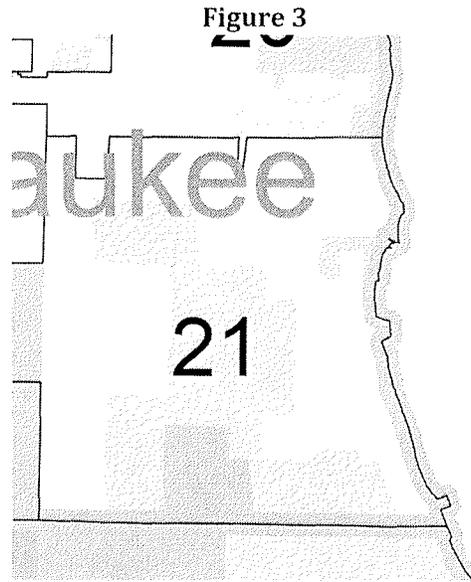


Region 2: Assembly District 21 (cracked)

The 21st Assembly District is in the southeast corner of Milwaukee County. It consists of the City of South Milwaukee, the City of Oak Creek, and portions of the City of Franklin to the west. It has a Democratic baseline of 47.0%.

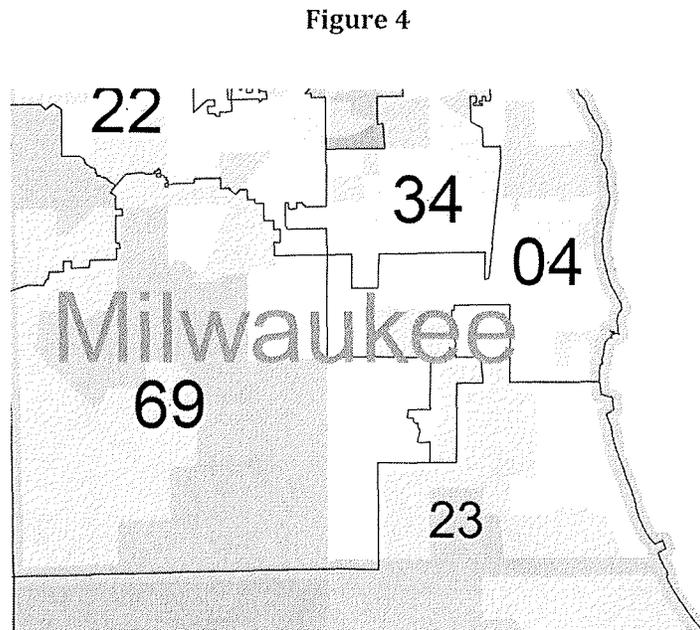
¹⁰ The Democratic wards in Mt. Pleasant are 1,2,3,7 and 20; ward 4 has a Democratic baseline of 50.0%.

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This district constitutes another classic case of cracking, with a Democratic population in South Milwaukee (population 21,156, Democratic baseline 52.1%) embedded within a larger and strongly Republican population in the City of Oak Creek (population 34,451, Democratic baseline 44.2%) and the City of Franklin (population 1,842, Democratic baseline 37.9%).

In the Alternative Map, South Milwaukee is incorporated into the 4th district (Democratic baseline 52.2%, while Oak Creek is placed in the 23rd district (Democratic baseline 43.9%). This demonstrates that the cracking of South Milwaukee into a Republican district was unnecessary.

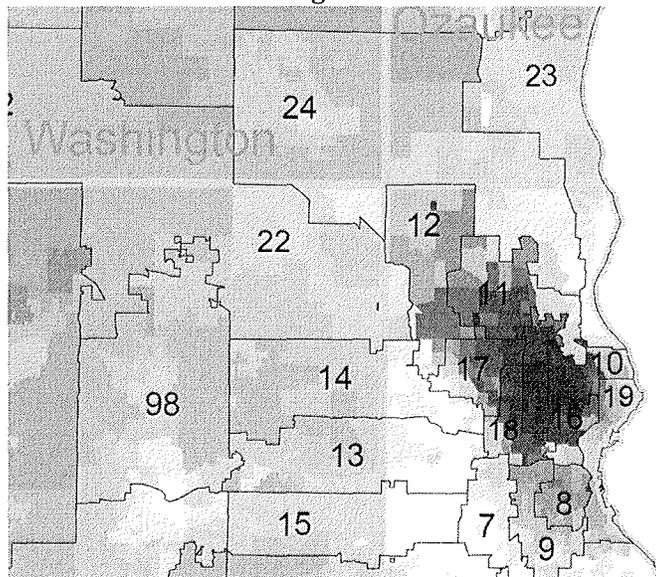


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Region 3: Assembly Districts 13 (cracked), 22(cracked), 23(cracked), and 24 (cracked)

In the Milwaukee region, Act 43's map drawers cracked Democratic voters in the 13th, 22nd, 23rd, and 24th Assembly districts. These districts present perhaps the most egregious instances of cracking in Act 43.

Figure 5



The 22nd, 23rd, and 24th districts have most of their population in the counties to the north and west of Milwaukee County: the “Collar Counties” of Waukesha, Washington, and Ozaukee, which are the three most Republican counties in the state. However, each of these three districts also extends into Milwaukee County (increasing the number of splits in the plan), placing a number of strongly Democratic areas into each district in a manner that submerges Democratic populations into a larger and overwhelmingly Republican populations. The 22nd district has a Democratic baseline of 33.7%, the 23rd a Democratic baseline of 43.9%, and the 24th a Democratic baseline of 41.9%.

In the 13th district, an overwhelmingly Republican area in Waukesha County (Democratic baseline of 32.0%) is combined with a marginally Republican portion of western Milwaukee County (Democratic baseline of 47.4%) and Democratic wards in Wauwatosa and Milwaukee,¹¹ embedding a large number of Democratic voters into a safe Republican district (the 13th has an overall Democratic baseline of 40.3%).

The only Assembly district in this region that was *not* split between Milwaukee County and an adjoining “Collar County” was the 12th District in the northeast corner of the County; this is also a Majority-Minority district with a 51.1% African American voting age population.

The populations entirely inside Milwaukee County distributed among these four cracked districts is 85,649, equivalent to nearly 1.5 Assembly districts (given an ideal population of 57,444). It would have been a trivial task to take the geographic area of the districts in the region and draw a more balanced map that preserved an additional district entirely within Milwaukee County and that

¹¹ The Democratic wards in Wauwatosa and Milwaukee have a total population of 8,581 and a Democratic baseline of 53.7%.

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avoided cracking Democratic voters. Such a balanced map would not have required downstream changes in the rest of the state map.

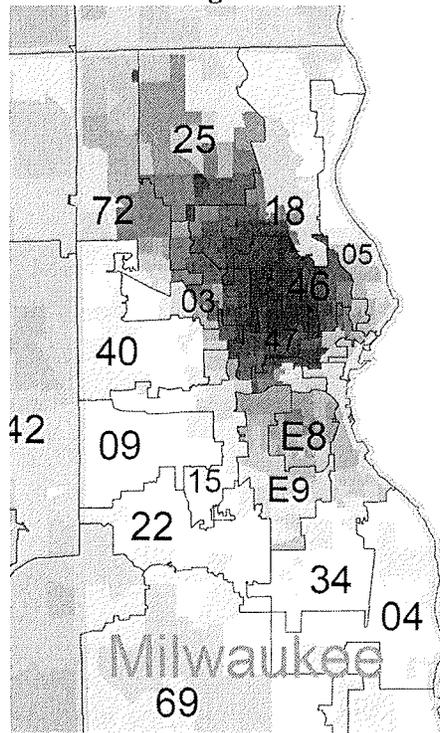
Table 7 shows the scope of Democratic cracking in the Milwaukee region, demonstrating how significant concentrations of Democratic populations were placed in regions of overwhelming Republican partisanship. Every Assembly district in the table shows the same pattern. To give one example, the Milwaukee County areas of districts 23 and 24 are contiguous. It would have been a simple task to place them in one district, made up of a population of 45,547 in Milwaukee County and approximately 12,000 Republican voters in Ozaukee County and Washington counties (no changes would be required in any other district). This would have created one district with an approximate Democratic baseline of 52%, and one district (that would have included the remainder of the Ozaukee and Washington County populations in Districts 23 and 24) with an approximate Democratic baseline of 34%. Furthermore, drawing the districts in this manner would eliminate one split. Instead, Act 43 aggressively (and unnecessarily) cracks Democratic voters, burying strongly Democratic areas (or, in the case of District 13, a swing area) into districts with larger Republican concentrations in the 31.4%-34.3% Democratic baseline range.

District	District Dem Baseline	District Population In Milwaukee County		District Population Outside Milwaukee County	
		Population	Dem Baseline	Population	Dem Baseline
13	40.3%	33,325	47.4%	24,127	32.0%
22	33.7%	6,777	57.6%	50,718	31.4%
23	43.9%	25,111	53.7%	32,468	34.3%
24	41.9%	20,436	56.7%	36,846	33.3%
Total	39.8%	85,649	52.3%	144,159	32.6%

The Alternative Map demonstrates that these examples of cracking were wholly unnecessary. The areas in Milwaukee County in Districts 22-24 under Act 43 are now entirely contained within Milwaukee County in Democratic districts (nos. 5, 18, 25, and 72). The area previously included in District 13 is now mostly incorporated into district 40, also a Democratic district (baseline of 52.7%).

