

FILED  
5th JUDICIAL DISTRICT COURT  
Lea County  
9/18/2023 3:27 PM  
NELDA CUELLAR  
CLERK OF THE COURT  
Cory Hagedoorn

STATE OF NEW MEXICO  
COUNTY OF LEA  
FIFTH JUDICIAL DISTRICT COURT

REPUBLICAN PARTY OF NEW MEXICO,  
DAVID GALLEGOS, TIMOTHY JENNINGS,  
DINAH VARGAS, MANUEL GONZALES, JR.,  
BOBBY and DEANN KIMBRO, and  
PEARL GARCIA,

Plaintiffs,

vs.

No. D-506-CV-2022-00041

MAGGIE TOULOUSE OLIVER in her official  
capacity as New Mexico Secretary of State,  
MICHELLE LUJAN GRISHAM in her official  
capacity as Governor of New Mexico, HOWIE  
MORALES in his official capacity as New Mexico  
Lieutenant Governor and President of the New  
Mexico Senate, MIMI STEWART in her official  
capacity as President Pro Tempore of the New  
Mexico Senate, and JAVIER MARTINEZ in his  
official capacity as Speaker of the New Mexico  
House of Representatives,

Defendants

**ADDENDUM TO PLAINTIFFS' EXHIBITS TO THEIR FINDINGS & CONCLUSIONS**

**EXHIBITS 4 through 10 of 33**

Respectfully submitted,

/s/ Carter B. Harrison IV

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### **CERTIFICATE OF SERVICE**

I certify that Plaintiffs' Exhibits to Their Findings & Conclusions Exhibits 4 through 10 of 33 were electronically filed and served via the State of New Mexico's Tyler/Odyssey E-File & Serve System, and served by email, on September 15, 2023.

/s/ Carter B. Harrison IV  
Carter B. Harrison

# **PLAINTIFFS' EXHIBIT 4**

FILED  
5th JUDICIAL DISTRICT COURT  
Lea County  
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Jazmin Yanez

**STATE OF NEW MEXICO  
COUNTY OF LEA  
FIFTH JUDICIAL DISTRICT**

**REPUBLICAN PARTY OF NEW MEXICO,  
DAVID GALLEGOS, TIMOTHY JENNINGS,  
DINAH VARGAS, MANUEL GONZALES, JR.  
BOBBY AND DEE ANN KIMBRO, and  
PEARL GARCIA,**

**Plaintiffs,**

**v.**

**Cause No. D-506-Cv-2022-00041**

**MAGGIE TOULOUSE OLIVER, in her official capacity as  
New Mexico Secretary of State, MICHELLE LUJAN  
GRISHAM, in her official capacity as Governor of New  
Mexico, HOWIE MORALES, in his official capacity as  
New Mexico Lieutenant Governor and President of the  
New Mexico Senate, MIMI STEWART, in her official  
capacity as President Pro Tempore of the New Mexico  
Senate, and JAVIER MARTINEZ, in his official capacity as  
Speaker of the New Mexico House of Representatives,**

**Defendants.**

**Declaration and Expert Report  
Of  
Kimball W. Brace**

President  
Election Data Services, Inc.  
6171 Emerywood Court  
Manassas, VA 20112  
August 25, 2023



**REPORT AND DECLARATION OF KIMBALL W. BRACE**  
**August 25, 2023**

**I. Introduction**

My name is Kimball William Brace. I am the president of Election Data Services, Inc. (“Election Data Services” or “EDS, Inc.”), a Manassas, Virginia-based consulting firm whose specialty is reapportionment, redistricting matters, election administration issues, and the census.

I have been retained by the law firm of Peifer, Hanson, Mullins & Baker, P.A. in the case of *Republican Party of New Mexico, et al. v. Oliver, et al.*, Case No. D-506-CV-2022-00041 to evaluate the redistricting process and plans generated in New Mexico for Congressional Districts. In addition, I have been asked to opine on Supreme Court Justice Kagan’s dissenting opinion in *Rucho v. Common Cause*, 139 S. Ct. 2482 (2019) as it relates to New Mexico’s 2021 redistricting process for Congressional Districts.

All the materials considered in forming the opinions contained herein are identified in this report. I am being compensated at an hourly rate of \$275 per hour for my work, and at an hourly rate of \$185 for work performed by other Election Data Services staffers.

**II. Background and Qualifications**

I attended American University in Washington, D.C., from 1969 through 1974 (having taken a year off for the 1972 campaign), where I earned a B.A. degree in Political Science. I started Election Data Services in 1977 and have been with the company since that time. Prior to 1977, I was a journalist and was employed by such companies as NBC News, Congressional Quarterly, and Plus Publications.

As president of Election Data Services, I supervise and direct all major projects in which the company is involved. Election Data Services has been viewed by clients, the press, academics, and the general public as a research facility and consulting firm dealing with many aspects of the electoral process. State and local governments across the nation have hired Election Data Services and its staff over the past five decades to provide software, database development

services, and consulting services for the creation of districting plans and the analysis of many aspects of the redistricting process.

Since 1979, I, individually and with Election Data Services, have been actively involved in many aspects of the redistricting process, having gone through five full census and redistricting cycles. I have been a consultant to many state and local governmental organizations around the nation, providing strategic advice and consulting on redistricting matters, coordinating the development of extensive databases used in the redistricting process, creating and assisting others with the creation of districting plans, and analyzing many aspects of districts and district configurations, including conducting racial bloc voting and compactness analysis. Over the past 44 years, Election Data Services' clients for redistricting services have come from more than half the states in the nation.

During the course of our work over the past nearly five decades, we have undertaken and performed many different analyses of redistricting plans from around the nation. Most notable are our efforts to calculate compactness measures for both congressional and state legislative districts in all 50 states. Our company supplied compactness data and the analysis of congressional districts in Texas and throughout the nation that was reported in Dr. Pildes' and Dr. Niemi's December 1993 Michigan Law Review article (92 Mich. L. Rev., 483), which was cited with approval by Justice O'Connor in Bush v. Vera 64 U.S.L.W. 4452, 4455, 4458 (U.S. June 13, 1996) (plurality opinion).

For the 2020 cycle, we were hired through a competitive bid process by the Michigan Independent Citizens Redistricting Commission, established by voter initiative to remove politicians from the redistricting process. We were contracted to provide plan drafting services through a bi-partisan group of former state redistricting experts we created for the project. We created a massive database of all Census data, plus political data for the decade, all configured down to the Census block level and all higher geographic levels, so that it could be incorporated into the AutoBound redistricting mapping system that was used to perform the actual district creation at the direction of Commissioners in open and fully transparent public meetings that were televised. We trained Commission members on all aspects of the data and the software, and were present at each of their meetings to run the software projected onto large TV and projector screens, including YouTube live television coverages.

We had a similar all inclusive arrangement with the Rhode Island Legislature (as we have continuously since 1980). I personally testified at each of

their weekly commission meetings, as well as before the legislature itself when they passed the final plan. We positioned a staffer in the state for the full year, who worked with each legislator on their district plan and then the merger of all ideas into a statewide plan for the commission. We also worked with more than half the state's cities and towns to create their own local redistricting plans, and then worked with their town clerks to adjust their precincts and ultimately their polling sites. We also worked with the local election clerks to adjust their street files that were embedding in the statewide voter registration system so that every voter was properly placed in their respective precinct.

For the past three years we also worked in the State of Illinois with their state legislature, Cook County, Chicago, and city of North Chicago, Illinois, Bridgeport, Connecticut, Providence, Warwick and Cranston, RI, State of Virginia and city of Virginia Beach, VA. In some instances we provided complete database development and plan drafting services, while in other circumstances we create the database and turned over the map drafting tasks to their own staffers. Even in those instances we continued to provide support for their efforts.

In addition, over the past four decades I have been called upon to provide reports, expert witness testimony, and assistance to attorneys in more than 80 different court cases.

I frequently give speeches to groups and organizations and participate in numerous conferences and panels on various aspects of apportionment, redistricting, and the census. Since the early 1980s, I have been a regular participant and speaker at annual and bi-annual meetings of the Task Force on Redistricting of the National Conference of State Legislatures ("NCSL"). I have also been on their faculty, as NCSL has conducted five regional "Get Ready for Redistricting" seminars each decade since 1980. I was also appointed by the U.S. Secretary of Commerce to the 2010 Census Advisory Committee, a 20-person advisory board to the Director of the Census Bureau. Earlier this year I was asked to be NCSL's representative on a series of half-day small-group expert meetings, being arranged by the Committee on National Statistics (CNSTAT), to delve deeply into and provide informal discussion/feedback with Census Bureau staff as they continue to develop the differential privacy-based Disclosure Avoidance System for the 2020 census. I am repeatedly called upon by members of the press with questions on redistricting, reapportionment, the census, election administration issues, and politics in general.

When I first started in redistricting for the 1980 cycle in other parts of the nation, redistricting experts conducted redistricting activities the old fashion way, using paper maps, lots of acetate, and plenty of color pencils. To see where different racial, ethnic origin and political groups were located in a jurisdiction, we colored thematic maps by hand. Unfortunately, that meant careful planning for what colors would show what percentage range. It was too time consuming to try one set of ranges, then change, and make another map. However, with the advent of personal computers (PCs) in the early 1980s, I and my company, Election Data Services, Inc. began using some of the earliest mapping software packages, usually to produce color maps for exhibits in court cases. This ultimately led us to more extensive geographic information system (GIS) software packages and our own development of redistricting software that was used in numerous state and local redistricting projects in the 1990 round.

We continued developing GIS software applications to help state governments compile precinct configurations for submission to the Census Bureau under P.L. 94-171 (whereby census data was compiled by precinct for use in redistricting). We developed analysis software for use during the 2000, 2010 and 2020 redistricting process and have utilized both major redistricting software packages over the past decades.

For the past five decades I and Election Data Services have studied and issued yearly reports on the apportionment process using new population estimates released by the Census Bureau and private demographic firms. All our reports can be found at our website: [www.electiondataservices.com](http://www.electiondataservices.com), under the “Research” tab. We have become a staple for the press and others to cite when looking at the shift that is occurring in population between different states.

A copy of my curriculum vitae is attached as **Exhibit A**, which includes a complete list of cases in which, during the previous five decades, I have testified as an expert at trial or by deposition.

### **III. SUMMARY OF CONCLUSIONS**

My analysis of the redistricting plans developed during New Mexico’s redistricting process have led me to cite the following important details which are expanded further in this report.

- a. SB 1 kept over 70% of the state’s population in the same congressional district as they were during the last decade.

- b. The state continued the practice of providing opportunities for minority candidates of choice to be elected in all three districts. All three districts have majority minority concentrations in SB 1, just like the plan used last decade. Therefore, there was no retrogression under the Voting Rights Act.
- c. Given the population shifts of the last decade that were unveiled with the 2020 Census results, it's understandable for the districts to move south and southeasterly during the redistricting process.
- d. District 2 continues to be the most Republican district in the state. The shift in the boundaries created by SB 1, made the district more competitive but not overwhelmingly Democratic, as evident by the 2022 election results. Republicans can still carry this district with the right candidate, as evidenced by past election results reconstituted to the new boundaries.
- e. Having drawn district boundaries in a number of states and local jurisdictions, as well as studying redistricting practices and results around the nation, I do not find SB 1 to be an egregious gerrymander as defined by Justice Kagan in *Rucho vs Common Cause*.

