Expert Report of James Gimpel

Background

I am a Professor of Political Science in the Department of Government at the University of Maryland, College Park. I received a Ph.D. in political science at the University of Chicago in 1990. My areas of specialization include political behavior, political geography, geographic information systems (GIS), state politics, population mobility and immigration. My publications include papers in well-regarded peer reviewed political science journals (*AJPS*, *APSR*, *JoP*, *QJPS*), journals in other social science fields, as well as several books relating to the same subjects. I have consulted and provided testimony in previous court cases relating to election reform and redistricting. A curriculum vitae is attached to this report and I attest to its truth and accuracy. My CV includes a listing of all of my publications in the past ten years, as well as a listing of all other cases during the past four years in which I testified in a deposition or at trial.

In this matter, the Wisconsin legislature retained me at the rate of $300 per hour. The legislature is also reimbursing me for my out-of-pocket costs. My opinions expressed in this case are in no way contingent on the payment of any monies owed to me for my services.

Assignment

On November 2, I was asked by attorneys for the Wisconsin legislature to respond to the plaintiffs' expert reports in this case. I have not been asked to opine

on or draw any conclusions about the Wisconsin legislature's intent or state of mind in drafting Act 43.

Summary of Opinions

- Territory based districting systems like Wisconsin's ensure that elected representatives take account of the needs and preferences of the geographic communities within a state. These systems prioritize representation of local communities of interest and promote closer contact between citizens and their representatives. Because these local interests regularly align more closely with one political party than another, territory based districts often favor one political party.

- When drawing legislative districts, state legislators generally adhere to certain "traditional redistricting criteria," including:
    - Equal population between districts
    - Geographic compactness
    - Geographic contiguity
    - Ensuring representation of minorities
    - Consistency with past districts
    - Grouping communities of interest, including counties and municipalities
    - Maintaining continuity of representation

- The traditional redistricting criteria are commonly in tension with one another and with the political competitiveness of districts. Mapmakers must inevitably make decisions that prioritize various of these criteria at the expense of others, and at the expense of political competitiveness.

- Democratic voters in Wisconsin are concentrated in the most densely populated areas of the state, and this tendency has been increasing over time. As a result, Wisconsin's political geography ensures a modest partisan tilt in favor of Republicans under any redistricting plan that adheres to the traditional redistricting criteria. Even the vast majority of maps documented in Professor Chen's computer simulation show a leaning in favor of Republicans.

- Professor Chen's Simulated Plan 43995 disregards the traditional redistricting criteria. Among other problems, this plan ignores continuity with past districts, breaks apart communities of interest, ignores Senate districts and the continuity of Senate representation, includes districts that are not geographically contiguous, and—ostensibly to eliminate supposed

partisan cracking and packing—cracks and packs districts in an attempt to create a politically competitive map.

- Professor Chen's Simulated Plan 43995 depends on a flawed methodology for estimating the partisan leaning of Assembly districts, overstating partisan stability. Election data from 2004 to the present show that Professor Chen's methodology fails to account for the extent of political change in the partisan leaning of districts and for significant variation in candidate performance.

Representation by District

District based systems of representation tie legislators to specific area-based constituencies. Local political majorities arise as a function of natural human settlement. People living in the same place develop similar interests that arise from common residency (Gardner 2006a, 933-934). Because people come to share certain similarities when they reside proximate to each other, it is common for communities of interest to form and endure, often for many decades (Morrill 1981).

Representation in early-America was allocated on a town and county basis, primarily, not to individuals (Gardner 2006a, 935). And of course, the United States Constitution adopts a form of territory based districting for the election of United States Senators. Community interests take shape resulting from the attraction of workers to industries; people to their families, friends and ancestry groups, and the general flow and redistribution of population accompanying the expression of preference and the pursuit of opportunity.

Legislators elected from these districts view themselves as representing specific groups or interests within them. The political parties compete across districts to gain control of the legislature (Gardner 2012, 567). One of the means for gaining the upper hand in this competition is to translate local majority interests

into lasting political party preferences. Another means of competing to win legislative districts is for candidates to cater to the specific needs of their district, which are often local concerns that have little to do with partisan politics.

Politicians are sufficiently successful at competing for specific legislative districts that one political party or the other seems to capture most of the political support in a district, often for long periods of time. This is an important reason for why the partisan division of the electorate is rarely even across districts. A majority of districts are not evenly divided by partisan preference and it is not easy to construct a district in which each party has a truly equal opportunity to win (Gardner 2012, 571).

Within the legislature, territory based districts are considered essential for the representation of a state's diverse communities. Whether it's the city of Milwaukee's working-class Bay View neighborhood, or the marginal farming, mining and forestry settlements of the North, place and interest are thought to coincide. Local majorities can express their views to government through the election of favored representatives (Malone 1997, 465). Race and ethnic groups, economic and other interests can constitute a majority in a district, whereas they will remain a minority in a district-free setting. Because districts are composed of subdivisions of the entire population, they are also believed to be better known by voters, approachable, and more responsive to requests for assistance. Constituents get to know a particular legislator and come to identify that person as being particularly responsible to them (Bonapfel 1976).

There are alternatives to territory based districting. For example, it is possible to free legislators from ties to a specific territorial constituency altogether through at-large election. In at-large systems, generally all representatives are elected by all voters, with voters casting ballots for as many candidates as there are legislative seats. In the 18th and 19th centuries some multi-district states elected all or some of their members of Congress at-large (Calabrese 2000; Engstrom 2004). Even into the 20th century, parts of congressional delegations were elected at-large, when, for instance, a state legislature could not agree on the reapportionment of seats. In Wisconsin, electing all or some of the congressional and state legislative delegation at-large would likely guarantee competition for these seats, as it has for other statewide contests for Governor and U.S. Senate in recent years. Although the state is approximately evenly divided by political party preference overall, it should be no surprise that we do not see an even mix of Republicans and Democrats in each county and city, or even at the ward level.

There does not seem to be much excitement among reformers for a movement toward the at-large election option, perhaps because this system was banned by Congress for federal elections in 1965. They are still used widely at the municipal level, though even there they have been criticized as leading to underrepresentation of racial and ethnic minorities. Districts seem to be prized precisely because they do ensure that at least sizable and geographically concentrated groups are represented (Alfange 1986). Moreover, the entire point of moving from at-large election to district based elections was to ensure the representation of people in locations that

had been poorly represented by competitive at-large elections. Competition for seats, alone, then, was apparently not a sufficient condition to ensure satisfactory representation.

To be sure, not every group in society will come to be represented in the legislature in proportion to its population size, even in district-based systems. A group might be dispersed across districts in such a way that it does not constitute a majority anywhere. Inherent in single member plurality election systems is disproportionality between seats and votes for many sizable groups that back losing candidates. But it is also an extreme view to conclude from observing various disproportionalities that the supporters of losing candidates are ignored, their votes wasted and that they have been locked out of the political system.

Given that districts are often drawn around communities with a majority interest aligning with a particular party or candidate, there will also be *consistent* winners and losers. Visible and large communities of interest are not, on average, very politically competitive between the two major political parties. That elections from such districts are not evenly divided between the parties is not a sign of unfairness but is an inherent feature of any system that draws territorially based districts that encompass communities that wind up internally homogeneous in politically relevant respects.

In fact what the Wisconsin legislature did in drawing the 2011 map has been a common practice in decades of state legislative control over the redistricting process. In present law and past redistricting efforts, the competitiveness of seats is

typically a secondary matter, to be considered after or alongside other principles, such as equal population, drawing compact and contiguous districts, maintaining continuity with previous districts, preserving communities of interest, ensuring minority representation, and protecting incumbents.

The Act 43 boundaries balance conflicting goals and competing priorities, grounded in a particular theory of representation that places value on cultivating legislative leadership and maintaining relationships between legislators and constituents, all while traveling a regulated and legally monitored path to the creation of 99 equally populous districts.

Elevating the priority of competitiveness in redistricting above traditional redistricting criteria will submerge the many benefits of geographic- and population-based representation determined by winner-take-all elections and the expression of established communities of interest. This will be accomplished by combining disparate populations for the sake of creating an uncharacteristic political heterogeneity. A district entirely made up of small towns with a mix of agriculture, trade and service jobs is now combined with a more affluent and well-educated suburban population. Well-educated progressives are combined with working-class traditionalists. A new competitive balance is present, but one that does not solidify an obvious district identity or offer clear direction for a representative. Sometimes very different groups and interests are combined in districts as a compromise to other goals and as the forced result of how adjacent districts are drawn. The question is whether distinct groups and communities of

interest should be placed into the same district as a matter of principle, as an outcome to be maximized.

Traditional Redistricting Criteria

When drawing legislative districts, state legislators generally adhere to certain criteria. In this section, I identify and describe these "traditional redistricting criteria," including the following (NCSL 2018; Forgette and Platt 2005):

- Equal population between districts
- Geographic compactness
- Geographic contiguity
- Ensuring representation of minorities
- Consistency with past districts
- Grouping communities of interest, including counties and municipalities
- Maintaining continuity of representation

These criteria are often in tension with each other. When drawing legislative maps, drafters must inevitably make decisions that prioritize some criteria at the expense of others. In any map with a large number of districts, it is easy to find districts that do poorly on one measure or another. After describing each of the traditional redistricting criteria, I elaborate on the conflicts between them that mapmakers must navigate.

Equal Population

Perhaps the most important traditional redistricting criterion is ensuring equality of population across districts, or certainly *near* equality. Under redistricting cases since the 1960s, this fairness doctrine has been interpreted consistent with Section 2 of the 14th Amendment to mean equality across the *whole*

number of persons; not just those of voting age, those who are registered to vote, or those who identify with a political party. For practical reasons it is sometimes difficult to come by exact equality, but large deviations from equality are not desirable, except in cases in which several small states receive a singular representative in the U.S. House of Representatives in spite of having considerably fewer people than the average House district overall. In state legislative redistricting, the U.S. Supreme Court has tolerated larger deviations from equality, though usually not greater than 10 percent. Under Act 43, the deviation was 0.76 percent from the ideal population of 57,444 (the total population divided by the number of districts). (Def. Tr. Exh. 504; *Baldus v. Brennan*, Exhibit A to Joint Pretrial Report, tables 2 and 4.)

The demand for population equality is often thought of as the most fundamental goal to be met in a redistricting plan. And given the uneven population distribution within states, it is challenging to draw compact districts that are also equal in population or equal population districts that fully respect community boundary lines. In many states, mid-sized and larger cities such as Milwaukee, Madison and Green Bay, stand out alone among a sea of sparsely populated rural areas and towns that the cities have traditionally served as a commercial hub and transit center. Any city with a population larger than a legislative district will have to be divided somewhere. For a city of considerable size historically positioned near the edge of a district, or on a border, there are many circumstances determining that it cannot be encompassed whole, within a single

district, as would be desirable from a community-of-interest standpoint. Instead it must be divided between two or more districts as a practical measure in compromise to the state's underlying population distribution.

Another aspect of population equality that is frequently passed over in hasty critiques of redistricting maps is the need to reapportion voters into equal sized districts following population gains and losses such as in Wisconsin after the 2011 reapportionment. Because the state legislature does not reduce its size in terms of number of seats, boundaries must shift to restore equality.

A map of the 2002 Assembly Districts with population growth and decline figures for the decennial interval 2000-2010, shows the reapportionment challenges the state's mapmakers faced in redistricting for 2011. Districts in Western Wisconsin adjacent to the Minneapolis/St. Paul metropolitan area found themselves 15-16 percent over population equality of 57,444 in 2011 (see Figure 1). Similar gains were found in two districts near Lake Winnebago. Assembly District 79 lying in Dane County directly west of Madison found itself oversized by 18,672. Smaller but still significant gains forced boundary adjustments in areas directly west of Kenosha (Lake Geneva, Burlington), north of Madison, in tracts east of Lacrosse and northwest of Milwaukee (see Figure 1). Population losses in the far reaches of Northern Wisconsin and in the city of Milwaukee also account for significant boundary shifts.

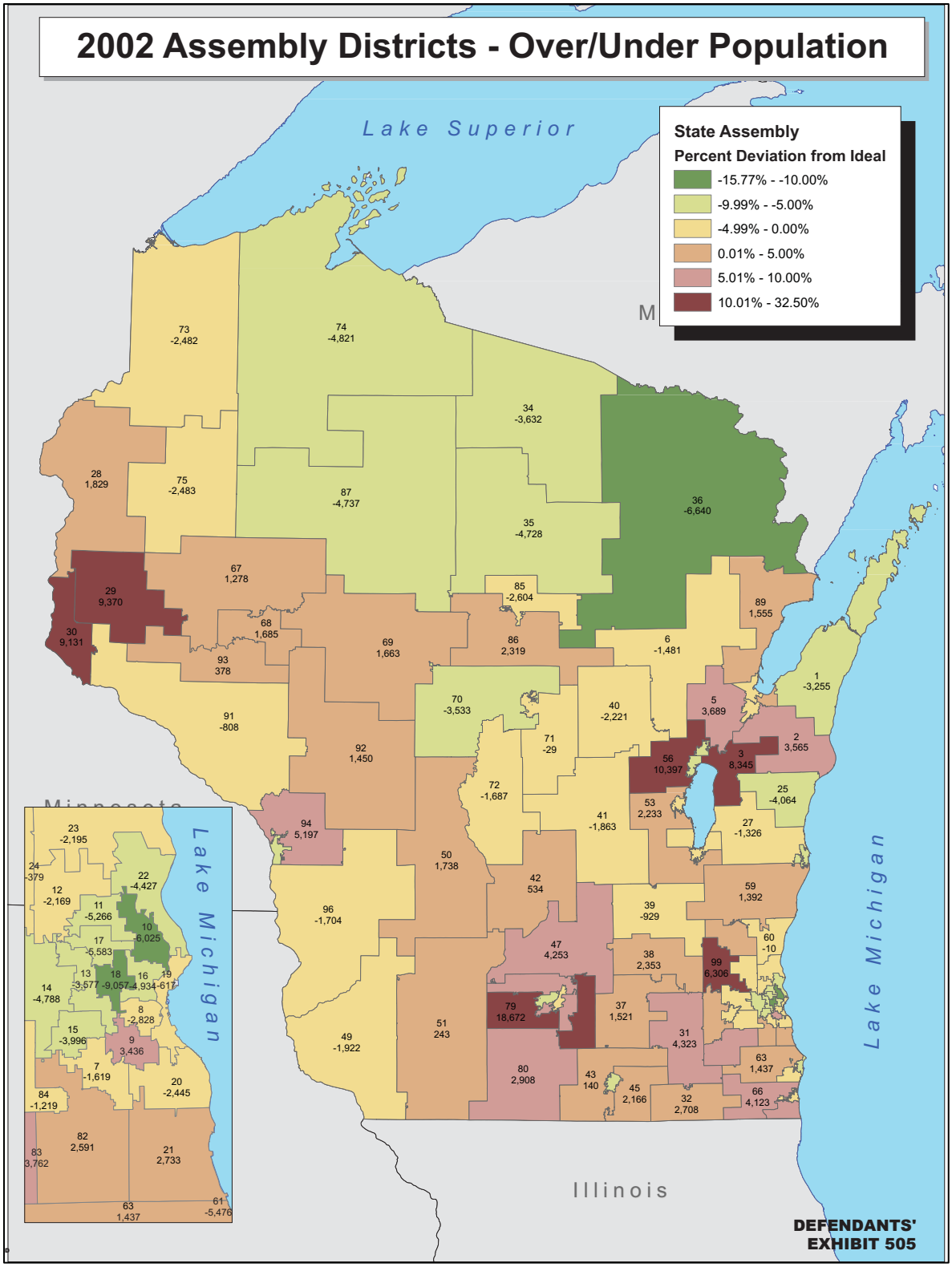

Figure 1. Population Counts Over and Under the District Limits from the 2010 Census for 2002 State Legislative Districts. Source: For data; 2000 Census, 2010 Census, also presented in *Whitford v. Gill*, Def's Ex. 505.

Population growth and decline will usually compromise the goal of core retention, the principle of preserving the boundaries of existing districts, when new districts are drawn. A 10 to 20 percent gain or loss in population will require serious alterations to existing district lines to absorb adjacent regions to find additional constituents in one case, or shrink boundaries to exclude excess population in the other. To maintain population equality in a fast growing area, it may well be necessary to parcel out the population among multiple districts since pushing 8,000 or 10,000 new voters into a single adjacent district would almost certainly create imbalance. All of the districts receiving the population from the abolished district will have to be adjusted.

Some may be of the impression that since Wisconsin's overall population growth was negligible from 2000 to 2010 (a gain of 323,000), that there was little necessity to adjust boundaries in the Act 43 plan. That might be true on the congressional district level, where each district encompasses about 700,000 constituents. But at the state legislative level, this is a grave misperception, as it turns out that the state's population growth was geographically uneven, with an uptick in specific pockets while rural and more remote areas continued a long-term decline (see Figure 1).

Population Size and the Shape of Districts

The preeminent demand for equal population size is a large part of what ultimately determines the shape of a district because map makers are required to follow the underlying settlement of the population to meet size requirements.

Human populations are not uniformly distributed across the terrain, and redistricting maps are commonly printed with only the shapes of the districts identified. Often there is no depiction at all of the underlying population distribution, or of population settlement patterns that are so determinative when trying to reach the goal of equal population. Map viewers will then marvel and leer at unusual shapes, inferring that there must have been some disreputable motive behind such creative boundary drawing. In fact, "creative" boundary drawing is frequently the result of where people are found to reside.

In meeting the challenge of drawing districts to fit settlement patterns, it is common to extend districts to follow population corridors that have developed along highways. No one should harbor the illusion that highways are compact shapes. They are the opposite of compact, being stringy or threadlike in form as they are designed to connect origins with destinations. When road networks are not placed on a map sometimes an elongated, non-compact district will appear to make no sense at all. Once the highways are present, these districts make perfect sense, demonstrating how map makers sought a straightforward way to find additional population to meet equal population requirements.

An example helps to illustrate the point. Populations are scattered along roadways that people use to travel to and from work, shopping and school. People don't typically build a home three miles off a roadway that they then walk to through a field to reach it. Their homes are situated close to the roadway, their

driveway abuts the roadway. To create equally populous districts, a mapmaker has to follow the highway network (Figure 2).

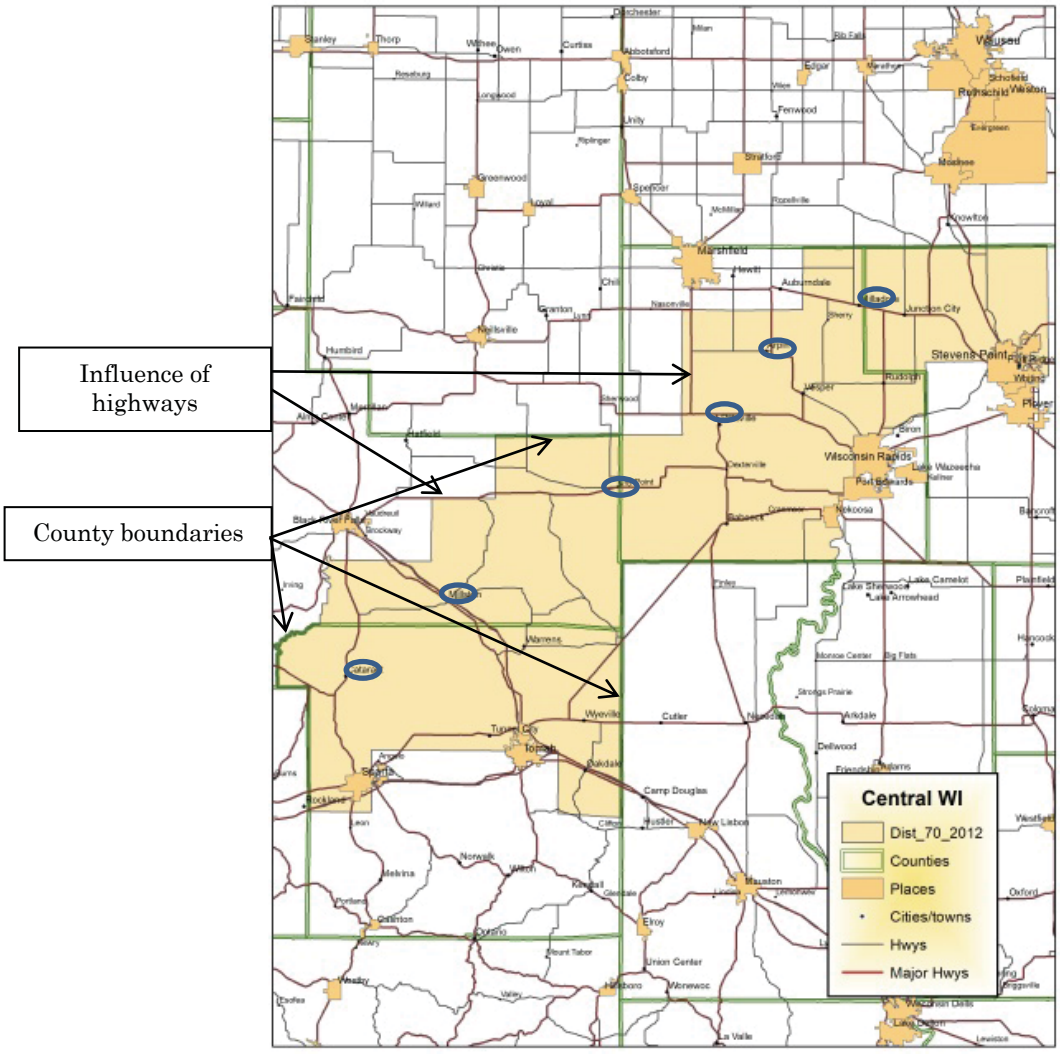

Figure 2. District 70 in Central Wisconsin with Major Settlements and Highways, Act 43 Plan

District 70, the district pictured in Figure 2, has been noted for its non-compact shape, with a stair-step pattern forming its northern border. But closer inspection of this district's boundaries with the benefit of the roadway network, cities and towns, and county boundaries, shows there are reasons for its shape. The highways guide the drafters' search for equal population. The county boundaries

serve a useful purpose to bound the shape. The towns and cities shown in the marked ovals, connected by the highways, show the reason behind the stair-step pattern, as population is found to be distributed outward from where they are marked. What might be considered arbitrary when seen only as a shape, turns out to have a reasonable explanation when more of the detail is captured. One might complain that a county boundary is respected in one location, but not in another, but this may well be due to the size of the county, and the population requirements of neighboring districts and how they were drawn.

Compactness of Shape

Compactness of shape has long been considered a traditional redistricting value because it is thought to ease the burden of representation. The most perfectly compact shape is a circle (Young 1988; Schwartzberg 1965). No districts in the real world are truly circular, but compactness is an ideal because in minimizes the ratio of perimeter to land area, thereby reducing the distance required to reach the entire district. In short, distance is thought to impose costs and burdens and compact shapes reduce distance over elongated ones.

Over the decades, critics of legislative district maps have frequently suggested that the shape of districts alone is sufficient to show that some type of gerrymandering has occurred, whether partisan or on some other basis. But the shape of districts, alone, is insufficient to show that a gerrymander has occurred. Shapes can be properly judged as "contorted" only if we assume something about the distribution of the underlying populations. Surprisingly to some, it is just as

easy to show that a compact shape can be used to gerrymander one's way to a more partisan result (Morrill 1981, 16). Compactness turns out not to be much of a limit on the creation of more lopsidedly partisan districts. Even so, many states require the consideration of compactness of shape as a stipulation for the drawing of legislative districts, including Wisconsin.

There are various quantitative measures of shape compactness covered in the social science literature on redistricting (Young 1988; Niemi, Grofman, Carlucci and Hofeller 1990). Though they vary somewhat in exactly what aspects of shape they measure, they are usually highly correlated with each other: high scores on one are associated with high scores on the others.

Compactness is also often in tension with a district's political competitiveness. In a one-sided political area, in Wisconsin, or about any other U.S. state, to obtain a competitive district one would have to engage in very contorted, i.e., non-compact, boundary drawing. For instance, what would it take to create a competitive district in Northeastern Wisconsin, north of Green Bay, perhaps in Act 43's District 36? Or District 6? The wards in this area are some of the most reliably Republican in Wisconsin. There is more than one way to accomplish the goal, but an obvious path would sketch protrusions reaching into the city of Green Bay and further South into Appleton. A more competitive District 36 would likely be a much less compact District 36, as long as the core of the district remains where it is.

Geographic Contiguity

Contiguity is the widely accepted standard that districts should not contain multiple territories, separated from each other by the territory of adjacent districts. In a contiguous district it is possible to travel from any part of the district to any other part without crossing the district boundary (Levitt n.d.). In general, geographic contiguity requires that districts not be separated by bodies of water. In cases of off-shore island settlements, separation by water is an acceptable reason for non-contiguity. But absent the special case of islands, districts should not be divided by small bodies of water such as sizable lakes that often demarcate different neighborhoods or communities of interest.

Like compactness, contiguity is also thought to minimize costs associated with representing far flung populations that might be geographically disconnected, while also guarding against excessive distortion in the boundary drawing process. Maintenance of contiguity and compactness also serve the related redistricting goal of preserving communities of interest, discussed below.

The State of Wisconsin prioritizes contiguity in legislative districts, though the standard is relaxed in that the state accepts the rule of municipal boundary contiguity rather than the more exacting requirement that land based boundaries be entirely joined. The tradition in municipal law and governance is to permit annexations and property acquisitions that are often non-contiguous, as can be seen on the maps for many of the state's cities, including Racine, Appleton, Madison, Middleton, Blooming Grove, and others.

The non-contiguity of municipal boundaries is highly relevant to legislative redistricting in Wisconsin because often municipal boundaries serve as legislative boundaries. This will be the case whenever state mapmakers seek to include cities/towns wholly within a district rather than dividing them, and those cities lie on a district's edge. The regular adoption of a municipal boundary for use as a legislative boundary will come at some cost to both contiguity and compactness.

Minority/VRA Districts

Minority descriptive representation is understood to mean that minority, mainly African American and Latino, populations should have a reasonably sure chance to elect someone from their own racial/ethnic group. Minorities should not be spread so thinly across districts that they have no opportunity to elect a candidate of their choosing though bloc voting. Ensuring that African Americans and Latinos have an ability to elect an African American or Latino candidate, under circumstances of racially polarized voting, has been deemed necessary to achieving this end by assorted judgments under the Voting Rights Act of 1965, as amended in 1982. The challenge in some states, however, is to place ethnic minority voters in sufficiently concentrated pockets to *ensure descriptive representation*, without hindering the achievement of other important goals. A plan is not permitted to "pack" minorities into super majorities, nor is it permitted to "crack" them into small minority-sized parcels.

Consistency with Past Districts

In the redistricting process, mapmakers do not usually start from a blank slate -- a map with no prior districts marked on it (Plane, Tong and Lei 2018, 3). After all, the previous map did not come by its appearance by arbitrary fiat. There are presumably very good reasons for the way many of the previous districts were drawn, even if the rationales extend back decades and are not fully known to present day mapmakers.

Previous districts are deserving of respect for no other reason than because legislators and constituents have grown accustomed to them. Moreover, the representation of particular locations and interests as captured in previous boundaries may be central to the organization of state politics. Previous boundaries inform how the legislature and other political entities have come to understand the state and themselves. That is not to say there can never be any changes, only that changes need to be considered carefully alongside other goals and obligations. Quite commonly, the existing map serves as the starting point for changes and consultations on the shape of the new map (Plane, Tong and Lei 2018).

Gauging continuity with past districts could be done by simply comparing the similarity of the geographic boundaries themselves. But given the common necessity of adjusting boundaries to meet the equal population requirement, it makes more sense to develop a measure of continuity that captures the similarity or intersection of population encompassed by the old and new boundaries. Labeled "core retention," the idea is that district continuity is maximized when the previous

population of the district is as close as possible to the new population in terms of its location. So the goal is not to throw-in any 57,444 people when redrawing a boundary, but to encompass as many of the same constituents among those 57,444 as possible from the previous co-located district. If more than one previous district intersects with the newly drawn district in sizable shares, there may be some workable rules adopted to shift approximate portions of the populations of the previous districts into the new one. The process is rarely perfect in outcome but the point is that a substantial effort is expended to maintain familiarity, connection and permanency in representation.