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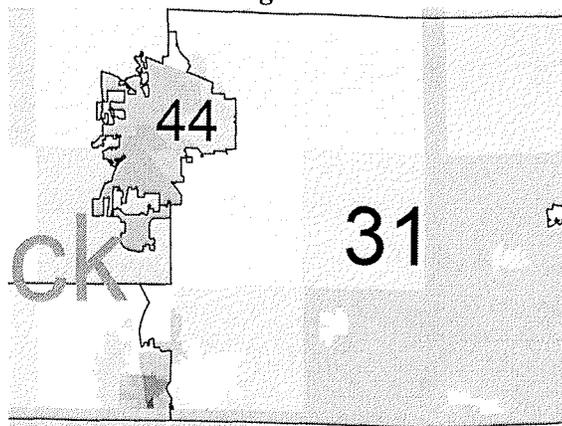
Figure 6



Additionally, the Alternative Map proves that the Act 43 district geography was not only not required, but also that it also deviated from traditional redistricting principles. Act 43 districts created eight splits of Milwaukee County (indicating districts that cross the Milwaukee County line to the north and east including the 13th, 14th, 15th, 22nd, 23rd, 24th, 83rd, and 84th Assembly districts). The Alternative Map contains only one split in the same region, and only two in all of Milwaukee County.

Region 4: Assembly District 31 (cracked)

Figure 7



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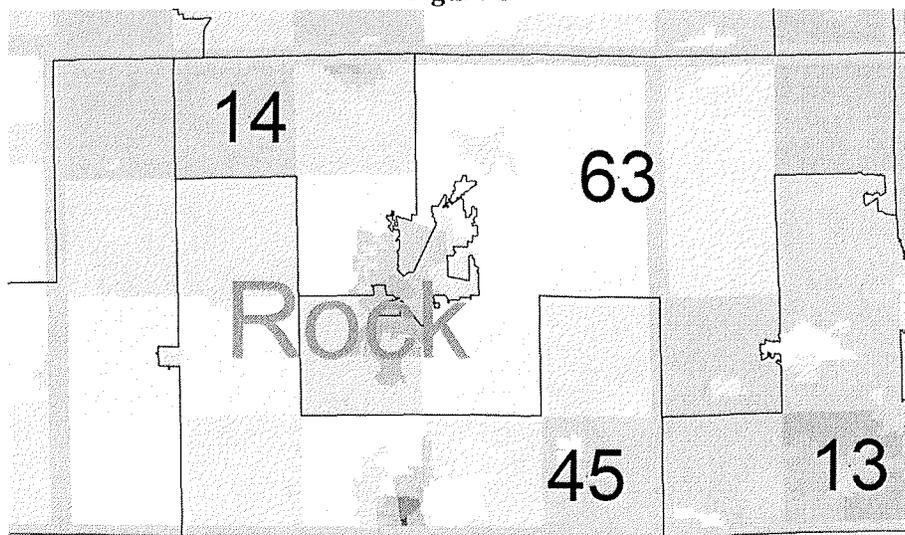
District 31 is in south central Wisconsin (Figure 7), and includes portions of the cities of Janesville and Beloit in the west, extending east through Rock County into parts of Walworth County. It has a Democratic baseline of 43.9%. It is contiguous with two strongly Democratic districts, the 44th (Democratic baseline 61.7%) and the 45th (59.2%).

Cracking is evident in the way that Democratic areas in the northwest corner and the far western portion of the district are submerged in Republican areas to the east. Concentrations of Democratic voters in Rock County (a contiguous population of 10,361 that includes parts of Janesville, and all of the Towns of Harmony, La Prairie, and Johnstown) and parts of the City of Beloit (population 7,292) have a total population of 17,653 and a Democratic baseline of 52.2%. This population is combined with larger and strongly Republican areas to the east (population 37,885, Democratic baseline 40.7%) to produce a reliable Republican district.

The Republican candidate received 56.5% of the vote in 2012, was unopposed in 2014, and received 64.1% in 2016.

The Alternative Map created a Democratic district in the area (District 63, Democratic baseline 54.6%, Figure 8), demonstrating that the cracking in Act 43 District 31 was unnecessary.

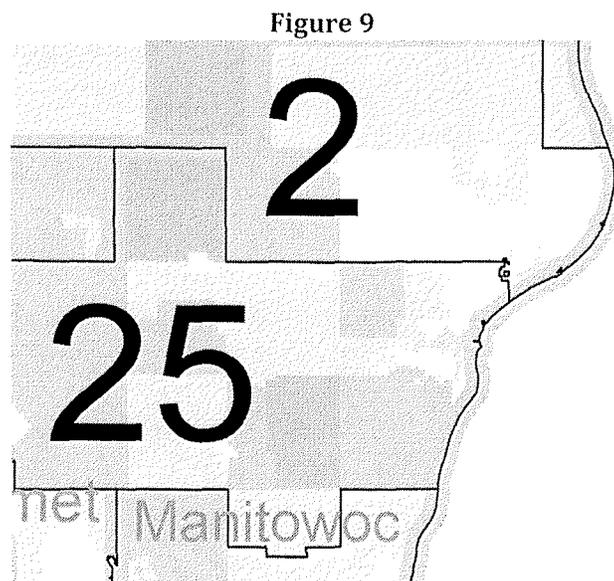
Figure 8



Region 5: Districts 25 (cracked) and 26 (cracked)

Districts 25 and 26 are stark examples of cracking. In both cases, a single Democratic city or contiguous community of interest that could have easily been included in a single Assembly district (which would have been a Democratic district) was cracked into two separate districts, creating in each case two Republican districts rather than one Democratic and one Republican district.

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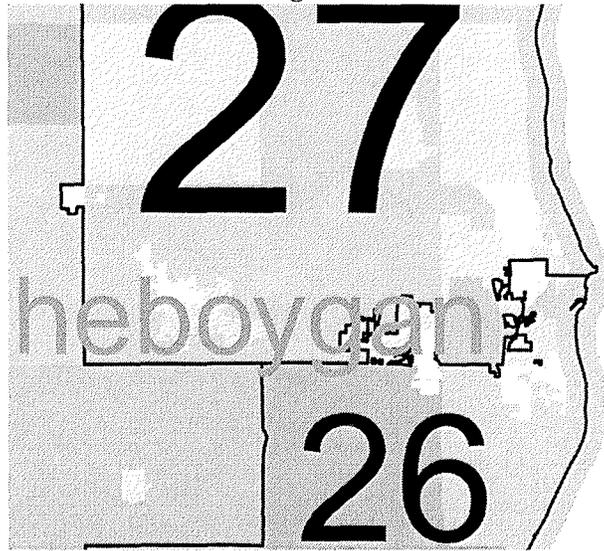
The 25th district, on the shores of Lake Michigan, includes the City of Manitowoc on the coast, extending west across Manitowoc County into eastern Calumet County. It has a Democratic baseline of 46.9%.

It is apparent that the Act 43 map drawers achieved this baseline by splitting the cities of Manitowoc and Two Rivers into separate districts. (Manitowoc in the 25th, and Two Rivers in the 2nd). Both cities are Democratic areas, and have a combined population that approaches the ideal for a single Assembly district: Manitowoc has a population of 33,738 and a Democratic baseline of 51.2%; Two Rivers has a population of 11,721 and a Democratic baseline of 54.9%. The total population of this area is 45,459 and has a Democratic baseline of 52.2%. As the image above shows, there are areas contiguous to the cities along the Lake Michigan shoreline that could easily have been included in a single district that was either Democratic or highly competitive. But by splitting the cities into separate districts, the map drawers created two Republican districts, the 25th and the 2nd (Democratic baseline 45.6%). The Alternative Map created a district that included both cities and extended westward, with a Democratic baseline of 50.1% (District 70).

Similarly, the 26th District (Figure 10) split the City of Sheboygan, placing 32,640 people (with a Democratic baseline of 55.2%) into the 26th, and 16,648 (with a Democratic baseline of 52.6%) in the 27th district. Sheboygan has a total population of 49,288 and a Democratic baseline of 54.3%. District 26 has a Democratic baseline of 43.7%, which the Act 43 map drawers achieved by combining part of Sheboygan with an overwhelmingly Republican area to the south (population 24,941, Democratic baseline 32.4%), cracking what *would* have been a Democratic majority in one district into minorities in two Republican districts.

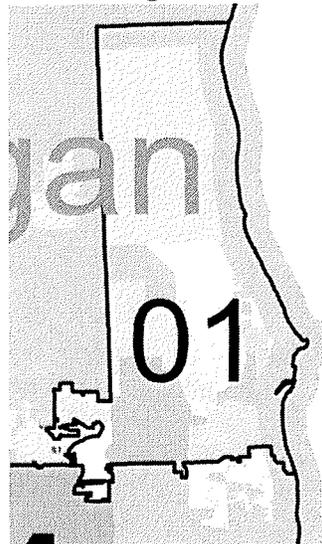
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Figure 10



The Alternative Map placed 86% of Sheboygan in a single district, District 1, thereby creating a district with a Democratic baseline of 51.1% (Figure 11).