#### **IV. REDISTRICTING PLANS ANALYZED**

Any analysis of redistricting plans begins with understanding the parameters of Census data in the state. The 2020 Census data provided a wealth of information on the racial and ethnic origin of the population of New Mexico and where they are concentrated. We normally produce a map of the area in question based upon whether the racial groups are a majority or a plurality of the people in the appropriate geography. **Exhibit B** is a map of the Census data at the precinct level and where the racial groups are a majority or a plurality in the respective precinct. County boundaries are also shown for orientation. Only the non-Hispanic White, Hispanic, and non-Hispanic Native American populations are concentrated enough to be a majority or plurality of a precinct. There are no African American concentrations where they are more than 14% of a precinct.

For the purposes of this report, I have analyzed five different congressional plans that played a part in the New Mexico's redistricting process.

- 1) **“Previous2011” Plan** – The plan utilized by the State during the 2010s decade, adopted by the Courts in 2011. Typically, redistrictors use this

plan as the benchmark, upon which all future plans are compared. As soon as the Census data is released, this is the first report most states produce to see “how far off” their existing districts might be in terms of “one person, one vote” calculations.

- 2) **“Passed SB1” Plan** – The plan adopted in 2021 by the state legislature as SB1
- 3) **“Plan A” Concept Plan** – The initial concept plan adopted by the Citizen Redistricting Committee, a Committee created by the State Legislature in “The Redistricting Act” NMSA 1978, § 1-3A-3 (2021). The Plaintiffs in this suit said in their complaint that Concept A *was expressly adopted to “maintain status quo.” It largely maintained the existing congressional districts as drawn by the state courts in 2012 and only divided four cities and four counties, while at the same time eliminating the division of McKinley County from the 2012 map. See Verified Complaint at ¶ 60, citing New Mexico Citizen Redistricting Committee Report on District Plans & Evaluations to the New Mexico Legislature at 30-32, dated Nov. 2, 2021.*
- 4) **“Plan E” Concept Plan** – Plaintiffs in this case said in their complaint that *Concept E, known as the “Justice Chávez Map” was drawn by Justice Chávez in response to public comment on an earlier version published by the Citizen Redistricting Committee for public consideration. Citizen Redistricting Committee Report at 38-40. Concept E emphasized compactness in creating a single urban district (CD 1) centered on the city of Albuquerque and other incorporated urban and suburban communities immediately adjacent to Albuquerque, including Rio Rancho. Concept E expressly retained the core of CD 3 in northern New Mexico and CD 2 in southern New Mexico and only divided five cities and six counties. Verified Complaint at ¶¶ 61-63*
- 5) **“Plan H” Concept Plan** – Plaintiffs in this case said in their complaint that *Concept H was not initially developed by the Citizen Redistricting Committee—it was based on a map submitted by a coalition of politically liberal community organizations on October 1, 2021. A core argument by the proponents of what would become Concept H was to “create a solid Hispanic voting age majority district” in CD 2. Verified Complaint at ¶¶ 66-67.*

We have created a set of consistently formatted statewide maps, with an Albuquerque insert, of each of the plans that were analyzed. They are situated at the beginning of each of the analysis packages (as x.1) in **Exhibits D through H** noted below.

For each of the five plans analyzed, we have created a 20-page report (shown as **x.2**) in **Exhibits D through H** noted below) that shows population and political data for each of the districts in each plan. These reports follow a consistent format between the plans, including the fact that the plan's name is in the title for each page, and the second line of the title shows the methods used to calculate the racial and ethnic original information from the Census. This second line matches up with the more detailed description of race and ethnicity shown in **Exhibit C** of this report, with the straight number in the title indicating just the race calculations and the number followed by an "A" is the "non-Hispanic" racial data being shown.

The first page is always a report on what is the ideal district size for the populations for each decade. While we are showing a .002% acceptable population range, most state's congressional districts are drawn with no, or very little, population deviation. We use this kind of report for state legislative and local redistrictings where wider ranges have passed court review.

The second page of each report is reporting more detailed information on the plans' population deviation, for each of the districts and the overall plans' deviation by noting the largest and smallest district in the plan (the absolute numbers are then summed to get the plans' total deviation, expressed in both raw and percentage terms) The third page is an overview of the plan, with both the population deviation being shown and racial data for both total population and voting age population.

Pages 4 through 9 in each report presents the total populations, by different racial and ethnic origin calculations for the individual districts and overall state. Pages 10 through 15 in each report show the voting age populations for each of the racial and ethnic origin groups for each of the individual districts and overall state. Guides to the descriptions of the data in each column of the reports are shown on page 1 of the reports.

The political data for the districts in the plan begin on page 16 of the report and continue to the last page (page 20). The offices of President, Governor, Secretary of State and Treasurer are on page 16, while the offices of US Senator, Attorney General, Auditor and Land Commissioner are on page 17. Any third party candidates and votes are not shown in the report, so that any calculations (including percentages) are only based on Republican and Democratic votes. Page 16 also contains the results of the "State Composite Score", which was used by the

Legislature in their redistricting work and includes all the contests in our political report except for the contests marked as “(not in index)”. We have also computed a “Judicial Composite Score” which only contains the judicial results for Supreme Court and the Court of Appeals contests this past decade. Each of the two composite judicial contests are shown separately at the bottom of the table on Page 16. The individual judicial contests, with candidate names, for both Supreme Court and the Court of Appeals contest are shown on page 18 and 19 of the reports.

Finally, page 20 of each report contains voter registration data by party (with percentages) as well as turnout numbers and percentages for the individual election years starting in 2012 and continuing through the 2022 elections.

### **Previous Decade Plan (adopted in 2011) (Exhibit D)**

Upon receipt of the 2020 Census results, the data showed the State of New Mexico would indeed need to conduct redistricting on their congressional district plan. **Exhibit D** shows that the districts used last decade were not in compliance with the one-person, one-vote criteria with the newer 2020 census results. Page 3 of **Exhibit D.2** showed the old plan had a 2.7% total deviation with the 2020 results, with District 1 (Albuquerque area) underpopulated by over 11,000 people (-1.6%) and in need of expansion. The extra population was mainly in District 2 (by over 8,000 people), which would need to shed some territory and people. District 3 was overpopulated by approximately 3,000 people. Given these parameters, it’s understandable that the final legislative plan would reflect districts needing to move to the south and south-east.

**Exhibit D.2** also shows that all three congressional districts were over 60% non-white (column labeled “Minority” on page 2), with district 2 being a majority Hispanic seat (nearly 55%) and the other two districts being plurality Hispanic. This is also an important benchmark of note so that the state not get caught in a retrogressive circumstance after redistricting.

The political data for the 2011 congressional plan used last decade (pages 16 through 20 in **Exhibit D.2**) shows Districts 1 and 3 as fairly consistently supporting Democratic candidates last decade. District 2 tends to support Republican candidates last decade, although a Democratic candidate did carry the district in several instances.

New Mexico is one state (like half the country) that registers voters by party (registration data is on page 20 of the **x.2** exhibits), including allowing “other” as a



party designation. Over the past decade, the “other” category has grown from approximately one-fifth of the total registrations to one-fourth by the end of the decade. Republicans have been fairly consistently 30-31% of the state’s registrants for last decade. Therefore, the trend for the decade in party registration has been downward for Democrats, going from 47% to 44% in 2022.

While some people may point towards party registration numbers to indicate party strength in a state, more knowledgeable practitioners in the process look towards actual election results as a better indicator of the political leanings of an area. This is why we mainly create our redistricting databases to include actual election returns.

### **Passed Plan (SB1) (Exhibit E)**

At the end of the redistricting process in 2021, the State Legislature adopted SB 1, their plan for the state’s three congressional districts, and the subject of this court case. **Exhibit E.1** is a map of the plan, which shows how Districts 1 and 3 were shifted southward and south-easterly to pick up the excess population in District 2.

**Exhibit E.2, page 2** shows the plan has a total deviation of only 14 people (or 0.0020%). District 1 is slightly under populated (by 9 people under the ideal size district), while District 2 is 5 persons over the ideal and District 3 is 3 people overpopulated.

SB 1 shifted population in Bernalillo (Albuquerque) County, particularly the western half by putting that heavily Hispanic portion of the County into District 2. As a result, District 2 went to 70.57% total population minority (from 64.92% in the 2011 former plan) (see page 3 of **Exhibit E.2**). As a result, District 1’s concentration of minority population went down (from 61.83% in the 2011 plan to 54.47% in total population for SB 1). Importantly the voting age population concentration of total minority stayed above 50% at 50.61%.

Politically, SB 1 made District 2 more competitive, although most of the election returns continues to show the district remaining as the most Republican in the state. There are even several instances where Republican candidates carried District 2 (see the 2022 Governor’s contest where Republican candidate Ronchetti received 50.16% of the vote and the 2022 Treasurers race where Republican candidate H. Montoya received 50.12% of the vote in the district). This was also

true in several of the Supreme Court and Court of Appeals contests in the past decade that were re-constituted according to the new boundaries in SB 1.

The political competitiveness of District 2 is also highlighted by the outcome of the 2022 congressional race, where the Democratic candidate won by only 1,350 votes, or a margin of 0.7%. In fact, the returns for this contest on the Secretary of State's website show the Democratic candidate winning because of a three times margin in the absentee votes after loosing the election day balloting.<sup>1</sup>

### **Commission Concept Plans (A, E & H)**

In the same manner as we did for the 2011 and SB 1 plans above, we have created maps and the 20-page set of tables for the three concept plans created by the Redistricting Commission that were mentioned in the Plaintiff's original complaint. The Commission Concept A plan is shown as **Exhibit F** series of documents, while the Commission Concept E plan is shown as **Exhibit G** series of documents. Finally, the Commission Concept H plan is shown as **Exhibit H** series of documents.

## **V. COMPARISON REPORTS**

One of our longstanding programs we use in redistricting is what we call "AvsB" which allows us to compare, for example, two different plans to see how much is assigned to identical districts, or the amount of population and geography that is configured differently. The AvsB reports are utilized in this declaration. We have also created an extract of our normal AvsB report, in this instance comparing each plan against counties and census cities in the state. This exhibit shows all the counties that are split in the five plans we analyzed for Congress and the amount of population in each piece of a split county.

The County component AvsB report is the easiest one to explore and discuss first. **Exhibit I** is the Previous 2011 Plan compared to Counties report. Page 2 of the report focuses on Congressional District 1, which is composed of 641,488 people of Bernalillo County making up 92.4% of the district. This piece is 94.8% of the Bernalillo Counties' population (calculation on right set of columns). While District 1 covers all (100%) of Torrance County, the county is only 2.2% of

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<sup>1</sup> <https://klvg4oyd4j.execute-api.us-west-2.amazonaws.com/prod/PublicFiles/ee3072ab0d43456cb15a51f7d82c77a2/05f5f6e8-d139-452f-a03e-3a3a71ddd602/2022%20General%20Election%20Candidate%20Summary%20Results%20Report.pdf>

district.1. Smaller pieces of three other counties (Sandoval, Valencia and Santa Fe) complete the composition of District 1.