Communities of Interests

Another traditional redistricting criterion is the requirement to hold together communities of interest that have formed over the course of state history. There is no universal agreement on what makes a community-of-interest, because these vary with the unique histories of states and regional communities (Stephanopoulos 2012; Rossiter, Wong and Delamater 2018). These communities of interest are sometimes conceived of as smaller official jurisdictions with well-defined boundaries such as counties or municipalities. In Wisconsin, for example, communities of interest were very concretely defined as counties and cities (municipalities or towns) with the goal of keeping counties and cities whole within legislative districts. Boundaries around these subdivisions are not arbitrary lines drawn on a map, but have come to constitute discrete locations with well-recognized qualities, social attachments and affiliations. Place attachments define people who come to believe "they are part of the same coherent entity." (Stephanopoulos 2012, 1385). An important principle

guiding redistricting in Wisconsin law is that disruptions to such territorial communities should be reduced.

The preservation of locations in this manner is apparently anchored in the historical legislative practice of representing communities rather than individuals (Gardner 2002, 1243). In contemporary times, with the Court requiring that legislative districts be drawn around equally populous groups of individuals, communities of interest are still thought to express the linkage between a place and the people who reside there (Gardner 2012).

One simple gauge of preserving communities of interest used by map makers in many states is to keep counties and cities wholly within districts, rather than dividing them. Sometimes legislative language specifies that counties and cities are to receive special consideration as map drawers try to avoid splitting them unnecessarily. These provisions make sense because counties and cities are governing bodies in their own right, with elected officials, taxing power, governing boards, and bureaus that supervise elections, social services and schools. In Wisconsin, as in many other states, citizens are known to identify with their towns and counties as places they originate from and dwell. They have come to constitute discrete locations with well-recognized qualities, social attachments and affiliations.

Residents' affections are so well recognized that respect for city and county boundaries runs deep in the history of redistricting practice, extending back to the founding period (Gardner 2006a; 2006b). Counties and towns may also prove to be substantially one-sided in political preference, adhering to a common set of political

beliefs and policy preferences that it would be considered arbitrary and peculiar to divide.

There are also practical reasons for encompassing towns and counties in their entirety going to the promotion of democratic values. Aligning boundaries and avoiding split jurisdictions apparently simplifies the task of citizen comprehension of the political system. Several researchers have shown that voters have an easier time recognizing the names of incumbents and challengers when other boundaries cleanly coincide with district lines (Niemi, Powell and Bicknell 1986; Winburn and Wagner 2010; Elmendorf and Schleicher 2011). Clean alignment seems to also smooth the pathway for ambitious candidates to rise through the political system, gathering valuable experience along the way (Carson, Crespin, Eaves and Wanless 2011). Districts that show congruence with other boundaries may also enhance political accountability and strengthen party branding (Snyder and Stromberg 2010).

Preventing county and municipal splits is not the only possible way to measure the preservation of communities of interest. A state legislature is certainly entitled to look at other criteria (Rossiter, Wong and Delamater 2018, 611). Many communities of interest have an economic thrust, such as ports, military installations, or commercial hubs. Indian reservations and other areas of racial, ethnic and cultural importance make reasonable claims to having a common interest. These places are frequently without official boundary lines, but are well-

known to local residents and officeholders who possess a unique local expertise an insular map maker will lack.

A powerful argument in favor of state legislative involvement in the redistricting process is the impressive amount of local knowledge legislators amass in living out their lives in a particular place, running for office, and serving a particular geographic constituency over a period of time. Indeed, a high level of local knowledge is required to develop the kind of following that insulates a legislator from adverse electoral swings. But this same kind of knowledge is what uniquely enables legislators to draw maps encompassing interests known to belong together, as a territorial community, rather than woodenly applying principles that would divide them, hampering the expression of common values and aspirations. This kind of familiarity recognizes important community-level details unknown and often unknowable to the redistricting consultant; how neighborhoods relate to one another, how roadways and waterways separate communities psychologically not just physically, and other informal boundaries that distinguish interests that cannot be easily mapped relying on available boundary files. Typically, a redistricting consultant will gloss over communities of interest, not having the local expertise about what to include and what to discount. A state legislator, however, is apt to know every strip mall; ice hockey pond; road construction project; pipeline; water tower; neighborhood association; grain elevator; intersection; power plant, and snowmobile trail. Not all of these features are going to be relevant to drawing boundaries, and clearly not everywhere, which is why a GIS specialist would not be

inclined to collect this information on a statewide basis. Drawing upon local knowledge, however, on a district-by-district basis, this kind of information can identify a community of interest invisible to outsiders, but obvious to everyone occupying local ground.

Creation of Senate Districts

In the landmark Supreme Court ruling, *Lucas v. Forty-Fourth General Assembly of Colorado* (1964), the Court held that both houses of a bicameral state legislature were required to be apportioned on a population basis. Wisconsin's state constitution further specifies in Article 4; Section 5 that other traditional redistricting criteria apply to the state senate.

Following the practice of about a dozen other states, Wisconsin's 99 assembly districts are required to be nested within the 33 state senate districts, as a means for linking the two chambers and preserving continuity in representation. This arrangement is of critical importance for redistricting because it means that *the senate districts and assembly districts cannot be considered independently*. On the one hand, nesting is thought to simplify line drawing since three assembly districts equal a senate district. On the other hand, this state constitutional requirement acts as an additional constraint since mapmakers have to consider the impact of the assembly district boundaries on the senate and the constituent-representative linkages of that body.

Maintaining Continuity of Representation

Republicans and Democrats now and in the past have insisted that drawing maps to maintain continuity of representation by avoiding the pairing of incumbents is a reasonable goal of redistricting. In part, this norm developed as a way of preventing the use of redistricting for punishing, or taking seats away from, unpopular legislators. Longstanding practice dating to the founding period shows support for the goal of incumbency protection as a value in the redistricting process. The U.S. Supreme Court has affirmed the value of maintaining existing relationships between incumbents and their constituents in *White v. Weiser* (1973); *Karcher v. Daggett* (1983); in *Bush v. Vera* (1996), and in *Reno v. Bossier Parish School Board* (2000). Numerous lower court decisions have done the same. Whether a legislature seeks primarily to protect the seniority and institutional power of its officeholders, or seeks to maintain a strong bond between incumbents and constituents, these are legitimate choices states are entitled to make.

Critics of incumbency protection as a redistricting goal suggest that by protecting incumbents map drawers are undermining accountability, thwarting the election process, and heightening polarization (Issacharoff 2002). These charges have been met by studies showing that such negative effects have been hard to detect (Persily 2002). In the particular cycles where competition for legislative seats did ebb, redistricting was not the culprit; challengers find it hard to unseat incumbents independently of how districts are drawn (Masket, Winburn and Wright 2012; Abramowitz, Alexander and Gunning 2006; McCarty, Poole, and Rosenthal

2009). Moreover, even long-term incumbents behave as though their electoral fortunes are insecure, and with no evidence of slack or lethargy being offered as evidence of a supposed life of ease. As for claims that redistricting for incumbency protection enhances polarization, the claim has been investigated and found to be lacking, probably because the sources of polarization lie at the institutional level more than in the local constituency (McCarty, Poole and Rosenthal 2009).

Incumbency may be of momentous value to a city or constituency for the greater institutional power and influence it conveys. Incumbency buys, among other goods, confidence in advocating for district and constituency causes; familiarity with institutional processes; seniority within a party caucus and on committees; relationships with other legislators and influencers; comprehension of other institutions of state government; expertise in working with the bureaucracy; awareness of constituency interests; and the amassing of other formal and informal resources for accomplishing constituency-oriented goals.

The Conflicting Constraints on Mapmakers

These traditional redistricting criteria are usually in conflict with each other in districts with larger numbers of districts, creating complications and impediments for any would-be mapmaker. There is no perfect map that optimizes the value of all of the measures traditionally incorporated into the redistricting process. Drawing and redrawing district lines with the above criteria in mind creates difficult trade-offs that are impossible to resolve in the absence of a consensus on priorities (Lowenstein and Steinberg 1985; Butler and Cain 1992,

Chap 4; Niemi and Deegan 1978). As explained above, the desirable features of legislative districts encompass both geographic (and geometric) features, as well as those thought to achieve the goal of fairness. New map drawing almost always begins with the implicit restrictions imposed by the boundaries of the previous map, not by throwing it out and starting from scratch.

Automated map drawing of the kind used by the plaintiffs' expert, Professor Chen, might reveal redistricting options more quickly than a well-trained professional can use GIS software to draw the maps one-at-a-time, but the automated tools still fail to produce a perfect map or even one insulated from credible legal challenge (Browdy 1990; Cho and Liu 2016). Those charged with the task of drawing, then approving, district boundaries inevitably weigh some priorities more heavily than others, some criteria must take precedence, and these decisions are inherently value laden and political, not within the capacity of technical expertise to decide. Technical experts can produce a large number of plans to consider, but nothing about their expertise leads to the conclusion that one plan is best.

Extended discussions of the regularity of specific types of conflicts can be found elsewhere (Lowenstein and Steinberg 1985; Butler and Cain 1992). Most plainly, the demand for equality of population may limit the shape and compactness of districts, as mentioned above. Sparse populations may require enclosure by protruded shapes. Attempting to preserve communities of interest will commonly make it difficult to achieve an even balance of partisans. Ensuring descriptive

representation of minority voters in one or more districts will also make it more difficult to achieve partisan balance in nearby districts (Brace, Grofman and Handley 1987).

The underlying residential patterns in Wisconsin and many other states also create tension between the traditional redistricting criteria and political competitiveness. In Milwaukee, for instance, home to a significant share of the state's low income and minority population, drawing politically competitive seats that preserve the city as a community of interest will be close to impossible given the electoral groups that presently constitute the two major parties.

The effort to balance the conflicting objectives of the traditional redistricting criteria inevitable requires adjusting boundaries to include or exclude certain populations within a district. Any multiple district plan can be critiqued for exhibiting some districts that have grouped people, and other districts that have dispersed them. There are only two directions one can go. One is *always* either packing or cracking. To respect a community of interest, the author of a map will usually be engaged in grouping (packing). To produce competitive districts, often the opposite will happen and the district will fit the characteristics of having been diversified (cracking) in some way. In this manner, the utility of the concepts of packing and cracking as they might pertain to tests for partisan gerrymandering is eliminated. Any critic of a plan can point to "packing" and "cracking" on a map they happen to dislike. What counts as an acceptable grouping or dispersion of a population is contestable, for instance, in the case of majority-minority districts,

depending on approximate estimates of the population necessary to ensure the election of a descriptive representative.

The historical data one brings to a map will influence judgment about the appropriate population shares, but how much history is required, and relevant? The reality is that what is commonly called packing is usually essential to serve another redistricting value, while what is known as cracking – the allocation of a population across more than one district -- may be exactly what is required to serve an alternative value.

A second important point to remember about the practice of map drawing is that certain possibilities for how a district can be drawn are constrained once nearby districts are drawn with particular values in mind. Given the close association of race and ethnicity with voting behavior, when African Americans and Latinos are grouped into geographic blocs within districts, they are removed from having influence on the outcome of elections in the adjacent districts.

The benefit of the majority-minority districts is descriptive representation for black and Latino voters. The cost is that other nearby districts are less likely to be competitive without the presence of those voters to support Democratic candidates. With a sufficiently large minority population share, coupled with multiple districts promoting descriptive representation, the remaining seats could well become safe, or at least *safer*, for the opposing party, distancing a state legislature's seat share from the vote share. The goal of descriptive representation will usually come into conflict with competitiveness, and given the relationship of competitiveness to

proportionality, descriptive representation can also inflate the difference between seat share and vote share. It can also interfere with values such as compactness, and occurs in places like Milwaukee where the proximity of minority-majority districts to Lake Michigan limit mapmakers' options for drawing adjacent districts.

Race-based districts aside, it takes little imagination to understand how achieving competitiveness is frequently at odds with the goal of preserving communities of interest. For example, Northeastern Wisconsin, lying outside and to the north of Green Bay and below the Door Peninsula, is well recognized as a historical and cultural region distinctive from the rest of the state. It is also a very Republican area, at least if judged by historical election returns. Dane County, home to Madison, the state capital, and the University of Wisconsin, has a long history of giving safe majorities to Democrats in most elections. The city of Milwaukee also has a well anchored allegiance to the Democratic Party since before the New Deal. Given that the politics of the inhabitants of these regions have developed hand-in-hand with their other cultural attributes, it is extremely difficult, if current party allegiances endure, to create a competitive legislative district utilizing the turf lying wholly inside the cities of Madison or Milwaukee, or encircling the rural counties north of Green Bay. This difficulty also arises in other parts of the state, as in the suburbs lying north and west of Milwaukee, given the way political party loyalty has long been expressed in local settlement.

Wisconsin's Political Geography and a Republican Legislature

Wisconsin's political geography ensures a modest partisan tilt in a Republican direction under any redistricting plan that adheres to traditional districting criteria. The challenge drawing a Wisconsin Assembly district map that matches vote share and seat share is not just that the state has single-member districts and winner-take-all elections, but that Democratic voters are settled predominantly in the most densely populated areas of the state, a tendency that has been increasing over time, judging by election returns for major offices. Figures 3 and 4 offer one depiction of the dispersion of Democratic and Republican voters from 2004–2010 and 2012–2016, respectively, drawing on average votes for major offices. Republican political predilection appears to be rising in the rural parts of the state. Democratic solidarity is intensifying in the most urban areas.

Of course no one knows exactly how durable recent partisan trends will be. Political party alignments are known to change. But if we view the state's political geography from the 2000 presidential election forward, it is clear that the Democrats draw an increasing percentage of their total statewide vote from Dane County, while obtaining a steady, reliable share from Milwaukee County. In 2000, for instance, about 11.5 percent of the Democratic vote for Al Gore was cast in Dane and 20.3 percent in Milwaukee. By 2016, it was up to 15.8 percent for Hillary Clinton in Dane; 20.9 percent in Milwaukee. Milwaukee County's population has remained mostly stable over the last two decades, but Dane's has grown considerably.

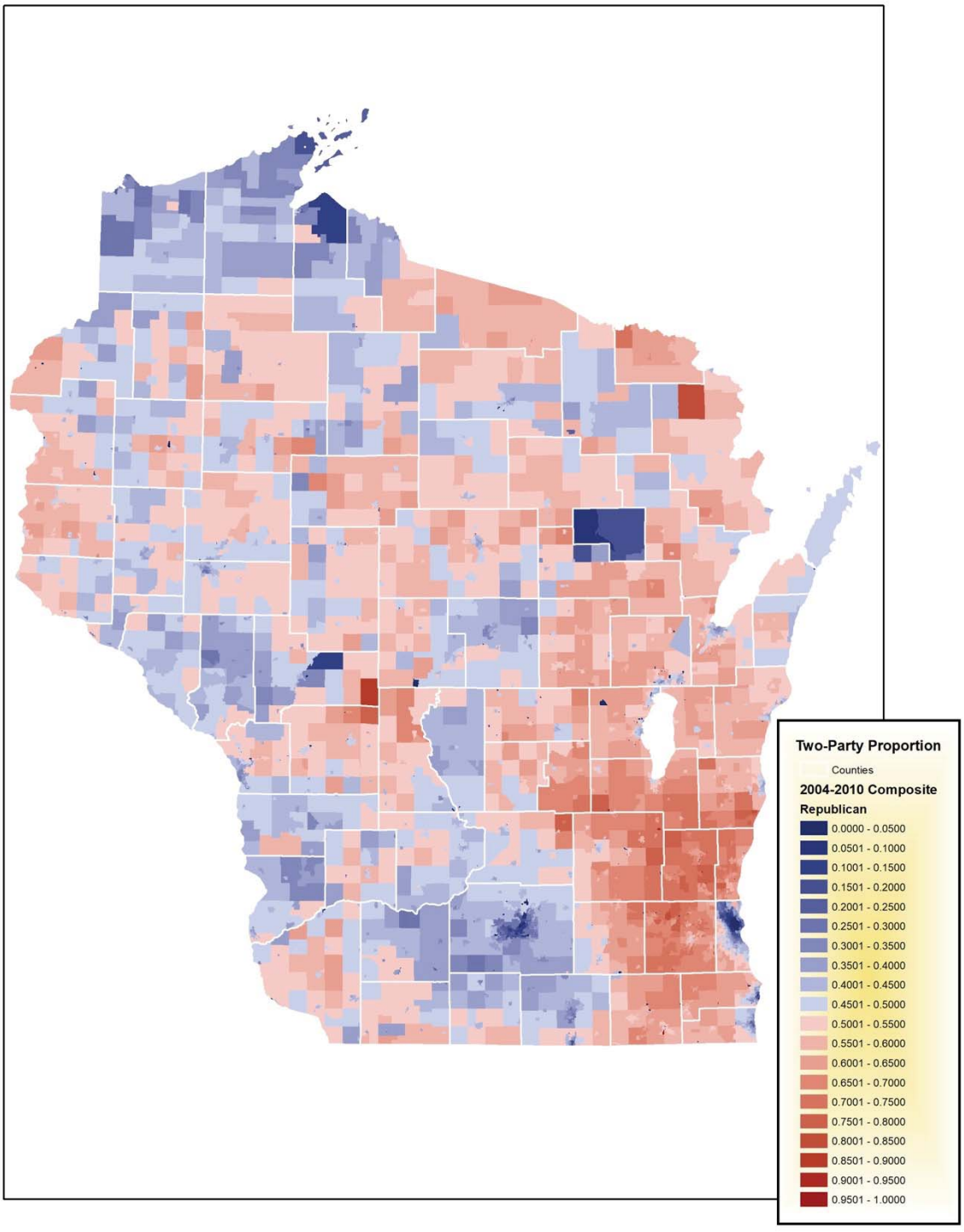

Figure 3: Two-Party Proportion, Composite of 2004–2010 Elections. Source: LTSB.

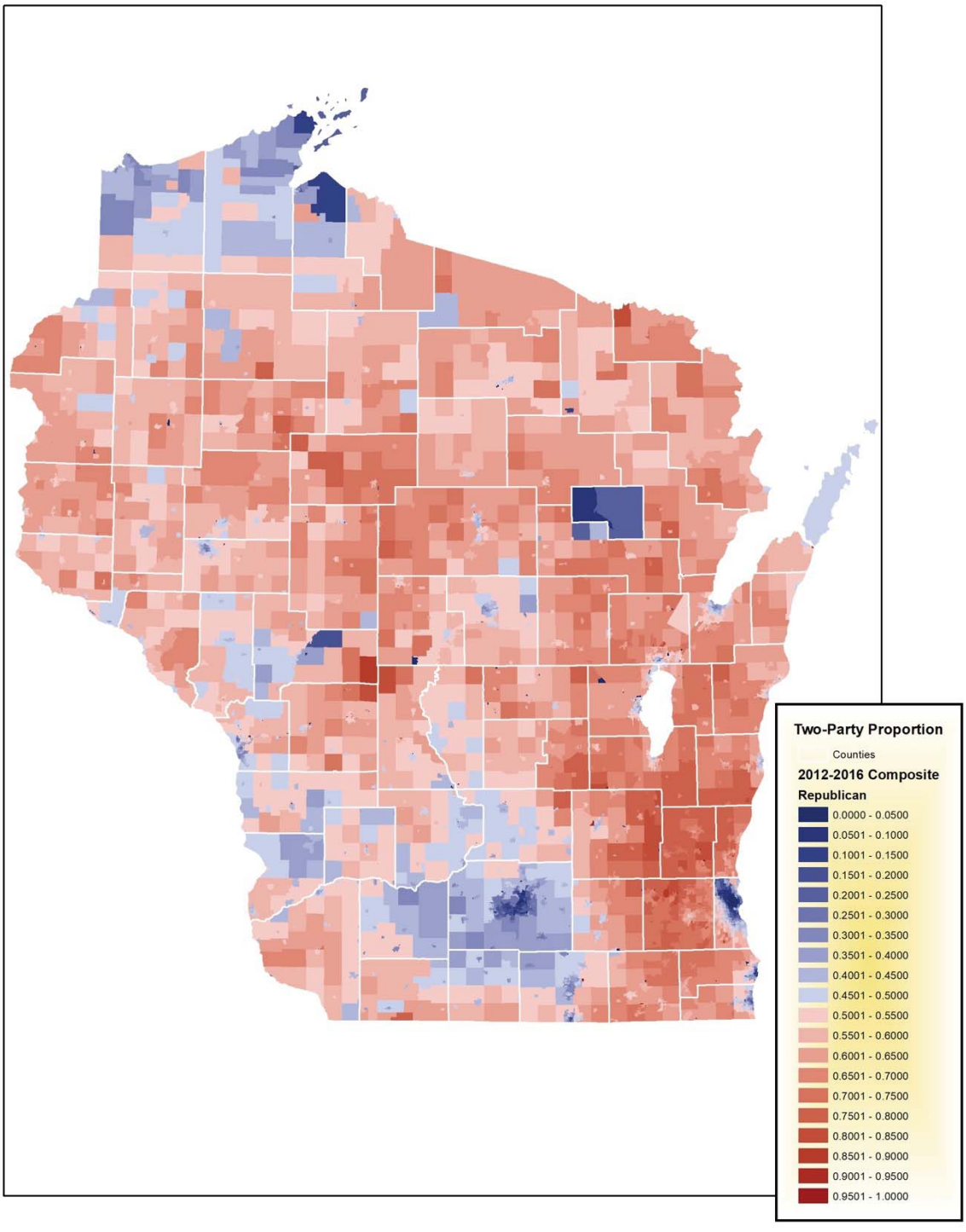

Figure 4: Two-Party Proportion, Composite of 2012–2016 Elections. Source: LTSB.

Equally important, the Republican share of the statewide vote out of these jurisdictions headed in the opposite direction, the Milwaukee County share of Republican votes cast fell from 13.2 percent to 10.1 percent. Dane County Republicans moved down slightly from 6.1 to 5.8 percent even as its population multiplied. In the outlying areas (see row in Table 1 labeled Smallest 62 Counties) there has been a notable uptick in the share of the total vote cast for Republicans, moving from 47.8 to 52.6 percent (+5), and a similar sized decline for Democrats, 43.1 percent in 2000 to 38.3 percent in 2016. The complete story, at least over this short time span, is one of increasing Democratic density coupled with countervalent Republican dispersal (see also Figures 3 and 4).

In Wisconsin, recent election statistics show that the number of communities that are politically even between the two major parties, whether we define a community as a county or a city/town, is not very high. For instance, when we view the most fundamental building block of redistricting, the ward (in other states known as a voting precinct), recent figures show that a rather small percentage of them are divided evenly between the parties. The figures in Table 2 amplify the point. Here readers can find calculated the number and percentage of wards, cities and counties where the political parties lie within three percentage points, ten percentage points, or beyond ten, when considering the vote for major statewide offices, and for president. The calculation is simple:

Table 1. Percent of Total Statewide Party Votes Cast for the Ten Largest Wisconsin Counties and the Balance of the State, 2002-2016 Presidential Elections

Location	% Dem 00	% Dem 04	% Dem 08	% Dem 12	% Dem 16	% Rep 00	% Rep 04	% Rep 08	% Rep 12	% Rep 16
Milwaukee County	20.30	20.13	19.07	20.33	20.89	13.21	14.57	12.08	12.80	10.19
Dane County	11.45	12.23	12.28	13.35	15.75	6.13	7.31	5.91	6.75	5.76
Waukesha County	5.17	4.97	5.09	4.81	5.73	10.76	12.52	11.73	13.06	11.52
Brown County	3.95	3.70	4.01	3.87	3.86	4.39	5.42	4.51	5.23	5.43
Racine County	3.34	3.25	3.18	3.28	3.08	3.56	4.24	3.71	3.97	3.77
Outagamie County	2.63	2.60	3.00	2.82	2.75	3.19	3.72	3.21	3.82	4.03
Winnebago County	2.73	2.76	2.87	2.81	2.68	3.10	3.76	3.07	3.40	3.51
Washington County	1.46	1.43	1.53	1.43	1.51	3.33	4.09	3.86	4.42	4.18
Kenosha County	2.61	2.70	2.73	2.78	2.59	2.34	2.88	2.55	2.82	2.91
Rock County	3.26	3.14	3.01	3.05	2.85	2.22	2.67	2.21	2.46	2.55
Sum Top 2 Largest	31.75	32.36	31.35	33.67	36.64	19.34	21.89	17.98	19.55	15.95
Sum Top 5 Largest	44.22	44.28	43.63	45.63	49.31	38.04	44.07	37.94	41.81	36.68
Sum Top 10 Largest	56.91	56.92	56.78	58.52	61.69	52.21	61.20	52.84	58.75	53.86
Smallest 62 Counties	43.09	43.08	43.22	41.48	38.31	47.79	48.45	48.21	48.40	52.58

Cell entries are the percentage of total statewide vote cast for the party and election at the top of each column
Source: WI Elections Commission, and author's calculations

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$$\text{Competitiveness} = 100 - |(R\% - D\%)|$$

$$100 - |43 - 38|$$

$$100 - 5 = \mathbf{95}$$

The absolute value of the difference between the two party percentages is subtracted from 100. Subtracting from 100 ensures that higher scores indicate more evenly divided locations. As Table 2 indicates, geographic units as granular as wards are not very politically diverse in the state's recent history. Only 11.5 percent of the state's wards are closely contested when it comes to state cabinet elections (Treasurer, Secretary of State and Attorney General) from 2002-2010. Wisconsin's gubernatorial elections saw even less diversity at the ward level, and presidential elections slightly more. About two thirds of Wisconsin's wards are sufficiently one-sided that more than ten points separate the two major parties in highly visible elections. Among Wisconsin counties, fewer than one-quarter are evenly divided, though about half (58%) could be described as at least competitive between the two major parties for the state cabinet level offices and for president. Unlike wards which tend not to vary much by population size, the counties are highly variable, ranging from nearly a million in Milwaukee to just over 4,000 in Menominee and Florence.

Table 2. Competitiveness of Wisconsin Wards and Counties for Various Offices, 2002-2010

Wards	Range	For State Cabinet	For Governor	For President
Highly Competitive	97-100	765 (11.5)	774 (11.7)	799 (12.0)
Competitive	90-97	1,672 (25.2)	1,549 (23.3)	1,596 (24.1)
Less Competitive	Below 90	4,197 (63.3)	4,311 (65.0)	4,239 (63.9)
	N	6,634	6,634	6,634

Counties	Range	For State Cabinet	For Governor	For President
Highly Competitive	97-100	16 (22.2)	13 (18.1)	18 (25.0)
Competitive	90-97	26 (36.1)	30 (41.7)	22 (30.6)
Less Competitive	Below 90	30 (41.7)	29 (40.3)	32 (44.4)
	N	72	72	72

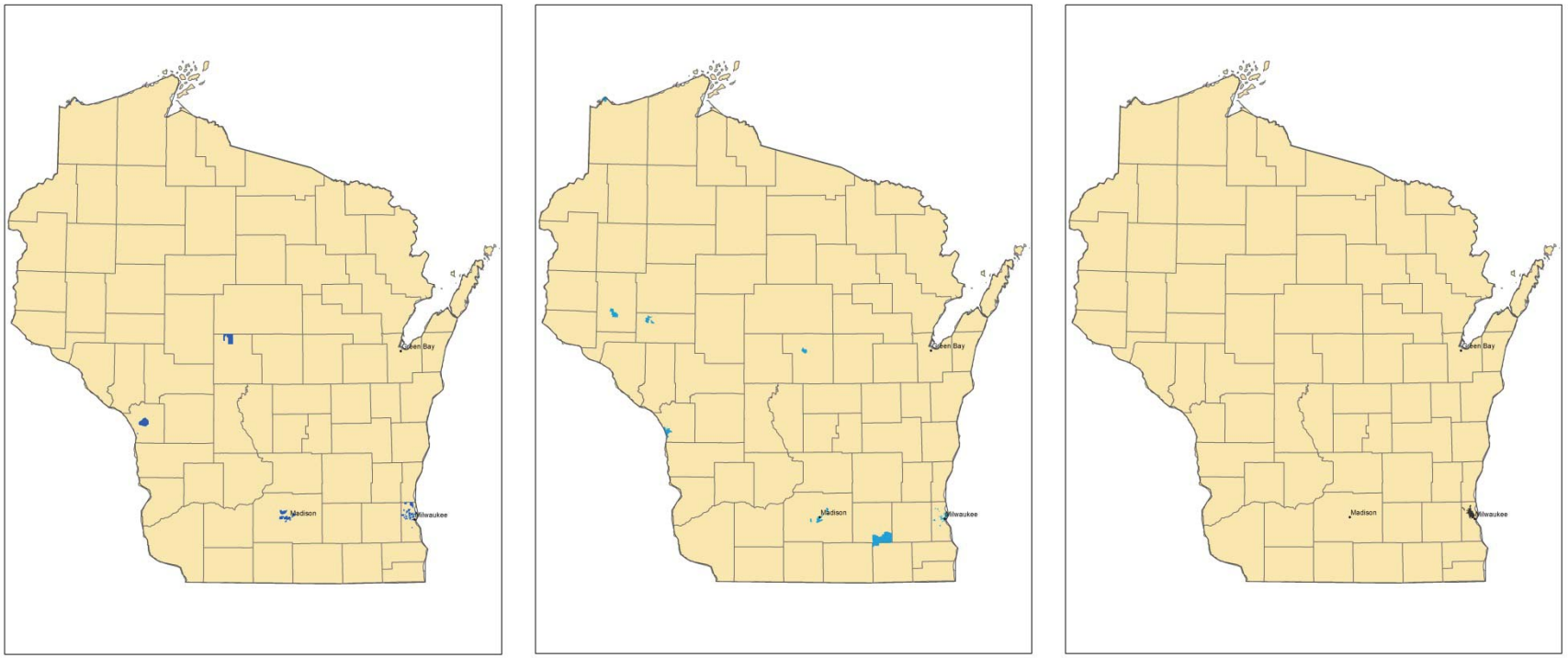
Competitiveness = 100-|(Dem % - Rep %)|
Percentages are reported in parentheses.