Figure 11

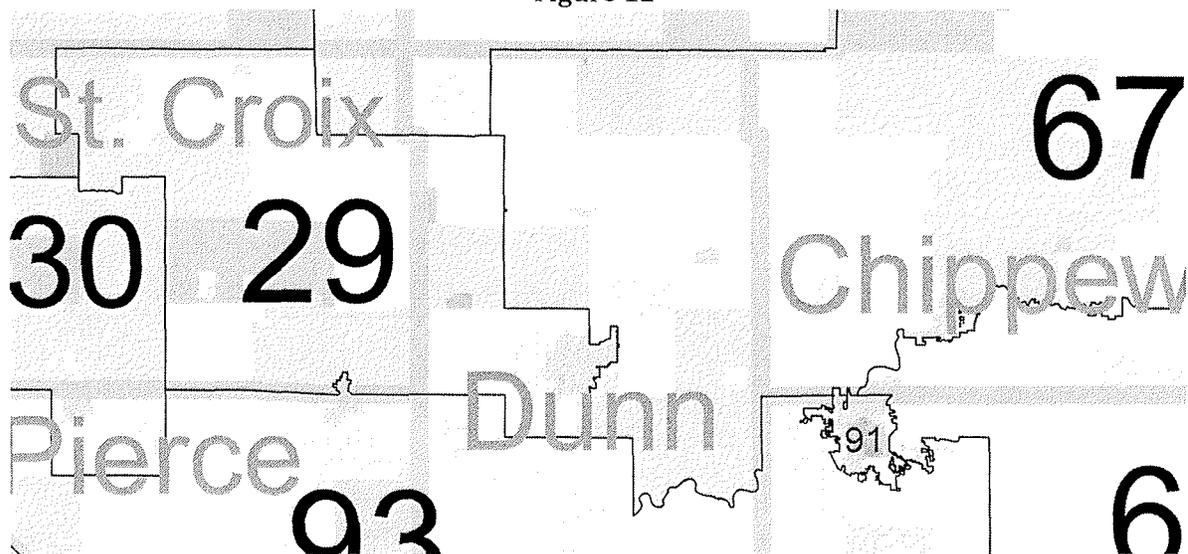


Region 8 – Assembly District 29 (cracked)

Assembly District 29 is in far western Wisconsin near the Minnesota border, and includes parts of St. Croix County to the west and parts of Dunn County to the east (Figure 12). It has a Democratic baseline of 49.5%. It is another instance of cracking a strongly and concentrated Democratic population by combining it with a larger population of Republican voters to create a Republican district.

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Figure 12



The easternmost part of the district consists of the City and Town of Menomonie, a contiguous and strongly Democratic area with a population of 19,630 and a Democratic baseline of 57.0%. As the district extends west, it picks up smaller municipalities with Democratic majorities: these include the cities of Boyceville (population 1,086 and Democratic baseline of 54.5%), Glenwood City (population 1,242 and Democratic baseline of 54.1%), and Village of Hammond (population 1,922 and Democratic baseline of 52.0%). The Democratic areas of the district (all municipalities with Democratic baseline > 50%) have a total population of 24,890 and a combined Democratic baseline of 56.2%. The district was drawn in a way that submerges these populations into a larger Republican population of 32,647 and a Democratic baseline of 44.6%, resulting in a Republican majority district.

Notably, there is a contiguous Democratic area to the immediate north and east of the 29th district that was split into *three* other districts (the 28th, 67th and 75th), and a contiguous Democratic area to the south that was placed in the 93rd District. These two areas have a population of 25,724 and a Democratic baseline of 54.5%. When combined with the City and Town of Menomonie, this area has a total population of 45,354, with a Democratic baseline of 55.5% that was broken into five separate Assembly districts – all of which have a Democratic baseline below 50%.¹² Over the three cycles between 2012 and 2014, Democrats won only one election in these five districts. Republican candidates were 4-1 in 2012, 5-0 in 2014, and 5-0 in 2016.

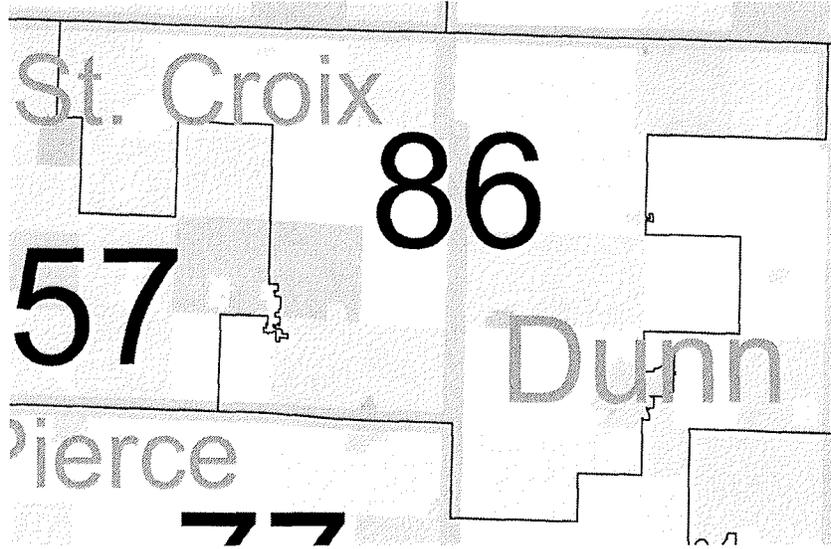
The Republican candidate for Assembly in the 29th District received 55.9% of the vote in 2012, was unopposed in 2014, and won 61.1% in 2016.

In the Alternative Map, the City and Town of Menomonie were placed in a district (86) that included more Democratic areas in a single district, resulting in a district with a Democratic baseline of 50.2% (Figure 13).

¹² The Democratic baselines are 46.0% (28th), 49.5% (29th), 48.7% (67th), 48.7% (75th), and 49.3% (93rd).

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Figure 13

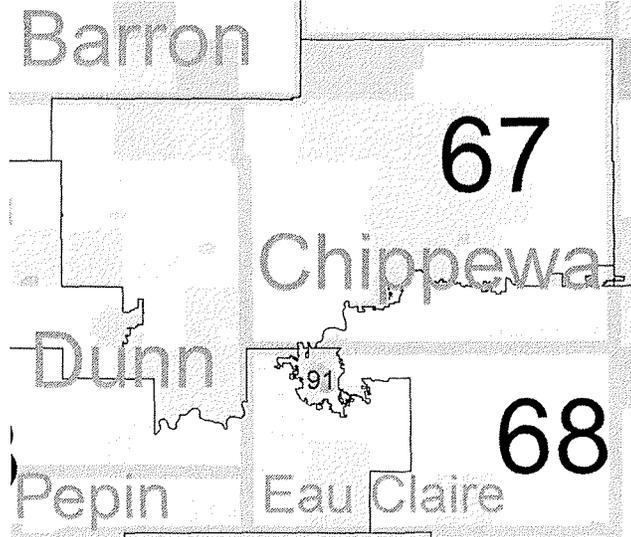


Region 9: Assembly Districts 67 (cracked) and 93 (cracked)

Both districts in this region, in the general area of Eau Claire, represent careful cracking of Democratic populations.

The 67th District is immediately east of the 29th (described in the above section), north of the City of Eau Claire in western Wisconsin (Figure 14). Most of the district area is in Chippewa County, with the western portion extending into Dunn County. It abuts the 93rd district in the southwest corner, and the 29th district to the west. The district has a Democratic baseline of 48.7%

Figure 14



The 67th District is carefully drawn in a way that cracks *all* of the adjacent Democratic areas. It splits the Democratic region in the northwest between Districts 67, 29, and 75, and the areas to the southwest between Districts 67, 29, and 93. To the south, District 67 cleaves the City of Chippewa

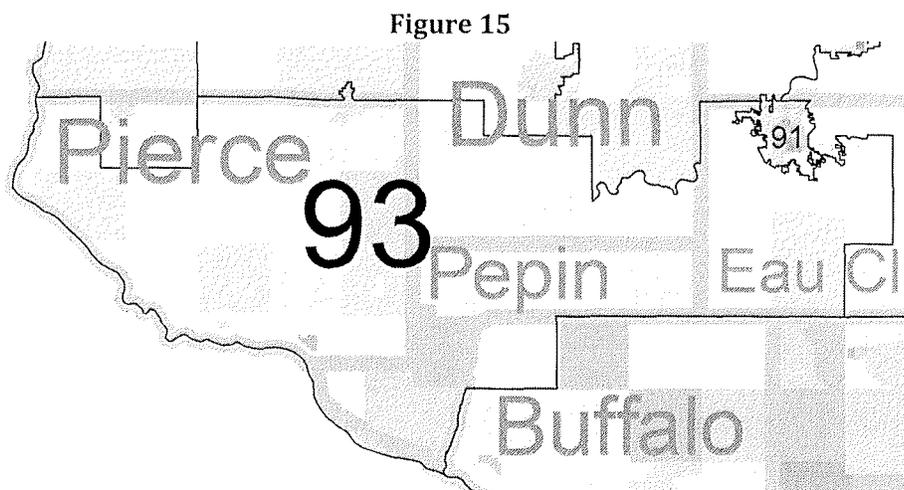
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Falls (population 13,661, Democratic baseline of 53.7%) from the adjacent Democratic area to the south, consisting of the Village of Lake Hallie and part of the City of Eau Claire (total population of 11,518 and a Democratic baseline of 52.7%).¹³ The Democratic region in the southeast part of the district splits the Town of Goetz and the Village of Cadott (combined population 2,199 and Democratic baseline of 53.3%) into the 67th district and the adjacent Village of Boyd and the Towns of Sigel and Edson (combined population 2,685 and Democratic baseline of 53.1%) into the 68th.