District 2 was composed of 15 whole counties (Dona Ana, Lea, Otero, Chaves, Eddy, Grant, Cibola, Luna, Lincoln, Socorro, Sierra, Guadalupe, Hidalgo, Catron and De Baca) and parts of four other counties (Valencia, Roosevelt, McKinley, and a very small piece of Bernalillo). Dona Ana county (Las Cruces) formed the largest piece of the district, but it contained only 30.7% of the district's population.

Finally, District 3 was composed of 11 whole counties (San Juan, Curry, Rio Arriba, Taos, San Miguel, Los Alamos, Colfax, Quay, Mora, Union, and Harding) along with parts of five other counties (Santa Fe (comprising 96.5% of the county's population, Sandoval (85.6%), McKinley (90.8%), Bernalillo (only 4.7% of the county) and Roosevelt (63.4% of the county's population)). Of the 16 counties (in whole or in part) the three largest each amount to only approximately one-fifth of the district.

**Exhibit J** presents the AvsB report for the plan passed by the Legislature (SB 1) compared to Counties. The Legislative-passed plan shifted the focus of each of the three districts to some extent. District 1 went from five counties dominated by Bernalillo last decade to now 10 counties of which four smaller counties are totally within the district (Lincoln, Torrance, Guadalupe, and De Baca). Bernalillo still comprises 68.9% of the district's population. Sandoval County went from just over 21,000 people in the old district 1 to now over 128,000 of the new district.

Dona Ana (Las Cruces) is still the largest portion of District 2, comprising 31.1% of the district's population, but Bernalillo County now accounts for 26.9% of the district's population. Eight counties (including Dona Ana) are whole within the district, while parts of seven other counties comprise the district.

District 3 shifts southeasterly along the New Mexico/Texas border to the town of Hobbs. But the population base is still up in Santa Fe and San Juan Counties (comprising 20.6% and 17.2%, respectively of the district). Despite that northern set of counties, one significant shift has occurred in Sandoval County. Previously in the 2011 plan Sandoval contributed over 127,000 people to the district, but in the 2021 Passed plan that dropped to just 20,000 people in district 3. That shift was mainly due to the shift of the city of Rio Rancho into district 1.

In a similar vein, we were also able to run an AvsB report looking at cities in the state for the new 2021 Passed Plan. To save the report size, we limited the cities evaluated to those with more than 2,500 people in the respective cities. This report is identified as **Exhibit K**.

Just as the AvsB reports can show parts of Counties or Cities, we also utilize it to compare two different plans against each other. **Exhibit L** compares the Previous 2011 plan to the new Passed SB 1 plan. **The highlight of the report shows that each of the three districts retained at least 70% of their old district's population. For District 1, 528,092 people (or 74.8%) remained in District 1 in the new legislative-passed plan. For District 2, 518,069 people (or 73.4%) stayed in District 2. Finally, for District 3, the retention amounted to 80.1% of the people.**

## **VI. COMPACTNESS STUDIES**

Since this nation's founding, the word "gerrymandering" has been a term of art widely used to describe the redistricting process and district boundaries that one does not like. Academics in the 1960s began developing measurements to calculate different geometric aspects of district boundaries under the common term of "compactness". One of the earlier "bibles" of compactness measurements explaining some of the issues with the calculations is in the Neimi, Grofman, Hofeller & Carlucci publication from 1990.<sup>2</sup> Many of the redistricting software packages used for the past several decades have a standard report on compactness that can be run at any time during the planning drafting and evaluation process. I have reproduced the text of compactness explanations from the AutoBound EDGE redistricting software package, which we utilize in our work, as **Exhibit M** to this report.

We have utilized the software to calculate compactness scores for the New Mexico Congressional Boundaries for each of the five plans we have evaluated for this expert report. These reports are exhibit documents attached to this report as **Exhibit D3** (2011 Congressional Plan), **E3** (Passed plan in SB 1), **F3** (Commission Concept A), **G3** (Commission Concept E), and **H3** (Commission Concept H Plan).

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<sup>2</sup> Richard Niemi, Bernard Grofman, Thomas Hofeller, and Carl Carlucci (1990). **Measuring the Compactness and the Role of a Compactness Standard in a Test for Partisan Gerrymanderings**. *Journal of Politics*.

Academics calculate compactness and express the results on a scale of 0 to 1, with “1” being the most compact and scores closer to zero being the least compact. I tend to think of these scores in percentage terms because they are generally showing things like an area as a percentage of the district perimeter or the area within a circumscribing circle, dependent upon the measurement used. In setting up our own calculations to congressional districts for the entire nation, we believe we have found an error in the AutoBound compactness report created by CityGate (the developers of AutoBound) in their “Length-Width” compactness value (since it’s shown going above 1 generally in their reports). We have alerted the developers.

Each of the measurements shows different tests and should not be compared between the measurements, but instead should be used to evaluate different districts within each measurement. It’s very seldom to have a perfect score of “1” for any of the tests, so instead discussion should focus on a district being “more compact” or “less compact” than some other district or the state’s average. The AutoBound reports show which district is the “most compact” and which is the “least compact” within that measurement.

Given the manner in which the Legislature drew the boundaries for the SB 1 plan, particularly how district 3 moves down the New Mexico/Texas border, the AutoBound reports consistently labels district 3 as being the “least” compact district in the plan. Conversely, district 2 (the subject of this case) has been shown to be the “most” compact district in the plan. This was also the case in the 2011 plan used last decade.

Given Election Data Services’ nationwide scope, I was also interested to investigate how New Mexico’s districts compared to all 435 districts in the nation. We produce our election results poster after every general election and for 2022 we created a new nationwide file of congressional districts boundaries given the redistricting since the turn of the decade. We initially used this file to generate the five compactness scores similar to those reported above from AutoBound. In reviewing these data calculations, we noticed that the use of shorelines in the poster map caused lower compactness scores for districts on the ocean on both coasts. The best example of this problem is in Rhode Island, where Narragansett Bay bisects the First CD and leads to an enormous boundary length for such a small state. Maryland’s CDs also have this problem with Chesapeake Bay. See **Exhibit N** Nationwide Congressional Boundaries Compactness results using boundaries with coast lines and merged state/nationwide average scores, sorted by Polsby-Popper and Schwartzberg scores. New Mexico’s three districts and the

statewide averages for the various compactness scores have been highlighted in yellow, with the nationwide averages line highlighted in orange.

While this coastal problem does not affect the compactness scores for New Mexico, given the state's interior nature in the nation, I was concerned those boundaries might make other state's scores artificially lower compared to New Mexico. As a result, we also retrieved the nationwide congressional boundaries generated in TIGER by the US Census Bureau (these have also been updated with the new 2021 district configurations). The Bureau shows boundaries going out to the 3-mile limits of the nationwide borders, which then generates smoother boundaries that bring up the compactness calculations. **Exhibit O** shows the compactness scores for every congressional district in the nation, with the last page being the statewide averages of the district scores for all 50 states and the nation. Exhibit O is sorted in state and district order.

The nationwide dataset shows that New Mexico's 2021 plan, SB 1, does better than the nationwide averages on all compactness scores, except for the Reock test (New Mexico's average for Reock is .37, while the nationwide average is .38, so it is about the same). This includes all three congressional districts' individual compactness scores. (see Exhibit O, page 12 for the statewide averages comparison, and page 7 for New Mexico's three individual district's compactness scores.)

Executed this 25th day of August, 2023, at Manassas, VA



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Kimball Brace

### **List of Exhibits Attached to Declaration of Kimball Brace**

- A. Kimball Brace Vita
- B. Majority-minority racial/ethnic origin map of the state at the precinct level
- C. Explanation of Redistricting Databases and Census Data Analysis and Compilation
- D. Analysis of 2011 Congressional Plan
  - 1. Map of 2011 Congressional Plan
  - 2. 20-page population and political data report
  - 3. Compactness report on plan
- E. Analysis of Legislative-passed Congressional Plan (SB1)
  - 1. Map of Legislative Passed Plan
  - 2. 20-page population and political data report
  - 3. Compactness report on plan
- F. Analysis of Redistricting Commission's Concept A Plan
  - 1. Map of Commission's Concept A Plan
  - 2. 20-page population and political data report
  - 3. Compactness report on plan
- G. Analysis of Redistricting Commission's Concept E Plan
  - 1. Map of Commission's Concept E Plan
  - 2. 20-page population and political data report
  - 3. Compactness report on plan
- H. Analysis of Redistricting Commission's Concept H Plan
  - 1. Map of Commission's Concept H Plan
  - 2. 20-page population and political data report
  - 3. Compactness report on plan

- I. AvsB Report for 2011 Plan compared to Counties.
- J. AvsB Report for SB 1 Plan compared to Counties.
- K. AvsB Report for the 2021 Passed SB 1 Plan compared to Cities.
- L. AvsB Report for comparison of the 2011 Previous plan to the 2021 Passed SB 1 Plan passed by the Legislature.
- M. Measuring Compactness explanation from AutoBound EDGE
- N. Nationwide Congressional Boundaries Compactness results using boundaries with coast lines and merged state/nationwide average scores, sorted by Polsby-Popper and Schwartzberg scores.
- O. Nationwide Congressional Boundary Compactness results using boundaries from Census Bureau TIGER files and reflecting smoother 3-mile boundaries along the two coasts. Individual district and state pages are sorted in state/district order.



## EXHIBIT A

### VITA

## KIMBALL WILLIAM BRACE

Election Data Services, Inc.  
6171 Emerywood Court  
Manassas, VA 20112-3078

703 580-7267 or 202 789-2004 phone  
703 580-6258 fax

kbrace@electiondataservices.com or kbrace@aol.com

Kimball Brace is the president of Election Data Services Inc., a consulting firm that specializes in redistricting, election administration, and the analysis and presentation of census and political data. Mr. Brace graduated from the American University in Washington, D.C., (B.A., Political Science) in 1974 and founded Election Data Services in 1977.

### **Redistricting Consulting**

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Activities include software development; construction of geographic, demographic, or election databases; development and analysis of alternative redistricting plans; general consulting, and onsite technical assistance with redistricting operations.