Unfortunately for mapmakers trying to minimize county splits, many midsized and larger counties are not very diverse, politically. The same is true of cities. This means they are difficult to include whole inside a district without tilting the district decidedly toward one political party. State redistricting law and practice dictates that these geographies be treated as whole units, but doing so militates against the creation of evenly balanced districts by party preference.

Several large economic and demographic voting blocs that are concentrated in pockets around the state appear to throw their allegiance overwhelmingly to a single political party. One is the population of 18-24 year olds that mostly reside in and around the states' various college campuses. A second and related population is the employees of these educational institutions and others who work in the education sector of the economy (see Figure 5a). Wisconsin has a number of cities containing small, mid-sized and larger college campuses. These range in size by

employment and enrollment, from small liberal arts colleges with fewer than a thousand students to the substantial populations of the thirteen four-year campuses in the University of Wisconsin system, from Madison's 42,000 to the midsized populations of the LaCrosse, Eau Claire, Oshkosh and Whitewater campuses, to the smaller Parkside, Green Bay and Superior campuses. Even the mid-sized and smaller campuses are often quite large relative to the communities that host them, or as a percentage of the town or county population. Their relevance for redistricting can be seen once it is recognized that they lean politically toward one of the major political parties in major elections. Ten percent of a local population that votes 65 percent for a single party constitutes a substantial influence. Treating these communities as whole entities not only means creating some non-competitive seats, but also entails tilting adjacent districts toward the other party after doing so.

A third important voting bloc is the African American population concentration in the city and county of Milwaukee (see Figure 5c). Though the maps shown in Figure 5 are based on census tract populations that are larger than wards, evidence shows that the wards underlying that are shaded in vote very lopsidedly Democratic in recent elections.



(A) (B) (C)

Figure 5. Locations of High % Employment in Education Sector (A); High % 18-24 Year Olds in Local Population (B); and % African American Population (C).

Source: Census Tract Data from American Community Survey, 5-Year Estimates 2012. Tracts shown are in the top 20% of census tracts with the identified characteristic on the basis that those locations with higher concentrations of these populations could reasonably be considered a community of interest whereas smaller concentrations might be arguable.

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Specifically, the identified wards from the maps show decidedly Democratic loyalties. In the 2014 gubernatorial election, for instance, the 114 wards in areas with high concentrations of employees in the education sector cast about 80 percent of their votes for the Democratic candidate. For the 123 wards with the largest proportions of 18-24 year olds, the support for the 2014 Democratic gubernatorial candidate was 68 percent (see Table 3).

Table 3. Republican and Democratic Support 2012-2016 in Wards with High Percentage of Education Employment, 18-24 Year Olds and African Americans

Offices	Statewide	% in Education	% Age 18-24	% Black
%R State Cabinet	51.10	20.16	32.15	3.66
%D State Cabinet	48.90	79.84	67.85	96.34
%R Gubernatorial	53.13	19.65	30.90	3.17
%D Gubernatorial	46.87	80.35	69.10	96.83
%R Presidential	48.36	17.42	27.58	2.60
%D Presidential	51.64	82.58	72.42	97.40
Total Wards	6,634	114	123	69
	Statewide	Balance of State	Balance of State	Balance of State
%R State Cabinet	51.10	52.26	51.72	51.98
%D State Cabinet	48.90	47.74	48.28	48.02
%R Gubernatorial	53.13	54.37	53.82	54.09
%D Gubernatorial	46.87	45.63	46.18	45.91
%R Presidential	48.36	49.56	49.18	49.21
%D Presidential	51.64	50.44	50.82	50.79
Total Wards	6,634	6,520	6,511	6,565

Note: Cell Entries show Republican and Democratic percentage of the two-party vote aggregated from wards within census tracts showing the highest 10% of the Community of Interest category identified at the top of each column. Balance of State figures reflect Republican and Democratic share of the two-party vote with the Community of Interest wards removed. Presidential results are from 2012 and 2016. State level results are from 2014. State cabinet offices are Attorney General, Treasurer and Secretary of State.

For the 69 African American wards identified within Milwaukee County, the vote cast for the Democratic gubernatorial candidate was an overwhelming 96.3 percent. To be sure, these data are neighborhood aggregates and are no direct sign that it is specifically employees of educational institutions, young adults and African Americans who are voting so one-sidedly for a single party. To know for certain requires individual level observations. Surely it is clear, though, that the areas where these populations are settled are not politically competitive between the parties.

These population groups may seem small in Wisconsin, including only a small fraction of the total wards in the state. If even a small number of them are excluded from the overall statewide vote, however, the remaining wards tip predictably more Republican than the state did as a whole in the reported elections (see Table 3). For example, in the 2014 vote for the three state cabinet level offices, Republicans cast 51.1%. With the small number of votes from high education employment districts excluded, Republicans would have won 52.3%. With the youth-heavy wards excluded, 51.7%, and with African American wards excluded, 52%. Shifts of this size may not seem impressive at first glance, but the number of wards included in the educational employment grouping is less than 2 percent of wards in the state. Excluding this small subset from the map moved the Republican percentage up by more than a full point.

To summarize, the sensitivity of these figures indicates that collecting even a *small number* of these wards (and their voters) together to preserve them as

communities of interest will be inconsistent with the goal of producing a close match between vote totals and Assembly seats, and will contribute instead to the construction of a Republican Assembly majority.

Finally, we see in these examples that the Republican inclination of Wisconsin outside of its most urban areas is not only the consequence of the dense settlement of African Americans in Milwaukee, but also the result of the dense settlement of other loyally Democratic constituencies, including those in particular economic sectors and sharing particular ideologies. Their choice to live in specific communities in which they enjoy substantial social support for their viewpoints, and elect congenial state legislators by very safe margins, removes them as a group from having greater influence in areas lying outside those environs that they then complain are politically different from them.

On the Republican Bias of Professor Chen's Maps

The report for the plaintiffs authored by the plaintiffs' expert, Professor Chen, offers its own convincing testimony of the modest Republican gradient in Wisconsin's politics. While the method of drawing simulated maps from a distribution of unknown shape and size has been called into question (Cho and Liu 2016; 2018), this fundamental critique can be set aside for purposes of examining the Simulated Plan 43995 put forward by the plaintiffs.

Specifically, Professor Chen produced over 9,400 individual redistricting plans with specific parameters in mind as described in his report (Chen 2018, 4-6). Using an adjusted composite of '04-'10 statewide election results, Professor Chen

identified each plan's "efficiency gap" (Chen 2018, 8-9). The distribution of the efficiency gap for the simulated plans is shown below in Figure 6.

By far the most noteworthy aspect of this graphing of the efficiency gap scores of the simulated plans is that most of these plans show an efficiency gap in a decidedly positive range, with values above zero, indicating that they are distributed in a markedly Republican direction, i.e., the Republican legislative seat share exceeding the vote share. Specifically, with a mean=0.057 (stdev=0.021; median=0.057) the average simulated plan the plaintiffs have produced shows a nearly 6 point efficiency gap.

Second, to find a map sufficiently appealing, the plaintiffs had to go way out in the far left tail of the distribution to locate one that had the suitable properties – more than two standard deviations away. Chen's Simulated Plan (Simulated Map 43995) comes from the approximate vicinity in the distribution marked by the red arrow. The particular point where that plan is situated is well away from the mean and the median of the distribution. How far away? Straightforward calculations show that the efficiency gap score of 0.00485 is about 2.5 standard deviations below the mean map of 0.057. The conclusion to be drawn is that this map is clearly an outlier, an unusual case, not typical of what such automated programs would draw for Wisconsin based on the plaintiffs' own inputs.

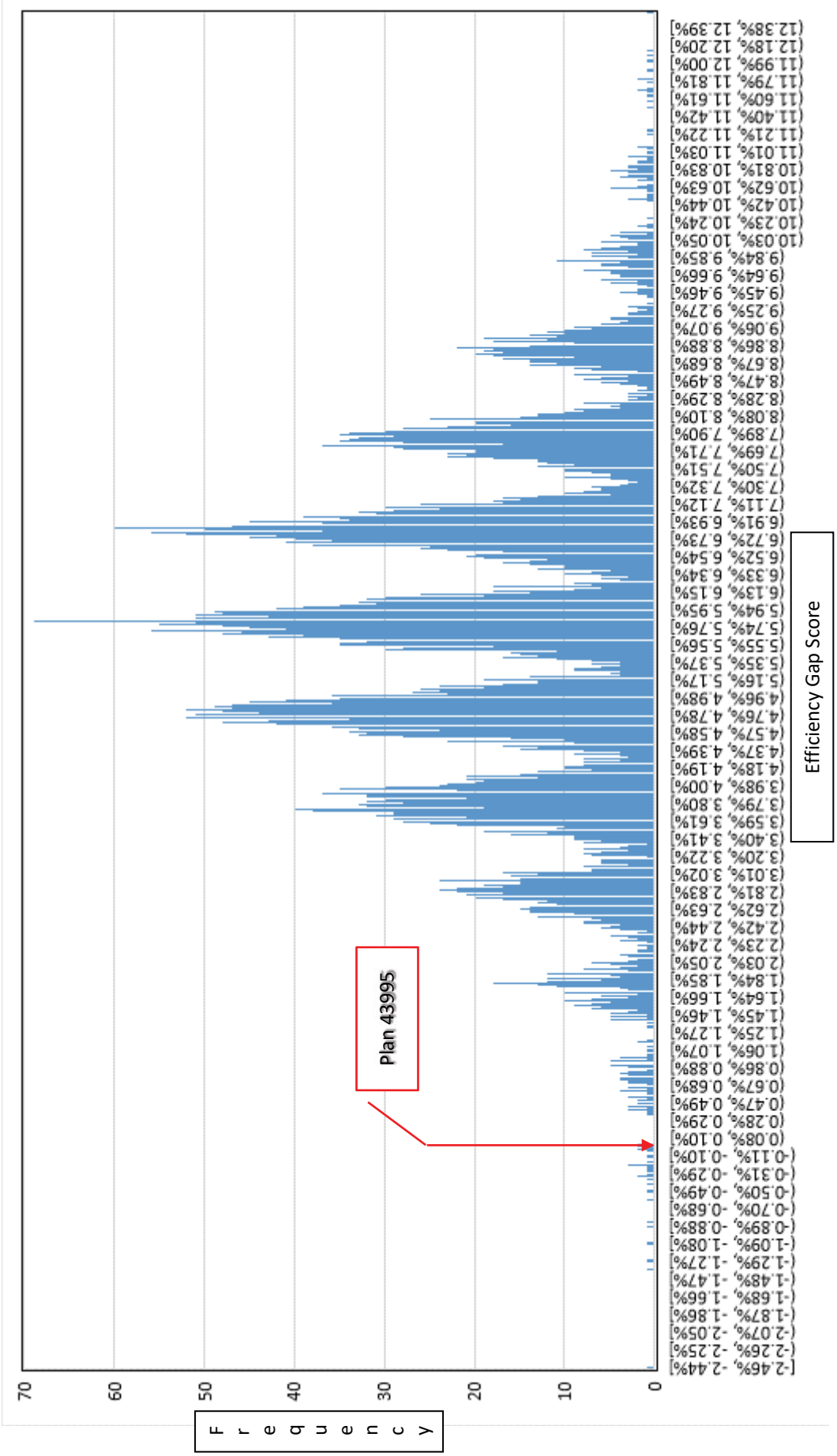


Figure 6. Graphed Distribution of the Efficiency Gap Scores of Simulated Legislative Redistricting Plans Produced by Plaintiffs

Source: Chen backup: WI_split_v6_july25.xlsx

Even if we set aside the criticism of this methodology as statistically unjustifiable, it has produced a distribution of alternative state legislative redistricting plans for Wisconsin that lean in a Republican direction. The resultant distribution is so Republican, in fact, that to find a desirable plan the plaintiffs had to reach 2.5 standard deviations below its mean to choose one to advance.

Features and Characteristics of Chen's Simulated Plan

Examining Chen's Simulated Plan (Simulated Map 43995) for the Badger State raises a number of questions and presents a litany of concerns. First, there is the disregard for core retention as a redistricting value. For a state legislature, core retention is among the most important priorities as it bears on the continuity of the relationship between the represented and representative. But Chen's Simulated Plan starts with a blank slate, paying no attention to the boundaries of the court drawn 2002 plan.

The districts in Chen's Simulated Plan are even completely renumbered, making it difficult to identify how the new plan's districts could match up to the previously established districts to evaluate core retention. One can use geographic information systems software to make approximate matches between the 2002 districts and the Chen Simulated Plan districts, though this is an imprecise project because given the novel enumeration of districts, it is very difficult to gauge the number of orphaned voters resulting from the altered boundaries. Yet core retention is a common metric that every serious redistricting plan has to consider as it moves toward completion. Act 43's core retention figure is calculated at 67

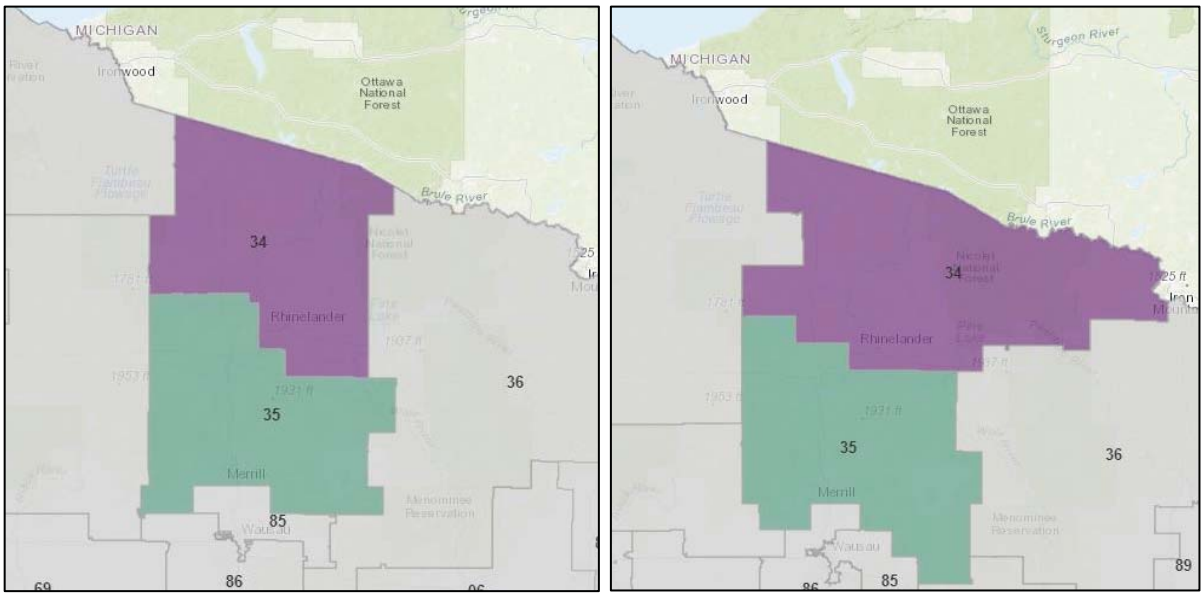
percent overall, while Professor Chen's simulated plan has core retention of approximately 60 percent overall. (See Appendix A-B (reports summarizing the core retention figures for Act 43 and Professor Chen's Simulated Map 43995)).

Certainly one district where Chen's Simulated Map ignores the convention that redistricting should begin with the previous districts in mind is in northeastern Wisconsin, above Green Bay, a region commonly described as the "Northwoods." In the Act 43 map, these districts are easily recognizable from the court drawn 2002 plan, with high core retention, and an obvious congruence across redistricting cycles, as shown in Figure 7.

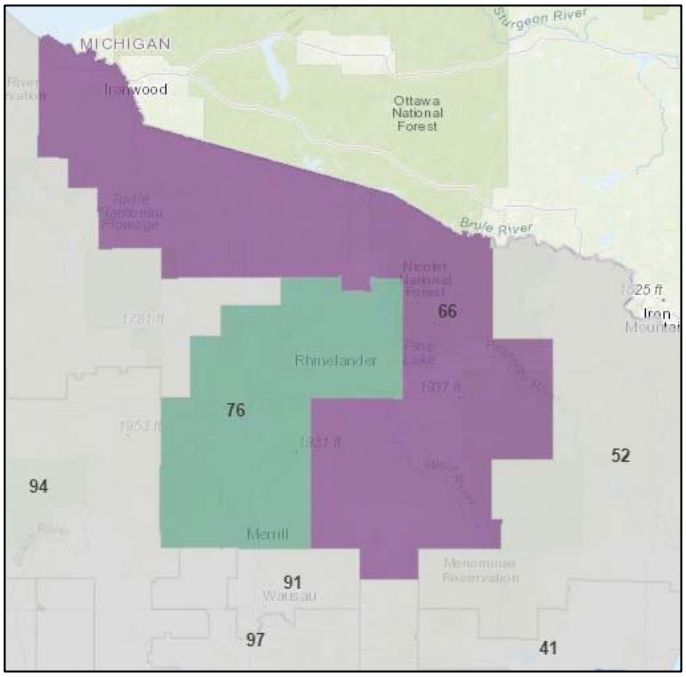
The plaintiffs' plan gives no respect to the previous boundaries, particularly in the drawing of their District 66, which extends all the way to Lake Superior (see Figure 5). From the town of Gurney (zip code 54559), at the far northwest edge of this District to the town of Antigo lying at the southern extremity (zip code 54409) is 144 miles (estimated 2 hour, 40 minute drive). For those more familiar with down state distances, that's equivalent to driving from Racine to Green Bay, or from Madison to LaCrosse. Though all districts drawn in this region will be geographically expansive due to sparse settlement, Act 43 Districts are visibly and measurably more compact (Polsby-Popper Score for plaintiffs' plan for District 66=0.22 (Chen 2018); for Act 43 District 34=0.31; District 35=0.45; District 36=0.32 (Compactness Report on Act 43)).

Beyond the distance comparisons which suggest a disregard for compact shape, there is a more serious community of interest problem in District 66 in

Figure 7. The Iron County communities which make up the northernmost settlements of this district are combined with small communities in southern Langlade County. No sensible highway route directly connects these communities – a seldom traveled path is required to travel from one end to the other. The communities in Iron County will associate with Lake Superior cities, chiefly Ashland, while the communities in Langlade will orbit the larger towns of Antigo, Merrill or even Wausau for commerce and employment.



(A) **(B)**



(C)

Figure 7. Northwoods Region Legislative Districts in the 2002 Plan (A), the Act 43 Plan (B) and Chen's Simulated Plan (C).

In addition, there is no discernible accounting in Chen's Simulated Plan for the senate districts and their incumbents. First, the districts are not nested, which runs contrary to Wisconsin law. Second, as discussed below, there is at least one other instance of paired incumbents in the Assembly, an outcome that the simulation parameters were supposed to rule out (See Figure 10 below). There are likely several more, but because Plan 43995 lacks proper enumeration of senate districts, the extent of Senate pairings is obscured. Since avoiding pairings is a consideration that Professor Chen admits is a valid criterion by including pairings in his limitations on possible simulated plans (Chen Report at 6), this oversight is significant. Third, senate district compactness, core retention, staggered-term disenfranchisement (that is, when a voter is moved from one senate district to another and therefore misses a senatorial election cycle), population deviation, or any other criteria cannot be evaluated on the simulated plan.

There are important communities of interest that are ignored in Chen's Simulated Plan. For instance, the state's Act 43 map retained five majority African American districts setting them at the 60 percent threshold (see Table 3). That threshold was not arbitrarily determined but rested on the foundation of the precedent maps of 2002 and 1992 (see Table 4.)

The plaintiffs' proposed plan drops those percentages considerably to a range where the election of an African American legislator is uncertain, particularly under circumstances of low turnout (see Table 5).

Finally, one African American legislator, Tamara Grigsby, is drawn out of her district by Chen's Simulated Plan, as she is moved from a 63 percent African American district with a core constituency in the city of Milwaukee to a 12 percent one with a core outside the city (see Table 6).

Table 4. Estimated African American Black Voting Age Percentage in VRA Districts Under Recent Wisconsin Redistricting Maps

Assembly District	1992 Court BVAP	2002 Court BVAP	Act 43 BVAP
10	58.7%	67.1%	61.79%
11	60.2%	62.9%	61.94%
12	[18.3%]	[32.8%]	51.48%
16	58.3%	60.5%	61.34%
17	59.7%	61.9%	61.33%
18	59.0%	56.7%	60.43%

Source: *Baldus v. Brennan*, 2:11-cv-00562-JPS-DPW-RMD (E.D. Wis.), Joint Pretrial Report Exh. A, Dkt # 158, Tables 6 and 7.

Table 5. Comparison of Black Voting Age Percentage in Plaintiffs' Simulated Map 43995 and Wisconsin Act 43

43995 Assembly District	Chen BVAP	Act 43 Assembly District	Act 43 BVAP
46	69.09%	11	61.94%
3	59.23%	10	61.74%
47	54.56%	16	61.34%
18	54.25%	17	61.33%
25	51.88%	18	60.43%
72	50.12%	12	51.48%

Source: *Baldus v. Brennan*, 2:11-cv-00562-JPS-DPW-RMD (E.D. Wis.), Joint Pretrial Report Exh. A, Dkt # 158, Tables 6 & 7. For data on 43995, see Expert Report of Jowei Chen (October 15, 2018).

Table 6. Core Retention Under Alternative Plans for African American Incumbents in Wisconsin VRA Assembly Districts

2011 Incumbent	2002 District	2011 District	43995 District	Incumbent's BVAP Under Act 43	Incumbent's BVAP Under Chen 43995	Incumbent's Core Retention Under Act 43	Incumbent's Core Retention Under Chen 43995
Elizabeth Coggs	10	10	46	61.79%	69.09%	66.34%	57.12%
Jason Fields	11	11	25	61.94%	51.88%	47.81%	21.57%
Leon Young	16	16	47	61.34%	54.56%	68.62%	39.74%
Barbara Toles	17	17	3*	61.33%	59.23%	61.42%	50.75%
Tamara Grigsby	18	18	40	60.43%	12.03%	59.14%	17.97%

*Barbara Toles is paired with David Cullen in Chen simulation 43995 (AD 03)

Source: *Baldus v. Brennan*, 2:11-cv-00562-JPS-DPW-RMD (E.D. Wis.), Joint Pretrial Report Exh. A, Dkt # 158, Tables 6 & 7. For data on 43995, see Expert Report of Jowei Chen (October 15, 2018)

With respect to contiguity, one concern that appears in Chen's Simulated Plan is that there is at least one noncontiguous district, District 28, in Dane County. This noncontiguity is not a problem caused by following a discontinuous municipal boundary. (See Figure 8).

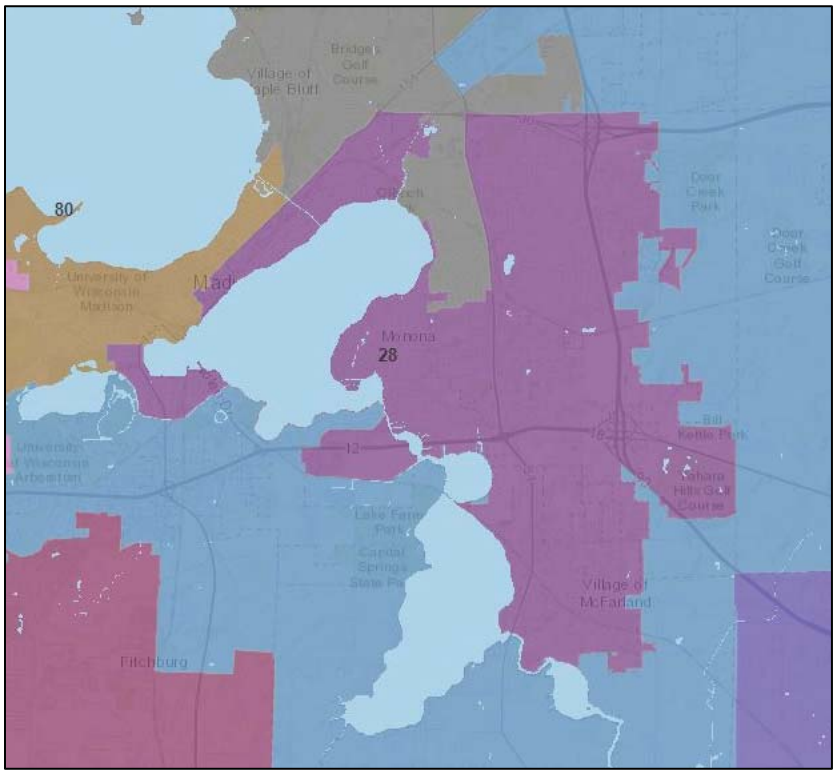
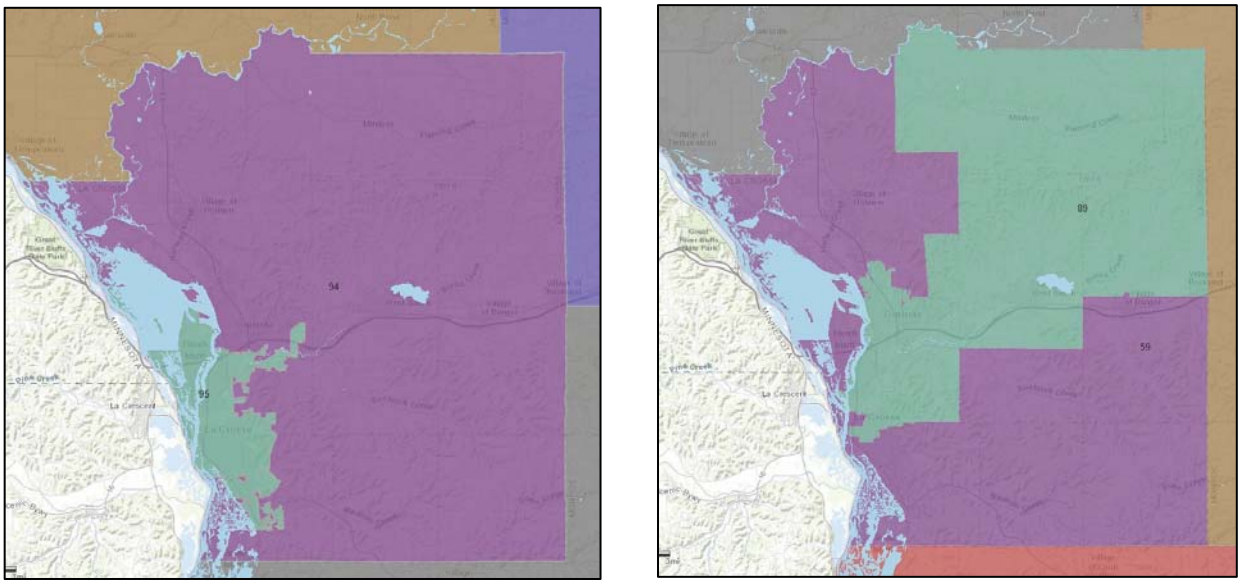


Figure 8. Dane County District 28, Chen's Simulated Plan 43995.