The Republican candidate in District 67 received 53.3% in 2012, 60.6% in 2014, and 64.3% in 2016.

The 93rd district is in far western Wisconsin at the Minnesota border (Figure 15). It includes all of Pierce County except for the Town of River Falls in the north, and the part of the City of River Falls within the county. It has a Democratic baseline of 49.3%.

The Act 43 map drawers achieved this by combining a Democratic population in the district (the regions shaded blue, below) of 28,346 and a Democratic baseline of 53.0% with a larger and more strongly Republican population (population 29,202, Democratic baseline of 46.1%).¹⁴ Notably, the notch in the northwest part of the district, which the Town of River Falls and the part of the City of River Falls within Pierce County into District 30, is a strongly Democratic area with a population of 14,122 and a Democratic baseline of 57.2%.



¹³ in fact, the entire contiguous area of Democratic support in and around the City of Eau Claire (the cities of Chippewa Falls, Altoona, and Eau Claire, the Village of Lake Hallie, and the Towns of Union and Brunswick, with a total population of 96,991 and a Democratic baseline of 56.7%) is split into 4 districts - the 67th, 68th, 91st, and 93rd - packing Democratic voters in the City of Eau Claire into the 91st District (population 57,539 and a Democratic baseline of 59.0%) and cracking the remaining population of Democratic voters (population of 39,632 and Democratic baseline of 52.9%) into three districts.

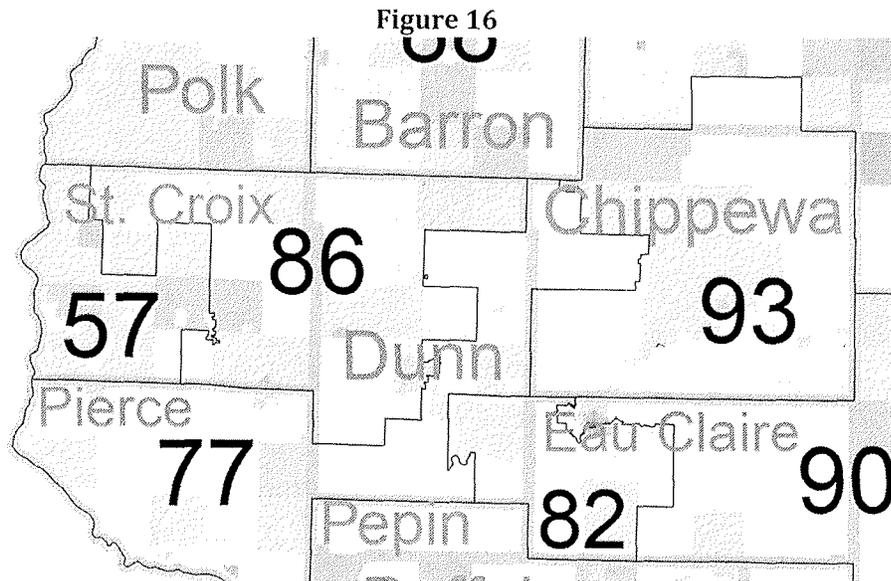
¹⁴ The Democratic municipalities in the 93rd district include the Towns of Brunswick, Drammen, and Union and part of the City of Eau Claire in Eau Claire County; the Towns of Dunn and Weston in Dunn County; the Towns of Albany, Frankfort, Lima, Pepin, and Waterville, and Villages of Pepin and Stockholm in Pepin County; and the Towns of El Paso, Gilman, Rock Elm, Salem and Spring Lake, and Villages of Bay City, Ellsworth, Elmwood, Maiden Rock and Spring Valley, and City of Prescott in Pierce County.

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I have already noted how the 93rd District is part of an overall cracking strategy in the area, with adjacent Democratic populations split into multiple districts. In the 93rd, Democratic areas adjacent to the district in the North (the notch with the Town and City of River Falls placed in District 30; and the Town and City of Menomonie placed in District 29) are cleaved from the district; and to the South a contiguous population of 4,327 and a Democratic baseline of 56.9% is split into District 92.¹⁵

The Republican candidate received 50.8% in 2012, 55.4% in 2014, and ran unopposed in 2016.

The Alternative Map shows how the Democratic regions in Act 43 near Districts 67 and 93 were placed in more balanced Democratic districts (Figure 16). Most of the Democratic areas in the western portion of District 67 are now either in District 86 (which has a Democratic baseline of 50.2%) or District 77 (Democratic baseline of 50.5%). District 93 in Act 43 is now also mostly in Districts 77 and 86 in the Alternative Map.



Under Act 43, most of this region was embedded in three Republican districts (the 67th, Democratic baseline 48.7%; the 29th, Democratic baseline 49.5%, and the 93rd, Democratic baseline 49.3%). In the Alternative Map, most of the region was placed in two Democratic districts (the 77th, Democratic baseline 50.5%; and the 86th, Democratic baseline 50.2%) and one Republican district (the 93rd, Democratic baseline 49.7%). Instead of a 3-0 Republican advantage under Act 43, achieved through careful cracking of Democratic voters, the region has a competitive 2-1 Democratic advantage under the Alternative Map, which reflects the actual political geography of the region.

¹⁵ The city of Alma, and the Towns of Alma, Belvidere, Canton, Gilmanton, Lincoln, Modena, and Nelson, and the Village of Nelson.

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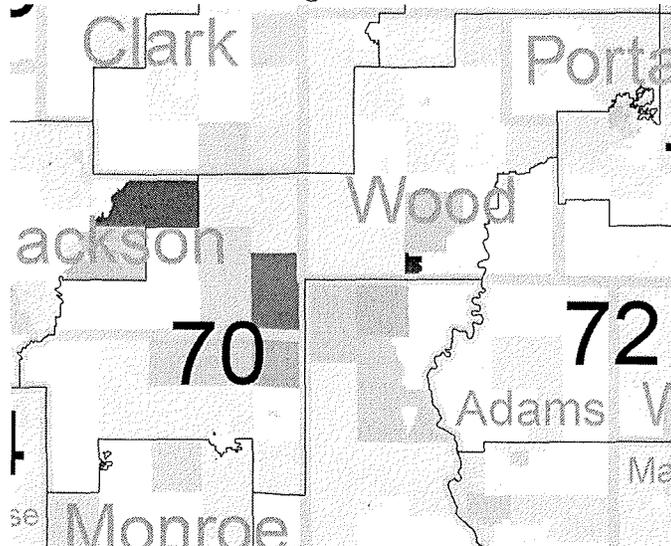
Region 10: Assembly Districts 70 (cracked) and 86 (cracked)

Assembly District 70 extends from the area surrounding the City of Stevens Point to the North and East, cutting West across Portage County, southwest through Wood County, into the western half of Jackson County and the northern half of Monroe County (Figure 17). It combines the contiguous Democratic areas to the north and west of Stevens Point in Portage County with the portion of Wood County immediately west of the Wisconsin River, picking up the Democratic City of Sparta (population 9,522 and Democratic baseline of 51.3%) and the narrowly Republican City of Tomah (population 9,093, Democratic baseline 49.8%). The district then extends into Republican areas of Jackson and Monroe counties: the portion of Jackson County in District 70 has a population of 1,482 and a Democratic baseline of 41.6%; the portion of Monroe County has a population of 30,930 and a Democratic baseline of 47.4%.

The population of the contiguous Democratic area around Stevens Point is 13,217, with a Democratic baseline of 55.5%.¹⁶ The population of the cities of Sparta and Tomah, in the western edge of the district, is 18,615, and has a Democratic baseline of 50.5%. In effect, the Democratic concentrations around Stevens Point, Sparta, and Tomah are negated by a population of Republican concentration - a population of 25,996 and a Democratic baseline of 45.2%, resulting in a district with an overall Democratic baseline of 49.6%.

In 2012, the Democratic incumbent in District 70 (Amy Sue Vruwink) won with 50.3% of the vote (she had received 53.8% in 2010 and 69.6% in 2008). In 2014, Vruwink lost to a Republican challenger, winning 47.2% of the vote. The Republican incumbent won the district in 2016 with 62.3% of the vote.