#### *Congressional and Legislative Redistricting*

Arizona Independent Redistricting Commission: Election database, 2001

Arizona Legislature, Legislative Council: Election database, 2001

Colorado General Assembly, Legislative Council: Geographic, demographic, and election databases, 1990–91

Connecticut General Assembly

- Joint Committee on Legislative Management: Election database, 2001; and software, databases, general consulting, and onsite technical assistance, 1990–91
- Senate and House Democratic Caucuses: Demographic database and consulting, 2001

Florida Legislature, House of Rep.: Geographic, demographic, and election databases, 1989–92

Illinois General Assembly

- Speaker of House and Senate Minority Leader: Software, databases, general consulting, and onsite technical assistance, 2000–02,
- Speaker of House and President of Senate: Software, databases, general consulting, and onsite technical assistance, 2018–current, 2009–2012, 1990–92, and 1981–82

Iowa General Assembly, Legislative Service Bureau and Legislative Council: Software, databases, general consulting, and onsite technical assistance, 2000–01 and 1990–91

Kansas Legislature: Databases and plan development (state senate and house districts), 1989

**(Redistricting Consulting, cont.)**

Massachusetts General Court

- Senate Democratic caucus: Election database and general consulting, 2001–02
- Joint Reapportionment Committees: Databases and plan development (cong., state senate, and state house districts), 1991–93, 2010–2012

Michigan Legislature: Geographic, demographic, and election databases, 1990–92; databases and plan development (cong., state senate, and state house districts), 1981–82

Missouri Redistricting Commission: General consulting, 1991–92

Commonwealth of Pennsylvania: General consulting, 1992

Rhode Island General Assembly and Reapportionment Commissions

- Software, databases, plan development, and onsite assistance (cong., state senate, and state house districts), 2016– current, 2010–2012, 2001–02 and 1991–92
- Databases and plan development (state senate districts), 1982–83

State of South Carolina: Plan development and analysis (senate), U.S. Dept. of Justice, 1983–84

Local Government Redistricting

Orange County, Calif.: Plan development (county board), 1991–92

City of Bridgeport, Conn.: Databases and plan development (city council), 2011–2012 and 2002–03

Cook County, Ill.: Software, databases, and general consulting (county board), 2010–2012, 2001–02, 1992–1993, and 1989

Lake County, Ill.: Databases and plan development (county board), 2011 and 1981

City of Chicago, Ill.: Software, databases, general consulting, and onsite technical assistance (city wards), 2010–2012, 2001–02 and 1991–92

City of North Chicago, Ill.: Databases and plan development (city council), 1991 and 1983

City of Annapolis, Md.: Databases and plan development (city council), 1984

City of Boston, Mass.: Databases and plan development (city council), 2011–2012, 2001–2002, and 1993

City of New Rochelle, N.Y.: Databases and plan development (city council), 1991–92

City of New York, N.Y.: Databases and plan development (city council), 1990–91

Cities of Pawtucket, Providence, East Providence, and Warwick, and town of North Providence, R.I.: Databases and plan development (city wards and voting districts), 2011–2012, 2002

City of Woonsocket and towns of Charlestown, Johnston, Lincoln, Scituate and Westerly, R.I.: Databases and plan development (voting districts), 2011–2012, 2002; also Westerly 1993

City of Houston, Tex.: Databases and plan development (city council), 1979 — recommended by U.S. Department of Justice

City of Norfolk, Va.: Databases and plan development (city council), 1983–84 — for Lawyers' Committee for Civil Rights

**(Redistricting Consulting, cont.)**

Virginia Beach, Va.: Databases and plan development (city council), 2011-2012, 2001-02, 1995, and 1993

Other Activities

International Foundation for Electoral Systems (IFES) and U.S. Department of State: redistricting seminar, Almaty, Kazakhstan, 1995

Library of Congress, Congressional Research Service: Consulting on reapportionment, redistricting, voting behavior and election administration

National Conference of State Legislatures (NCSL): Numerous presentations on variety of redistricting and election administration topics, 1980 - current

**Election Administration Consulting**

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Activities include seminars on election administration topics and studies on voting behavior, voting equipment, and voter registration systems.

Prince William County, VA:

2013 – Appointed by Board of County Supervisors to 15 member Task Force on Long Lines following 2012 election. Asked and appointed by County's Electoral Board to be Acting General Registrar for 5-month period between full-time Registrars.

2008 - current – poll worker and now chief judge for various precincts in county

U.S. Election Assistance Commission (EAC): Served as subcontractor to prime contractors who compiled survey results from 2008 and 2010 Election Administration and Voting Survey.

U.S. Election Assistance Commission (EAC): Compile, analyze, and report the results of a survey distributed to state election directors during FY-2007. Survey results were presented in the following reports of the EAC: *The Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office, 2005-2006, A Report to the 110th Congress*, June 30, 2007; *Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA), Survey Report Findings*, September, 2007; and *The 2006 Election Administration and Voting Survey, A Summary of Key Findings*, December, 2007.

U.S. Election Assistance Commission (EAC): Compile, analyze, and report the results of three surveys distributed to state election directors during FY-2005: Election Day, Military and Overseas Absentee Ballot (UOCAVA), and Voter Registration (NVRA) Surveys. Survey results were presented in the following reports: *Final Report of the 2004 Election Day Survey*, by Kimball W. Brace and Dr. Michael P. McDonald, September 27, 2005; and *Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office, 2003-2004, A Report to the 109th Congress*, June 30, 2005.

Rhode Island Secretary of State: Verification of precinct and district assignment codes in municipal registered voter files and production of street files for a statewide voter registration database, on-going maintenance of street file, 2004-2006, 2008-2014, 2016-2017.

Rhode Island Secretary of State, State Board of Elections & all cities & towns: production of precinct maps statewide, 2012, 2002, 1992

**(Election Administration Consulting, cont.)**

District of Columbia, Board of Elections and Ethics (DCBOEE): Verification of election ward, Advisory Neighborhood Commission (ANC), and Single-Member District (SMD) boundaries and production of a new street locator, 2003. Similar project, 1993.

Harris County, Tex.: Analysis of census demographics to identify precincts with language minority populations requiring bilingual assistance, 2002–03

Cook County, Ill., Election Department and Chicago Board of Election Commissioners:

- Analysis of census demographics to identify precincts with language minority populations requiring bilingual assistance, 2019, 2010-2013, 2002–03
- Study on voting equipment usage and evaluation of punch card voting system, 1997

Chicago Board of Election Commissioners: Worked with Executive Director & staff in Mapping Dept. to redraw citywide precincts, eliminate over 600 to save costs, 2011-12

Library of Congress, Congressional Research Service: Nationwide, biannual studies on voter registration and turnout rates, 1978–2002

U.S. General Accounting Office (GAO), U.S. Dept. of Justice, and numerous voting equipment vendors and media: Data on voting equipment usage throughout the United States, 1980–present

Needs assessments and systems requirement analyses for the development of statewide voter registration systems:

- Illinois State Board of Elections: 1997
- North Carolina State Board of Elections, 1995
- Secretary of Commonwealth of Pennsylvania, 1996

Federal Election Commission, Office of Election Administration:

- Study on integrating local voter registration databases into statewide systems, 1995
- Nationwide workshops on election administration topics, 1979–80
- Study on use of statistics by local election offices, 1978–79

Cuyahoga County, Ohio, Board of Elections: Feasibility study on voting equipment, 1979

Winograd Commission, Democratic National Committee: Analysis of voting patterns, voter registration and turnout rates, and campaign expenditures from 1976 primary elections

## **Mapping and GIS**

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Activities include mapping and GIS software development (geographic information systems) for election administration and updating TIGER/Line files for the decennial census.

2000 Census Transportation Planning Package (CTPP), 1998–99: GIS software for the U.S. Department of Transportation to distribute to 400 metropolitan planning organizations (MPOs) and state transportation departments for mapping traffic analysis zones (TAZs) for the 2000 census; provided technical software support to MPOs

Census 2000, 2010 and 2020 Redistricting Data Program, Block Boundary Suggestion Project (Phase 1) and Voting District Project (Phase 2), 1995–99: GIS software and provided software, databases, and technical software support to the following program participants:

- Alaska Department of Labor
- Connecticut Joint Committee on Legislative Management

**(Mapping & GIS Support, cont.)**

- Illinois State Board of Elections
- Indiana Legislative Services Agency
- Iowa Legislative Service Bureau
  
- New Mexico Legislative Council Service
- Rhode Island General Assembly
- Virginia Division of Legislative Services

Developed PRECIS<sup>®</sup> Precinct Information System—GIS software to delineate voting precinct boundaries—and delivered software, databases, and technical software support to the following state and local election organizations (with date of installation):

- Cook County, Ill., Department of Elections (1993)
- Marion County, Fla., Supervisor of Elections (1995)
- Berks County Clerk, Penn. (1995)
- Hamilton County, Ohio, Board of Elections (1997)
- Brevard County, Fla., Supervisor of Elections (1999)
- Osceola County, Fla., Supervisor of Elections (1999)
- Multnomah County, Ore, Elections Division (1999)
- Chatham County, Ga., Board of Elections (2000)
- City of Chicago, Ill., Board of Election Commissioners (2000)
- Mahoning County, Ohio, Board of Elections (2000)
- Iowa Secretary of State, Election and Voter Registrations Divisions (2001)
- Woodbury County, Iowa, Elections Department (2001)
- Franklin County, Ohio, Board of Elections (2001)
- Cobb County, Ga., Board of Elections and Voter Registration (2002)

Illinois State Board of Elections, Chicago Board of Election Commissioners, and Cook County Election Department: Detailed maps of congressional, legislative, judicial districts, 1992

Associated Press: Development of election night mapping system, 1994

## **Litigation Support**

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Activities include data analysis, preparation of court documents and expert witness testimony. Areas of expertise include the census, demographic databases, district compactness and contiguity, racial bloc voting, communities of interest, and voting systems. Redistricting litigation activities also include database construction and the preparation of substitute plans.

*State of Alabama vs. US Department of Commerce, et al* (2019-2020) apportionment & citizenship data

*NAACP vs. Denise Merrill, CT Secretary of State, et al* (2019-2020) state legislative redistricting and prisoner populations

*Latasha Holloway, et al. v. City of Virginia Beach, VA* (2019) city council redistricting

*Joseph V. Aguirre vs. City of Placentia, CA* (2018-2019), city council redistricting

*Davidson, et al & ACLU of Rhode Island vs. City of Cranston, RI* (2014-16), city council & school committee redistricting with prisoner populations.

**(Litigation Support, cont.)**

*Navaho Nation v. San Juan County, UT* (2014-17) county commissioner & school board districts.

*Michael Puyana vs. State of Rhode Island* (2012) state legislature redistricting

*United States of America v. Osceola County, Florida*, (2006), county commissioner districts.

*Deeds vs McDonnell* (2005), Va. Attorney General Recount

*Indiana Democratic Party, et al., v. Todd Rokita, et al.* (2005), voter identification.

*Linda Shade v. Maryland State Board of Elections* (2004), electronic voting systems

*Gongaley v. City of Aurora, Ill.* (2003), city council districts

*State of Indiana v. Sadler* (2003), ballot design (city of Indianapolis-Marion County, Ind.)

*Peterson v. Borst* (2002–03), city-council districts (city of Indianapolis-Marion County, Ind.)

*New Rochelle Voter Defense Fund v. City of New Rochelle, City Council of New Rochelle, and Westchester County Board Of Elections* (2003), city council districts (New York)

*Charles Daniels and Eric Torres v. City of Milwaukee Common Council* (2003), council districts (Wisconsin)

*The Louisiana House of Representatives v. Ashcroft* (2002–03), state house districts

*Camacho v. Galvin and Black Political Caucus v. Galvin* (2002–03), state house districts (Massachusetts)

*Latino Voting Rights Committee of Rhode Island, et al., v. Edward S. Inman, III, et al.* (2002–03), state senate districts

*Metts, v. Harmon, Almond, and Harwood, et al.* (2002–03), state senate districts (Rhode Island)

*Joseph F. Parella, et al. v. William Irons, et al.* (2002–03), state senate districts (Rhode Island)

*Jackson v. County of Kankakee* (2001–02), county commissioner districts (Illinois)

*Corbett, et al., v. Sullivan, et al.* (2002), commissioner districts (St Louis County, Missouri)

*Harold Frank, et al., v. Forest County, et al.* (2001–02), county commissioner districts (Wisc.)