Sometimes the plaintiffs propose a cure that is worse than whatever real or imagined ailment that it is intended to remedy. An example of this is in LaCrosse County, lying along the Minnesota border (see Figure 9). At this location, Chen's Simulated Plan cuts deeply into the city of LaCrosse whereas the Act 43 plan keeps the city largely in one piece (Figure 9).



(A) (B)

Figure 9. LaCrosse, Wisconsin, Area Legislative Districts in Act 43 (A) and Chen's Simulated Plan (B).

Ostensibly Chen's Simulated Plan is designed to rectify what the plaintiffs' reports describe as cracking the county, but the Act 43 district that is most affected (District 95) has been consistently represented by a Democratic legislator. Whatever "cracking" has taken place in Act 43 is surely not in service of shoring up the Republican legislative majority.

In the area of the Racine County – Milwaukee County border, Chen's Simulated Plan splits a county boundary that has long been respected in the creation of its District 23. Note that in Figure 10A and 10B, District 21 stops at the county border and changes in only minor ways between the two plans.

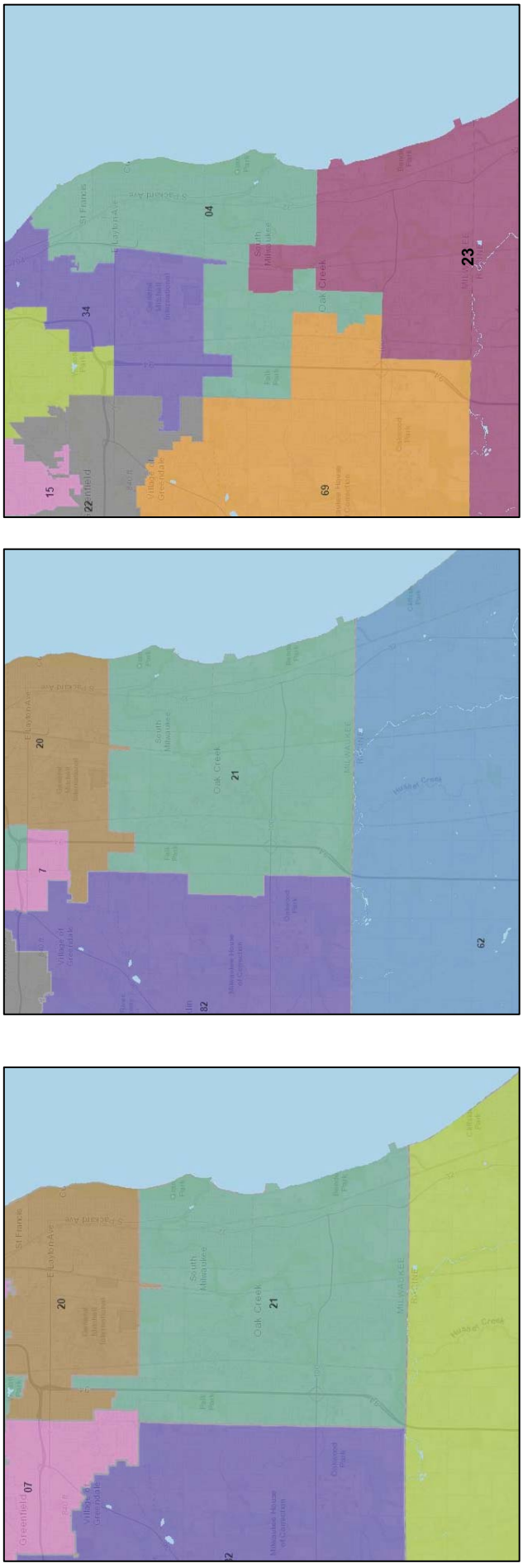


Figure 10. Racine County – Milwaukee County Border Area in 2002 Plan (A); the Act 43 Plan (B); and Chen's Simulated Plan (C)

In the plaintiffs' plan, District 23 (bottom of Figure 10C) breaks through that boundary and extends to the city of Racine while cracking Republican neighborhoods lying to the west. The resultant District 23 is less compact that the previous District 21 (Polsby-Popper Score=0.41, compared with Act 43, District 21=0.51). Compactness and the legal requirement that counties should be preserved whole are both sacrificed in service of creating a competitive district. This is a clear example of where plaintiffs gerrymander and disregard traditional boundary lines in search of partisan balance. State mapmakers do not view this tradeoff as superior to the choices they had to weigh in producing the Act 43 map. (See Appendix A (reporting core retention of ~97 percent for Assembly district 21 under Act 43) vs. Appendix B (reporting core retention of ~52 percent for Assembly district 4 under Chen's Simulated Plan)).

One more example will serve to illustrate a deficiency in Chen's simulated plan: the pairing of senate incumbents in a single assembly district. An instance of this occurs in Assembly District 53 of the plaintiffs' plan in Brown County (Green Bay area). The residential addresses of the Senate incumbents at the time (2011) are identified in Figure 11, with the plaintiffs' proposed Assembly boundaries shown in red. Two incumbents, Robert Cowles and Frank Lasee, are situated within the same district (see Figure 11).[1] Although it might be convenient to ignore

[1] This is not the only problem with incumbents that Chen has in his report. Chen reports that Assembly Districts 60, 83, and 94 were vacant as of November 2012. (Chen, 2018, Table 9). But these seats were filled in special elections held on May 3, 2011. WI Elections Commission. Chen's Simulated Plan 43995 pairs two of these members – Representative Stroebel and Craig, both

the nesting requirement in Wisconsin law, this was not a liberty that the state's mapmakers could take. The constraints imposed by the manifold redistricting criteria force difficult choices and maps inevitably wind up reflecting the limitations imposed by law and tradition. The plaintiffs' plan provides abundant demonstrations of the kinds of defects and shortcomings that show up when some values are prioritized and others are ignored. In this case, the problem emerges as a result of disregarding the constitutional relationship between the senate districts and the assembly districts.

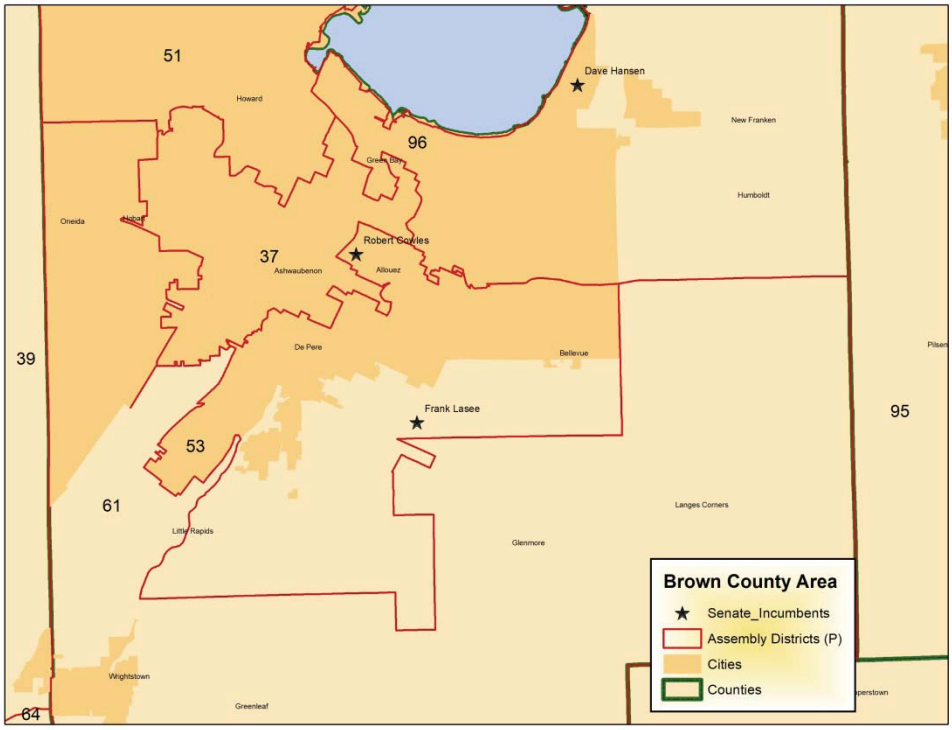


Figure 11. Example of Paired Senate Incumbents in the Assembly District 53 in Chen's Simulated Plan

Republicans, thereby increasing the total number of pairings on his plan to 22. (See Appendix C (Chen Simulated Plan 43995 Incumbent Pairing Report).)

The Plaintiffs' Plan and Estimation of Party Leaning

In other states, concrete sources of voters' fundamental political predispositions might be present, such as political party registration. But since there is no registration by party in the Badger State, plaintiffs have attempted to estimate voters' partisan leaning by analyzing the record of votes cast for major party candidates. Numbers and percentages tabulated from elections are used by plaintiffs to calculate a city, county or district's political bent. Assessments of the partisan bias, competitiveness and fairness of districts depend largely on the particular elections that are used as inputs. Drafters of the Act 43 plan used a set of elections running from 2004 to 2010: the general elections for president, governor, state cabinet offices (Attorney General, Treasurer and Secretary of State), and U.S. Senate. Importantly, these elections were all statewide contests, so that all Wisconsin voters had the same choice of candidates on the ballot. The average of the aggregated Republican and Democratic votes across all of these elections is labeled a "composite" score. A summary of the drafters' work product is cited in Professor Chen's report as Plaintiffs' Trial Exhibit 172.

Apparently, however, there was an error in the data state mapmakers used to produce the Act 43 map. (Whitford v. Gill Adam Foltz trial testimony p. 124:13-125:1; 129:11-132:3). New data are available and were used in the data set Professor Chen used to calculate his raw averages. Professor Chen indicates that the average district level vote share in the 2004-2010 composite score with the correct election data was 46.78% (Chen 2018, 3). The errant figure from the

original data was 48.58%, a difference of 1.8%. Seeing this difference, Professor Chen then adds 1.8 to the district vote totals for each Act 43 district, applying a uniform swing of +1.8%, which he then refers to as the "Chen Composite Measure' (Chen 2018, 3).

This uniform addition of +1.8 to every district's original Act 43 percentage is a puzzling move. It does not make his composite score equal to the original data that mapmakers utilized. More significantly, it has the effect of reintroducing the erroneous election data into Chen's estimate of the underlying political commitments of voters.

Probably the most obvious error that emerges from the uniform application of the +1.8 adjustment is that it causes the plaintiffs' expert to misidentify eight assembly districts as Republican leaning that are actually Democratic leaning under a 2004-2010 composite, which will certainly matter whenever seat shares are compared to vote shares. Reality is misconstrued with the adjustment. To be sure, the Act 43 drafters appear to have misperceived reality as well. But the correct data are now available to everyone, and so too are post-Act 43 election data. To analyze whether there is real injury to the plaintiffs' interests, the use of the actual election results is essential.

An additional problem with Professor Chen's composite measure is that it ignores the fact that the political commitments of voters do change over time. To the extent composites are a reliable indicator of voters' political commitments, using a composite measure of 2012-2016 election results for the same offices included in

the 2004-2010 data provides a more recent estimate of these fluctuating commitments. Although these obviously would not have been available to the state's mapmakers in 2011, they are more faithful to the reality of Wisconsin's partisanship as it has developed post-Act 43, serving as a check on predictions made from older data that have turned out to be incorrect. District scores for Act 43 and the Chen Simulated Plan are shown in the Appendix using both the 2004-2010 composite measure (with unadjusted data) and the 2012-2016 composite measure (See Appendix D-E).[2] These demonstrate that the political behavior of the districts as identified in the composite measure changes considerably depending on whether one uses data from this decade or the previous decade. Sometimes that change is substantial, and might change inferences and conclusions drawn from it.

Depending on the data that is used to express the normal vote, the Efficiency Gap changes significantly on the Chen Simulated Plan 43995. The raw 2004-2010 results shows that the Chen map has a significant democratic lean, which is to be expected given its placement on the histogram (Figure 6).

But when using a 2012-2016 composite or using the most recent Presidential election, the Chen Simulated Plan 43995 has an indisputably Republican efficiency gap (See Table 7).

[2] Note that in Appendix B, C, E and F, district 98 as displayed is Professor Chen's District E8 and District 99 as displayed is Chen's District E9.

Table 7. Efficiency Gap For Selected Elections 2004-2012, and 2012-2016, and 2016 President for Plan 43995

Elections	EG Score
2004-2010	-4.81
2012-2016	7.54
President 2016	8.91

Note: Scores in a positive direction favor Republicans
For calculation of efficiency gap, see: Stephanopoulos and McGhee 2015

Recent election results also show that even the Simulated Plan, which was originally a Democratic leaning outlier, would likely have produced sizable Republican majorities later (see Appendix F-G).[3]

Post Act 43: What Do Recent Elections Show?

Recent developments suggest that many claims about the deep and endless entrenchment of Republican leadership in certain districts are greatly exaggerated. U.S. Senator Tammy Baldwin, a Democrat, showed considerable skill and capacity to win in supposedly hopeless districts, though her race was still considered competitive. Across all 99 districts she outperformed the victorious Democratic gubernatorial candidate (Tony Evers) by an average of 4.8 percent. Senator Baldwin won clear-cut majorities in no fewer than 19 Act 43 Districts in which Republican legislators won assembly seats (see Appendix G). In these districts

[3] The 2018 election results in Appendix G are from data compiled by John D. Johnson. At the time I prepared this report, official ward-by-ward election results were unavailable. It has come to my attention that the Wisconsin Election Commission posted those results on December 14. I expect to supplement my analysis with these results.

where Baldwin won substantial support, the plaintiffs' complaint that somehow they are drawn in such a way (e.g., "cracked") that Democratic victories are impossible ring hollow.

There are many more ingredients to a candidate's success than how district boundaries are drawn, and the Baldwin candidacy demonstrates this fact. Other cases also amplify the point. About 35 Republican assembly candidates outperformed incumbent Governor Scott Walker in 2018 (not including those who ran unopposed), and this variability in performance at the polls suggests that candidate qualities make an important difference. Though these victories may be chalked up to incumbency advantage, the sources of incumbent popularity and high reelection rates go well beyond how voters are drawn into districts (Carey, Niemi and Powell 2000; Carsey, Winburn and Berry 2017). Democrats' dire predictions about how the Act 43 map is slanted against them underestimates their chances of winning with greater attention to candidate recruitment and nomination. In Assembly District 1, situated on the Door Peninsula, Senator Baldwin won by a narrow margin, but the Democrats didn't find anyone to run for the assembly seat.

On the other hand, it should be recognized by now that no mapping of legislative districts will always ensure that an incumbent will draw a challenger. Electoral performance turns out to be variable, the consequence of manifold forces not yet entirely understood by social science. In every general election, experienced state legislators all over the country prove their ability to outperform their copartisans at the top of the ticket. Reformers upset by long-term incumbency

would be far better served by pursuing policy changes focused on reducing the lopsided resource advantages officeholders have traditionally held over challengers. Given the myriad constraints that already govern redistricting there is far less discretion and political will behind map drafting than reformers have come to believe. Shifting around the priority of values in redistricting may produce some marginal changes, perhaps, but there is still no perfect map, insulated from challenge.

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30 James G. Gimpel, Joshua J. Dyck and Daron R. Shaw. 2006. "Location, Knowledge and Time Pressures in the Spatial Structure of Convenience Voting." *Electoral Studies* 25: 1: 35-58.

31 James G. Gimpel and Joshua J. Duck. 2005. "Distance, Turnout and the Convenience of Voting." *Social Science Quarterly* 86: 3: 531-548.

32 James G. Gimpel, Joshua J. Dyck and Daron R. Shaw. 2004. "Registrants, Voters and Turnout Variability Across Neighborhoods." *Political Behavior* 26:4: 343-375.

33 Wendy K. Cho and James G. Gimpel. 2004. "The Persistence of White Ethnicity in New England Politics," *Political Geography* 23: 8: 821-832.

34 James G. Gimpel, Irwin L. Morris and David R. Armstrong. 2004. "Turnout and the Local Age Distribution: Examining Political Participation Across Space and Time." *Political Geography* 23:1: 71-95

35 James G. Gimpel and Jason E. Schuknecht. 2003. "Political Participation and the Accessibility of the Ballot Box." *Political Geography* 22: 4: 471-488.

36 Karen M. Kaufmann, James G. Gimpel and Adam Hoffmann. 2003. "A Promise Fulfilled? Open Primaries and Representation." *Journal of Politics* 65: 2: 457-476.

Articles in Peer Reviewed Journals (cont'd.):

37 James G. Gimpel and Jason E. Schuknecht. 2002. "Reconsidering Regionalism in American State Politics." *State Politics and Policy Quarterly* 2: 4: 325-352.

38 James G. Gimpel and Jason E. Schuknecht 2002. "Political and Demographic Foundations for Sectionalism in State Politics: the Connecticut Case." *American Politics Research* 30: 2: 193-213.

39 James G. Gimpel and Jason E. Schuknecht 2001. "Interstate Migration and Electoral Politics," *Journal of Politics* 62:1: 207-231.

40 Peter F. Burns and James G. Gimpel. 2000. "Prejudice, Economic Insecurity, and Immigration Policy," *Political Science Quarterly* 115: 2 (2000) 201-225

41 James G. Gimpel. "Contemplating Congruence in State Party Systems," 1999. American Politics Quarterly 27: 1 (1999) 133-140.

42 James G. Gimpel and Robin M. Wolpert. 1998. "Self-Interest, Symbolic Politics and Attitudes Toward Gun Control," *Political Behavior* 20:3: 241-262.

43 James G. Gimpel. 1998. "Packing Heat at the Polls: Gun Ownership as a Politically Salient Trait in State and National Elections," *Social Science Quarterly* 79:3: 634-648.

44 James G. Gimpel and Robin M. Wolpert. 1997. "Information, Recall and Accountability: The Electorate's Response to the Clarence Thomas Nomination," *Legislative Studies Quarterly* 22:4: 515-525.

45 Kathryn M. Doherty and James G. Gimpel. 1997. "Candidate Character vs. the Economy in the 1992 Election," *Political Behavior* 19:3: 213-222.

46 James G. Gimpel and Diane Hollern Harvey. 1997. "Forecasts and Preferences in the 1992 Presidential Election," *Political Behavior* 19:2: 157-175.

47 James G. Gimpel and Robin M. Wolpert. 1996. "Opinion-Holding and Public Attitudes Toward Controversial Supreme Court Nominees." *Political Research Quarterly* 49: 1: 163-176.

48 James G. Gimpel and Robin M. Wolpert. 1995. "Rationalizing Support and Opposition to Supreme Court Nominations: The Role of Credentials." *Polity* 28: 1: 67-82.

49 James G. Gimpel and Lewis S. Ringle. 1995. "Understanding Court Nominee Evaluation and Approval: Mass Opinion in the Bork and Thomas Cases." *Political Behavior* 17: 1: 135-153.

50 Paul S. Herrnson and James G. Gimpel. 1995. "District Conditions and Primary Divisiveness in Congressional Elections." *Political Research Quarterly* 48: 1: 117-134.

51 James G. Gimpel. 1993. "Reform-Resistant and Reform-Adopting Machines: The Electoral Foundations of Urban Politics 1910-1930," *Political Research Quarterly* 46: 2: 371-382.

Chapters in Edited Books:

1 James G. Gimpel. 2018. "Sampling for Studying Context: Traditional Surveys and New Directions." in R. Michael Alvarez and Lonna Atkeson, eds. *Oxford Handbook of Polling and Polling Methods*. (New York, NY: Oxford University Press).

2 James G. Gimpel. 2013. "State Politics and Political Culture." in Joshua J. Dyck and Richard G. Niemi, eds. *Guide to State Politics and Policy*. (Washington, DC: CQ Press)

Chapters in Edited Books (cont'd):

3 James G. Gimpel and Shanna Pearson-Merkowitz. 2009. "Political Socialization and Religion." in Corwin Smidt, ed. *Oxford Handbook of Religion and Politics* (New York: Oxford University Press).

4 James G. Gimpel and Shanna Pearson-Merkowitz. 2009. "Policies for Civic Engagement Beyond the Schoolyard." in Peter Levine and James Youniss, eds. *Engaging Young People in Civic Life*. (Nashville, TN: Vanderbilt University Press).

5 James G. Gimpel and Kimberly A. Karnes. 2007. "The Rural-Urban Gap in American Electoral Politics." in Laura Olson and John C. Green, eds. Beyond Red State, Blue State: Voting Gaps in American Politics (Upper Saddle River, NJ: Prentice Hall).

6 James G. Gimpel and Frances E. Lee. 2006. "The Geography of Electioneering: Campaigning for Votes and Campaigning for Money." in John Samples and Michael McDonald, eds. *The Marketplace of Democracy: Electoral Competition and American Politics* (Washington, DC: Brookings Institution Press).

7 James G. Gimpel and J. Celeste Lay. 2005. "Political Environments and the Acquisition of Partisanship." in Alan Zuckerman, ed. *The Social Logic of Politics* (Philadelphia, PA: Temple University Press).

8 James G. Gimpel and Joshua J. Dyck. 2004. "The Politics of Election Reform in Maryland." in Daniel Palazzolo and James W. Ceasar, eds. *Election Reform: Politics and Policy* (Lanham, MD: Lexington Books).

9 James G. Gimpel and Robin M. Wolpert. 1998. "The Structure of Public Support for Gun Control: The 1988 Battle Over Question 3 in Maryland," in John Bruce and Clyde Wilcox (eds.) *The Changing Politics of Gun Control* (Lanham, MD: Rowman & Littlefield).

10 James G. Gimpel. 1998. "Equilibrium Cycles in Grassroots Mobilization and Access," in Paul S. Herrnson, Ronald Shaiko and Clyde Wilcox (eds.) *The Interest Group Connection* (Chatham, NJ: Chatham House).

11 James G. Gimpel. 1994. "The Rise and Demise of a Lead PAC," in Robert Biersack, Paul S. Herrnson and Clyde Wilcox (eds.) *Risky Business: PAC Decisionmaking and Strategy in 1992.* (Armonk, NY: M.E. Sharpe). 56-62.

12 James G. Gimpel. 1993. "Congress and the Coordination of Public Assistance," in Edward T. Jennings and Neal Zank (eds.) *Welfare System Reform*. (Westport, CT: Greenwood Press). 33-42.

Grants and Awards:

- Hoover Institution, National Fellowship 2012-2013.
- Knight Foundation Grant, 2007-2011, $60,000 (by contract via D. Chinni).
- CIRCLE via The Pew Charitable Trusts, 2004-2005, $35,000.
- CIRCLE via The Pew Charitable Trusts, 2002-2003, $33,000.
- Ahmanson Community Trust Foundation, 2001-2003, $100,000.
- William T. Grant Foundation Research Grant, 2001-2003, $102,000.
- John M. Olin Foundation Policy Studies Grant, 1998, $30,000.
- Visiting Fellow, Congress Assessment Project, Washington, DC, 1995, $7,000.
- Summer Research Award, Graduate Research Board, University of Maryland, 1995, $4,500.
- University of Chicago Graduate Fellowship, 1986-1990.

Magazine Articles, Opinion Editorials, Book Reviews:

- James G. Gimpel. 2017. "Immigration Policy Opinion and the 2016 Presidential Vote: Issue Relevance in the Trump-Clinton Election." Washington, DC: Center for Immigration Studies.
- James G. Gimpel. 2016. "Immigration Opinion and the Rise of Donald Trump." Washington, DC: Center for Immigration Studies.
- James G. Gimpel. 2015. "Where are the Working Class Republicans and Is There Something the Matter with Them?" *Extensions*: A Journal of the Carl Albert Congressional Research and Studies Center (Winter): 6-11.
- James G. Gimpel. 2014. "Immigration's Impact on Republican Political Prospects, 1980 to 2012." Washington, DC: Center for Immigration Studies.
- James G. Gimpel. 2011. "Latino Voting in 2010: Partisanship, Immigration Policy and the Tea Party." Washington, DC: Center for Immigration Studies.
- Dante Chinni and James G. Gimpel. 2011. "The 12 States of America." *The Atlantic Monthly*. 307: 3 (April): 70-81.
- James G. Gimpel. 2010. "Immigration, Political Realignment, and the Demise of Republican Political Prospects.". Washington, DC: Center for Immigration Studies.
- Wendy K. Cho and James G. Gimpel. 2009. " Presidential Voting and the Local Variability of Economic Hardship." *The Forum*. 7: 1: 1-24.
- James G. Gimpel. 2009. "Latino Voting in the 2008 Election: Part of a Broader Electoral Movement." Washington, DC: Center for Immigration Studies.
- Wendy K. Cho and James G. Gimpel. 2008. "A Political Powerhouse in Search of a Home." with Wendy K. Cho. *Asian American Policy Review*. 17: 155-161.
- James G. Gimpel. 2007. "Etats-Unis Election Présidentielle: Le Dessous des Cartes," *Alternatives Internationionales*. December. 10-14.
- Wendy K. Cho and James G. Gimpel. "Pay Attention to Asian American Voters." *Politico*. May 28, 2007 Opinion-Editorial posted on-line at http://www.politico.com/news/stories/0507/4213.html
- Morris, F., and James G. Gimpel. 2007. "Immigration, Intergroup conflict, and the Erosion of African American Political Power in the 21st Century." Washington, DC: Center for Immigration Studies.
- James G. Gimpel and Kimberly A. Karnes. 2006. "The Rural Side of the Urban-Rural Gap." *P.S.: Political Science & Politics* 39: 3: 467-472.
- James G. Gimpel. 2004. "The Federalism Flip-Flop: Democrats Now Argue for States' Rights." Opinion Editorial in the *Boston Globe*. Sunday, December 19, Political Play.
- James G. Gimpel 2004. "Republicans and the Politics of the Latino Vote: Losing Ground or Staying Even? Washington, DC: Center for Immigration Studies.
- Wendy K. Cho and James G. Gimpel. 2004. "Getting out the Asian-Pacific American Vote." *Campaigns & Elections*. (July): 44-45.
- James G. Gimpel. 2003. "Computer Technology and Getting Out the Vote: New Targeting Tools." *Campaigns & Elections* (August): 39-40.
- James G. Gimpel. 2003. Review of Donald Green, Bradley Palmquist and Eric Schickler. *Partisan Hearts and Minds: Political Parties and the Social Identities of Voters*. In APSR's *Perspectives on Politics.* (September):606-607.

Magazine Articles, Opinion Editorials, Book Reviews (continued):

- James G. Gimpel and Jason E. Schuknecht. 2001. "Setting Different Courses: Along the Potomac, A Political and Philosophical Divide," Opinion Editorial in *The Washington Post*. Sunday, January 21, Outlook Section.
- James G. Gimpel and Jason E. Schuknecht. 2000. "We Shall Finally Overcome, By Exposure," Opinion Editorial in *The Baltimore Sun* Wednesday, September 6. p. 17A.
- James G. Gimpel. 2000. Review of George Borjas' *Heaven's Door: Immigration Policy and the American Economy*. In *Political Science Quarterly* 115: 1: (Spring): 145-146.
- James G. Gimpel. 1998. "Maryland's Topsy-Turvy Politics: A Step Up for a Party Coming Back to Life," Opinion Editorial in *The Washington Post*. Sunday, October 17. Outlook Section.
- James G. Gimpel. 1997-98. Review of John Bader's *Taking the Initiative*. In *Political Science Quarterly* 112:4: 692-693.
- James G. Gimpel. 1996. Review of Philip Klinkner's *The Losing Parties*. In *Journal of Politics* 58: 245-246.
- James G. Gimpel. 1992. Review of Ralph Goldman's *The National Party Chairmen and Committees*. In *American Political Science Review* 86: 237-238.
- James G. Gimpel. 1991. Review of Mark Bisnow's *In the Shadow of the Dome*. In *American Political Science Review* 85: 630-631.
- James G. Gimpel. 1991. "Congressional Oversight of Welfare and Work." *Public Welfare* 49: 8-11.

Research in Progress or Under Review:

- James G. Gimpel. 2018. "Voicing Grievances to the Consumer Financial Protection Bureau." Submitted for review.
- James G. Gimpel. 2018. "Redistricting and the Geographic Redistribution of Political Influence." Submitted for review.