Figure 17



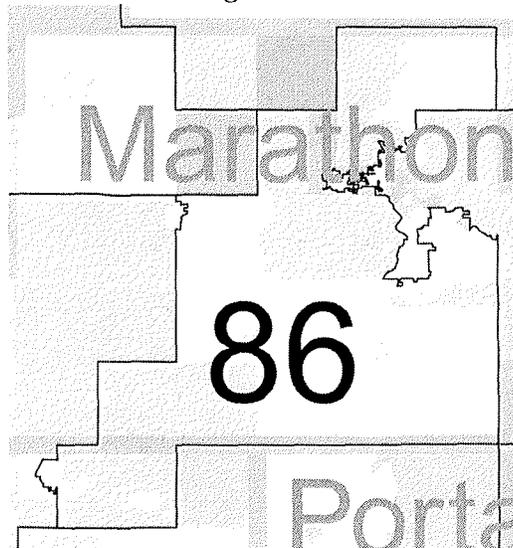
The 86th Assembly District has a Democratic baseline of 45.9%. It extends from an area of Marathon County north of the City of Wausau, wrapping around Wausau and the Village of Rothschild to include part of the Town of Weston, extending south through Marathon County into

¹⁶ This includes the Towns of Carson, Dewey, Eau Pleine, Hull, and Village of Junction City in Portage County; and Towns of Milladore, Rudolph, Sherry, and Sigel and Villages of Milladore and Rudolph in Wood County.

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Wood County, where it includes a jog with the Town and Village of Auburndale, the Town of Marshfield, and the Village of Hewitt. The westernmost portion splits the City of Marshfield.

Figure 18

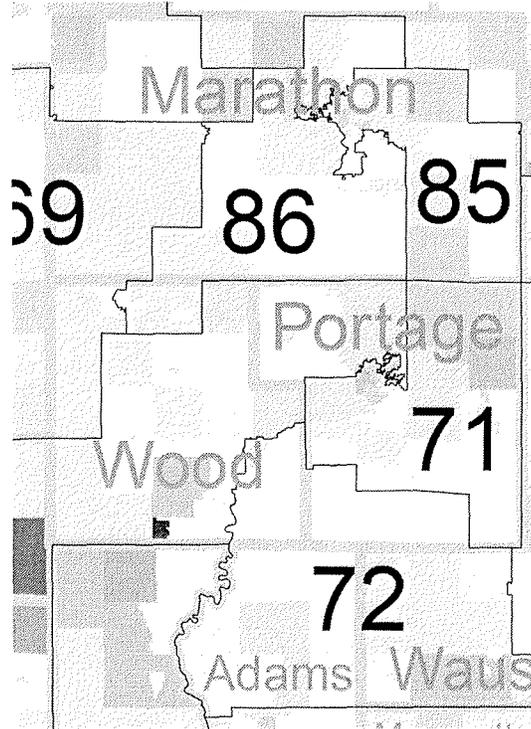


The cracking of Democratic voters in the 86th District is evident from the careful drawing of district boundaries that exclude Democratic concentrations of voters in the 70th, 71st and 85th Assembly Districts to the south and east (shown in Figure 19). This region includes a large and contiguous population of Democratic voters that is split into 4 separate districts. These areas in Marathon, Wood, and Portage counties have a population of almost 150,000, enough for nearly three Assembly districts, and a Democratic baseline of more than 57%.

Yet, the Act 43 map drawers placed this population into five Assembly districts (Figure 19), packing Democratic voters into the 85th (Democratic baseline 52.3%) and 71st (Democratic baseline 58.8%) districts, and cracking the remaining Democratic populations in the 70th (Democratic baseline 49.6%), the 86th (Democratic baseline 45.9%) and the 72nd (Democratic baseline 49.1%). In effect, a Democratic majority in the region was cracked and packed into a 3-2 (or 60%) Republican seat majority.

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Figure 19



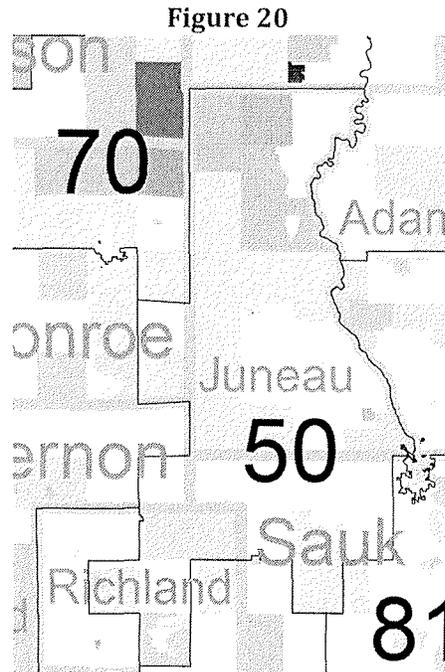
Region 11: Assembly Districts 50 (cracked) and 95 (packed)

Assembly District 50 is in central Wisconsin. It incorporates the entirety of Juneau County, and extends west and south into four other counties (Monroe, Sauk, Richland and Vernon). It has a Democratic baseline of 47.8%.

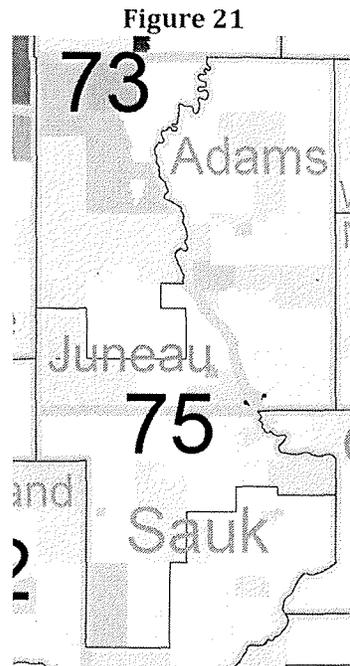
Cracking of Democratic voters is apparent from the district's geography (Figure 20). It combines two concentrations of Democratic voters, one in the southeastern part of the district near the city of Wisconsin Dells, and one in the southwest of the district in Richland County. These two regions¹⁷ have a combined population of 21,192 and a Democratic baseline of 51.2%. The remainder of the district has a population of 36,432 and a Democratic baseline of 45.8%, producing a Republican district. Notably, the jogs into Monroe, Sauk and Vernon counties pick up Republican areas, and the eastern boundary does not extend into strongly Democratic Adams County. The extension into Sauk County, in particular, is carefully calibrated to add a net Republican gain to the district. The Democratic portion of Richland County in District 50 has a Democratic baseline of 52.2%. However, because the district continues south and west, picking up Republican areas, adding Richland County to District 50 adds a total population of 9,201 with a Democratic baseline of 49.6% -- in other words, a Republican area.

¹⁷ The region near Wisconsin Dells includes the Towns of Lyndon and Kildare in Juneau County, and the Towns of Delonia and Winfield and city of Reedsburg in Sauk County. The region in Richland County includes the city of Richland Center, the Village of Cazenovia, and the Towns of Henrietta, Rockbridge and Westford.

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The Alternative Map of the region (Figure 21) placed the Democratic areas in Juneau and Sauk County cracked in Act 43 District 50 into a Democratic district (75, with a Democratic baseline of 51.5%) that included Adams County and additional parts of Sauk County.



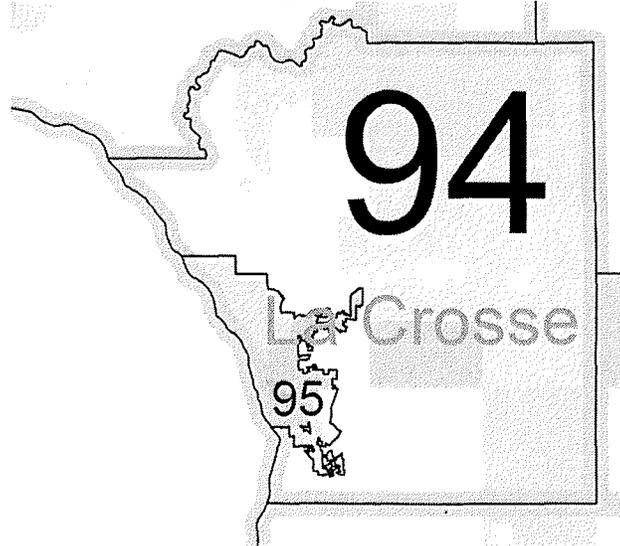
District 95 is another classic example of packing (Figure 22). District 95 consists of the city of La Crosse (population 51,320, Democratic baseline 62.3%), the Town of Campbell (population 4,314,

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Democratic baseline 56.0%, and part of the Town of Shelby (population 1,738, Democratic baseline 52.2%). District 95 has an overall Democratic baseline of 61.4%.

Evidence of packing emerges from the fact that of the municipalities that are contiguous to La Crosse, there are two with Democratic majorities. The Act 43 map drawers included the *most Democratic* one (Campbell, to the immediate north), and the *most Democratic* part of the other (Shelby, to the south; the portion of Shelby in the adjacent 94th district has a population of 2,977 and a Democratic baseline of 50.8%).