*Albert Gore, Jr., et al., v. Katherine Harris as Secretary of State, State of Florida, et al., and The Miami Dade County Canvassing Board, et al., and The Nassau County Canvassing Board, et al., and The Palm Beach County Canvassing Board, et al., and George W. Bush, et al* (2000), voting equipment design — Leon County, Fla., Circuit Court hearing, December 2, 2000, on disputed ballots in Broward, Volusia, Miami-Dade, and Palm Beach counties from the November 7, 2000, presidential election.

*Barnett v. Daley/PACI v. Daley/Bonilla v. Chicago City Council* (1992–98), city wards

*Donald Moon, et al. v. M. Bruce Meadows, etc and Curtis W. Harris, et al.* (1996–98), congressional districts (Virginia)

*Melvin R. Simpson, et al. v. City of Hampton, et al.* (1996–97), city council districts (Va.)

*Vera vs. Bush* (1996), Texas redistricting

**Litigation Support, cont.)**

*In the Matter of the Redistricting of Shawnee County Kansas and Kingman, et al. v. Board of County Commissioners of Shawnee County, Kansas* (1996), commissioner districts

*Vecinos de Barrio Uno v. City of Holyoke* (1992–96), city council districts (Massachusetts)

*Torres v. Cuomo* (1992–95), congressional districts (New York)

*DeGrandy v. Wetherell* (1992–94), congressional, senate, and house districts (Florida)

*Johnson v. Miller* (1994), congressional districts (Georgia)

*Jackson, et al v Nassau County Board of Supervisors* (1993), form of government (N.Y.)

*Gonzalez v. Monterey County, California* (1992), county board districts

*LaPaille v. Illinois Legislative Redistricting Commission* (1992), senate and house districts

*Black Political Task Force v. Connolly* (1992), senate and house districts (Massachusetts)

*Nash v. Blunt* (1992), house districts (Missouri)

*Fund for Accurate and Informed Representation v. Weprin* (1992), assembly districts (N.Y.)

*Mellow v. Mitchell* (1992), congressional districts (Pennsylvania)

*Phillip Langsdon v. Milsaps* (1992), house districts (Tennessee)

*Smith v. Board of Supervisors of Brunswick County* (1992), supervisor districts (Virginia)

*People of the State of Illinois ex. rel. Burris v. Ryan* (1991–92), senate and house districts

*Good v. Austin* (1991–92), congressional districts (Michigan)

*Neff v. Austin* (1991–92), senate and house districts (Michigan)

*Hastert v. Illinois State Board of Elections* (1991), congressional districts

*Republican Party of Virginia et al. v. Wilder* (1991), senate and house districts

*Jamerson et al. v. Anderson* (1991), senate districts (Virginia)

*Ralph Brown v. Iowa Legislative Services Bureau* (1991), redistricting database access

*Williams, et al. v. State Board of Election* (1989), judicial districts (Cook County, Ill.)

*Fifth Ward Precinct 1A Coalition and Progressive Association v. Jefferson Parish School Board* (1988–89), school board districts (Louisiana)

*Michael V. Roberts v. Jerry Wamser* (1987–89), St. Louis, Mo., voting equipment

*Brown v. Board of Commissioners of the City of Chattanooga, Tenn.* (1988), county commissioner districts

*Business Records Corporation v. Ransom F. Shoup & Co., Inc.* (1988), voting equip. patent

*East Jefferson Coalition for Leadership v. The Parish of Jefferson* (1987–88), parish council districts (Louisiana)

*Buckanaga v. Sisseton School District* (1987–88), school board districts (South Dakota)

*Griffin v. City of Providence* (1986–87), city council districts (Rhode Island)

**(Litigation Support, cont.)**

*United States of America v. City of Los Angeles* (1986), city council districts  
*Latino Political Action Committee v. City of Boston* (1984–85), city council districts  
*Ketchum v. Byrne* (1982–85), city council districts (Chicago, Ill.)  
*State of South Carolina v. United States* (1983–84), senate districts — U.S. Dept. of Justice  
*Collins v. City of Norfolk* (1983–84), city council districts (Virginia) — for Lawyers' Committee for Civil Rights  
*Rybicki v. State Board of Elections* (1981–83), senate and house districts (Illinois)  
*Licht v. State of Rhode Island* (1982–83), senate districts (Rhode Island)  
*Agerstrand v. Austin* (1982), congressional districts (Michigan)  
*Farnum v. State of Rhode Island* (1982), senate districts (Rhode Island)  
*In Re Illinois Congressional District Reapportionment Cases* (1981), congressional districts

**Publications**

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"EAC Survey Sheds Light on Election Administration", *Roll Call*, October 27, 2005 (with Michael McDonald)

*Developing a Statewide Voter Registration Database: Procedures, Alternatives, and General Models*, by Kimball W. Brace and M. Glenn Newkirk, edited by William Kimberling, (Washington, D.C.: Federal Election Commission, Office of Election Administration, Autumn 1997).

*The Election Data Book: A Statistical Portrait of Voting in America*, 1992, Kimball W. Brace, ed., (Bernan Press, 1993)

"Geographic Compactness and Redistricting: Have We Gone Too Far?", presented to Midwestern Political Science Association, April 1993 (with D. Chapin and R. Niemi)

"Whose Data is it Anyway: Conflicts between Freedom of Information and Trade Secret Protection in Redistricting", *Stetson University Law Review*, Spring 1992 (with D. Chapin and W. Arden)

"Numbers, Colors, and Shapes in Redistricting," *State Government News*, December 1991 (with D. Chapin)

"Redistricting Roulette," *Campaigns and Elections*, March 1991 (with D. Chapin)

"Redistricting Guidelines: A Summary", presented to the Reapportionment Task Force, National Conference on State Legislatures, November 9, 1990 (with D. Chapin and J. Waliszewski)

"The 65 Percent Rule in Legislative Districting for Racial Minorities: The Mathematics of Minority Voting Equality," *Law and Policy*, January 1988 (with B. Grofman, L. Handley, and R. Niemi)

"Does Redistricting Aimed to Help Blacks Necessarily Help Republicans?" *Journal of Politics*, February 1987 (with B. Grofman and L. Handley)



"New Census Tools," *American Demographics*, July/August 1980

## **Professional Activities**

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Member, Task Force on Long Lines in 2012 Election, Prince William County, VA

Member, 2010 Census Advisory Committee, a 20-member panel advising the Director of the Census on the planning and administration of the 2010 census.

Delegate, Second Trilateral Conference on Electoral Systems (Canada, Mexico, and United States), Ontario, Canada, 1995; and Third Trilateral Conference on Electoral Systems, Washington, D.C., 1996

Member, American Association of Political Consultants

Member, American Association for Public Opinion Research

Member, American Political Science Association

Member, Association of American Geographers, Census Advisory Committee

Member Board of Directors, Association of Public Data Users

Member, National Center for Policy Alternatives, Voter Participation Advisory Committee

Member, Urban and Regional Information Systems Association

## **Historical Activities**

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Member, Manassas Battlefield Trust Board Member, 2018 -- current

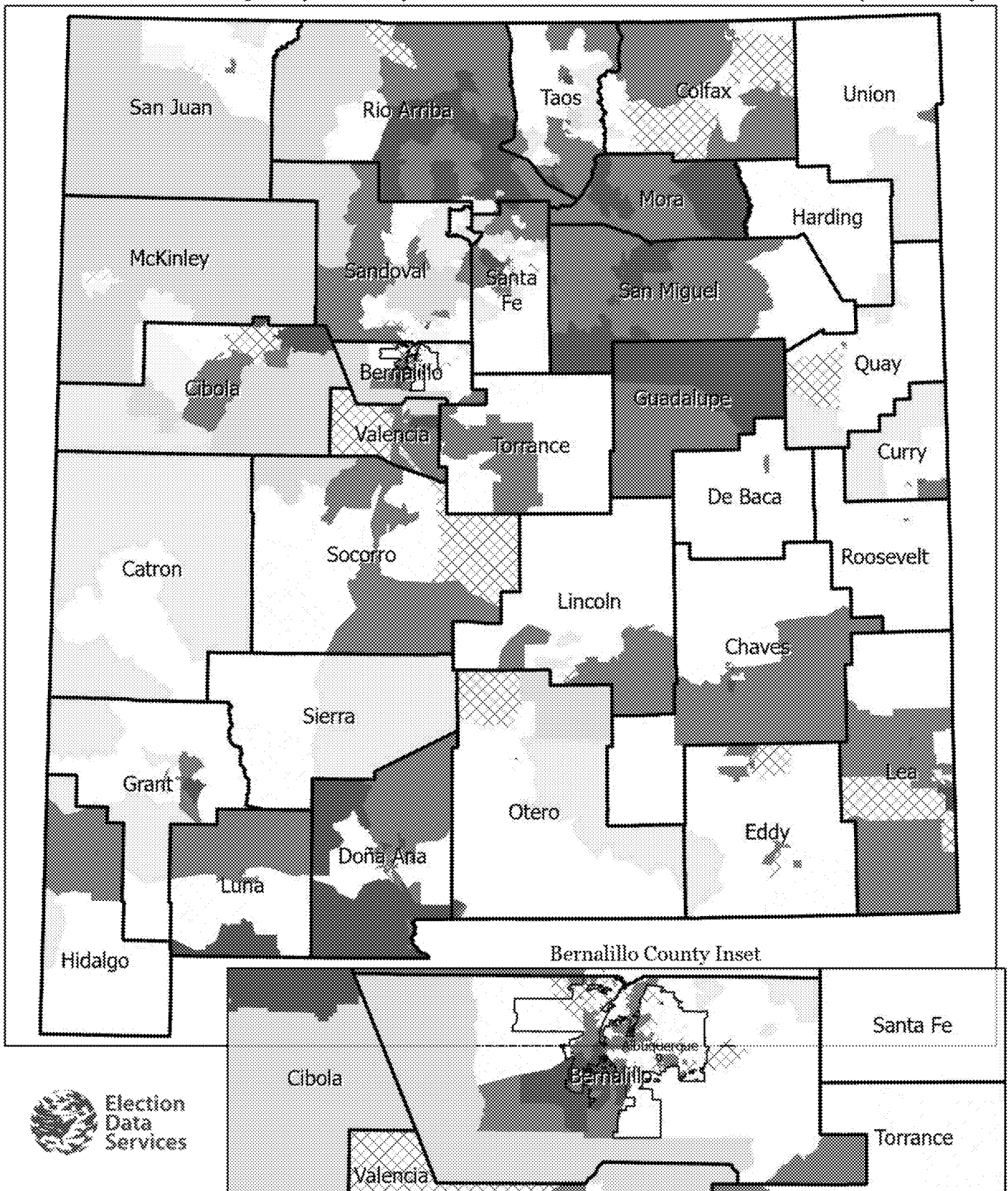
Member, Historical Commission, Prince William County, VA., 2015 – current. Elected Chairman in 2017, re-elected 2018

Member of Executive Committee & head of GIS Committee, Bull Run Civil War Round Table, Centerville, VA. 2015 – current