Conference Participation (recent):

- James G. Gimpel, Nathan Lovin, Bryant Moy and Andrew Reeves. 2018. "The Emergent Urban-Rural Gulf in American Political Behavior." Paper presented at the Annual Meeting of the Midwest Political Science Association, April 7-9, Chicago, IL.
- James G. Gimpel and Nathan Lovin. 2016. "The Variable Development of Partisanship within the South, 1940-1966." Paper presented at the annual meeting of the American Political Science Association, September 1-4, Philadelphia, PA.
- Kristina Miler, Charles R. Hunt and James G. Gimpel. 2016. "Recruiting the Best Candidate for the Job: Candidate Dyads and Congressional Election Outcomes." Paper presented at the annual meeting of the Midwest Political Science Association, April 8-10, Chicago, IL.
- James G. Gimpel and James Glenn. 2016. "Racial Context as a Stimulus to Campaign Contributing." Paper presented at the annual meeting of the Midwest Political Science Association, April 8-10, Chicago, IL.
- Caroline Carlson, Wendy K. Cho and James G. Gimpel. 2014. "Political Implications of Residential Mobility and Stasis on the Partisan Balance of Locales." Paper presented at the annual meeting of the American Political Science Association, August 28-September 1, Washington, DC.
- James G. Gimpel and Iris Hui. 2013. "Political Evaluations of Neighborhoods and their Desirability: Experimental Evidence." Paper presented at the annual meeting of the American Political Science Association, August 30-September 1. Chicago, IL.

Conference Participation (recent) (continued):

- James G. Gimpel, Frances E. Lee and Michael Parrott. 2012. "Business Interests and the Party Coalitions: Industry Sector Contributions to U.S. Congressional Campaigns," Paper presented at the annual meeting of the Midwest Political Science Association, April 12-15. Chicago, IL.
- Brittany Bramlett and James G. Gimpel. 2011. "Local Age Distributions and Ideological Extremism in American Politics," Paper presented at the annual meeting of the American Political Science Association, September 1-4. Seattle, WA.
- Wendy K. Cho, James G. Gimpel and Daron R. Shaw. 2011. "The Geography of Tea: Strategic Activism or Expressive Protest?" Paper presented at the annual meeting of the Midwest Political Science Association, March 30-April 3. Chicago, IL.
- James G. Gimpel, Frances E. Lee and Rebecca U. Thorpe. 2010. "The Distributive Politics of the Federal Stimulus: The Geography of the ARRA of 2009," Paper presented at the annual meeting of the American Political Science Association, September 1-4. Washington, DC.
- James G. Gimpel and Iris Hui. 2010. "Migration Decisions and Destinations: Evidence for Political Sorting and Mixing," Paper presented at the annual meeting of the Midwest Political Science Association, April 22-22, 2010. Chicago, IL.

Ph.D. Dissertation:

- Field: American Government. Subfield: Political Behavior
- Title: "Competition Without Cohesion: Studies in the Electoral Differentiation of State and National Party Systems."

Committee: Mark Hansen, Henry E. Brady, Gary Orfield, and J. David Greenstone (deceased)

Teaching:

- Courses: Campaigns and Elections; American Voting Behavior; Immigrants and Immigration Policy; State Politics; U.S. Congress; Public Opinion; Statistics; Linear Models; GIS for Social Science Research; Intermediate GIS for Social Science Research; Spatial Statistics.
- Awards: University Excellence in Mentorship and Teaching Award, 1999.
  Panhellenic Association Outstanding Teacher Award, 1994.

Ph.D. Students and Placements:

Michael Parrott, member (APSA Congressional Fellow, 2016)
Stephen Yoder, chair (Government Accountability Office, 2014)
Heather Creek, chair (Pew Research Center, 2013)
Daniel Biggers, member (Yale Post-Doc 2012; moved to tt UC-Riverside, 2014)
Brittany Bramlett, chair (tt Albright College, 2012, moved to non tt Georgia 2014)
Rebecca Thorpe, member (tt University of Washington, 2010 tenured)
Kimberly Karnes, chair (tt Old Dominion, 2010)
Shanna Pearson-Merkowitz, member (tt University of Rhode Island, 2009, tenured)
Laurence O'Rourke, chair (ICF Research 2008)
Joshua Dyck, chair (tt University of Buffalo, 2006 tenured, moved to UM, Lowell, tenured)
Laura Hussey, chair (tt University of Maryland, Baltimore County, 2006 tenured)
Richard Longoria, chair (tt Cameron University, 2006, moved to Texas A&M Brownsville 2014)
Adam Hoffman, member (tt Salisbury University, 2005, tenured)
Regina Gray, member (Department of Housing and Urban Development, 2005)
J. Celeste Lay, chair (tt Tulane University, 2004, tenured)
Atiya Stokes, member (tt Florida State University, 2004, moved to Bucknell, tenured)

Ph.D. Students and Placements (continued):

Thomas Ellington, member (tt Wesleyan College, 2004, tenured)
Timothy Meinke, member (tt Lynchburg College, 2002, tenured)
Jason Schuknecht, chair (Westat research consulting, 2001)
Constance Hill, member (Birmingham Southern College, 2000)
Peter Francia, member (tt East Carolina University, 2000, tenured)
Peter Burns, member (tt Loyola University, New Orleans 1999, tenured)
David Cantor, member (Lake, Snell, Perry research consulting, 1999)
Richard Conley, member (tt University of Florida, 1998, tenured)
Susan Baer, member (tt San Diego State, 1998)
and six others prior to 1998.

Advanced Training:

- Statistical Horizons Workshop on Big Data and Data Mining. University of Pennsylvania Wharton Business School, Philadelphia, PA, April 2013.
- Summer Workshop on Frontiers of Spatial Regression Analysis. Spatial Analysis Laboratory, University of Illinois, Urbana-Champaign, June 2007.
- Summer Workshop on Point Pattern Analysis, Department of Geography, University of California, Santa Barbara, June 2004.
- Summer Workshop on Distance and Accessibility, Department of Geography, Ohio State University, July 2002.
- Summer Statistics Program, ICPSR, University of Michigan, Ann Arbor, Michigan, June 1994.

Service to the Discipline:

- Journal Editor, *American Politics Research*, 2003-2011. During this time, submissions doubled from ~110 per year to over 220 per year; journal submission and operations moved on-line; journal content expanded by 30%; and review times dropped to a mean of 45 total days (sd=17 days).
- Elections and Voting Section Committee to Name Emerging Scholar in American Politics, 2003 and 2007.
- Chair, APSA William Anderson Award Committee to Name the Best Ph.D. Dissertation in State and Local Politics, Federalism and Intergovernmental Relations, 2010.
- Manuscript Reviewer**:** *American Political Science Review; American Journal of Political Science; Journal of Politics; Political Geography; Political Research Quarterly*; *Public Opinion Quarterly*; *Political Psychology*; *American Politics Research; Political Behavior; Urban Affairs Quarterly*; *Social Forces*; Cambridge University Press, Brookings Institution Press, Johns Hopkins University Press; St. Martin's Press; HarperCollins Publishing; Pearson-Longman Publishing; Greenwood Press; University of Pittsburgh Press; SUNY Press; University of Michigan Press
- *PRQ* Outstanding Reviewer Award, 2009-2010

Departmental Committee Service:

- 2003-2010 Promotion and Tenure Committees (Karen Kaufmann, Frances E. Lee (twice), Geoffrey Layman, Linda Faye Williams and Irwin Morris)
- 2001-2009 Faculty Supervisor, Maryland State Government Internship Program.

Departmental Committee Service (continued):

- 2003-2004, 2001-2002; 1998-1999 Faculty Search Committees
- Service includes: Executive Committee; Undergraduate Studies Committee; Graduate Studies Committee; Salary Committee; Conley-Dillon Award Committee; Promotion & Tenure Working Group.

University and College Service:

2015-2017 Advisor to UMD BSOS Dean on College Fundraising and Development
2015-2017 Advisor to UMD Office of Government Relations
2015-2017 Advisor to UMD Office of Institutional Research, Planning and Assessment
2014-2016 Advisor to University Relations Office of Prospect Management and Research
2011-2012 Dean's Committee on GIS and Spatial Analysis in the Social Sciences
2007-2008 Joint Asian American Studies/Public Policy Faculty Search Committee.
2005-2007 Department Representative on UM Faculty Senate
2004-2006 Department Representative on College Promotion and Tenure Committee.
2000-2005 Chair, Behavioral and Social Sciences Curriculum Committee
1999-2001 Behavioral and Social Sciences Academic Council
1997-2000 Faculty Senate Campus Parking Advisory Committee

Research Consulting and Government Work Experience (selected):

- *Head Start XXI Resource Center, Hammond, Indiana.* GIS and Statistical Consultant to this Head Start Program Serving 1,200 clients in Lake and Porter Counties. October 2003-March 2004.
- *Naugatuck Valley Economic Development Commission*. Adviser to this Connecticut economic development agency drafting an EDA report on the local economic impact of defense downsizing and industrial restructuring in the Northeast. January 1998-May 1998.
- *U.S. Department of Housing and Urban Development*. Office of Policy Development and Research. Policy analyst working in the economics division under Assistant Secretary for Policy Development and Research, John Weicher. June 1991-January 1992.

Official Expert Testimony (selected):

- *Baber v. Dunlap;* (December 2018)
- *League of Women Voters v. Commonwealth of Pennsylvania;* December 2017.
- *Agre et al. v. Wolf et al.;* December 2017.
- *Common Cause v. Rucho*; and *League of Women Voters v. Rucho*; consolidated cases; April 2017.
- *Juan Juaregui vs. City of Palmdale, California*; May 2013.
- U.S. House of Representatives, Government Reform Subcommittee on Federalism and the Census, Testimony on Immigration-Induced Reapportionment, December 6, 2005.
- U.S. House of Representatives, Small Business Committee, Testimony on Population Mobility and the Rural Economy, May 20, 1997.
- Maryland Commission to Revise the Election Code, Testimony on Third-Party Voting and Registration, November 1996.

Invited Talks and Speaking Engagements (recent):

- Invited Guest, Parkdale High School, Riverdale Park, Maryland; AP Government Lecture on Campaigns and Elections. November 30, 2017.
- Invited Panelist, American Enterprise Institute, Washington, DC. "Opinion Diversity in the Academy." May 11, 2017.
- Presentation at Washington University, St. Louis. Department of Political Science. "Incidental and Intentional Partisan Residential Sorting." December 1, 2016.
- Presentation at The Maret School, Washington, DC. "Our Patchwork Nation and the 2016 Election." November 9, 2016.
- Presentation at Bowdoin College, Brunswick, ME. "Big Data and the Political Campaign." February 16, 2016.
- Presentation at American University, National Capital Area Political Science Association Workshop. "Business Interests and the Party Coalitions: Industry Sector Contributions to U.S. Congressional Campaigns." January 7, 2013.
- Conference Participant at Hoover Institution, Legal Immigration Policy Roundtable. Stanford University. Palo Alto, California. October 4-5, 2012.
- Presentation at the University of Maryland Libraries, Speaking of Books Series. "Our Patchwork Nation." College Park, Maryland. October 19, 2011.
- Presentation at University of Iowa, Department of Political Science. "Voter Migration and the Geographic Sorting of the American Electorate." Iowa City, IA. September 30, 2011.
- Keynote Address delivered to the Annual Great Plains Political Science Association Convention. "Economic and Political Socialization: Lessons from Rural America for the Rest of the Nation." Brookings, SD. September 24, 2011.
- Presentation at Stanford University, Hoover Institution. "The Geography of Tea: Strategic Activism or Expressive Protest?" May 19, 2011.
- Presentation at the University of California, Los Angeles, Department of Geography. "New Directions in the Geographic Analysis of Contemporary U.S. Politics." April 22, 2011.
- Presentation at the University of Maryland, School of Public Policy. Tuesday Forum. "Economic and Political Socialization across *Our Patchwork Nation*." November 30, 2010.
- Presentation at University of Kentucky, Department of Political Science. "Voter Migration and the Geographic Sorting of the American Electorate." Lexington, KY. December 3, 2010.
- Presentation at Georgetown University, American Politics Workshop. "The Distributive Politics of the Federal Stimulus." Washington, DC. September 24, 2010.
- Presentation at Christopher Newport University, Conference on Civic Education and the Future of American Citizenship. "Political Socialization Inside and Outside the Classroom." Newport News, VA. February 4, 2010.
- Presentation at the Brookings Institution. "Remarks on Joint Brookings/Kenan Center Immigration Roundtable Proposals and Recommendations." Washington, DC. October 6, 2009.

Invited Talks and Speaking Engagements (recent) (continued):

- Presentation at the University at Buffalo, Department of Political Science Seminar Series. "Regional Migration Flows and Partisan Sorting of the American Electorate." Buffalo, NY. April 17, 2009.
- Presentation at the University of Wisconsin, Madison, American Politics Workshop. "Rough Terrain: Spatial Variation in Political Participation." Madison, WI. March 23, 2009.
- Presentation at the University of Texas, Austin, Department of Government. "Immigration and Diversity Attitudes in Rural America." Austin, TX. February 26-27, 2009.
- Presentation at the University of Paris 8, St. Denis. "Political Socialization and Diversity Attitudes." Conference on Immigration and Spatial Concentration in Three Countries. Paris, France. January 15-16, 2009.

APPENDIX A

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
1					
	1	CORE	54,282	94.87	94.87
	2	OTHER	2,938	5.13	
		Other Subtotal	2,938		
		District Total	57,220		
2					
	2	CORE	36,936	64.07	64.07
	4	OTHER	13,160	22.83	
	5	OTHER	4,435	7.69	
	3	OTHER	3,118	5.41	
		Other Subtotal	20,713		
		District Total	57,649		
3					
	3	CORE	54,432	94.76	94.76
	57	OTHER	150	0.26	
	5	OTHER	2,862	4.98	
		Other Subtotal	3,012		
		District Total	57,444		
4					
	4	CORE	29,360	51.07	51.07
	5	OTHER	10,102	17.57	
	90	OTHER	18,024	31.35	
		Other Subtotal	28,126		
		District Total	57,486		
5					
	5	CORE	45,031	78.36	78.36
	90	OTHER	2,558	4.45	
	56	OTHER	3,404	5.92	
	6	OTHER	2,758	4.80	
	3	OTHER	3,719	6.47	
		Other Subtotal	12,439		
		District Total	57,470		
6					
	6	CORE	34,184	59.45	59.45
	89	OTHER	5,929	10.31	
	40	OTHER	10,855	18.88	
	36	OTHER	3,658	6.36	
	86	OTHER	1,689	2.94	
	5	OTHER	1,190	2.07	
		Other Subtotal	23,321		
		District Total	57,505		
7					
	7	CORE	17,750	30.87	30.87

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	13	OTHER	8,799	15.30	
	9	OTHER	8,008	13.93	
	20	OTHER	5,083	8.84	
	21	OTHER	1,361	2.37	
	15	OTHER	16,497	28.69	
		Other Subtotal	39,748		
		District Total	57,498		
8					
	8	CORE	43,733	76.46	76.46
	9	OTHER	11,401	19.93	
	19	OTHER	2,062	3.61	
		Other Subtotal	13,463		
		District Total	57,196		
9					
	9	CORE	38,491	67.19	67.19
	18	OTHER	1,592	2.78	
	8	OTHER	12,385	21.62	
	20	OTHER	4,149	7.24	
	19	OTHER	666	1.16	
		Other Subtotal	18,792		
		District Total	57,283		
10					
	10	CORE	38,095	66.34	66.34
	11	OTHER	6,171	10.75	
	22	OTHER	13,162	22.92	
		Other Subtotal	19,333		
		District Total	57,428		
11					
	11	CORE	27,490	47.81	47.81
	10	OTHER	6,729	11.70	
	22	OTHER	6,534	11.36	
	12	OTHER	16,750	29.13	
		Other Subtotal	30,013		
		District Total	57,503		
12					
	12	CORE	30,052	52.27	52.27
	23	OTHER	14,364	24.98	
	11	OTHER	6,875	11.96	
	17	OTHER	2,227	3.87	
	13	OTHER	3,976	6.92	
		Other Subtotal	27,442		
		District Total	57,494		
13					

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	13	CORE	12,745	22.18	
	14	OTHER	25,013	43.54	43.54
	15	OTHER	4,883	8.50	
	98	OTHER	14,811	25.78	
		Other Subtotal	44,707		
		District Total	57,452		
14					
	14	CORE	22,467	39.01	39.01
	13	OTHER	17,706	30.74	
	12	OTHER	1,934	3.36	
	98	OTHER	15,490	26.89	
		Other Subtotal	35,130		
		District Total	57,597		
15					
	15	CORE	27,099	47.23	47.23
	14	OTHER	9,665	16.85	
	84	OTHER	20,608	35.92	
		Other Subtotal	30,273		
		District Total	57,372		
16					
	16	CORE	39,425	68.62	68.62
	18	OTHER	9,426	16.41	
	17	OTHER	5,374	9.35	
	10	OTHER	3,233	5.63	
		Other Subtotal	18,033		
		District Total	57,458		
17					
	17	CORE	35,226	61.42	61.42
	11	OTHER	9,992	17.42	
	13	OTHER	8,531	14.87	
	18	OTHER	3,605	6.29	
		Other Subtotal	22,128		
		District Total	57,354		
18					
	18	CORE	33,993	59.14	59.14
	17	OTHER	10,087	17.55	
	16	OTHER	13,400	23.31	
		Other Subtotal	23,487		
		District Total	57,480		
19					
	19	CORE	50,939	88.52	88.52
	10	OTHER	2,491	4.33	
	22	OTHER	4,116	7.15	

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		Other Subtotal	6,607		
		District Total	57,546		
20					
	20	CORE	46,870	81.62	81.62
	9	OTHER	1,361	2.37	
	19	OTHER	3,017	5.25	
	7	OTHER	3,717	6.47	
	21	OTHER	2,463	4.29	
		Other Subtotal	10,558		
		District Total	57,428		
21					
	21	CORE	55,607	96.79	96.79
	82	OTHER	1,842	3.21	
		Other Subtotal	1,842		
		District Total	57,449		
22					
	22	CORE	0	0.00	
	12	OTHER	6,777	11.79	
	99	OTHER	21,455	37.32	
	24	OTHER	27,118	47.17	47.17
	98	OTHER	2,145		
		Other Subtotal	57,495		
		District Total	57,495		
23					
	23	CORE	21,256	36.92	36.92
	22	OTHER	20,811	36.14	
	60	OTHER	15,512	26.94	
		Other Subtotal	36,323		
		District Total	57,579		
24					
	24	CORE	27,346	47.74	47.74
	23	OTHER	20,388	35.59	
	22	OTHER	8,437	14.73	
	60	OTHER	1,111	1.94	
		Other Subtotal	29,936		
		District Total	57,282		
25					
	25	CORE	50,635	88.33	88.33
	27	OTHER	775	1.35	
	3	OTHER	5,076	8.86	
	2	OTHER	836	1.46	
		Other Subtotal	6,687		

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		District Total	57,322		
26					
	26	CORE	33,347	57.91	57.91
	59	OTHER	17,166	29.81	
	27	OTHER	7,068	12.27	
		Other Subtotal	24,234		
		District Total	57,581		
27					
	27	CORE	35,052	60.92	60.92
	25	OTHER	2,745	4.77	
	26	OTHER	19,739	34.31	
		Other Subtotal	22,484		
		District Total	57,536		
28					
	28	CORE	55,900	97.27	97.27
	75	OTHER	835	1.45	
	30	OTHER	732	1.27	
		Other Subtotal	1,567		
		District Total	57,467		
29					
	29	CORE	55,568	96.58	96.58
	67	OTHER	1,969	3.42	
		Other Subtotal	1,969		
		District Total	57,537		
30					
	30	CORE	50,766	88.69	88.69
	29	OTHER	6,475	11.31	
		Other Subtotal	6,475		
		District Total	57,241		
31					
	31	CORE	12,965	22.65	
	45	OTHER	26,130	45.65	45.65
	43	OTHER	2,544	4.44	
	32	OTHER	15,601	27.26	
		Other Subtotal	44,275		
		District Total	57,240		
32					
	32	CORE	45,160	78.51	78.51
	66	OTHER	2,155	3.75	
	83	OTHER	6,049	10.52	
	31	OTHER	4,160	7.23	
		Other Subtotal	12,364		

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		District Total	57,524		
33					
	33	CORE	4,708	8.18	
	37	OTHER	26,084	45.31	45.31
	31	OTHER	17,202	29.88	
	83	OTHER	9,571	16.63	
		Other Subtotal	52,857		
		District Total	57,565		
34					
	34	CORE	49,669	86.55	86.55
	36	OTHER	6,733	11.73	
	35	OTHER	985	1.72	
		Other Subtotal	7,718		
		District Total	57,387		
35					
	35	CORE	49,506	86.00	86.00
	36	OTHER	4,956	8.61	
	85	OTHER	2,096	3.64	
	34	OTHER	702	1.22	
	6	OTHER	302	0.52	
		Other Subtotal	8,056		
		District Total	57,562		
36					
	36	CORE	34,672	60.37	60.37
	35	OTHER	469	0.82	
	89	OTHER	5,442	9.48	
	6	OTHER	16,849	29.34	
		Other Subtotal	22,760		
		District Total	57,432		
37					
	37	CORE	6,945	12.08	
	38	OTHER	36,927	64.21	64.21
	47	OTHER	13,635	23.71	
	81	OTHER	0	0.00	
		Other Subtotal	50,562		
		District Total	57,507		
38					
	38	CORE	16,657	28.97	
	37	OTHER	20,029	34.84	34.84
	47	OTHER	5,238	9.11	
	31	OTHER	15,569	27.08	
		Other Subtotal	40,836		
		District Total	57,493		

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
39					
	39	CORE	45,537	79.35	79.35
	38	OTHER	6,777	11.81	
	99	OTHER	2,736	4.77	
	59	OTHER	2,337	4.07	
		Other Subtotal	11,850		
		District Total	57,387		
40					
	40	CORE	44,368	77.34	77.34
	6	OTHER	14	0.02	
	41	OTHER	12,984	22.63	
		Other Subtotal	12,998		
		District Total	57,366		
41					
	41	CORE	28,573	49.83	49.83
	72	OTHER	13,285	23.17	
	42	OTHER	15,477	26.99	
	50	OTHER	2	0.00	
		Other Subtotal	28,764		
		District Total	57,337		
42					
	42	CORE	9,442	16.48	
	47	OTHER	31,440	54.88	54.88
	39	OTHER	10,955	19.12	
	41	OTHER	5,448	9.51	
		Other Subtotal	47,843		
		District Total	57,285		
43					
	43	CORE	44,540	77.54	77.54
	37	OTHER	6,010	10.46	
	46	OTHER	5,699	9.92	
	31	OTHER	1,183	2.06	
	44	OTHER	11	0.02	
		Other Subtotal	12,903		
		District Total	57,443		
44					
	44	CORE	49,035	85.43	85.43
	45	OTHER	6,357	11.08	
	43	OTHER	2,003	3.49	
		Other Subtotal	8,360		
		District Total	57,395		
45					
	45	CORE	29,674	51.47	51.47

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	80	OTHER	18,439	31.98	
	43	OTHER	9,545	16.55	
		Other Subtotal	27,984		
		District Total	57,658		
46					
	46	CORE	57,458	100.00	100.00
		Other Subtotal	0		
		District Total	57,458		
47					
	47	CORE	0	0.00	
	48	OTHER	26,854	46.73	46.73
	46	OTHER	2,646	4.60	
	76	OTHER	11,314	19.69	
	79	OTHER	11,829	20.58	
	78	OTHER	4,822	8.39	
		Other Subtotal	57,465		
		District Total	57,465		
48					
	48	CORE	25,214	43.85	
	81	OTHER	29,521	51.34	51.34
	78	OTHER	2,771	4.82	
		Other Subtotal	32,292		
		District Total	57,506		
49					
	49	CORE	54,973	95.86	95.86
	51	OTHER	0	0.00	
	96	OTHER	2,373	4.14	
		Other Subtotal	2,373		
		District Total	57,346		
50					
	50	CORE	56,284	97.67	97.67
	96	OTHER	1,340	2.33	
		Other Subtotal	1,340		
		District Total	57,624		
51					
	51	CORE	39,300	68.25	68.25
	80	OTHER	15,953	27.71	
	49	OTHER	579	1.01	
	50	OTHER	1,748	3.04	
		Other Subtotal	18,280		
		District Total	57,580		
52					

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	52	CORE	47,277	82.61	82.61
	53	OTHER	9,173	16.03	
	27	OTHER	782	1.37	
		Other Subtotal	9,955		
		District Total	57,232		
53					
	53	CORE	47,910	83.70	83.70
	52	OTHER	9,160	16.00	
	54	OTHER	170	0.30	
		Other Subtotal	9,330		
		District Total	57,240		
54					
	54	CORE	52,386	91.50	91.50
	53	OTHER	4,864	8.50	
		Other Subtotal	4,864		
		District Total	57,250		
55					
	55	CORE	28,560	49.68	49.68
	57	OTHER	994	1.73	
	56	OTHER	27,939	48.60	
		Other Subtotal	28,933		
		District Total	57,493		
56					
	56	CORE	39,979	69.43	69.43
	57	OTHER	17,470	30.34	
	5	OTHER	133	0.23	
		Other Subtotal	17,603		
		District Total	57,582		
57					
	57	CORE	32,957	57.32	57.32
	56	OTHER	0	0.00	
	55	OTHER	24,544	42.68	
		Other Subtotal	24,544		
		District Total	57,501		
58					
	58	CORE	51,109	89.31	89.31
	99	OTHER	5,115	8.94	
	60	OTHER	1,003	1.75	
		Other Subtotal	6,118		
		District Total	57,227		
59					
	59	CORE	26,671	46.47	46.47

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	27	OTHER	12,129	21.13	
	58	OTHER	4,390	7.65	
	99	OTHER	14,201	24.74	
		Other Subtotal	30,720		
		District Total	57,391		
60					
	60	CORE	40,320	70.26	70.26
	59	OTHER	12,006	20.92	
	58	OTHER	5,059	8.82	
		Other Subtotal	17,065		
		District Total	57,385		
61					
	61	CORE	0	0.00	
	66	OTHER	36,838	63.94	63.94
	65	OTHER	20,776	36.06	
		Other Subtotal	57,614		
		District Total	57,614		
62					
	62	CORE	4,154	7.24	
	63	OTHER	35,716	62.28	62.28
	61	OTHER	17,475	30.47	
		Other Subtotal	53,191		
		District Total	57,345		
63					
	63	CORE	23,493	40.95	40.95
	66	OTHER	14,817	25.83	
	62	OTHER	19,055	33.22	
		Other Subtotal	33,872		
		District Total	57,365		
64					
	64	CORE	30,295	52.90	52.90
	66	OTHER	6,112	10.67	
	65	OTHER	11,571	20.20	
	62	OTHER	8,393	14.66	
	61	OTHER	899	1.57	
		Other Subtotal	26,975		
		District Total	57,270		
65					
	65	CORE	25,849	44.99	
	64	OTHER	31,606	55.01	55.01
		Other Subtotal	31,606		
		District Total	57,455		

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ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
66					
	66	CORE	0	0.00	
	61	OTHER	34,896	60.64	60.64
	62	OTHER	22,649	39.36	
		Other Subtotal	57,545		
		District Total	57,545		
67					
	67	CORE	53,596	93.64	93.64
	68	OTHER	2,707	4.73	
	69	OTHER	936	1.64	
		Other Subtotal	3,643		
		District Total	57,239		
68					
	68	CORE	25,614	44.73	44.73
	69	OTHER	17,134	29.92	
	93	OTHER	6,540	11.42	
	92	OTHER	5,462	9.54	
	91	OTHER	2,511	4.39	
		Other Subtotal	31,647		
		District Total	57,261		
69					
	69	CORE	39,579	68.66	68.66
	92	OTHER	815	1.41	
	87	OTHER	0	0.00	
	70	OTHER	17,255	29.93	
		Other Subtotal	18,070		
		District Total	57,649		
70					
	70	CORE	25,140	43.68	
	92	OTHER	32,412	56.32	56.32
		Other Subtotal	32,412		
		District Total	57,552		
71					
	71	CORE	50,335	87.51	87.51
	86	OTHER	1,391	2.42	
	70	OTHER	5,793	10.07	
		Other Subtotal	7,184		
		District Total	57,519		
72					
	72	CORE	42,489	73.96	73.96
	71	OTHER	6,188	10.77	
	70	OTHER	196	0.34	
	41	OTHER	8,576	14.93	