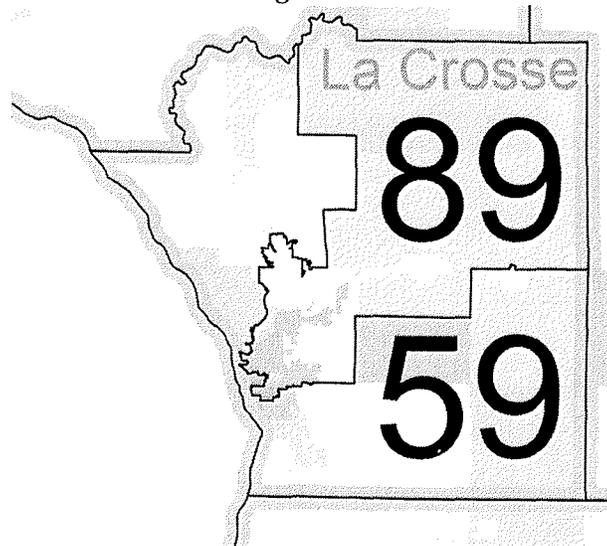
Figure 22



The Democratic candidate was uncontested in District 95 in 2012, 2014, and 2016.

The Alternative Map placed most of the City of La Crosse into a much more balanced district (District 59, Democratic baseline 54.7%; Figure 23).

Figure 23

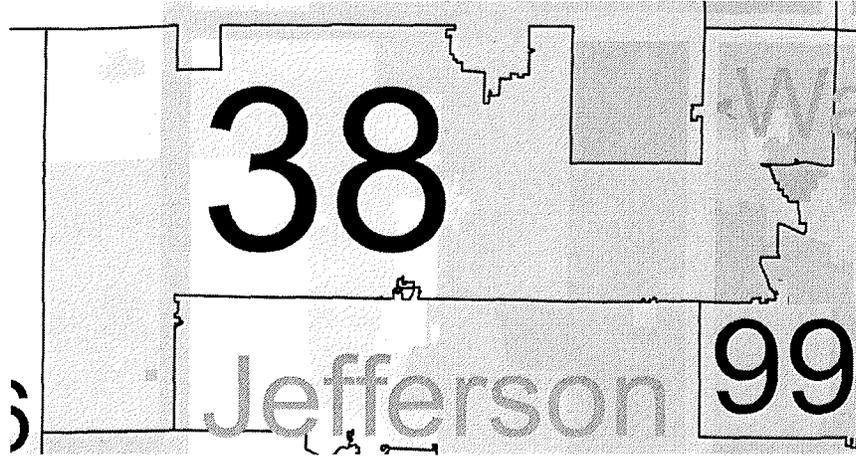


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Region 12: Assembly Districts 38 (cracked) and 42 (cracked)

District 38 (Figure 24) extends from Democratic areas in Dane County (in the west), through Jefferson County and part of Waukesha County to the east. It has a Democratic baseline of 40.2%.

Figure 24

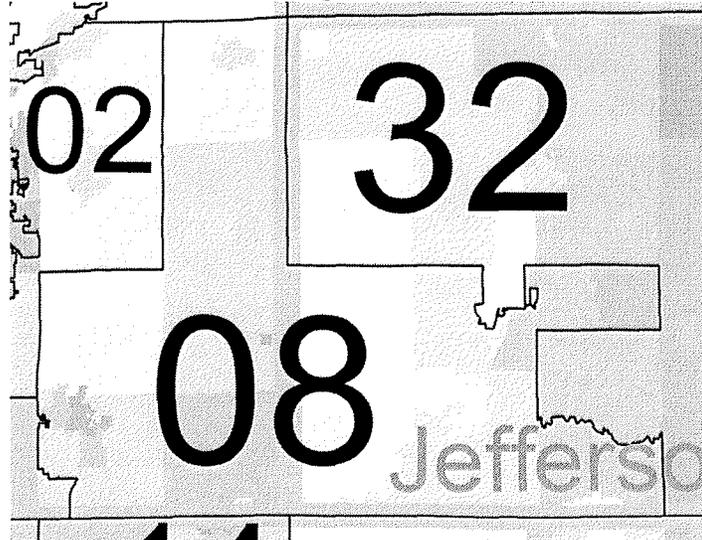


The cracking in District 38 is completely straightforward. The contiguous Democratic concentration in Dane County (population 11,939, Democratic baseline 57.1%) is rendered irrelevant by combining it with overwhelming Republican populations in Jefferson County (population 19,518, Democratic baseline 43.2%) and Waukesha County (population 26,036, Democratic baseline 31.6%).

The Republican candidate received 60.0% of the vote in 2012, 63.0% in 2014, and 62.8% in 2016.

The Alternative Map placed these Democratic voters in a more balanced Democratic district with a baseline of 55.1% (District 8, in Figure 25).

Figure 25

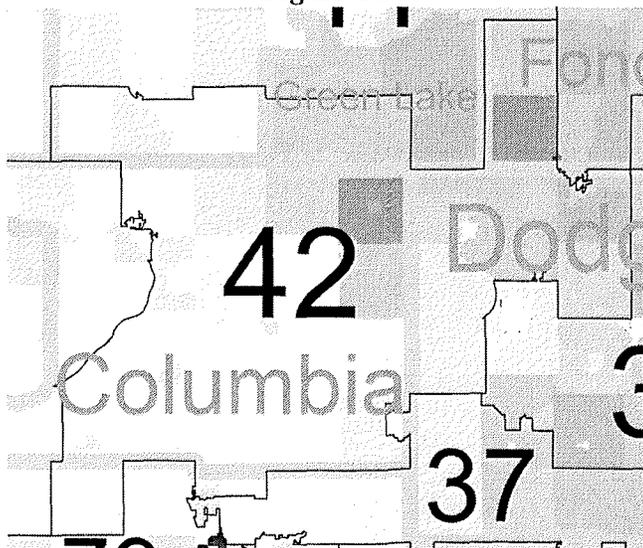


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District 42 is just north of Madison (Figure 26), and includes parts of six counties: Columbia, Dane, Dodge, Fond du Lac, Green Lake, and Marquette. It has a Democratic baseline of 45.2%.

Here, too, the cracking is obvious. A strongly and mostly contiguous Democratic concentration in Dane and Columbia counties (population 15,178, Democratic baseline 55.0%) is cracked by placing it with an overwhelmingly Republican remainder (population 42,107, Democratic baseline 41.7%). The district extensions into Dodge County (Democratic baseline 37.3%) Fond Du Lac County (28.7%), and Green Lake County (31.4%) are uniformly and strongly Republican. Appending the southern portion of Marquette County (Democratic baseline 46.0%) reinforces the Republican advantage. The 42nd district also carefully excludes nearby Democratic cities of Beaver Dam (population 16,214, 52.0% Democratic baseline), Columbus (population 4,991, 53.3% Democratic baseline), and Portage (population 10,324, 55.4% Democratic baseline).

Figure 26

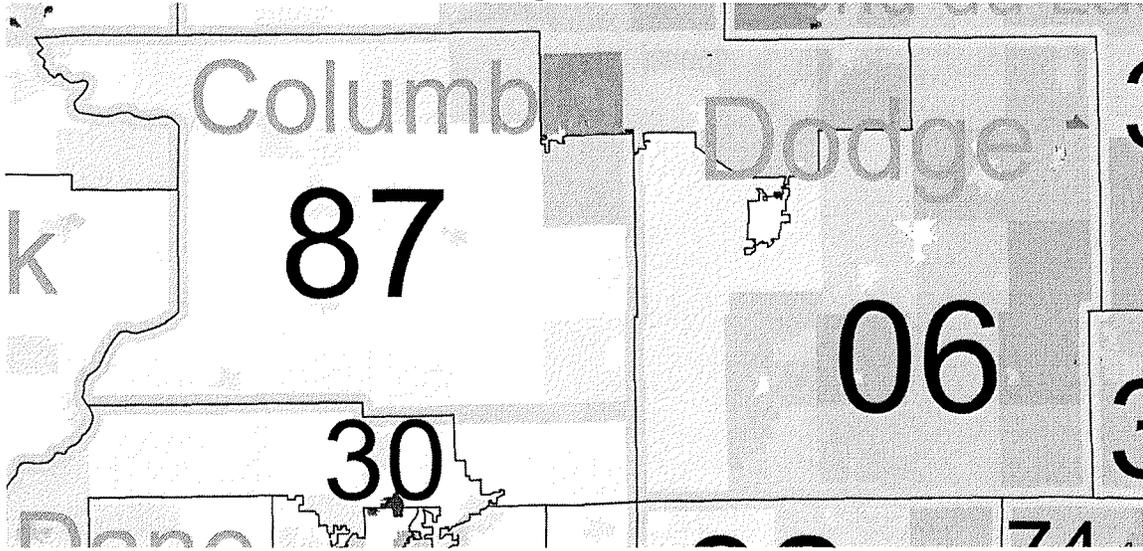


The Republican candidate received 56.6% of the vote in 2012, 57.5% in 2014, and 58.7% in 2016.

The Alternative Map (Figure 27) produced a more compact district with only a single county split, resulting in a district, District 87, with a Democratic baseline of 50.8%.