Member, Washington Capitals Fan Club, Executive Board 2017 -- current

February, 2020

# New Mexico- Majority Race per VTD/Precinct 2020 Census Population)

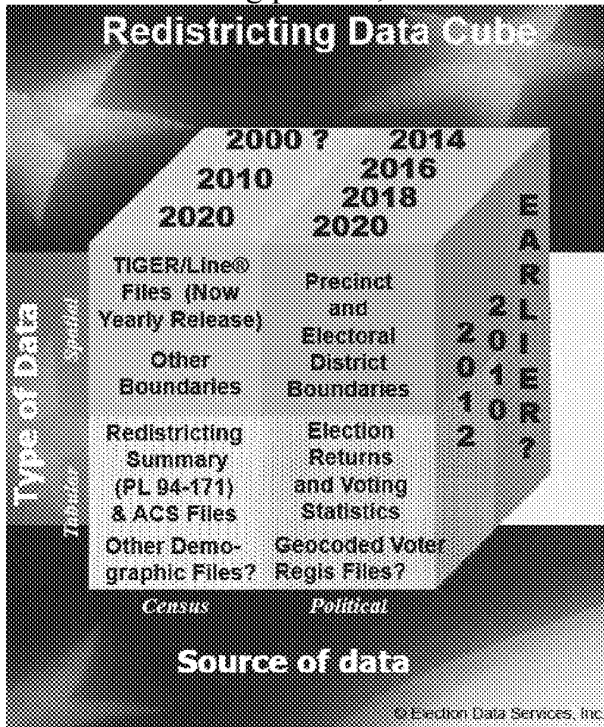


- |                                     |                                     |  |
|-------------------------------------|-------------------------------------|--|
| ○ Predominantly NH White < 40%      | ◊ Predominantly Hispanic < 40%      | ◊ Predominantly NH Native Am. < 40%      |
| ◐ Predominantly NH White 40 - 49.9% | ◊ Predominantly Hispanic 40 - 49.9% | ◊ Predominantly NH Native Am. 40 - 49.9% |
| ◑ Majority NH White 50 - 74.9%      | ◑ Majority Hispanic 50 - 74.9%      | ◑ Majority NH Native Am. 50 - 74.9%      |
| ◑ Majority NH White 75 - 100%       | ◑ Majority Hispanic 75 - 100%       | ◑ Majority NH Native Am. 75 - 100%       |

## EXHIBIT C

### Redistricting Databases

Over the past 44 years Election Data Services, Inc. has compiled extensive databases for use in the redistricting process and redistricting and voting rights court cases in many different states and localities. These databases form the heart of the redistricting process, but also are an essential building block for racial bloc



voting analysis. Generally, these databases merge four different elements through the use of geography. Over the past four decades Mr. Brace has spoken before many groups and courts about what he terms the “redistricting data cube”. The sketch to the left depicts that cube.

Redistricting issues always deal with territory. In previous decades, the Census Bureau depicted data collection areas on paper maps. In 1990, the Bureau was able to create an electronic map of the entire country, called the Topologically Integrated Geographic Encoding and Referencing system, or TIGER. Census geography in the form of TIGER files becomes the **first**

**element of the data cube**, shown in the upper left side of the cube (i.e., type of data: spatial; source of data: Census).

The TIGER files are actually massive databases in themselves and encompass all the lines that one sees on a map. These lines or “segments” are depicted with a latitude and a longitude coordinate point at the beginning and end of each line segment. These line segments have no population data associated with them, but they do have an extensive set of other attribute information. For example, each line segment has information about whether it is a stream, road, railroad, or power line, etc. If the segment is a road or stream, there is also

information about its name. If the segment is a road, there is also information in many instances about address ranges.

All line segments have geographic codes that identify the census tract and block on the left and right sides of the line. If one were to travel along a series of line segments and make a right turn at the end of each segment onto an intersecting line segment, one would eventually return to the starting point. Upon arrival at the starting point, one would be “closing” a polygon. This resulting polygon would form the basic census block. Census blocks are linked to block-level population and demographic data, but these numeric data are not in the TIGER files.

This numeric data, the **second element in the data cube** (lower left of the cube), is reported by the Census Bureau after each decennial census and consists of population and demographic counts associated with each census tract and block in each state. This data is first released for redistricting purposes in a computer file called the Census Redistricting (PL 94–171) Summary File. For each census tract and block there are both total population and voting age population (18 years old and over) counts, along with sub-counts of the different racial and Hispanic origin categories tabulated by the Census Bureau. For the first time in the 2000 Census, persons could choose multiple racial or ethnic origins, which caused the PL 94–171 population files to expand from 12 columns of data in 1990 to 291 columns of data in 2000 and 2010. Despite this seemingly massive amount of data, it is generally not until the year ending in a “2” when more detailed demographic data, such as income or education information, is released by the Census Bureau.

The availability of the Census Bureau’s PL94-171 population data files is still undetermined as of 2/9/2021. It is our understanding in discussions with Bureau staff that the release of the PL files will again be delayed in an announcement expected by this Friday. We understand that the PL files may not be released until August or September of 2021, which will pose major problems for being able to meet the state’s redistricting deadlines.

These two Census computer files (TIGER and PL) form the heart of any redistricting effort and are absolutely necessary for drawing and analyzing districts.

If one wishes to perform an electoral analysis of voting behavior for a given area, election returns are required. This is the **third element in the data cube** (lower right of cube). In the past these returns had to be collected from each county in a state, although more states are centralizing that collection effort. However, when redistricting deals with local contests, returns from multiple years must be collected from local election offices and, if not in electronic form, must be

keypunched to perform the analysis. State of New Mexico is extremely fortunate in that the state's election office makes precinct level returns available on their website for all years and all contests.

Election returns alone are not enough to do racial voting or political analysis that is required in a redistricting and/or court case setting. One must know where the election returns come from—that is, from what part of a county or city. This is where the **fourth element of the data cube** (upper right of cube) — precinct maps — comes into play. Precinct maps for each election year must be collected and analyzed to determine the extent of change since the previous year.

It is standard practice across the United States for county governments to make massive precinct changes subsequent to statewide redistricting that occur in the years ending in “1” and “2”. In addition, many larger jurisdictions change precinct boundaries on a regular basis as population shifts occur or there is a need to relocate a polling place. As a result, to analyze election contests that occur over time, one must determine the makeup of each precinct in each election in which the contests were held.

Election Data Services, Inc. has been collecting precinct maps from around the nation since the early 1980s. To study racial bloc voting or perform other types of electoral analysis, the racial makeup of each precinct needs to be determined and matched up with election returns. Unfortunately, the Census Bureau reports demographic data for only those precincts that were in existence in the year ending with “8” before the decennial census is conducted. To merge racial demographic data from the Census Bureau with the configuration of the precincts used in each election over the decade, one must overlay the precinct map boundaries that existed in each election on top of the census geographic boundaries.

It is our understanding that the State of New Mexico, through the offices of the firm Research and Polling, had compiled and digitized the boundaries of all precincts in the state for the entire decade. Their President, Brian Sanderoff and staffer Michael Sharp provided raw election returns data and boundary files which we then incorporated into the EDS database and reports.

Election Data Services, Inc. has developed computer programs to assist with this process, whereby an operator assigns census tracts and blocks to individual precincts using GIS technology. Once this block-to-precinct equivalency has been developed, additional computer programs can tally up the census demographic and racial data from the blocks to the precinct summary level. E.D.S. Inc. has loaded

these files into various computer databases compiled over the years for such analysis.

Election Data Services, Inc. has spent thousands of hours of staff time compiling extensive databases of state and local election returns and combining the geography of precincts with census geography. A database that matches precinct election returns with the demographic composition of the precincts as reported by the Census is required to conduct an analysis of voting patterns by race/ethnicity. These types of databases are the central component necessary to determine the extent to which racial groups vote differently or the same. Combining all of this information creates a massive database that is internal to Election Data Services, Inc. Additional programs have been created to extract individual election contests from the massive internal database and format them into smaller ASCII datasets that can be read by statistical software programs, such as SPSS, S-Plus, or “R” used to perform racial bloc voting analyses.

### **Census Data Analysis and Compilation**

As noted earlier, census data is one of the major elements of the “datacube.” With regard to demographic information and race, the 2010 Census asked, and the 2020 Census is asking, each individual two major questions. First, they asked whether the person was

Hispanic or not (the Census Bureau has not considered Hispanic as being a race). The actual Hispanic question in the questionnaire for 2020 appeared as noted in Figure 2, to the right.

Second, they asked the person’s race. This is show in

Figure 3, below. This two-part question format has been used since Hispanic origin was first asked of every individual in 1980.

Is this person of Hispanic, Latino, or Spanish origin?

- No, not of Hispanic, Latino, or Spanish origin
- Yes, Mexican, Mexican Am., Chicano
- Yes, Puerto Rican
- Yes, Cuban
- Yes, another Hispanic, Latino, or Spanish origin – Print, for example, Salvadoran, Dominican, Colombian, Guatemalan, Spaniard, Ecuadorian, etc. \*

\_\_\_\_\_

Figure 2

Since 1980 the Census Bureau has taken the results of the race question

**What is this person's race?**  
 Mark [X] one or more boxes **AND** print origins.

White -- Print, for example, German, Irish, English, Italian, Lebanese, Egyptian, etc. [ ]

Black or African Am. -- Print, for example, African American, Jamaican, Haitian, Nigerian, Ethiopian, Somali, etc. [ ]

American Indian or Alaska Native -- Print name of enrolled or principal tribe(s), for example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, Nome Eskimo Community, etc. [ ]

<input type="checkbox"/> Chinese	<input type="checkbox"/> Vietnamese	<input type="checkbox"/> Native Hawaiian
<input type="checkbox"/> Filipino	<input type="checkbox"/> Korean	<input type="checkbox"/> Samoan
<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Japanese	<input type="checkbox"/> Chamorro
<input type="checkbox"/> Other Asian -- Print, for example, Pakistani, Cambodian, Hmong, etc. [ ]	<input type="checkbox"/> Other Pacific Islander -- Print, for example, Tongan, Fijian, Marshallese, etc. [ ]	

Some other race -- Print race or origin. [ ]

Figure 3

and created counts of five major racial groups along with a catch-all of “some other race”. The five major racial groups were “white”, “black or African-American”, “American American Indian or Alaska Native”, “Asian” (which combined the answers of Asian American Indian, Chinese, Filipino, Korean, Japanese, Vietnamese, and Other Asian), and “Native Hawaiian or Other Pacific Islander” (which combined the answers of Pacific Islander, Native Hawaiian, Guamanian or Chamorro, Samoan, and Other Pacific Islander). Traditionally, these five major racial groups, along with “some other race” would add to 100% or the total population reported by the census. The 2020 Census allowed more space for individuals to

include ancestry answers as write-ins as a way of clarifying their race, but the data on ancestry will not be released until later in the decade, long after redistricting.

The Census Bureau also asked individuals whether they were of Hispanic origin. Because the Census Bureau and the federal government for each of the last four censuses have concluded that “Hispanic Origin” is not a racial category (anyone of any race can also be Hispanic), the Census Bureau provides cross-tabulations in its PL 94-171 data tables. Utilizing these cross-tabulations, Election

Data Services, Inc. has traditionally developed its datasets by showing Hispanic Origin as if it were a race, and then removing Hispanics from the individual racial data. As such, we report Non-Hispanic White, instead of White; Non-Hispanic Black, instead of Blacks; Non-Hispanic Asian; instead of Asians; and so-forth. When the racial data and Hispanic Origin are reported in this manner, the groups add to 100 percent of the population.