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		Other Subtotal	14,960		
		District Total	57,449		
73					
	73	CORE	53,013	92.27	92.27
	28	OTHER	1,052	1.83	
	75	OTHER	3,388	5.90	
		Other Subtotal	4,440		
		District Total	57,453		
74					
	74	CORE	38,717	67.34	67.34
	73	OTHER	1,177	2.05	
	87	OTHER	14,159	24.63	
	34	OTHER	3,441	5.98	
		Other Subtotal	18,777		
		District Total	57,494		
75					
	75	CORE	50,738	88.30	88.30
	67	OTHER	3,155	5.49	
	28	OTHER	2,168	3.77	
	29	OTHER	629	1.09	
	73	OTHER	772	1.34	
		Other Subtotal	6,724		
		District Total	57,462		
76					
	76	CORE	6,964	12.09	
	78	OTHER	40,087	69.57	69.57
	48	OTHER	5,268	9.14	
	77	OTHER	5,298	9.20	
		Other Subtotal	50,653		
		District Total	57,617		
77					
	77	CORE	22,517	39.21	
	76	OTHER	23,649	41.18	41.18
	78	OTHER	7,853	13.67	
	48	OTHER	3,414	5.94	
		Other Subtotal	34,916		
		District Total	57,433		
78					
	78	CORE	0	0.00	
	77	OTHER	18,919	32.88	
	79	OTHER	22,861	39.73	39.73
	76	OTHER	15,766		

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		Other Subtotal	57,546		
		District Total	57,546		
79					
	79	CORE	18,094	31.49	
	81	OTHER	28,795	50.11	50.11
	77	OTHER	5,496	9.56	
	47	OTHER	5,076	8.83	
		Other Subtotal	39,367		
		District Total	57,461		
80					
	80	CORE	25,960	45.08	
	79	OTHER	26,802	46.54	46.54
	51	OTHER	4,823	8.38	
		Other Subtotal	31,625		
		District Total	57,585		
81					
	81	CORE	2,966	5.17	
	42	OTHER	33,047	57.57	57.57
	47	OTHER	6,708	11.69	
	51	OTHER	13,534	23.58	
	50	OTHER	1,148	2.00	
		Other Subtotal	54,437		
		District Total	57,403		
82					
	82	CORE	46,715	81.34	81.34
	7	OTHER	10,715	18.66	
		Other Subtotal	10,715		
		District Total	57,430		
83					
	83	CORE	45,563	79.35	79.35
	82	OTHER	940	1.64	
	84	OTHER	10,133	17.65	
	33	OTHER	787	1.37	
		Other Subtotal	11,860		
		District Total	57,423		
84					
	84	CORE	18,976	33.08	
	7	OTHER	23,637	41.20	41.20
	82	OTHER	10,538	18.37	
	15	OTHER	4,214	7.35	
		Other Subtotal	38,389		
		District Total	57,365		
85					

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	85	CORE	48,358	84.13	84.13
	86	OTHER	8,337	14.50	
	36	OTHER	785	1.37	
		Other Subtotal	9,122		
		District Total	57,480		
86					
	86	CORE	46,551	81.02	81.02
	85	OTHER	4,203	7.32	
	35	OTHER	0	0.00	
	70	OTHER	6,700	11.66	
		Other Subtotal	10,903		
		District Total	57,454		
87					
	87	CORE	38,484	67.09	67.09
	69	OTHER	1,238	2.16	
	35	OTHER	1,756	3.06	
	86	OTHER	1,974	3.44	
	74	OTHER	13,906	24.24	
		Other Subtotal	18,874		
		District Total	57,358		
88					
	88	CORE	27,717	48.16	48.16
	2	OTHER	20,772	36.09	
	4	OTHER	9,067	15.75	
		Other Subtotal	29,839		
		District Total	57,556		
89					
	89	CORE	47,652	82.68	82.68
	90	OTHER	8,126	14.10	
	6	OTHER	1,856	3.22	
		Other Subtotal	9,982		
		District Total	57,634		
90					
	90	CORE	29,940	51.97	51.97
	88	OTHER	27,668	48.03	
		Other Subtotal	27,668		
		District Total	57,608		
91					
	91	CORE	0	0.00	
	68	OTHER	25,433	44.34	
	93	OTHER	31,926	55.66	55.66
		Other Subtotal	57,359		

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		District Total	57,359		
92					
	92	CORE	16,749	29.16	
	91	OTHER	40,682	70.84	70.84
		Other Subtotal	40,682		
		District Total	57,431		
93					
	93	CORE	20,239	35.17	35.17
	91	OTHER	13,442	23.36	
	68	OTHER	4,491	7.80	
	30	OTHER	15,685	27.26	
	29	OTHER	3,691	6.41	
		Other Subtotal	37,309		
		District Total	57,548		
94					
	94	CORE	55,906	97.63	97.63
	95	OTHER	1,360	2.37	
		Other Subtotal	1,360		
		District Total	57,266		
95					
	95	CORE	53,040	92.45	92.45
	94	OTHER	4,332	7.55	
		Other Subtotal	4,332		
		District Total	57,372		
96					
	96	CORE	52,028	90.51	90.51
	92	OTHER	3,458	6.02	
	94	OTHER	1,998	3.48	
		Other Subtotal	5,456		
		District Total	57,484		
97					
	97	CORE	41,843	73.05	73.05
	33	OTHER	9,985	17.43	
	84	OTHER	5,451	9.52	
		Other Subtotal	15,436		
		District Total	57,279		
98					
	98	CORE	21,744	37.81	37.81
	99	OTHER	10,463	18.19	
	33	OTHER	10,308	17.92	
	97	OTHER	14,998	26.08	
		Other Subtotal	35,769		

Act 43 -- Core Retention Report

ACT 43 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		District Total	57,513		
99					
	99	CORE	11,912	20.72	
	33	OTHER	35,262	61.33	61.33
	31	OTHER	9,850	17.13	
	98	OTHER	472	0.82	
		Other Subtotal	45,584		
		District Total	57,496		
		Average Largest Core Retention Percentage:			**66.80**

APPENDIX B

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
1					
	1	CORE	0	0.0	
	26	OTHER	46,326	80.4	80.4
	27	OTHER	11,265	19.6	
		Other Subtotal	57,591		
		District Total	57,591		
2					
	2	CORE	0	0.0	
	48	OTHER	9,917	17.2	
	81	OTHER	6,238	10.8	
	46	OTHER	23,785	41.4	41.4
	76	OTHER	7,788	13.5	
	79	OTHER	371	0.6	
	78	OTHER	9,404	16.4	
		Other Subtotal	57,503		
		District Total	57,503		
3					
	3	CORE	0	0.0	
	11	OTHER	3,421	6.0	
	17	OTHER	29,134	50.7	50.7
	13	OTHER	13,903	24.2	
	18	OTHER	10,952	19.1	
		Other Subtotal	57,410		
		District Total	57,410		
4					
	4	CORE	0	0.0	
	20	OTHER	27,632	48.0	
	21	OTHER	29,942	52.0	52.0
		Other Subtotal	57,574		
		District Total	57,574		
5					
	5	CORE	0	0.0	
	22	OTHER	38,089	66.0	66.0
	19	OTHER	19,582	34.0	
		Other Subtotal	57,671		
		District Total	57,671		
6					
	6	CORE	0	0.0	
	38	OTHER	22,538	39.3	
	39	OTHER	32,503	56.6	56.6

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	99	OTHER	0	0.0	
	59	OTHER	2,337	4.1	
		Other Subtotal	57,378		
		District Total	57,378		
7					
	7	CORE	0	0.0	
	64	OTHER	47,694	83.2	83.2
	66	OTHER	8,904	15.5	
	65	OTHER	730	1.3	
		Other Subtotal	57,328		
		District Total	57,328		
8					
	8	CORE	0	0.0	
	37	OTHER	30,931	53.7	53.7
	46	OTHER	17,390	30.2	
	43	OTHER	2,881	5.0	
	47	OTHER	5,238	9.1	
	31	OTHER	1,183	2.1	
		Other Subtotal	57,623		
		District Total	57,623		
9					
	9	CORE	0	0.0	
	15	OTHER	45,711	79.3	79.3
	14	OTHER	11,932	20.7	
		Other Subtotal	57,643		
		District Total	57,643		
10					
	10	CORE	0	0.0	
	27	OTHER	4,927	8.6	
	53	OTHER	3,564	6.2	
	52	OTHER	47,261	82.0	82.0
	59	OTHER	1,865	3.2	
		Other Subtotal	57,617		
		District Total	57,617		
11					
	11	CORE	0	0.0	
	80	OTHER	19,372	33.8	33.8
	81	OTHER	7,399	12.9	
	79	OTHER	18,443	32.2	
	46	OTHER	5,373	9.4	

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	76	OTHER	6,659	11.6	
		Other Subtotal	57,246		
		District Total	57,246		
12					
	12	CORE	0	0.0	
	33	OTHER	10,571	18.4	
	99	OTHER	17,296	30.1	
	98	OTHER	23,889	41.6	41.6
	97	OTHER	5,728	10.0	
		Other Subtotal	57,484		
		District Total	57,484		
13					
	13	CORE	0	0.0	
	32	OTHER	45,699	79.2	79.2
	31	OTHER	11,967	20.8	
		Other Subtotal	57,666		
		District Total	57,666		
14					
	14	CORE	0	0.0	
	43	OTHER	13,006	22.7	
	44	OTHER	35,390	61.7	61.7
	45	OTHER	8,937	15.6	
		Other Subtotal	57,333		
		District Total	57,333		
15					
	15	CORE	0	0.0	
	16	OTHER	19,624	34.1	
	18	OTHER	4,998	8.7	
	13	OTHER	13,360	23.2	23.2
	14	OTHER	2,958	5.1	
	9	OTHER	3,406	5.9	
	7	OTHER	13,211	23.0	
		Other Subtotal	57,557		
		District Total	57,557		
16					
	16	CORE	0	0.0	
	63	OTHER	12,877	22.4	
	62	OTHER	17,492	30.5	
	61	OTHER	27,039	47.1	47.1

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		Other Subtotal	57,408		
		District Total	57,408		
17					
	17	CORE	0	0.0	
	83	OTHER	16,933	29.5	
	33	OTHER	34,363	59.9	59.9
	31	OTHER	6,054	10.6	
		Other Subtotal	57,350		
		District Total	57,350		
18					
	18	CORE	0	0.0	
	23	OTHER	4,300	7.5	
	10	OTHER	12,522	21.9	
	22	OTHER	10,947	19.1	
	11	OTHER	19,599	34.2	34.2
	17	OTHER	9,878	17.3	
		Other Subtotal	57,246		
		District Total	57,246		
19					
	19	CORE	0	0.0	
	59	OTHER	0	0.0	
	24	OTHER	4,631	8.1	
	58	OTHER	47,740	83.4	83.4
	60	OTHER	4,888	8.5	
		Other Subtotal	57,259		
		District Total	57,259		
20					
	20	CORE	0	0.0	
	82	OTHER	4,432	7.7	
	84	OTHER	23,572	41.2	
	83	OTHER	24,135	42.2	42.2
	97	OTHER	1,627	2.8	
	33	OTHER	3,490	6.1	
		Other Subtotal	57,256		
		District Total	57,256		
21					
	21	CORE	0	0.0	
	49	OTHER	33,935	59.0	59.0
	51	OTHER	23,534	41.0	
		Other Subtotal	57,469		

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		District Total	57,469		
22					
	22	CORE	0	0.0	
	7	OTHER	38,891	67.6	67.6
	82	OTHER	7,046	12.2	
	9	OTHER	4,602	8.0	
	15	OTHER	6,982	12.1	
	14	OTHER	0	0.0	
		Other Subtotal	57,521		
		District Total	57,521		
23					
	23	CORE	0	0.0	
	21	OTHER	16,942	29.6	
	63	OTHER	28,575	49.9	49.9
	61	OTHER	11,734	20.5	
		Other Subtotal	57,251		
		District Total	57,251		
24					
	24	CORE	0	0.0	
	23	OTHER	25,345	44.1	
	60	OTHER	32,149	55.9	55.9
		Other Subtotal	57,494		
		District Total	57,494		
25					
	25	CORE	0	0.0	
	23	OTHER	19,339	33.6	
	12	OTHER	21,725	37.8	37.8
	22	OTHER	4,024	7.0	
	11	OTHER	12,400	21.6	
		Other Subtotal	57,488		
		District Total	57,488		
26					
	26	CORE	0	0.0	
	69	OTHER	22,526	39.3	
	70	OTHER	34,739	60.7	60.7
		Other Subtotal	57,265		
		District Total	57,265		
27					
	27	CORE	0	0.0	
	64	OTHER	14,207	24.7	

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	65	OTHER	43,406	75.3	75.3
		Other Subtotal	57,613		
		District Total	57,613		
28					
	28	CORE	0	0.0	
	48	OTHER	45,425	79.1	79.1
	78	OTHER	12,020	20.9	
		Other Subtotal	57,445		
		District Total	57,445		
29					
	29	CORE	0	0.0	
	74	OTHER	39,622	68.9	68.9
	35	OTHER	141	0.2	
	34	OTHER	6,440	11.2	
	87	OTHER	11,342	19.7	
		Other Subtotal	57,545		
		District Total	57,545		
30					
	30	CORE	**0**	0.0	
	81	OTHER	3,686	6.4	
	79	OTHER	9,651	16.8	
	47	OTHER	24,006	41.9	41.9
	80	OTHER	729	1.3	
	46	OTHER	19,255	33.6	
		Other Subtotal	57,327		
		District Total	57,327		
31					
	31	CORE	0	0.0	
	41	OTHER	12,169	21.2	
	59	OTHER	21,895	38.1	38.1
	53	OTHER	12,197	21.2	
	52	OTHER	7,705	13.4	
	58	OTHER	3,495	6.1	
		Other Subtotal	57,461		
		District Total	57,461		
32					
	32	CORE	0	0.0	
	37	OTHER	28,137	49.0	49.0
	31	OTHER	13,128	22.9	
	38	OTHER	16,175	28.2	

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		Other Subtotal	57,440		
		District Total	57,440		
33					
	33	CORE	0	0.0	
	66	OTHER	40,147	69.7	69.7
	65	OTHER	14,060	24.4	
	32	OTHER	3,373	5.9	
		Other Subtotal	57,580		
		District Total	57,580		
34					
	34	CORE	0	0.0	
	19	OTHER	21,312	37.2	
	16	OTHER	2,826	4.9	
	9	OTHER	1,361	2.4	
	20	OTHER	24,321	42.4	42.4
	21	OTHER	3,824	6.7	
	7	OTHER	3,717	6.5	
		Other Subtotal	57,361		
		District Total	57,361		
35					
	35	CORE	0	0.0	
	99	OTHER	29,388	51.3	51.3
	24	OTHER	18,545	32.4	
	58	OTHER	9,323	16.3	
		Other Subtotal	57,256		
		District Total	57,256		
36					
	36	CORE	0	0.0	
	48	OTHER	5,408	9.4	
	81	OTHER	41,894	73.1	73.1
	78	OTHER	10,009	17.5	
		Other Subtotal	57,311		
		District Total	57,311		
37					
	37	CORE	0	0.0	
	4	OTHER	18,735	32.6	32.6
	5	OTHER	10,102	17.6	
	88	OTHER	10,444	18.2	
	90	OTHER	18,204	31.7	

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		Other Subtotal	57,485		
		District Total	57,485		
38					
	38	CORE	0	0.0	
	27	OTHER	39,614	68.7	68.7
	3	OTHER	6,025	10.4	
	25	OTHER	9,699	16.8	
	59	OTHER	2,335	4.0	
		Other Subtotal	57,673		
		District Total	57,673		
39					
	39	CORE	0	0.0	
	56	OTHER	18,367	32.1	
	57	OTHER	0	0.0	
	5	OTHER	25,184	44.0	44.0
	6	OTHER	8,261	14.4	
	3	OTHER	0	0.0	
	40	OTHER	5,418	9.5	
		Other Subtotal	57,230		
		District Total	57,230		
40					
	40	CORE	0	0.0	
	18	OTHER	10,287	18.0	
	17	OTHER	574	1.0	
	13	OTHER	19,703	34.4	
	14	OTHER	22,586	39.4	39.4
	12	OTHER	4,107	7.2	
		Other Subtotal	57,257		
		District Total	57,257		
41					
	41	CORE	0	0.0	
	6	OTHER	38,837	67.3	67.3
	89	OTHER	15,902	27.6	
	36	OTHER	1,744	3.0	
	5	OTHER	1,190	2.1	
		Other Subtotal	57,673		
		District Total	57,673		
42					
	42	CORE	0	0.0	
	14	OTHER	19,669	34.1	
	98	OTHER	11,407	19.8	

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	84	OTHER	26,542	46.1	46.1
		Other Subtotal	57,618		
		District Total	57,618		
43					
	43	CORE	0	0.0	
	97	OTHER	49,486	86.3	86.3
	84	OTHER	5,054	8.8	
	33	OTHER	2,821	4.9	
		Other Subtotal	57,361		
		District Total	57,361		
44					
	44	CORE	0	0.0	
	62	OTHER	36,759	64.1	64.1
	63	OTHER	6,127	10.7	
	61	OTHER	14,497	25.3	
		Other Subtotal	57,383		
		District Total	57,383		
45					
	45	CORE	43,559	76.0	76.0
	43	OTHER	13,754	24.0	
		Other Subtotal	13,754		
		District Total	57,313		
46					
	46	CORE	0	0.0	
	10	OTHER	32,830	57.1	57.1
	11	OTHER	7,215	12.6	
	17	OTHER	3,715	6.5	
	16	OTHER	7,580	13.2	
	19	OTHER	6,139	10.7	
		Other Subtotal	57,479		
		District Total	57,479		
47					
	47	CORE	0	0.0	
	18	OTHER	20,787	36.2	
	16	OTHER	22,795	39.7	39.7
	17	OTHER	1,659	2.9	
	10	OTHER	5,196	9.1	
	19	OTHER	6,923	12.1	
		Other Subtotal	57,360		

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		District Total	57,360		
48					
	48	CORE	0	0.0	
	47	OTHER	1,892	3.3	
	39	OTHER	23,517	40.8	40.8
	53	OTHER	7,864	13.7	
	41	OTHER	11,643	20.2	
	42	OTHER	10,608	18.4	
	72	OTHER	2,084	3.6	
		Other Subtotal	57,608		
		District Total	57,608		
49					
	49	CORE	0	0.0	
	28	OTHER	53,181	92.4	92.4
	73	OTHER	2,540	4.4	
	75	OTHER	1,809	3.1	
		Other Subtotal	57,530		
		District Total	57,530		
50					
	50	CORE	0	0.0	
	57	OTHER	38,143	66.4	66.4
	56	OTHER	19,275	33.6	
		Other Subtotal	57,418		
		District Total	57,418		
51					
	51	CORE	0	0.0	
	90	OTHER	35,013	61.1	61.1
	5	OTHER	3,164	5.5	
	89	OTHER	19,154	33.4	
		Other Subtotal	57,331		
		District Total	57,331		
52					
	52	CORE	0	0.0	
	36	OTHER	30,039	52.4	52.4
	89	OTHER	23,967	41.8	
	6	OTHER	3,347	5.8	
		Other Subtotal	57,353		
		District Total	57,353		
53					
	53	CORE	0	0.0	

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	4	OTHER	32,852	57.3	57.3
	2	OTHER	24,432	42.7	
		Other Subtotal	57,284		
		District Total	57,284		
54					
	54	CORE	0	0.0	
	56	OTHER	20,669	35.9	
	53	OTHER	8,429	14.6	
	55	OTHER	28,487	49.5	49.5
		Other Subtotal	57,585		
		District Total	57,585		
55					
	55	CORE	0	0.0	
	41	OTHER	31,769	55.2	55.2
	86	OTHER	1,391	2.4	
	71	OTHER	9,876	17.2	
	70	OTHER	5,566	9.7	
	40	OTHER	5,775	10.0	
	56	OTHER	2,490	4.3	
	53	OTHER	657	1.1	
		Other Subtotal	57,524		
		District Total	57,524		
56					
	56	CORE	0	0.0	
	92	OTHER	47,217	82.1	82.1
	96	OTHER	6,458	11.2	
	50	OTHER	1,829	3.2	
	94	OTHER	1,998	3.5	
		Other Subtotal	57,502		
		District Total	57,502		
57					
	57	CORE	0	0.0	
	29	OTHER	14,148	24.6	
	30	OTHER	37,376	65.0	65.0
	28	OTHER	5,939	10.3	
		Other Subtotal	57,463		
		District Total	57,463		
58					
	58	CORE	0	0.0	
	23	OTHER	0	0.0	

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	98	OTHER	18,894	32.9	
	24	OTHER	31,288	54.4	54.4
	12	OTHER	0	0.0	
	99	OTHER	7,286	12.7	
		Other Subtotal	57,468		
		District Total	57,468		
59					
	59	CORE	0	0.0	
	94	OTHER	30,118	52.5	52.5
	95	OTHER	27,239	47.5	
		Other Subtotal	57,357		
		District Total	57,357		
60					
	60	CORE	0	0.0	
	71	OTHER	46,647	81.4	81.4
	72	OTHER	1,309	2.3	
	70	OTHER	9,353	16.3	
		Other Subtotal	57,309		
		District Total	57,309		
61					
	61	CORE	0	0.0	
	2	OTHER	11,204	19.5	
	5	OTHER	7,302	12.7	
	3	OTHER	36,724	64.0	64.0
	25	OTHER	2,183	3.8	
		Other Subtotal	57,413		
		District Total	57,413		
62					
	62	CORE	0	0.0	
	66	OTHER	10,871	18.9	
	63	OTHER	11,630	20.2	
	83	OTHER	20,115	35.0	35.0
	32	OTHER	8,416	14.6	
	31	OTHER	6,513	11.3	
		Other Subtotal	57,545		
		District Total	57,545		
63					
	63	CORE	0	0.0	
	45	OTHER	9,665	16.8	
	44	OTHER	13,656	23.7	

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	43	OTHER	27,547	47.8	47.8
	32	OTHER	3,273	5.7	
	31	OTHER	3,452	6.0	
		Other Subtotal	57,593		
		District Total	57,593		
64					
	64	CORE	0	0.0	
	57	OTHER	13,428	23.4	
	56	OTHER	3,443	6.0	
	3	OTHER	23,596	41.2	41.2
	5	OTHER	16,811	29.3	
		Other Subtotal	57,278		
		District Total	57,278		
65					
	65	CORE	0	0.0	
	77	OTHER	13,370	23.2	
	79	OTHER	42,148	73.2	73.2
	81	OTHER	2,065	3.6	
		Other Subtotal	57,583		
		District Total	57,583		
66					
	66	CORE	0	0.0	
	36	OTHER	12,578	21.9	
	74	OTHER	5,916	10.3	
	35	OTHER	16,703	29.1	
	34	OTHER	22,132	38.6	38.6
		Other Subtotal	57,329		
		District Total	57,329		
67					
	67	CORE	0	0.0	
	36	OTHER	5,642	9.8	
	85	OTHER	462	0.8	
	6	OTHER	5,518	9.6	
	86	OTHER	1,689	2.9	
	40	OTHER	44,030	76.8	76.8
		Other Subtotal	57,341		
		District Total	57,341		
68					
	68	CORE	0	0.0	
	55	OTHER	24,617	42.8	42.8

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CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	56	OTHER	7,078	12.3	
	54	OTHER	10,598	18.4	
	53	OTHER	15,247	26.5	
	52	OTHER	9	0.0	
		Other Subtotal	57,549		
		District Total	57,549		
69					
	69	CORE	0	0.0	
	82	OTHER	48,557	84.8	84.8
	21	OTHER	8,723	15.2	
		Other Subtotal	57,280		
		District Total	57,280		
70					
	70	CORE	0	0.0	
	25	OTHER	41,498	72.2	72.2
	2	OTHER	15,939	27.8	
		Other Subtotal	57,437		
		District Total	57,437		
71					
	71	CORE	0	0.0	
	59	OTHER	29,748	51.8	51.8
	60	OTHER	20,909	36.4	
	26	OTHER	6,760	11.8	
		Other Subtotal	57,417		
		District Total	57,417		
72					
	72	CORE	0	0.0	
	23	OTHER	7,024	12.2	
	12	OTHER	29,681	51.8	51.8
	11	OTHER	7,893	13.8	
	17	OTHER	7,954	13.9	
	13	OTHER	4,791	8.4	
		Other Subtotal	57,343		
		District Total	57,343		
73					
	73	CORE	0	0.0	
	50	OTHER	18,925	33.0	
	72	OTHER	33,812	58.9	58.9
	70	OTHER	4,634	8.1	

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CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		Other Subtotal	57,371		
		District Total	57,371		
74					
	74	CORE	0	0.0	
	31	OTHER	18,632	32.4	32.4
	33	OTHER	9,805	17.1	
	99	OTHER	11,912	20.7	
	38	OTHER	16,657	29.0	
	98	OTHER	472	0.8	
		Other Subtotal	57,478		
		District Total	57,478		
75					
	75	CORE	0	0.0	
	72	OTHER	18,569	32.3	
	42	OTHER	8,863	15.4	
	50	OTHER	27,993	48.7	48.7
	51	OTHER	2,020	3.5	
		Other Subtotal	57,445		
		District Total	57,445		
76					
	76	CORE	0	0.0	
	35	OTHER	32,218	56.1	56.1
	34	OTHER	25,240	43.9	
		Other Subtotal	57,458		
		District Total	57,458		
77					
	77	CORE	0	0.0	
	67	OTHER	13,959	24.3	
	93	OTHER	3,008	5.2	
	91	OTHER	7,042	12.2	
	30	OTHER	29,807	51.8	51.8
	29	OTHER	3,685	6.4	
		Other Subtotal	57,501		
		District Total	57,501		
78					
	78	CORE	0	0.0	
	74	OTHER	7,085	12.3	
	73	OTHER	50,515	87.7	87.7
		Other Subtotal	57,600		
		District Total	57,600		

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CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
79					
	79	CORE	8,973	15.6	
	76	OTHER	29,924	52.0	52.0
	77	OTHER	18,644	32.4	
		Other Subtotal	48,568		
		District Total	57,541		
80					
	80	CORE	0	0.0	
	78	OTHER	24,100	41.8	41.8
	77	OTHER	20,216	35.1	
	76	OTHER	13,322	23.1	
		Other Subtotal	57,638		
		District Total	57,638		
81					
	81	CORE	0	0.0	
	52	OTHER	1,462	2.5	
	53	OTHER	13,989	24.4	
	54	OTHER	41,958	73.1	73.1
		Other Subtotal	57,409		
		District Total	57,409		
82					
	82	CORE	0	0.0	
	93	OTHER	49,180	85.4	85.4
	67	OTHER	1,558	2.7	
	68	OTHER	6,878	11.9	
		Other Subtotal	57,616		
		District Total	57,616		
83					
	83	CORE	0	0.0	
	91	OTHER	49,593	86.3	86.3
	92	OTHER	6,521	11.3	
	93	OTHER	1,378	2.4	
		Other Subtotal	57,492		
		District Total	57,492		
84					
	84	CORE	0	0.0	
	80	OTHER	40,251	69.9	69.9
	51	OTHER	14,158	24.6	
	49	OTHER	1,699	3.0	
	43	OTHER	1,444	2.5	

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
		Other Subtotal	57,552		
		District Total	57,552		
85					
	85	CORE	0	0.0	
	96	OTHER	46,417	80.8	80.8
	49	OTHER	11,037	19.2	
		Other Subtotal	57,454		
		District Total	57,454		
86					
	86	CORE	0	0.0	
	67	OTHER	8,548	14.8	
	29	OTHER	48,530	84.1	84.1
	93	OTHER	594	1.0	
		Other Subtotal	57,672		
		District Total	57,672		
87					
	87	CORE	0	0.0	
	47	OTHER	29,599	51.5	51.5
	42	OTHER	22,429	39.0	
	38	OTHER	4,991	8.7	
	39	OTHER	472	0.8	
		Other Subtotal	57,491		
		District Total	57,491		
88					
	88	CORE	0	0.0	
	75	OTHER	53,152	92.3	92.3
	67	OTHER	2,498	4.3	
	73	OTHER	1,907	3.3	
		Other Subtotal	57,557		
		District Total	57,557		
89					
	89	CORE	0	0.0	
	94	OTHER	30,120	52.6	52.6
	95	OTHER	27,161	47.4	
		Other Subtotal	57,281		
		District Total	57,281		
90					
	90	CORE	0	0.0	
	69	OTHER	13,398	23.3	

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	92	OTHER	5,158	9.0	
	93	OTHER	4,545	7.9	
	68	OTHER	34,305	59.8	59.8
		Other Subtotal	57,406		
		District Total	57,406		
91					
	91	CORE	0	0.0	
	85	OTHER	47,338	82.5	82.5
	35	OTHER	980	1.7	
	86	OTHER	9,084	15.8	
		Other Subtotal	57,402		
		District Total	57,402		
92					
	92	CORE	0	0.0	
	49	OTHER	8,881	15.4	
	96	OTHER	2,866	5.0	
	51	OTHER	17,945	31.2	31.2
	50	OTHER	10,435	18.1	
	42	OTHER	16,066	27.9	
	47	OTHER	1,362	2.4	
		Other Subtotal	57,555		
		District Total	57,555		
93					
	93	CORE	0	0.0	
	67	OTHER	32,157	56.1	56.1
	69	OTHER	7,223	12.6	
	68	OTHER	17,062	29.8	
	87	OTHER	844	1.5	
		Other Subtotal	57,286		
		District Total	57,286		
94					
	94	CORE	0	0.0	
	69	OTHER	12,522	21.8	
	35	OTHER	1,756	3.1	
	87	OTHER	40,457	70.3	70.3
	86	OTHER	1,996	3.5	
	70	OTHER	792	1.4	
		Other Subtotal	57,523		
		District Total	57,523		
95					

CHEN 43995 -- Core Retention Report

CHEN 43995 DISTRICT	2002 DISTRICT	NOTES	PERSONS	PERSONS PERCENTAGE	LARGEST CORE RETENTION PERCENTAGE
	95	CORE	0	0.0	
	1	OTHER	47,366	82.7	82.7
	2	OTHER	9,907	17.3	
		Other Subtotal	57,273		
		District Total	57,273		
96					
	96	CORE	0	0.0	
	1	OTHER	6,916	12.1	
	88	OTHER	44,941	78.4	78.4
	90	OTHER	5,431	9.5	
		Other Subtotal	57,288		
		District Total	57,288		
97					
	97	CORE	0	0.0	
	86	OTHER	45,782	79.5	79.5
	85	OTHER	6,857	11.9	
	36	OTHER	801	1.4	
	69	OTHER	3,218	5.6	
	35	OTHER	918	1.6	
		Other Subtotal	57,576		
		District Total	57,576		
98					
	98	CORE	0	0.0	
	8	OTHER	43,733	76.5	76.5
	9	OTHER	11,401	19.9	
	19	OTHER	2,062	3.6	
		Other Subtotal	57,196		
		District Total	57,196		
99					
	99	CORE	0	0.0	
	18	OTHER	1,592	2.8	
	9	OTHER	38,491	67.2	67.2
	8	OTHER	12,385	21.6	
	20	OTHER	4,149	7.2	
	19	OTHER	666	1.2	
		Other Subtotal	57,283		
		District Total	57,283		
		Average Largest Core Retention Percentage:			**60.15**

Note: District 98 as displayed is Professor Chen's district E8 and district 99 as displayed is Chen's district E9.