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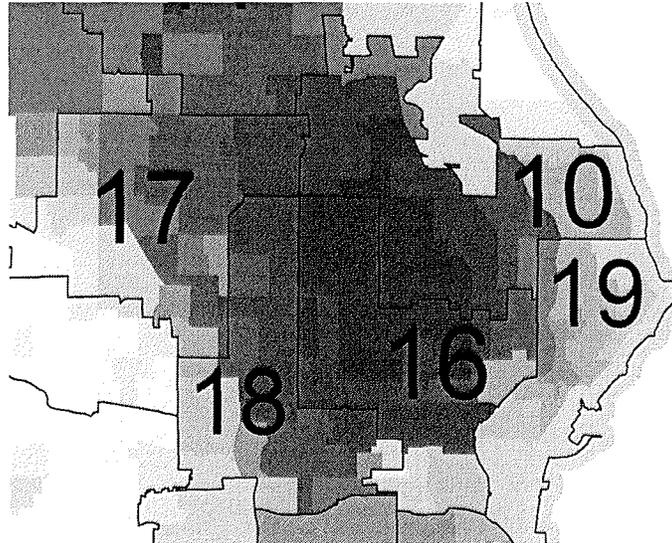
Figure 27



Region 13: Assembly Districts 10 (packed) and 18 (packed)

Assembly Districts 10 and 18 are in Milwaukee County. District 10 contains part of the City of Milwaukee and the City of Shorewood on the Lake Michigan shoreline. District 18 is located entirely in the City of Milwaukee, bordering the City of Wauwatosa on its western edge. District 10 has a Democratic baseline of 85.8%, and is the second most concentrated Democratic Assembly district. District 18 has a Democratic baseline of 83.3%, and has the 3rd highest Democratic concentration in Act 43.

Figure 28



Both districts could easily have included less Democratic areas that are adjacent: District 10 avoided the less Democratic areas in District 23 immediately to the north; and District 18 avoided Republican areas immediately to the west in Districts 13 and 14. The packing of Democrats in these

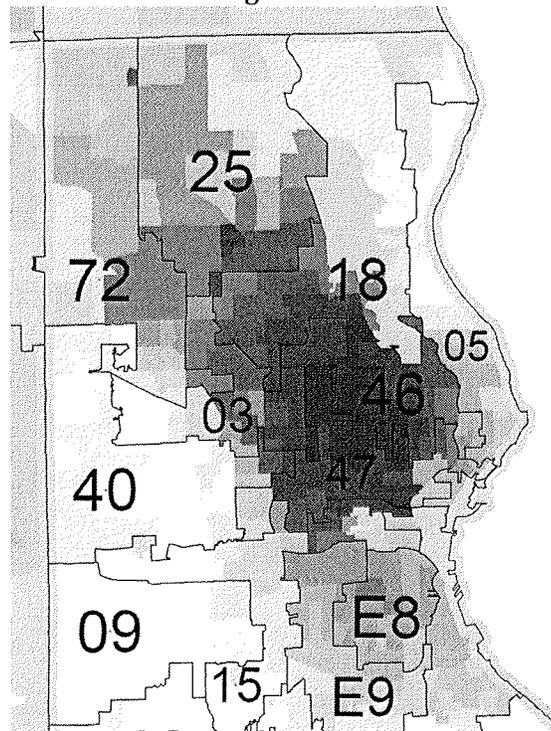
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districts is complementary to the cracking of Democratic voters in adjacent districts. As I demonstrated above, Districts 23 and 24 are both cracked, embedding Democratic areas of Milwaukee County with the much more Republican areas to the north; placing voters now in District 10 in either of these districts would result in more balanced districts, and could be accomplished without reducing the African American VAP majority in District 10 (61.8%).¹⁸

Similarly, I demonstrate above that District 13 cracks Democratic voters by including a handful of Democratic wards in Wauwatosa and Milwaukee (with a total population of 8,581 and a Democratic baseline of 53.7%), but not the more Democratic areas packed into District 18.

The Alternative Map shows how the voters now packed into Districts 10 and 18 were placed in more balanced districts:

Figure 29



Here, Democratic voters previously packed in District 10 are now in Districts 5 and 18 (the core of District 10 is in Alternative Map District 46). District 5 has a Democratic baseline of 62.9%, and District 18 a baseline of 75.1%. District 18 remains an African American majority district, with 60.40% African American voting age population.

Many of these Democratic voters were previously cracked into Republican under Act 43, Districts 23 and 24.

Democratic voters packed in district 18 under Act 43 are placed in districts 15 and 40 under the Alternative Map, both of which have much more balanced partisanship: Democratic baselines of

¹⁸ District 10 includes the city of Shorewood, which had a 2010 population of 13,162 and a small concentration of African Americans (2.9%).

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60.0% (district 15), and 52.7% (district 40). And, importantly, the cracking of Democratic voters in District 13 under Act 43 is avoided; many of these voters now reside in either District 15 or District 9 (Democratic baseline 49.4%) in the Alternative Map.

Region15: Assembly Districts 4 (cracked), 35 (cracked), and 88 (cracked)

Figure 30

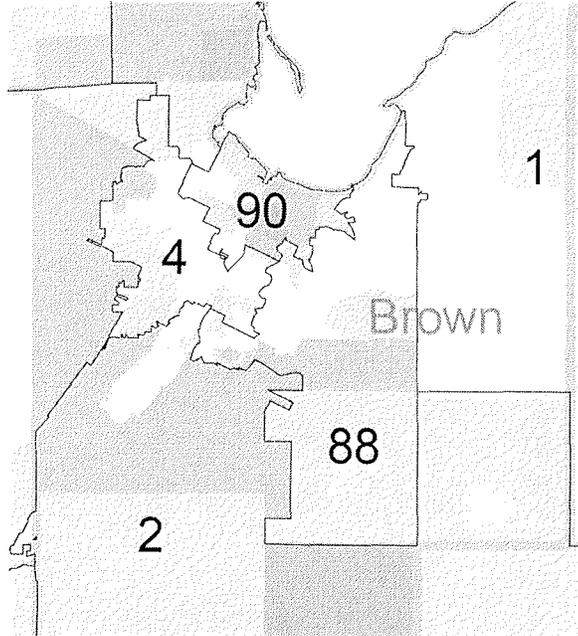
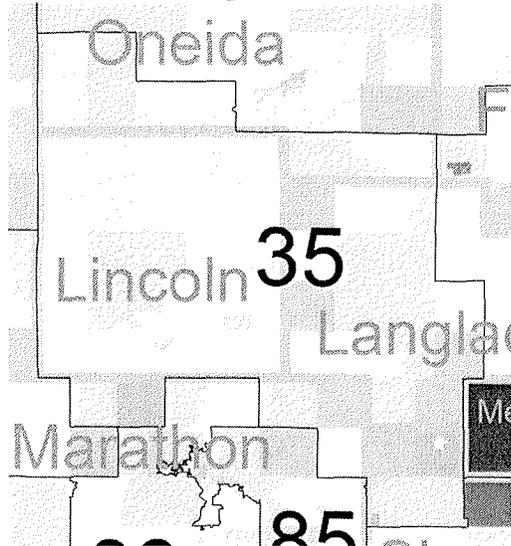


Figure 31



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All three districts in this region (the 4th, 35th, and 88th Assembly Districts) are, again, classic examples of cracking and packing – packing Democrats into one district, and drawing adjacent districts lines in a way that embeds Democratic voters within much larger populations of Republican voters, resulting in reliably Republican districts.

The 4th and 88th Assembly Districts surround the City of Green Bay in Brown County (Figure 30). They bracket the 90th Assembly District, which comprises just over half of the City of Green Bay. Green Bay had a 2010 population of 104,057, and it was possible to draw one full district within the city (the ideal population of Assembly districts is 57,444), as well as draw a second district comprised of the rest of the city (46,613 people) and a remainder drawn from the surrounding area.

Instead, the Act 43 map drawers split Green Bay into four districts, packing Democrats into District 90 (baseline Democratic strength of 58.4%) and cracking the remainder of the city's voters into two safely Republican Assembly districts, the 4th and 88th.¹⁹

The 4th Assembly District is comprised of the western third of Green Bay; the villages of Ashwaubenon and Allouez to the south of Green Bay, and a portion of the Village of Howard to the north. The 88th Assembly District is comprised of the eastern third of Green Bay, extending south through the Village of Bellevue, part of the City of De Pere, part of the Town of Ledgeview, and the Town of Glenmore. Both districts incorporate areas of Democratic strength, but embed them in much more populous areas of Republican strength, resulting in cracked Democratic voters.

Assembly District 4 has a Democratic baseline of 46.3%. Act 43 map drawers achieved this by combining three separate areas of Democratic support (wards 1-3 in Allouez; wards 1-3 in Ashwaubenon, and wards 34, 43 and 46 in the City of Green Bay; with a combined population of 16,234 and baseline Democratic strength of 52.9%) into a district with a larger population of strongly Republican areas (total population 41,252 and a Democratic baseline of 43.9%), producing a district that has a Democratic baseline of 46.3%.

In 2012, the Republican candidate in District 4 received 55.7% of the vote; in 2014, 59.1%, and in 2016, 59.7%.