Post census studies have shown that Hispanics have tended to divide their racial designation mainly between “Some other race” and “white” in roughly equal proportions. As a result, when we take out Hispanics from their relative racial groups in order to treat Hispanic as if it was a race, then the largest decreases occur in both the “White” and the “Some Other Race” categories.

The 2000 and 2010 censuses were a marked departure from earlier censuses on the reporting of racial data. In previous decades, individuals answering the Census were supposed to mark only one racial category. However, beginning with the 2000 Census, individuals could mark any number of racial categories (as many as all six), mainly due to the growth of multi-racial families in American society. This produced unique data issues concerning racial breakdowns and how they were reported. As one of the very few organizations involved in redistricting around the nation, Election Data Services, Inc. was closely involved with census personnel in researching and understanding the ramifications of the new data structures.

There are three basic ways to calculate the racial breakdowns for the 2000 and 2010 census. The first is to exclude any individuals who have marked more than one racial category from the basic racial definitions and put these individuals into a separate “multiple-race” category. This tends to create a bottom level of racial categorization for individual race groups, but one that is more compatible with the numbers that were reported in previous censuses. Election Data Services, Inc. designated these categories as “*Race-Alone*” and they occupy tab or table 1 in many of our reports.

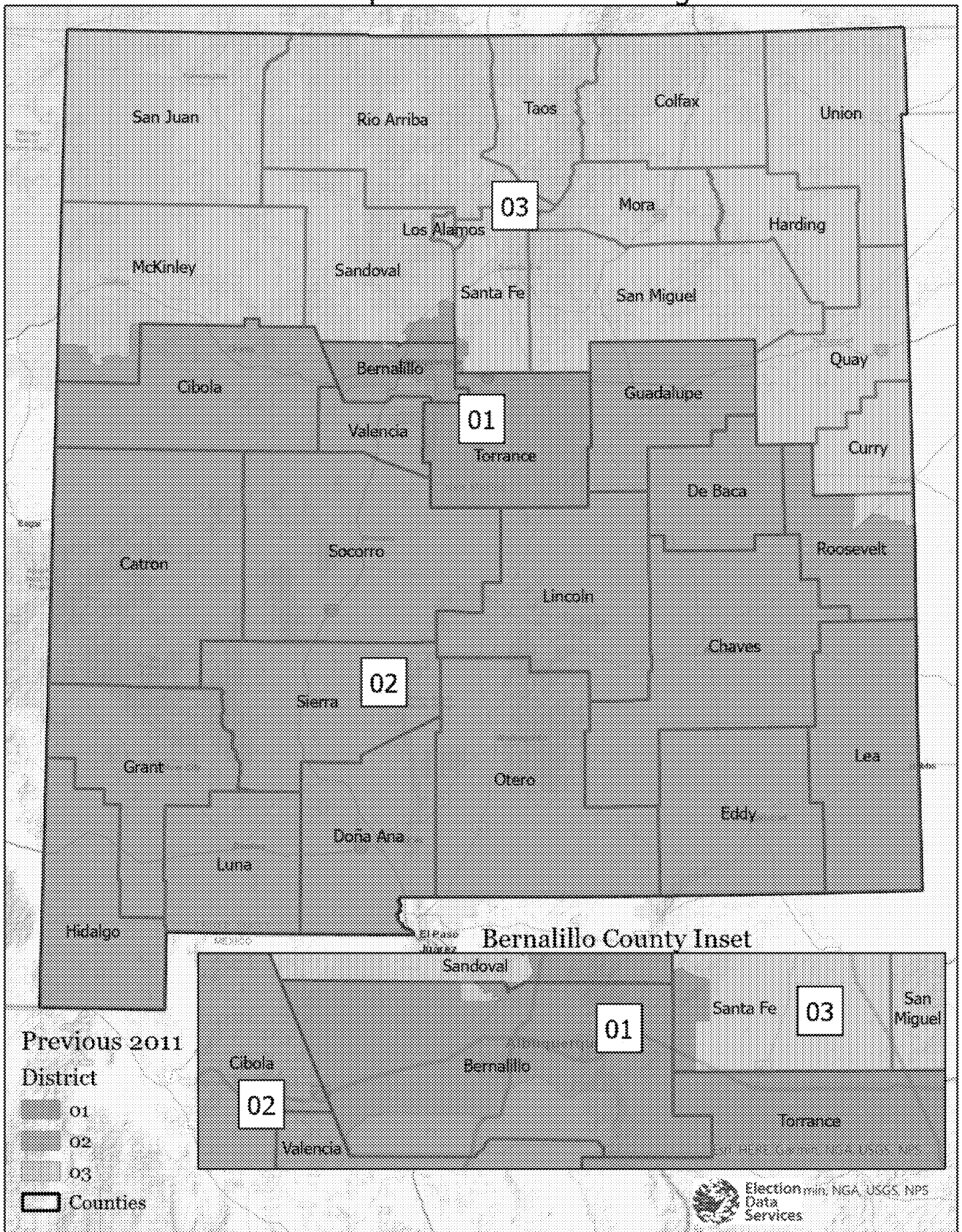
The second method of calculation is to include in the individual race groups any individual who marked that race group alone, plus any individual who marked that race group in combination with any other racial group(s). This produces the maximum number of individuals in each racial group, but it also means that the totals of all racial groups added together will result in more than 100 percent of the population being reported. Election Data Services designated these categories as “*Combo*” or “*Max*” and they occupy tab or table 2 in many of our reports



The third method of calculation was recommended by the Federal Office of Management and Budget (OMB). In a Federal Register notice published in March 2000 (at the tail end of the Clinton administration), OMB laid out how federal agencies should use racial data from the 2000 Census (no fundamental change was made in this directive for the 2010 Census). In essence, the OMB recommended that any individuals who marked themselves as both “White” and some other minority race, should be counted as part of that other minority race. This increased the numbers reported for the racial groups above the “race-alone” categories, but actually excluded individuals who marked themselves as being in two different minority groups. We have found in our research that this method of calculation tends to fall in between the other two methods. Election Data Services, Inc. designates these categories as “**OMB**” and they occupy tab or table 3 in many of our data reports.

Election Data Services’s standard dataset incorporates all three methods of calculating racial data from the 2000 and 2010 censuses. This will continue for the 2020 Census, as the Census Bureau announced two years ago that the same basic data will be used when they published the PL file for 2020. Producing and reporting population counts based on all three calculation methods allows us to compare the different methods and how district configurations are affected over three decades.

# New Mexico - District Map of Previous 2011 Congressional Districts





DISTRICT	Total Population			Racial Demographics as Percent of Total Population					Voting Age Population			Racial Demographics as Percent of Voting Population						
	Total Pop	Assigned	Unassigned	White	Hispanic	Black	Asian	Other	NH Asian	Total Pop	Assigned	Unassigned	White	Hispanic	Black	Asian	Other	NH Asian
1	594,577	705,841		11.56%	38.17%	2.50%	4.17%	2.99%	48.71%	61.83%	550,750	79.3%	42.07%	2.53%	4.03%	2.80%	45.14%	57.93%
2	714,022	705,841		8.181	35.08%	1.63%	4.48%	0.96%	54.96%	64.92%	542,134	75.9%	39.29%	1.74%	4.34%	1.04%	50.81%	60.71%
3	708,923	705,841		3,082	36.31%	1.33%	18.01%	1.37%	39.51%	63.69%	546,095	77.0%	40.17%	1.30%	16.78%	1.45%	37.13%	59.83%
Total Pop	2,117,522																	
Unassigned	0																	

NM\_Previous2011\_Matrix\_poli\_formatted.xlsx  
Deviations

	A	B	C	D	E	F	G
1	DISTRICT	TAPERSONS	Target	Raw Dev	% Dev.	POPTOT	
2	01	694,577	705,841	(11,264)	-1.6%	694,577	
3	02	714,022	705,841	8,181	1.2%	714,022	
4	03	708,923	705,841	3,082	0.4%	708,923	
5							
6	STATE TOT	2,117,522					
7							
8	Total Dev			19,445	2.7549%		
9	Highest			8,181	1.1591%		
10	Lowest			(11,264)	-1.5958%		
11							
12							