APPENDIX C

Chen 43995 -- Incumbent Pairing Report

Chen 43995 District	2002 Map Elected District	Number of Incumbents In Chen 43995 District	Name of Incumbent	Party
District: 1	26	1	Mike Endsley	Republican
District: 2	46	1	Gary Hebl	Democrat
District: 3	17	2	Barbara Toles	Democrat
	13		David Cullen	Democrat
District: 4	21	1	Mark Honadel	Republican
District: 5	19	2	Jon Richards	Democrat
	22		Sandy Pasch	Democrat
District: 6	39	1	Jeff Fitzgerald	Republican
District: 7	64	1	Peter Barca	Democrat
District: 8	37	1	Andy Jorgensen	Democrat
District: 9	15	1	Tony Staskunas	Democrat
District: 10	52	1	Jeremy Thiesfeldt	Republican
District: 11		0		
District: 12	98	1	Paul Farrow	Republican
District: 13	32	1	Tyler August	Republican
District: 14	44	1	Joe Knilans	Republican
District: 15	7	1	Margaret Krusick	Democrat
District: 16	61	1	Robert Turner	Democrat
District: 17	33	2	Chris Kapenga	Republican
	83		Dave Craig	Republican
District: 18		0		
District: 19	58	1	Patricia Strachota	Republican
District: 20	84	1	Mike Kuglitsch	Republican
District: 21	49	1	Travis Tranel	Republican

Chen 43995 -- Incumbent Pairing Report

Chen 43995 District	2002 Map Elected District	Number of Incumbents In Chen 43995 District	Name of Incumbent	Party
District: 22	9	1	Josh Zepnick	Democrat
District: 23		0		
District: 24	60	2	Duey Stroebel	Republican
	23		Jim Ott	Republican
District: 25	11	1	Jason Fields	Democrat
District: 26	70	2	Amy Sue Vruwink	Democrat
	69		Scott Suder	Republican
District: 27	65	1	John Steinbrink	Democrat
District: 28	48	1	Joe Parisi	Democrat
District: 29	74	1	Janet Bewley	Democrat
District: 30	47	1	Keith Ripp	Republican
District: 31		0		
District: 32		0		
District: 33	66	1	Samantha Kerkman	Republican
District: 34	20	1	Christine Sinicki	Democrat
District: 35	24	2	Dan Knodl	Republican
	99		Don Pridemore	Republican
District: 36	81	1	Kelda Helen Roys	Democrat
District: 37	4	1	Chad Weininger	Republican
District: 38	27	1	Steve Kestell	Republican
District: 39		0		
District: 40	18	1	Tamara Grigsby	Democrat
District: 41	6	1	Gary Tauchen	Republican
District: 42	14	1	Dale Kooyenga	Republican

Chen 43995 -- Incumbent Pairing Report

Chen 43995 District	2002 Map Elected District	Number of Incumbents In Chen 43995 District	Name of Incumbent	Party
District: 43	97	1	Bill Kramer	Republican
District: 44	62	1	Cory Mason	Democrat
District: 45	45	1	Amy Loudenbeck	Republican
District: 46	10	1	Elizabeth Coggs	Democrat
District: 47	16	1	Leon Young	Democrat
District: 48	41	1	Joan Ballweg	Republican
District: 49	28	1	Erik Severson	Republican
District: 50	57	1	Penny Bernard Schaber	Democrat
District: 51	90	1	Karl Van Roy	Republican
District: 52	36	2	Jeff Mursau	Republican
	89		John Nygren	Republican
District: 53	2	1	Andre Jacque	Republican
District: 54	53	1	Richard Spanbauer	Republican
District: 55		0		
District: 56	92	1	Mark Radcliffe	Democrat
District: 57	30	1	Dean Knudson	Republican
District: 58		0		
District: 59	94	1	Steve Doyle	Democrat
District: 60	71	1	Louis Molepske, Jr.	Democrat
District: 61	3	1	Al Ott	Republican
District: 62	63	1	Robin Vos	Republican
District: 63	43	2	Evan Wynn	Republican
	31		Steve Nass	Republican
District: 64	5	1	Jim Steineke	Republican

Chen 43995 -- Incumbent Pairing Report

Chen 43995 District	2002 Map Elected District	Number of Incumbents In Chen 43995 District	Name of Incumbent	Party
District: 65	79	1	Sondy Pope-Roberts	Democrat
District: 66	34	1	Dan Meyer	Republican
District: 67	40	1	Kevin Petersen	Republican
District: 68	55	2	Dean Kaufert	Republican
	56		Michelle Litjens	Republican
District: 69	82	1	Jeff Stone	Republican
District: 70	25	1	Bob Ziegelbauer	Independent
District: 71	59	1	Daniel LeMahieu	Republican
District: 72	12	1	Fredrick Kessler	Democrat
District: 73	72	1	Scott Krug	Republican
District: 74	38	1	Joel Kleefisch	Republican
District: 75	50	1	Ed Brooks	Republican
District: 76	35	1	Tom Tiffany	Republican
District: 77	67	1	Tom Larson	Republican
District: 78	73	1	Nick Milroy	Democrat
District: 79	77	2	Brett Hulsey	Democrat
	76		Terese Berceau	Democrat
District: 80	78	1	Mark Pocan	Democrat
District: 81	54	1	Gordon Hintz	Democrat
District: 82	93	1	Warren Petryk	Republican
District: 83	91	1	Chris Danou	Democrat
District: 84	80	1	Janis Ringhand	Democrat
District: 85	96	1	Lee Nerison	Republican

Chen 43995 -- Incumbent Pairing Report

Chen 43995 District	2002 Map Elected District	Number of Incumbents In Chen 43995 District	Name of Incumbent	Party
District: 86	29	1	John Murtha	Republican
District: 87		0		
District: 88	75	1	Roger Rivard	Republican
District: 89	95	1	Jennifer Shilling	Democrat
District: 90		0		
District: 91	85	1	Donna Seidel	Democrat
District: 92	42	2	Fred Clark	Democrat
	51		Howard Marklein	Republican
District: 93	68	1	Kathy Bernier	Republican
District: 94	87	1	Mary Williams	Republican
District: 95	1	1	Garey Bies	Republican
District: 96	88	1	John Klenke	Republican
District: 97	86	1	Jerry Petrowski	Republican
District: 98	8	1	JoCasta Zamarripa	Democrat
District: 99		0		
Total Number of Incumbent Pairings:		**22**		
Total Number of Republicans Paired:		**14**		
Total Number of Democrats Paired:		**8**		
Note: District 98 as displayed is Professor Chen's district E8 and district 99 as displayed is Chen's district E9.				

APPENDIX D

Act 43 Composite Election Percentages for 2004-2010 and 2012-2016, Change and "Chen Composite Score"

WI District	2004-2010 Composite	2012-2016 Composite	Change 04-10 to 12-16	Chen Composite
1	48.52	55.40	6.88	50.32
2	52.60	60.07	7.47	54.40
3	52.65	58.18	5.53	54.45
4	51.90	55.22	3.32	53.70
5	51.61	60.35	8.74	53.41
6	55.22	62.65	7.43	57.02
7	44.70	44.78	0.08	46.50
8	22.57	17.09	-5.48	24.37
9	32.45	27.85	-4.60	34.25
10	12.34	10.77	-1.57	14.14
11	19.20	14.55	-4.65	21.00
12	27.16	21.56	-5.60	28.96
13	57.87	59.04	1.17	59.67
14	57.78	57.92	0.14	59.58
15	54.51	57.68	3.17	56.31
16	10.45	9.66	-0.79	12.25
17	19.70	14.65	-5.05	21.50
18	14.85	11.56	-3.29	16.65
19	28.44	28.77	0.33	30.24
20	42.28	43.07	0.79	44.08
21	51.16	54.86	3.70	52.96
22	64.46	67.74	3.28	66.26
23	55.20	57.60	2.40	57.00
24	56.33	58.71	2.38	58.13
25	51.30	58.91	7.61	53.10
26	54.52	59.59	5.07	56.32
27	53.40	58.82	5.42	55.20
28	52.22	59.42	7.20	54.02
29	48.74	54.98	6.24	50.54
30	51.50	55.28	3.78	53.30
31	54.29	56.70	2.41	56.09
32	59.48	63.40	3.92	61.28
33	59.49	62.73	3.24	61.29
34	52.77	59.28	6.51	54.57
35	50.54	58.24	7.70	52.34
36	51.59	60.05	8.46	53.39
37	55.87	57.41	1.54	57.67
38	57.98	61.28	3.30	59.78
39	59.23	62.79	3.56	61.03
40	55.13	61.08	5.95	56.93
41	52.61	57.44	4.83	54.41
42	53.02	53.22	0.20	54.82
43	41.92	44.30	2.38	43.72
44	36.51	38.16	1.65	38.31
45	39.04	40.41	1.37	40.84
46	40.57	37.33	-3.24	42.37

WI District	2004-2010 Composite	2012-2016 Composite	Change 04-10 to 12-16	Chen Composite
47	32.44	28.38	-4.06	34.24
48	27.42	22.06	-5.36	29.22
49	46.81	49.74	2.93	48.61
50	50.39	52.86	2.47	52.19
51	44.05	46.23	2.18	45.85
52	56.87	59.06	2.19	58.67
53	58.96	60.51	1.55	60.76
54	45.30	46.50	1.20	47.10
55	53.26	56.63	3.37	55.06
56	56.55	61.15	4.60	58.35
57	43.28	45.51	2.23	45.08
58	67.34	71.86	4.52	69.14
59	65.18	72.30	7.12	66.98
60	66.45	70.50	4.05	68.25
61	54.80	59.61	4.81	56.60
62	54.37	57.10	2.73	56.17
63	56.52	59.67	3.15	58.32
64	41.70	44.14	2.44	43.50
65	35.55	36.48	0.93	37.35
66	31.20	27.77	-3.43	33.00
67	49.51	56.27	6.76	51.31
68	47.10	53.45	6.35	48.90
69	51.71	60.94	9.23	53.51
70	48.62	55.68	7.06	50.42
71	39.36	44.90	5.54	41.16
72	49.05	54.92	5.87	50.85
73	38.12	42.40	4.28	39.92
74	40.53	45.46	4.93	42.33
75	49.50	56.98	7.48	51.30
76	14.99	15.89	0.90	16.79
77	19.20	16.07	-3.13	21.00
78	30.34	26.89	-3.45	32.14
79	40.03	39.08	-0.95	41.83
80	37.42	37.02	-0.40	39.22
81	43.11	42.68	-0.43	44.91
82	55.33	59.20	3.87	57.13
83	65.60	70.83	5.23	67.40
84	56.22	59.77	3.55	58.02
85	45.92	51.84	5.92	47.72
86	52.32	60.10	7.78	54.12
87	50.96	61.00	10.04	52.76
88	51.31	54.70	3.39	53.11
89	52.84	60.36	7.52	54.64
90	39.82	41.98	2.16	41.62
91	39.16	41.42	2.26	40.96
92	42.15	50.81	8.66	43.95
93	48.89	55.78	6.89	50.69

WI District	2004-2010 Composite	2012-2016 Composite	Change 04-10 to 12-16	Chen Composite
94	49.89	51.72	1.83	51.69
95	36.82	38.20	1.38	38.62
96	44.44	49.75	5.31	46.24
97	60.72	63.91	3.19	62.52
98	64.90	69.08	4.18	66.70
99	70.93	75.02	4.09	72.73

Source: LTSB Election Data

APPENDIX E

Plan 43995 Composite Election Percentages for 2004-2010 and 2012-2016, and Change

WI District	43995 Districts 2004_2012 Composite	43995 Districts Composite 2012-2016	Change 04-10 to 12-16
1	47.12	51.07	3.95
2	34.28	30.81	-3.47
3	21.69	17.01	-4.68
4	46.01	49.11	3.10
5	35.25	35.59	0.34
6	62.30	67.05	4.75
7	37.78	40.18	2.40
8	43.11	43.30	0.19
9	48.82	50.81	1.99
10	57.05	59.76	2.71
11	36.77	35.45	-1.32
12	66.68	70.96	4.28
13	57.92	60.72	2.80
14	38.34	39.93	1.59
15	38.16	36.82	-1.34
16	43.85	44.78	0.93
17	69.97	74.34	4.37
18	23.13	20.61	-2.52
19	67.19	71.67	4.48
20	64.99	69.97	4.98
21	43.59	45.38	1.79
22	48.84	51.22	2.38
23	54.33	57.50	3.17
24	64.37	66.88	2.51
25	26.10	21.04	-5.06
26	50.80	59.55	8.75
27	41.40	43.45	2.05
28	23.52	19.97	-3.55
29	44.65	49.13	4.48
30	42.19	40.30	-1.89
31	64.65	68.68	4.03
32	57.79	60.69	2.90
33	57.34	61.81	4.47
34	38.24	37.05	-1.19
35	69.16	74.20	5.04
36	29.37	25.58	-3.79
37	48.03	51.18	3.15
38	55.75	63.76	8.01
39	54.93	63.06	8.13
40	45.49	43.89	-1.60
41	54.00	61.65	7.65
42	64.35	67.35	3.00
43	58.48	61.30	2.82

WI District	43995 Districts 2004_2012 Composite	43995 Districts Composite 2012-2016	Change 04-10 to 12-16
44	41.86	41.07	-0.79
45	41.45	43.32	1.87
46	7.94	6.54	-1.40
47	13.44	12.43	-1.01
48	55.64	56.30	0.66
49	51.14	58.53	7.39
50	47.93	49.90	1.97
51	53.77	59.49	5.72
52	50.70	58.76	8.06
53	53.03	56.72	3.69
54	52.60	56.71	4.11
55	53.13	60.01	6.88
56	49.29	54.60	5.31
57	54.60	58.49	3.89
58	65.01	68.32	3.31
59	43.49	45.25	1.76
60	39.87	45.18	5.31
61	56.14	62.30	6.16
62	64.58	68.88	4.30
63	43.62	46.81	3.19
64	49.77	56.70	6.93
65	34.47	33.12	-1.35
66	52.44	59.62	7.18
67	54.97	61.51	6.54
68	48.76	51.41	2.65
69	56.38	59.58	3.20
70	48.12	55.09	6.97
71	64.57	69.21	4.64
72	28.34	22.34	-6.00
73	49.17	53.44	4.27
74	69.00	73.63	4.63
75	46.66	51.80	5.14
76	47.75	54.71	6.96
77	47.68	54.49	6.81
78	36.50	40.02	3.52
79	25.66	20.78	-4.88
80	18.21	19.66	1.45
81	50.38	52.70	2.32
82	43.74	47.49	3.75
83	42.90	52.43	9.53
84	43.51	45.91	2.40
85	44.13	48.77	4.64
86	48.00	54.52	6.52
87	47.35	46.92	-0.43

WI District	43995 Districts 2004_2012 Composite	43995 Districts Composite 2012-2016	Change 04-10 to 12-16
88	49.38	56.47	7.09
89	43.06	45.33	2.27
90	43.90	48.88	4.98
91	48.17	53.95	5.78
92	44.62	44.60	-0.02
93	48.49	54.78	6.29
94	51.18	63.47	12.29
95	48.76	55.41	6.65
96	46.22	50.11	3.89
97	51.15	59.58	8.43
98	22.57	17.09	-5.48
99	32.45	27.85	-4.60

Source: Chen 2018; LTSB Election Data

Note: District 98 as displayed is Professor Chen's district E8 and district 99 as displayed is Chen's district E9.

APPENDIX F

2016 President and US Senate Election Performance on Chen 43995

Chen 43995 District	% Trump (R)	% Clinton (D)	Winner	% Johnson (R)	% Feingold (D)	Winner
1	48.87	51.13	DEM	52.08	47.92	REP
2	28.55	71.45	DEM	29.40	70.60	DEM
3	14.38	85.62	DEM	18.32	81.68	DEM
4	48.02	51.98	DEM	49.81	50.19	DEM
5	25.22	74.78	DEM	33.70	66.30	DEM
6	69.15	30.85	REP	69.03	30.97	REP
7	42.40	57.60	DEM	43.45	56.55	DEM
8	44.05	55.95	DEM	42.55	57.45	DEM
9	48.17	51.83	DEM	50.53	49.47	REP
10	60.45	39.55	REP	62.52	37.48	REP
11	31.88	68.12	DEM	33.08	66.92	DEM
12	65.41	34.59	REP	70.24	29.76	REP
13	60.00	40.00	REP	62.17	37.83	REP
14	42.36	57.64	DEM	40.01	59.99	DEM
15	33.21	66.79	DEM	37.82	62.18	DEM
16	45.24	54.76	DEM	47.79	52.21	DEM
17	70.49	29.51	REP	74.55	25.45	REP
18	16.76	83.24	DEM	21.33	78.67	DEM
19	69.46	30.54	REP	72.04	27.96	REP
20	66.32	33.68	REP	70.07	29.93	REP
21	48.26	51.74	DEM	46.87	53.13	DEM
22	48.82	51.18	DEM	51.62	48.38	REP
23	56.19	43.81	REP	58.56	41.44	REP
24	58.13	41.87	REP	65.23	34.77	REP
25	18.29	81.71	DEM	21.81	78.19	DEM
26	63.29	36.71	REP	61.09	38.91	REP
27	45.08	54.92	DEM	46.28	53.72	DEM
28	17.80	82.20	DEM	18.58	81.42	DEM
29	54.93	45.07	REP	53.30	46.70	REP
30	37.74	62.26	DEM	38.27	61.73	DEM
31	70.85	29.15	REP	71.40	28.60	REP
32	61.62	38.38	REP	61.53	38.47	REP
33	62.98	37.02	REP	64.04	35.96	REP
34	33.12	66.88	DEM	36.54	63.46	DEM
35	71.23	28.77	REP	74.45	25.55	REP
36	23.48	76.52	DEM	24.09	75.91	DEM
37	51.20	48.80	REP	53.82	46.18	REP
38	64.55	35.45	REP	66.60	33.40	REP
39	65.51	34.49	REP	66.37	33.63	REP
40	34.16	65.84	DEM	42.32	57.68	DEM
41	68.36	31.64	REP	67.80	32.20	REP
42	59.66	40.34	REP	65.68	34.32	REP
43	54.81	45.19	REP	60.01	39.99	REP
44	41.02	58.98	DEM	43.48	56.52	DEM
45	45.88	54.12	DEM	43.55	56.45	DEM
46	5.86	94.14	DEM	8.23	91.77	DEM
47	10.06	89.94	DEM	14.46	85.54	DEM

2016 President and US Senate Election Performance on Chen 43995

Chen 43995						
District	% Trump (R)	% Clinton (D)	Winner	% Johnson (R)	% Feingold (D)	Winner
48	61.82	38.18	REP	58.45	41.55	REP
49	64.93	35.07	REP	62.71	37.29	REP
50	47.39	52.61	DEM	50.84	49.16	REP
51	61.05	38.95	REP	62.91	37.09	REP
52	65.81	34.19	REP	65.01	34.99	REP
53	54.74	45.26	REP	58.90	41.10	REP
54	57.47	42.53	REP	59.93	40.07	REP
55	64.98	35.02	REP	64.34	35.66	REP
56	60.10	39.90	REP	56.90	43.10	REP
57	58.21	41.79	REP	60.02	39.98	REP
58	60.87	39.13	REP	67.05	32.95	REP
59	45.77	54.23	DEM	45.77	54.23	DEM
60	46.25	53.75	DEM	46.43	53.57	DEM
61	62.59	37.41	REP	65.03	34.97	REP
62	68.93	31.07	REP	70.36	29.64	REP
63	48.89	51.11	DEM	47.77	52.23	DEM
64	56.68	43.32	REP	59.25	40.75	REP
65	26.02	73.98	DEM	29.76	70.24	DEM
66	64.20	35.80	REP	62.44	37.56	REP
67	65.87	34.13	REP	65.55	34.45	REP
68	50.95	49.05	REP	54.01	45.99	REP
69	54.46	45.54	REP	59.34	40.66	REP
70	58.68	41.32	REP	59.69	40.31	REP
71	67.45	32.55	REP	69.92	30.08	REP
72	19.43	80.57	DEM	22.49	77.51	DEM
73	60.91	39.09	REP	57.09	42.91	REP
74	69.26	30.74	REP	73.70	26.30	REP
75	58.78	41.22	REP	54.40	45.60	REP
76	59.79	40.21	REP	57.92	42.08	REP
77	59.04	40.96	REP	57.91	42.09	REP
78	47.22	52.78	DEM	45.48	54.52	DEM
79	15.82	84.18	DEM	18.43	81.57	DEM
80	13.92	86.08	DEM	20.61	79.39	DEM
81	53.91	46.09	REP	55.96	44.04	REP
82	45.73	54.27	DEM	47.68	52.32	DEM
83	58.88	41.12	REP	55.99	44.01	REP
84	49.56	50.44	DEM	44.88	55.12	DEM
85	54.28	45.72	REP	50.72	49.28	REP
86	58.52	41.48	REP	57.22	42.78	REP
87	50.49	49.51	REP	46.81	53.19	DEM
88	63.19	36.81	REP	59.84	40.16	REP
89	43.95	56.05	DEM	45.63	54.37	DEM
90	51.31	48.69	REP	50.05	49.95	REP
91	54.00	46.00	REP	53.72	46.28	REP
92	48.35	51.65	DEM	44.46	55.54	DEM
93	59.53	40.47	REP	57.38	42.62	REP
94	69.93	30.07	REP	65.69	34.31	REP

2016 President and US Senate Election Performance on Chen 43995

Chen 43995 District	% Trump (R)	% Clinton (D)	Winner	% Johnson (R)	% Feingold (D)	Winner
95	58.16	41.84	REP	59.59	40.41	REP
96	50.39	49.61	REP	52.60	47.40	REP
97	62.16	37.84	REP	60.34	39.66	REP
98	14.64	85.36	DEM	18.54	81.46	DEM
99	25.00	75.00	DEM	27.37	72.63	DEM
	Chen Districts Carried By Trump:	**58**		**Chen Districts Carried By Johnson:**	**61**	
	Chen Districts Carried By Clinton:	**41**		**Chen Districts Carried By Feingold:**	**38**	
Source: LTSB Election Data; Chen 2018						
Note: District 98 as displayed is Professor Chen's district E8 and district 99 as displayed is Chen's district E9.						