Assembly District 88 has a Democratic baseline of 46.9%. It achieves this by combining a Democratic population in 5 Green Bay wards (wards 3, 4, 9, 10 and 14, with a combined population of 12,687 and a Democratic baseline of 53.1%) with a much larger Republican population in the rest of the district (44,869) that has a Democratic baseline of 45.4%).

In 2012, the Republican candidate in District 88 received 52.5% of the vote; in 2014, 56.2%; in 2016, 61.1%.

The 35th Assembly District is in northern Wisconsin, and includes parts of five counties: Langlade, Lincoln, Marathon, Oneida, and Shawano. It has a Democratic baseline of 47.6%. The Act 43 map drawers achieved this by combining Democratic parts of Lincoln County, Oneida County, and a handful of Democratic wards in Shawano County²⁰ (total population of 22,841, Democratic baseline

¹⁹One Green Bay ward (ward 1, population 25) was placed in the 1st Assembly District.

²⁰The areas are the City of Antigo wards 1-5 in Langlade County; the Towns of King, Russell, Somo, Tomahawk, and Wilson, and City of Merrill wards 1,2 and 5-19 in Lincoln County; Village of

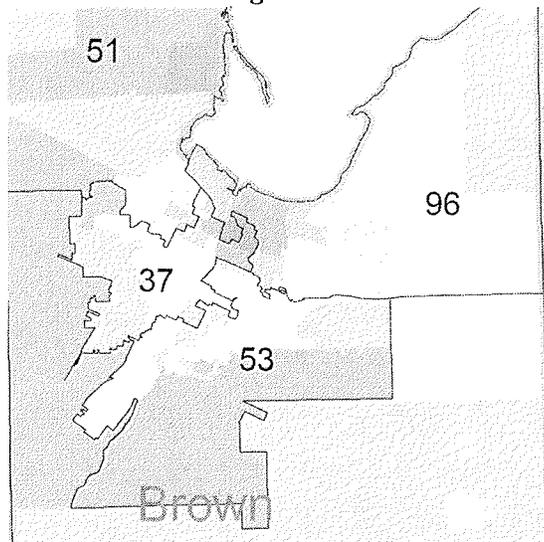
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of 53.2%) with Republican parts of these counties, as well a jog that extends southward, picking up Republican areas of Marathon County (total population of 34,721, with a 44.4% Democratic baseline).

In District 35, the Republican candidate received 56% of the two party vote in 2012; ran unopposed in 2014; and received 66% of the two party vote in 2016.

The Alternative Map demonstrated that the Act 43 divisions were neither necessary nor accidental. Using neutral criteria that did not take partisanship or election results into account (Figure 32), the map created one Republican district in the Green Bay area (the 53rd, with Democratic baseline of 45.2%), one Democratic district (the 96th, with a Democratic baseline of 52%), and one narrowly Democratic but competitive district (the 37th, with a Democratic baseline of 50.2%).

Figure 32

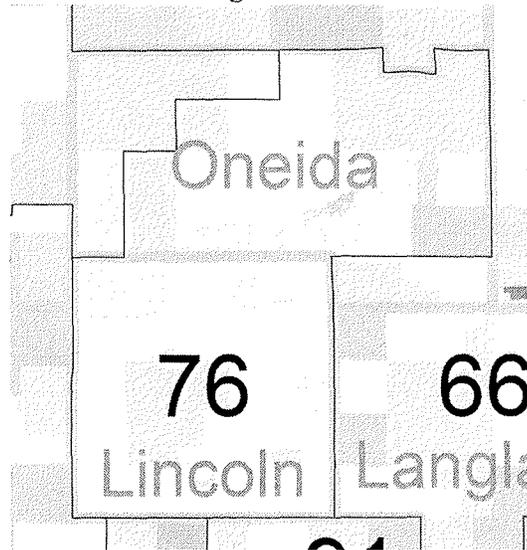


Similarly, in the area around Act 43's district 35, the Alternative Map (Figure 33) created a Democratic district (the 76th, Democratic baseline 50.4%).

Birnamwood ward 2 in Marathon County; the Towns of Lynne, Nokomis, Schoepke, and Woodboro in Oneida County; and Villages Bowler, Eland, and Birnamwood ward 1 in Shawano County.

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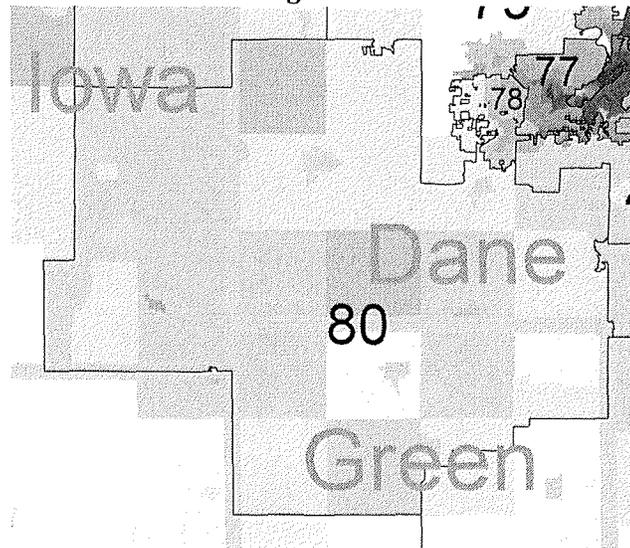
Figure 33



Additional Packed Districts: Assembly Districts 77 (packed) and 80 (packed)

District 77 is located entirely within the city of Madison, and has a Democratic baseline of 79.0% (the 5th most packed district under Act 43). District 80 is in the southwest corner of Dane County, extending west into Iowa County and south into Green County. It has a Democratic baseline of 60.8% (Figure 34).

Figure 34



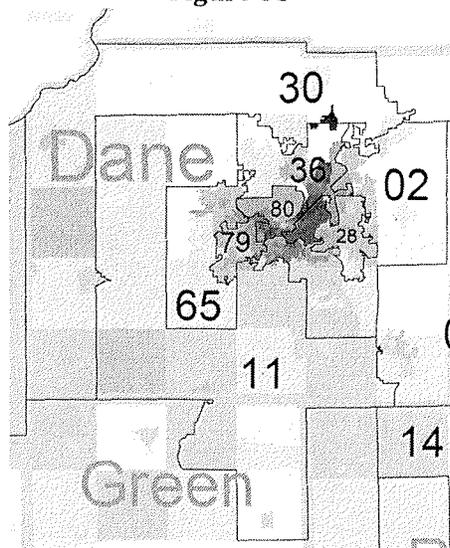
The packing of District 80 is evident in how the southern and western borders end *precisely* where municipalities switch from strongly Democratic to either swing or Republican.

The Alternative Map demonstrated that it is possible to draw districts in the area of the 77th and 80th that were more balanced (Figure 35). Much of the 77th district was incorporated into districts

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2, 28, 79, and 80 which have Democratic baselines of (respectively) 63.9%, 74.7%, 72.6% and 80.0%, for an aggregate Democratic baseline of 73.5%. Most of the population in the 80th district was placed in the 11th, 21st, 30th, 65th, and 84th districts in the Alternative Map, which have Democratic baselines of 61.4%, 54.6%, 56.0%, 63.7%, and 54.7%, most of which are more balanced than the 80th; together these 5 districts in the Alternative Map have an aggregate partisanship of 58.4%.

Figure 35



IV. Conclusions

There is no question that Act 43 intentionally and repeatedly cracked Democratic voters, strategically combining Democratic populations with larger Republican populations to create reliably Republican districts. Often, this involved drawing irregular district lines that crossed county or municipal boundaries to knit together separated Democratic areas into Republican districts, or unnecessary extensions and jogs that picked up contiguous Democratic populations that could easily have been combined to create Democratic districts.

The Alternative Map – drawn using neutral criteria – uniformly created more balanced districts in these areas, demonstrating that the cracking was unnecessary and not justified by neutral factors. In many regions, the Alternative Map resulted in fewer municipal splits.

There is, similarly, no question that Act 43 intentionally packed Democratic voters into districts where they constituted overwhelming majorities, often as a complement to cracking in adjacent districts. This reduced the number of seats Democratic candidates had a realistic opportunity to win.

The result was the archetype of a partisan gerrymander: a map that packed and cracked Democratic voters in a way that resulted in far fewer Democratic districts than a neutral plan. Act 43 was such an effective gerrymander that it deprived Democrats not only of a significant number of seats, but very likely deprived Democrats of a majority of the Assembly in 2012.

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And, there is ultimately no question that the results of Act 43 created a concrete harm to Democratic voters and Democratic party organizations. By intentionally depriving Democrats of seats, Act 43 reduced ("eliminated" is a more accurate term) Democratic influence over Assembly legislative outcomes, and produced much more conservative policy outputs. Act 43 made it more difficult for Democratic party organizations to raise money, recruit quality challengers, contest Republican-held seats, mobilize supporters, and, ultimately, compete for political and legislative power.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge.

A handwritten signature in black ink that reads "Kenneth R. Mayer". The signature is written in a cursive style with a large, looping 'K' and 'M'.

Kenneth R. Mayer
October 15, 2018

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