APPENDIX G

Act 43 District	gov_total	gov_rep	gov_dem	Walker Two-Party % 2018	Won By...	sen_total	sen_rep	sen_dem	Vukmir Two-Party % 2018	Won By...	ag_total	ag_rep	ag_dem	Schimel Two-Party % 2018	Won By...	wsa_total	wsa_rep	wsa_dem	State Assembly GOP Two-Party % 2018	Won By...	sos_total	sos_rep	sos_dem	Sec. of State Two-Party % 2018	Won By...	wst_total	wst_rep	wst_dem	State Tres. Two-Party % 2018	Won By...
1	31,427	17,426	13,508	56.33%	REP	31,313	15,457	15,831	49.40%	DEM	31,128	17,062	13,547	55.74%	REP	30,202	20,651	-	100.00%	REP	30,794	16,429	14,341	53.39%	REP	30,590	16,131	13,665	54.14%	REP
2	28,206	16,881	10,769	61.05%	REP	28,031	15,139	12,856	54.08%	REP	27,831	16,361	10,915	59.98%	REP	27,389	15,014	10,118	59.74%	REP	27,540	15,667	11,850	56.94%	REP	27,396	15,506	11,059	58.37%	REP
3	28,315	16,010	11,772	57.63%	REP	28,160	14,423	13,737	51.22%	REP	28,038	15,831	11,743	57.41%	REP	27,624	15,847	11,775	57.37%	REP	27,682	15,075	12,606	54.46%	REP	27,536	14,831	11,931	55.42%	REP
4	28,528	14,872	13,116	53.14%	REP	28,413	13,458	14,900	47.46%	DEM	28,257	14,715	13,051	53.00%	REP	27,899	15,291	12,585	54.85%	REP	27,926	13,930	13,971	49.93%	DEM	27,789	13,751	13,257	50.91%	REP
5	28,604	17,120	10,970	60.95%	REP	28,488	15,668	12,812	55.01%	REP	28,352	16,986	10,867	60.98%	REP	28,127	17,175	10,952	61.06%	REP	27,994	16,247	11,744	58.04%	REP	27,780	15,839	11,157	58.67%	REP
6	24,763	15,801	8,477	65.08%	REP	24,578	14,433	10,137	58.74%	REP	24,471	15,703	8,252	65.55%	REP	24,398	15,028	7,693	66.14%	REP	24,209	15,316	8,893	63.27%	REP	24,130	15,023	8,422	64.08%	REP
7	23,062	9,064	13,411	40.33%	DEM	22,908	8,212	14,637	35.94%	DEM	22,748	9,070	13,117	40.88%	DEM	19,400	-	15,187	0.00%	DEM	22,413	8,269	14,117	36.94%	DEM	22,261	8,096	13,525	37.45%	DEM
8	9,382	1,447	7,677	15.86%	DEM	9,336	1,283	8,042	13.76%	DEM	9,215	1,391	7,604	15.46%	DEM	9,038	1,639	7,384	18.16%	DEM	9,055	1,389	7,653	15.36%	DEM	9,123	1,263	7,645	14.18%	DEM
9	14,264	3,447	10,502	24.71%	DEM	14,209	3,052	11,120	21.54%	DEM	14,011	3,441	10,236	25.16%	DEM	11,692	-	11,453	0.00%	DEM	13,768	3,098	10,647	22.54%	DEM	13,877	3,003	10,548	22.16%	DEM
10	23,369	2,428	20,621	10.53%	DEM	23,444	2,157	21,263	9.21%	DEM	23,031	2,518	20,140	11.11%	DEM	21,149	-	20,961	0.00%	DEM	22,726	2,301	20,385	10.14%	DEM	22,705	2,233	20,148	9.98%	DEM
11	19,729	2,813	16,601	14.49%	DEM	19,740	2,452	17,262	12.44%	DEM	19,385	2,857	16,141	15.04%	DEM	17,380	-	17,162	0.00%	DEM	19,134	2,486	16,610	13.02%	DEM	19,157	2,436	16,373	12.95%	DEM
12	20,426	3,927	16,172	19.54%	DEM	20,440	3,431	16,967	16.82%	DEM	20,113	3,969	15,752	20.13%	DEM	17,702	-	17,428	0.00%	DEM	19,918	3,520	16,370	17.70%	DEM	19,917	3,504	16,075	17.90%	DEM
13	33,073	17,328	15,188	53.29%	REP	32,967	15,958	16,950	48.49%	DEM	32,736	17,091	15,161	52.99%	REP	32,323	16,617	15,662	51.48%	REP	32,354	16,189	16,120	50.11%	REP	32,109	16,040	15,422	50.98%	REP
14	34,800	17,660	16,655	51.46%	REP	34,727	16,324	18,351	47.08%	DEM	34,476	17,437	16,641	51.17%	REP	34,162	16,459	16,597	49.79%	DEM	34,029	16,446	17,554	48.37%	DEM	33,658	16,324	16,799	49.28%	DEM
15	27,564	14,746	12,235	54.65%	REP	27,354	13,417	13,869	49.17%	DEM	27,195	14,718	11,921	55.25%	REP	26,891	15,089	11,768	56.18%	REP	26,873	13,670	13,160	50.95%	REP	26,596	13,529	12,360	52.26%	REP
16	18,606	1,647	16,555	9.05%	DEM	18,686	1,524	17,113	8.18%	DEM	18,284	1,783	16,099	9.97%	DEM	17,066	-	16,861	0.00%	DEM	18,043	1,693	16,307	9.41%	DEM	18,087	1,630	16,142	9.17%	DEM
17	23,267	3,132	19,778	13.67%	DEM	23,374	2,799	20,550	11.99%	DEM	22,931	3,205	19,274	14.26%	DEM	21,021	-	20,820	0.00%	DEM	22,653	2,872	19,761	12.69%	DEM	22,783	2,848	19,554	12.71%	DEM
18	19,359	2,041	16,928	10.76%	DEM	19,407	1,942	17,432	10.02%	DEM	19,067	2,199	16,453	11.79%	DEM	17,603	-	17,426	0.00%	DEM	18,795	1,975	16,778	10.53%	DEM	18,868	1,879	16,626	10.15%	DEM
19	32,806	7,002	24,929	21.93%	DEM	32,797	6,440	26,285	19.68%	DEM	32,460	6,938	24,980	21.74%	DEM	28,249	-	27,543	0.00%	DEM	32,124	6,662	25,388	20.79%	DEM	32,129	6,646	24,789	21.14%	DEM
20	27,772	10,851	16,293	39.98%	DEM	27,628	9,795	17,763	35.54%	DEM	27,463	10,831	16,013	40.35%	DEM	21,069	-	20,245	0.00%	DEM	27,102	9,956	17,110	36.78%	DEM	26,963	9,709	16,516	37.02%	DEM
21	26,652	13,888	12,201	53.23%	REP	26,451	12,555	13,838	47.57%	DEM	26,300	13,651	12,042	53.13%	REP	26,123	14,280	11,806	54.74%	REP	25,959	12,729	13,201	49.09%	DEM	25,642	12,508	12,476	50.06%	REP
22	33,815	22,104	11,271	66.23%	REP	33,653	20,237	13,376	60.21%	REP	33,496	21,860	11,235	66.05%	REP	32,922	21,153	11,738	64.31%	REP	33,120	20,853	12,245	63.00%	REP	32,917	20,692	11,639	64.00%	REP
23	35,525	18,294	16,793	52.14%	REP	35,419	16,514	18,864	46.68%	DEM	35,281	17,831	17,104	51.04%	REP	35,281	18,321	16,939	51.96%	REP	34,838	17,054	17,745	49.01%	DEM	34,560	17,085	16,995	50.13%	REP
24	33,399	18,102	14,852	54.93%	REP	33,250	16,420	16,802	49.43%	DEM	33,099	17,791	14,893	54.43%	REP	32,906	17,650	15,244	53.66%	REP	32,804	16,983	15,795	51.81%	REP	32,497	16,882	15,118	52.76%	REP
25	24,257	14,778	9,022	62.09%	REP	24,154	13,003	11,134	53.87%	REP	23,961	14,173	9,295	60.39%	REP	23,838	14,785	9,042	62.05%	REP	23,759	13,444	10,305	56.61%	REP	23,626	13,579	9,390	59.12%	REP
26	25,247	14,828	9,953	59.84%	REP	25,102	13,589	11,480	54.21%	REP	24,943	14,496	9,891	59.44%	REP	24,966	14,485	10,466	58.05%	REP	24,797	13,777	10,999	55.61%	REP	24,499	13,634	10,264	57.05%	REP
27	28,229	16,548	11,209	59.62%	REP	28,056	14,797	13,221	52.81%	REP	27,887	16,131	11,215	58.99%	REP	27,735	16,533	11,186	59.65%	REP	27,705	15,258	12,431	55.10%	REP	27,404	15,130	11,682	56.43%	REP
28	24,634	14,685	9,378	61.03%	REP	24,521	13,836	10,679	56.44%	REP	24,397	14,316	9,486	60.15%	REP	24,473	14,441	10,028	59.02%	REP	24,370	14,578	9,787	59.83%	REP	24,316	14,141	9,641	59.46%	REP
29	23,093	12,049	10,187	54.19%	REP	22,973	11,411	11,554	49.69%	DEM	22,849	12,003	10,253	53.93%	REP	22,896	12,523	9,750	56.23%	REP	22,790	12,132	10,649	53.25%	REP	22,714	11,731	10,354	53.12%	REP
30	28,466	14,224	13,357	51.57%	REP	28,364	13,668	14,680	48.22%	DEM	28,282	14,221	13,483	51.33%	REP	28,271	15,240	13,015	53.94%	REP	28,171	14,520	13,637	51.57%	REP	28,064	14,004	13,434	51.04%	REP
31	27,053	14,733	11,716	55.70%	REP	26,889	13,466	13,396	50.13%	REP	26,696	14,637	11,544	55.91%	REP	26,623	15,299	11,305	57.51%	REP	26,477	14,169	12,287	53.56%	REP	26,203	13,844	11,627	54.35%	REP
32	25,475	15,730	9,216	63.06%	REP	25,333	14,425	10,858	57.05%	REP	25,232	15,460	9,291	62.46%	REP	25,015	14,813	10,182	59.26%	REP	25,110	15,225	9,866	60.68%	REP	24,936	14,835	9,545	60.85%	REP
33	28,367	17,378	10,494	62.35%	REP	28,212	16,210	11,952	57.56%	REP	28,090	17,361	10,298	62.77%	REP	27,478	17,236	10,219	62.78%	REP	27,763	16,673	11,068	60.10%	REP	27,564	16,550	10,406	61.40%	REP
34	32,088	19,524	11,883	62.16%	REP	31,920	17,765	14,116	55.72%	REP	31,728	19,013	12,206	60.90%	REP	31,816	19,699	12,096	61.96%	REP	31,440	18,489	12,933	58.84%	REP	31,266	18,326	12,324	59.79%	REP
35	26,936	16,262	9,548	63.01%	REP	26,655	14,526	12,111	54.53%	REP	26,366	16,207	9,627	62.74%	REP	26,107	16,380	9,714	62.77%	REP	26,204	15,583	10,590	59.54%	REP	25,983	15,069	10,272	59.46%	REP
36	25,886	16,448	8,990	64.66%	REP	25,608	14,601	10,998	57.04%	REP	25,431	16,077	8,857	64.48%	REP	25,283	16,938	8,338	67.01%	REP	25,226	15,532	9,686	61.59%	REP	25,279	15,495	9,134	62.91%	REP
37	27,565	15,065	12,011	55.64%	REP	27,413	13,955	13,428	50.96%	REP	27,279	15,142	11,675	56.46%	REP	20,433	19,616	-	100.00%	REP	26,981	14,446	12,514	53.58%	REP	26,763	14,402	11,669	55.24%	REP
38	32,060	18,929	12,680	59.88%	REP	31,908	17,594	14,280	55.20%	REP	31,759	18,952	12,393	60.46%	REP	31,361	18,056	13,286	57.61%	REP	31,461	18,080	13,360	57.51%	REP	31,202	17,969	12,634	58.72%	REP
39	25,469	15,854	9,116	63.49%	REP	25,248	14,506	10,742	57.45%	REP	25,246	15,789	9,028	63.62%	REP	25,150	15,940	9,210	63.38%	REP	24,878	15,137	9,741	60.84%	REP	24,753	15,096	9,073	62.46%	REP
40	24,838	15,428	8,986	63.19%	REP	24,667	14,150	10,505	57.39%	REP	24,545	15,264	8,800	63.43%	REP	24,555	15,794	8,759	64.33%	REP	24,282	14,845	9,428	61.16%	REP	24,326	14,689	8,968	62.09%	REP
41	24,491	14,133	9,827	58.99%	REP	24,450	12,909	11,522	52.84%	REP	24,303	14,132	9,678	59.35%	REP	24,249	15,257	8,984	62.94%	REP	24,146	13,732	10,402	56.90%	REP	24,005	13,385	9,646	58.12%	REP
42	26,933	13,963	12,439	52.89%	REP	26,771	13,119	13,623	49.06%	DEM	26,575	14,223	11,868	54.51%	REP	26,529	15,299	11,209	57.71%	REP	26,457	13,710	12,732	51.85%	REP	26,042	13,514	11,831	53.32%	REP
43	27,609	11,523	15,477	42.68%	DEM	27,479	10,815	16,627	39.41%	DEM	27,182	11,717	14,934	43.96%	DEM	26,564	10,288	16,241	38.78%	DEM	26,918	11,127	15,766	41.38%	DEM	26,626	10,960	14,916	42.36%	DEM
44	23,498	8,261	14,595	36.14%	DEM	23,376	7,916	15,433	33.90%	DEM	23,158	8,445	14,200	37.29%	DEM	18,472	-	18,005	0.00%	DEM	23,017	8,077	14,920	35.12%	DEM	22,676	7,762	14,211	35.33%	DEM
45	21,397	8,302	12,492	39.92%	DEM	21,297	7,719	13,560	36.28%	DEM	20,962	8,431	11,953	41.36%	DEM	17,950	-	14,198	0.00%	DEM	20,858	8,097	12,737	38.86%	DEM	20,649	7,913	12,046	39.65%	DEM
46	30,893	9,826	20,521	32.38%	DEM	30,780	9,288	21,447	30.22%	DEM	30,498	10,293	19,769	34.24%	DEM	24,697	-	24,011	0.00%	DEM	30,322	9,627	20,666	31.78%	DEM	30,029	9,550	19,816	32.52%	DEM
47	32,306	7,569	24,178	23.84%	DEM	32,243	7,161	25,033	22.24%	DEM	32,010	7,954	23,665	25.16%	DEM	26,226	-	25,706	0.00%	DEM	31,699	7,526	24,131	23.77%	DEM	31,425	7,463	23,336	24.23%	DEM
48	33,003	5,962	26,437	18.40%	DEM	32,928	5,715	27,159	17.38%	DEM	32,641	6,459	25,701	20.08%	DEM	28,297	-	27,794	0.00%	DEM	32,486	6,016	26,427	18.54%	DEM	32,215	5,858	25,779	18.52%	DEM
49	22,052	10,679	10,877	49.54%	DEM	21,863	9,924	11,931	45.41%	DEM	21,681	10,975	10,269	51.66%	REP	21,844	12,858	8,968	58.91%	REP	21,575	10,509	11,056	48.73%	DEM	21,489	10,819	10,161	51.57%	REP
50	22,941	12,103	10,375	53.84%	REP	22,850	11,313	11,526	49.53%	DEM	22,729	12,454	9,805	55.95%	REP	22,700	12,379	9,658	56.17%	REP	22,536	12,085	10,445	53.64%	REP	22,377	11,978	9,749	55.13%	REP
51	24,870	11,030	13,356	45.23%	DEM	24,691	9,827	14,851	39.82%	DEM	24,477	11,420	12,550	47.64%	DEM	24,573	12,445	12,113	50.68%	REP	24,281	10,477	13,797	43.16%	DEM	24,063	10,959	12,531	46.65%	DEM
52	24,851	14,476	9,953	59.26%	REP	24,557	13,169	11,368	53.67%	REP	24,675	14,059	10,277	57.77%	REP	24,604	15,164	9,427	61.66%	REP	24,373	13,684	10,674	56.18%	REP	24,137	13,545	10,041	57.43%	REP
53	24,491	14,659	9,378	60.99%	REP	24,312	13,568	10,718	55.87%	REP	24,295	14,544	9,356	60.85%	REP	23,986	15,160	8,812	63.24%	REP	24,016	14,251	9,751	59.37%	REP	23,876	13,981	9,292	60.07%	REP
54	24,389	10,325	13,472	43.39%	DEM	24,308	9,557	14,711	39.38%	DEM	24,167	10,321	13,369	43.57%	DEM	19,160	-	18,019	0.00%	DEM	23,871	10,010	13,827	41.99%	DEM	23,724	9,706	13,352	42.09%	DEM
55	27,901	14,836	12,393	54.49%	REP	27,828	13,475	14,324	48.47%	DEM	27,733	14,646	12,541	53.87%	REP	27,418	15,122	12,283	55.18%	REP	27,455	14,183	13,253	51.69%	REP	27,296	13,735	12,736	51.89%	REP
56	31,045	18,093	12,362	59.41%	REP	30,864	16,591	14,260	53.78%	REP	30,759	17,917	12,343	59.21%	REP	30,147	18,033	12,110	59.82%	REP	30,366	17,335	13,028	57.09%	REP	30,130	16,940	12,429	57.68%	REP
57	23,482	9,665	13,121	42.42%	DEM	23,394	8,857	14,516	37.89%	DEM	23,275	9,545	13,194	41.98%	DEM	17,257	-	16,946	0.00%	DEM	22,967	9,228	13,730	40.20%	DEM	22,903	8,786	13,259	39.85%	DEM
58	29,205	20,650	8,168	71.66%	REP	29,054	19,035	10,018	65.52%	REP	29,032	20,470	8,152	71.52%	REP	28,839	20,471	8,368	70.98%	REP	28,778	19,771	9,007	68.70%	REP	28,579	19,682	8,366	70.17%	REP
59	28,262	20,597	7,263	73.93%	REP	28,026	18,931	9,084	67.57%	REP	28,036	20,323	7,297	73.58%	REP	23,504	23,339	-	100.00%	REP	27,733	19,527	8,182	70.47%	REP	27,508	19,357	7,556	71.92%	REP
60	32,454	21,805	10,208	68.11%	REP	32,306	20,181	12,088	62.54%	REP	32,216	21,442	10,347	67.45%	REP	31,920	20,702	11,182	64.93%	REP	31,889	20,840	11,020	65.41%	REP	31,702	20,679	10,443	66.44%	REP
61	27,207	15,726	10,694	59.52%	REP	27,056	14,574	12,444	53.94%	REP	26,881	15,688	10,647	59.57%	REP	26,841	16,606	10,207	61.93%	REP	26,704	15,414	11,263	57.78%	REP	26,403	14,829	10,934	57.56%	REP
62	29,796	16,649	12,526	57.07%	REP	29,673	15,329	14,300	51.74%	REP	29,539	16,688	12,345	57.48%	REP	29,223	16,035	13,161	54.92%	REP	29,300	15,818	13,454	54.04%	REP	29,151	15,642	12,882	54.84%	REP
63	27,991	16,379	11,061	59.69%	REP	27,836	15,083	12,711	54.27%	REP	27,723	16,538	10,725	60.66%	REP	27,499	16,775	10,705	61.04%	REP	27,463	15,672	11,771	57.11%	REP	27,297	15,459	11,221	57.94%	REP
64	24,068	10,019	13,420	42.74%	DEM	23,925	9,238	14,649	38.67%	DEM	23,752	10,191	13,097	43.76%	DEM	21,416	-	16,773	0.00%	DEM	23,567	9,679	13,866	41.11%	DEM	23,326	9,286	13,498	40.76%	DEM
65	19,493	6,663	12,107	35.50%	DEM	19,303	6,210	13,055	32.23%	DEM	19,175	6,854	11,873	36.60%	DEM	14,931	-	14,456	0.00%	DEM	19,067	6,593	12,457	34.61%	DEM	18,824	6,190	12,090	33.86%	DEM
66	18,016	4,922	12,542	28.18%	DEM	17,922	4,454	13,433	24.90%	DEM	17,757	4,890	12,374	28.32%	DEM	14,896	-	14,450	0.00%	DEM	17,666	4,639	12,996	26.31%	DEM	17,578	4,419	12,676	25.85%	DEM
67	26,219	14,840	10,851	57.76%	REP	26,081	13,416	12,664	51.44%	REP	25,876	14,649	10,491	58.27%	REP	25,848	15,970	9,878	61.78%	REP	25,664	14,198	11,466	55.32%	REP	25,649	14,128	10,906	56.44%	REP
68	24,889	13,361	11,005	54.83%	REP	24,775	11,923	12,839	48.15%	DEM	24,626	13,083	10,883	54.59%	REP	24,533	14,129	10,394	57.62%	REP	24,345	12,518	11,821	51.43%	REP	24,301	12,376	11,275	52.33%	REP
69	22,624	13,983	8,239	62.92%	REP	22,459	12,269	10,183	54.65%	REP	22,279	13,477	8,284	61.93%	REP	18,905	17,257	1,576	91.63%	REP	22,045	12,817	9,223	58.15%	REP	21,918	12,715	8,495	59.95%	REP
70	24,722	14,073	10,132	58.14%	REP	24,626	12,640	11,956	51.39%	REP	24,369	13,812	9,997	58.01%	REP	24,273	15,027	9,223	61.97%	REP	24,210	13,284	10,909	54.91%	REP	24,018	13,004	10,265	55.89%	REP
71	28,188	12,297	15,123	44.85%	DEM	28,062	11,252	16,769	40.16%	DEM	27,851	12,281	15,030	44.97%	DEM	21,022	-	20,548	0.00%	DEM	27,518	11,586	15,905	42.14%	DEM	27,299	11,222	15,326	42.27%	DEM
72	26,095	14,904	10,702	58.21%	REP	25,983	13,577	12,385	52.30%	REP	25,686	14,674	10,503	58.28%	REP	25,773	14,773	10,992	57.34%	REP	25,575	14,190	11,375	55.51%	REP	25,402	13,920	10,807	56.29%	REP
73	25,488	11,088	13,775	44.60%	DEM	25,294	10,451	14,831	41.34%	DEM	25,267	10,898	13,863	44.01%	DEM	19,094	16	18,510	0.09%	DEM	25,140	10,986	14,142	43.72%	DEM	25,050	10,648	13,929	43.33%	DEM
74	28,509	13,234	14,710	47.36%	DEM	28,394	12,029	16,355	42.38%	DEM	28,018	12,885	14,667	46.77%	DEM	28,022	12,276	15,738	43.82%	DEM	28,086	12,579	15,500	44.80%	DEM	27,878	12,354	15,006	45.15%	DEM

Act 43 District	gov_total	gov_rep	gov_dem	Walker Two-Party % 2018	Won By...	sen_total	sen_rep	sen_dem	Vukmir Two-Party % 2018	Won By...	ag_total	ag_rep	ag_dem	Schimel Two-Party % 2018	Won By...	wsa_total	wsa_rep	wsa_dem	State Assembly GOP Two-Party % 2018	Won By...	sos_total	sos_rep	sos_dem	Sec. of State Two-Party % 2018	Won By...	wst_total	wst_rep	wst_dem	State Tres. Two-Party % 2018	Won By...
75	24,121	13,962	9,763	58.85%	REP	24,006	13,003	10,992	54.19%	REP	23,832	13,719	9,608	58.81%	REP	24,004	14,925	9,078	62.18%	REP	23,771	13,577	10,188	57.13%	REP	23,753	13,467	9,757	57.99%	REP
76	41,023	4,830	35,264	12.05%	DEM	41,020	4,718	36,220	11.52%	DEM	40,581	5,191	34,879	12.95%	DEM	37,478	-	36,891	0.00%	DEM	40,259	5,177	34,944	12.90%	DEM	40,117	5,141	34,368	13.01%	DEM
77	33,148	3,935	28,660	12.07%	DEM	33,180	3,765	29,370	11.36%	DEM	32,851	4,229	28,296	13.00%	DEM	29,741	-	29,347	0.00%	DEM	32,551	4,158	28,331	12.80%	DEM	32,473	3,963	28,017	12.39%	DEM
78	36,293	7,431	28,142	20.89%	DEM	36,191	7,025	29,120	19.44%	DEM	35,944	7,939	27,580	22.35%	DEM	30,639	-	30,044	0.00%	DEM	35,624	7,552	28,023	21.23%	DEM	35,438	7,397	27,407	21.25%	DEM
79	37,315	12,239	24,542	33.28%	DEM	37,218	11,375	25,804	30.60%	DEM	37,011	12,809	23,804	34.98%	DEM	28,776	-	28,079	0.00%	DEM	36,640	12,042	24,568	32.89%	DEM	36,343	12,032	23,676	33.70%	DEM
80	34,708	11,145	22,863	32.77%	DEM	34,570	10,529	24,002	30.49%	DEM	34,360	11,728	22,106	34.66%	DEM	26,808	-	26,189	0.00%	DEM	34,045	11,016	23,004	32.38%	DEM	33,707	11,001	21,956	33.38%	DEM
81	27,244	10,893	15,761	40.87%	DEM	27,134	10,316	16,808	38.03%	DEM	26,952	11,400	15,017	43.15%	DEM	20,038	-	19,766	0.00%	DEM	26,741	10,758	15,977	40.24%	DEM	26,417	10,738	15,005	41.71%	DEM
82	29,688	16,765	12,494	57.30%	REP	29,470	14,976	14,460	50.88%	REP	29,315	16,538	12,385	57.18%	REP	26,538	18,039	-	100.00%	REP	28,910	15,231	13,657	52.72%	REP	28,487	15,069	12,894	53.89%	REP
83	32,839	22,718	9,692	70.10%	REP	32,632	21,195	11,401	65.02%	REP	32,542	22,693	9,470	70.56%	REP	31,998	22,351	9,624	69.90%	REP	32,177	21,656	10,506	67.33%	REP	31,880	21,407	9,892	68.40%	REP
84	29,713	16,909	12,309	57.87%	REP	29,567	15,430	14,085	52.28%	REP	29,382	16,891	12,042	58.38%	REP	29,047	16,684	12,341	57.48%	REP	29,018	15,666	13,323	54.04%	REP	28,749	15,621	12,580	55.39%	REP
85	25,231	13,263	11,364	53.86%	REP	25,146	11,788	13,328	46.93%	DEM	25,040	13,120	11,451	53.40%	REP	24,962	13,791	11,150	55.29%	REP	24,751	12,331	12,397	49.87%	DEM	24,674	12,066	11,995	50.15%	REP
86	29,088	18,086	10,528	63.21%	REP	28,915	16,010	12,875	55.43%	REP	28,815	17,819	10,563	62.78%	REP	28,717	17,174	10,575	61.89%	REP	28,490	16,822	11,650	59.08%	REP	28,343	16,585	11,079	59.95%	REP
87	24,078	15,389	8,260	65.07%	REP	23,855	13,673	10,163	57.36%	REP	23,685	14,920	8,261	64.36%	REP	23,719	15,682	8,027	66.14%	REP	23,499	14,317	9,170	60.96%	REP	23,386	14,298	8,542	62.60%	REP
88	27,808	14,350	12,909	52.64%	REP	27,654	12,968	14,655	46.95%	DEM	27,540	14,334	12,763	52.90%	REP	27,440	14,628	12,793	53.35%	REP	27,234	13,571	13,648	49.86%	DEM	27,139	13,370	13,070	50.57%	REP
89	25,909	15,971	9,470	62.78%	REP	25,759	14,590	11,150	56.68%	REP	25,648	15,714	9,429	62.50%	REP	25,565	17,091	8,461	66.89%	REP	25,411	15,228	10,170	59.96%	REP	25,326	15,069	9,650	60.96%	REP
90	17,847	6,813	10,350	39.70%	DEM	17,745	6,145	11,549	34.73%	DEM	17,634	6,730	10,368	39.36%	DEM	13,487	-	12,994	0.00%	DEM	17,425	6,453	10,949	37.08%	DEM	17,384	6,160	10,518	36.93%	DEM
91	27,156	9,665	16,749	36.59%	DEM	27,062	8,853	18,160	32.77%	DEM	26,804	9,607	16,492	36.81%	DEM	26,347	8,798	17,512	33.44%	DEM	26,537	9,437	17,066	35.61%	DEM	26,539	9,004	16,802	34.89%	DEM
92	23,694	12,712	10,489	54.79%	REP	23,530	10,888	12,630	46.30%	DEM	23,261	12,217	10,424	53.96%	REP	23,499	12,955	10,537	55.15%	REP	23,155	11,681	11,464	50.47%	REP	23,074	11,477	10,962	51.15%	REP
93	27,706	15,092	11,979	55.75%	REP	27,581	13,785	13,782	50.01%	REP	27,435	14,795	11,966	55.29%	REP	27,381	15,935	11,435	58.22%	REP	27,242	14,701	12,528	53.99%	REP	27,184	14,240	12,258	53.74%	REP
94	29,403	14,520	14,253	50.46%	REP	29,314	12,939	16,375	44.14%	DEM	28,998	14,238	14,138	50.18%	REP	29,065	11,567	17,498	39.80%	DEM	28,697	13,719	14,978	47.81%	DEM	28,546	13,498	14,328	48.51%	DEM
95	27,678	9,017	17,850	33.56%	DEM	27,577	8,221	19,356	29.81%	DEM	27,289	9,119	17,579	34.16%	DEM	21,989	-	21,989	0.00%	DEM	27,026	8,944	18,082	33.09%	DEM	26,896	8,629	17,515	33.01%	DEM
96	24,046	12,054	11,548	51.07%	REP	23,878	10,532	13,339	44.12%	DEM	23,706	11,798	11,332	51.01%	REP	23,866	12,327	11,536	51.66%	REP	23,593	11,352	12,235	48.13%	DEM	23,492	11,312	11,606	49.36%	DEM
97	26,817	15,831	10,494	60.14%	REP	26,603	14,674	11,888	55.24%	REP	26,532	16,061	10,028	61.56%	REP	19,729	18,945	-	100.00%	REP	26,156	14,959	11,172	57.25%	REP	25,988	14,805	10,573	58.34%	REP
98	31,218	20,187	10,566	65.64%	REP	31,022	18,647	12,333	60.19%	REP	30,934	20,202	10,296	66.24%	REP	23,689	23,005	-	100.00%	REP	30,530	19,105	11,404	62.62%	REP	30,300	18,902	10,824	63.59%	REP
99	33,783	24,214	9,209	72.45%	REP	33,572	22,733	10,805	67.78%	REP	33,498	24,042	9,055	72.64%	REP	26,803	26,251	-	100.00%	REP	33,106	23,099	9,987	69.82%	REP	32,814	22,914	9,372	70.97%	REP

Source: John D. Johnson 2018 Election Data