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
DISTRICT	POPOT	POPBL_A	POPWH_A	POPBL_A	POPWH_A	POPBL_A	POPWH_A	POPBL_A	POPWH_A	POPBL_A	POPWH_A	POPBL_A	POPWH_A	POPBL_A	POPWH_A	POPFX	POPBL_A	POPWH_A	POPFX
1	694,577	100.00%	366,559	52.77%	20,652	2.97%	36,638	5.27%	19,678	2.83%	784	0.11%	105,812	15.23%	144,454	20.80%	328,018	47.23%	
2	714,022	100.00%	369,359	51.73%	14,159	1.98%	39,354	5.51%	7,458	1.04%	658	0.09%	128,879	18.05%	154,155	21.59%	344,663	48.27%	
3	708,923	100.00%	343,019	48.39%	11,093	1.56%	136,249	19.22%	10,333	1.46%	651	0.09%	83,941	11.84%	123,637	17.44%	365,904	51.61%	
4																			
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6	STATE TOTAL	2,117,522	100.00%	1,078,937	50.95%	45,904	2.17%	212,241	10.02%	37,469	1.77%	2,093	0.10%	318,632	15.05%	422,246	19.94%	1,038,585	49.05%
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1	DISTRICT		POPPTOT	POPNNHW_A	POPNNHA_A	POPNNHS_A	POPNNHT_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A	POPNNH_A
2	001		684,572	100.00%	266,106	38.17%	17,553	2.57%	28,963	4.17%	18,677	2.73%	540	0.08%	3,667	0.53%	338,305	48.71%	21,986	3.19%	429,471	61.83%
3	002		714,022	100.00%	250,485	35.08%	11,615	1.63%	31,989	4.48%	6,877	0.96%	456	0.06%	3,348	0.47%	392,391	54.95%	16,881	2.36%	483,571	67.82%
4	003		709,923	100.00%	257,381	36.31%	9,462	1.32%	127,658	18.01%	9,707	1.37%	455	0.06%	3,325	0.47%	280,115	39.51%	20,920	2.95%	451,542	63.69%
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6	SUB-TOTAL		2,117,522	100.00%	772,982	36.50%	38,330	1.81%	188,610	8.91%	35,281	1.67%	1,451	0.07%	10,340	0.49%	1,010,811	47.74%	59,767	2.82%	1,344,570	63.50%
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DISTRICT	POP TOT	POPWH_C	POPBI_C	POPNA_C	POPAS_C	POPII_C	POPPI_C	POPOT_C	POPOT_C	POPOT_C	POPOT_C	POPOT_C	POPOT_C	POPOT_C	POPOT_C	POPOT_C	POPOT_C	POPOT_C	POPOT_C	
1	694,577	121,89%	505,124	72.72%	30,067	4.33%	54,568	7.86%	28,162	4.05%	2,237	0.32%	226,414	32.60%	189,453	27.28%	194,760	27.89%	27,28%	
2	714,022	122.31%	519,262	72.72%	20,588	2.88%	54,278	7.60%	11,862	1.66%	1,773	0.25%	265,528	37.19%	194,760	27.28%	194,760	27.28%	27,28%	
3	708,923	118.27%	461,587	65.11%	17,734	2.50%	454,769	21.83%	15,973	2.25%	2,002	0.28%	186,346	26.29%	247,336	34.89%	247,336	34.89%	34.89%	
4	STATE TOTAL	2,117,522	120.82%	1,485,973	70.18%	68,409	3.23%	263,615	12.45%	55,997	2.64%	6,012	0.28%	678,288	32.03%	631,549	29.82%	631,549	29.82%	29.82%
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	DISTRICT	POP/TOT	POP/NH	POP/WH	POP/BL	POP/AS	POP/PI	POP/OT	POP/SP	POP/HS	POP/HS	POP/PI	POP/OT	POP/SP	POP/HS	POP/HS	POP/PI	POP/OT	POP/SP	POP/HS	POP/HS
1	1	694,577	103,38%	285,03%	41,04%	22,80%	3,28%	37,52%	5,38%	24,58%	3,54%	1,48%	0,21%	8,481	1,22%	338,905	48,71%	409,531	59,98%		
2	2	714,022	102,52%	268,291	37,29%	15,141	2,12%	39,722	5,58%	9,800	1,37%	1,185	0,18%	7,480	1,05%	392,291	54,98%	447,741	62,71%		
3	3	708,923	103,15%	276,535	39,01%	13,624	1,92%	137,610	19,41%	13,853	1,96%	1,405	0,20%	8,086	1,14%	280,115	39,51%	432,368	60,99%		
4	4	2,117,522	103,01%	827,854	39,10%	51,585	2,44%	214,885	10,14%	48,249	2,28%	4,059	0,19%	24,047	1,14%	1,010,811	47,74%	1,289,658	60,90%		
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DISTRICT	POP TOT	POP W	POP W %	POP W	POP W %	POP W	POP W %	POP W	POP W %	POP W	POP W %	POP W	POP W %	POP W	POP W %	POP W	POP W %
1	694,577	80.93%	366,659	52.77%	23,548	3.39%	40,040	5.76%	21,101	3.04%	1,326	0.19%	109,560	15.77%	328,018	47.23%	
2	714,022	79.63%	369,359	51.73%	15,958	2.23%	41,632	5.83%	8,392	1.18%	1,153	0.16%	132,080	18.50%	344,663	48.27%	
3	708,923	84.02%	343,019	48.39%	13,098	1.85%	139,766	19.72%	11,328	1.60%	1,162	0.16%	87,250	12.31%	365,904	51.61%	
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6	2,117,522	81.53%	1,078,937	50.96%	52,604	2.48%	221,438	10.46%	40,821	1.93%	3,641	0.17%	328,890	15.53%	1,038,585	49.05%	
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	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1	694,577	694,577	694,577	97.43%	285,106	38,171%	18,782	2.70%	30,192	4.35%	19,450	2.80%	877	0.13%	4,047	0.58%	338,305	48.71%	429,471	61.83%
2	714,022	714,022	714,022	97.84%	250,485	35.08%	12,252	1.72%	32,497	4.55%	7,326	1.03%	751	0.11%	3,663	0.51%	392,391	54.96%	463,557	64.92%
3	708,923	708,923	708,923	97.66%	257,381	36.31%	10,543	1.49%	128,851	18.19%	10,323	1.46%	804	0.11%	3,623	0.51%	280,115	39.51%	451,542	63.86%
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6			2,117,522	97.65%	772,952	36.50%	41,577	1.96%	191,540	9.05%	37,099	1.75%	2,432	0.11%	11,333	0.54%	1,010,811	47.74%	1,344,570	63.50%
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1	DISTRICT	VAPTOT			VAPWA_A	VAPBI_A	VAPFA_A	VAPNA_A	VAPPA_A	VAPSA_A	VAPFA_A	VAPPI_A	VAPOT_A	VAPOT_A	VAPXX					
2	001	550,760	100.00%	304,357	55.26%	15,620	2.84%	27,480	4.99%	16,038	2.91%	615	0.11%	80,492	14.61%	106,178	19.26%	246,403	44.74%	
3	002	542,134	100.00%	292,544	53.96%	10,615	1.96%	28,693	5.29%	6,031	1.11%	498	0.09%	93,362	17.22%	110,391	20.36%	249,590	46.04%	
4	003	546,095	100.00%	279,276	51.14%	8,209	1.50%	96,910	17.75%	8,309	1.52%	497	0.09%	63,637	11.65%	89,257	16.34%	266,819	48.86%	
5	STATE TOTAL	1,638,989	100.00%	876,177	53.46%	34,444	2.10%	153,083	9.34%	30,378	1.85%	1,610	0.10%	237,491	14.49%	305,826	18.66%	762,812	46.54%	
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8	90%				0				0					0				0		
9	90%				0				0					0				0		
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1	DISTRICT	VAPTOT																			
2		550,760	100.00%	231,725	42.07%	13,911	2.53%	22,191	4.03%	15,416	2.80%	451	0.08%	2,903	0.53%	248,590	45.14%	15,573	2.85%	319,035	57.93%
3		542,134	100.00%	212,990	39.29%	9,440	1.74%	23,541	4.34%	5,660	1.04%	379	0.07%	2,451	0.45%	275,435	50.81%	12,238	2.26%	329,144	60.71%
4		546,095	100.00%	219,347	40.17%	7,427	1.36%	91,628	16.79%	7,913	1.45%	369	0.07%	2,571	0.47%	202,739	37.13%	14,101	2.58%	326,748	59.83%
5																					
6	STATE TOTAL	1,639,899	100.00%	664,062	40.52%	30,778	1.89%	137,360	8.38%	28,989	1.77%	1,199	0.07%	7,925	0.48%	726,764	44.34%	41,912	2.56%	974,927	59.48%
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1	DISTRICT	VAPTOT		VAPWH_C		VAPBI_C		VAPNA_C		VAPAS_C		VAPPI_C		VAPOT_C			
2	001	550,760	120.12%	406,686	73.84%	20,864	3.79%	39,927	7.25%	21,053	3.82%	1,571	0.29%	171,493	31.14%	144,074	26.16%
3	002	542,134	120.96%	400,147	73.81%	13,885	2.56%	39,389	7.27%	8,710	1.61%	1,269	0.23%	192,332	35.48%	141,987	26.19%
4	003	546,095	117.00%	365,331	66.90%	11,653	2.14%	109,161	19.99%	11,459	2.10%	1,364	0.25%	139,977	25.63%	180,764	33.10%
5	STATE TOTAL	1,638,989	119.36%	1,172,164	71.52%	46,422	2.83%	188,477	11.50%	41,222	2.52%	4,204	0.26%	503,802	30.74%	466,825	28.48%
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9	30%				0		0		0		0		0		0		0
10	40%				0		0		0		0		0		0		0
11	50%				2		0		0		0		0		0		0
12	60%				1		0		0		0		0		0		0
13	70%				0		0		0		0		0		0		0
14	80%				0		0		0		0		0		0		0
15	90%				0		0		0		0		0		0		0
16	95%				0		0		0		0		0		0		0
17	98%				0		0		0		0		0		0		0
18	99%				0		0		0		0		0		0		0
19	99.5%				0		0		0		0		0		0		0
20	99.9%				0		0		0		0		0		0		0
21	100%				0		0		1		0		0		1		2
22	100%				0		3		2		3		3		0		0
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A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
DISTRICT	VAPTOT	VAPHHW_C	VAPHHB_C	VAPHHBL_C	VAPHHNA_C	VAPHHAS_C	VAPHHPI_C	VAPHHOT_C	VAPHHIS_C	VAPHHOT_C	VAPHHIS_C	VAPHHOT_C	VAPHHIS_C	VAPHHOT_C	VAPHHIS_C	VAPHHOT_C	VAPHHIS_C	VAPHHOT_C	VAPHHIS_C
1	550,760	103,00%	245,549	17,267	28,395	19,196	3,49%	1,146	0,21%	6,748	1,23%	248,590	45,14%	304,811	55,34%				
2	542,134	102,38%	224,468	11,538	29,527	7,526	1,39%	912	0,17%	5,690	1,05%	275,435	50,81%	317,666	58,60%				
3	546,099	102,73%	232,552	9,810	99,429	18,02%	1,90%	1,009	0,18%	6,315	1,16%	202,739	37,13%	313,743	57,43%				
4																			
5	1,639,989	102,71%	702,769	38,615	156,344	37,072	2,28%	3,067	0,19%	18,753	1,14%	726,764	44,34%	936,220	57,12%				
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1	DISTRICT	VAPTOT	VAPWH	VAPBL_W	VAPNA_W	VAPAS_W	VAPFP_W	VAPOT_W									
2	001	550,760	82.14%	304,357	17,327	3,15%	29,686	5.39%	16,970	3.08%	1,018	0.18%	83,061	15.08%	246,403	44.74%	
3	002	542,134	80.69%	292,544	11,607	2.14%	30,294	5.59%	6,702	1.24%	869	0.16%	95,439	17.60%	249,590	46.04%	
4	003	546,095	84.85%	279,276	9,276	1.70%	99,126	18.15%	8,951	1.64%	870	0.16%	65,659	12.05%	266,819	48.86%	
5	STATE TOTAL	1,638,989	82.57%	876,177	38,210	2.33%	159,106	9.71%	32,623	1.99%	2,757	0.17%	244,359	14.91%	762,812	46.54%	
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1	550,760				231,725	42.07%	14,815	2.80%	22,947	4.17%	15,942	2.89%	719	0.13%	3,201	0.58%	246,590	45.14%	319,035	57.93%
2	540,134				212,980	39.29%	9,870	1.82%	23,896	4.41%	5,992	1.11%	620	0.11%	2,677	0.49%	275,435	50.81%	329,144	60.71%
3	546,095				219,347	40.17%	8,098	1.48%	92,292	16.90%	8,339	1.53%	636	0.12%	2,798	0.51%	202,799	37.13%	326,748	59.83%
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6	1,639,989				664,062	40.52%	32,763	2.00%	139,125	8.49%	30,273	1.85%	1,975	0.12%	8,676	0.53%	726,764	44.34%	974,927	59.48%
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State Composite Score				Judicial Composite Score				
DISTRICT	Dem	Dem %	Rep	Rep %	Dem	Dem %	Rep	Rep %
1	5,118,970	57.0%	3,752,177	42.30%	2,842,663	57.36%	2,113,543	42.64%
2	3,247,006	44.75%	4,008,592	55.25%	1,817,616	44.87%	2,233,123	55.13%
3	5,140,425	58.25%	3,684,771	41.75%	2,872,088	58.32%	2,052,276	41.68%
Statewide	13,506,401	54.13%	11,445,540	45.87%	7,532,367	54.07%	6,398,942	45.93%
<b>President</b>								
<b>2020</b>								
DISTRICT	Biden	Biden %	Trump	Trump %	Clinton	Clinton %	Trump	Trump %
1	197,432	61.70%	122,565	38.30%	147,253	59.52%	100,135	40.48%
2	116,501	43.96%	148,536	56.04%	93,366	44.34%	117,204	55.66%
3	187,666	58.93%	130,782	41.07%	144,617	58.56%	102,328	41.44%
Statewide	501,599	55.52%	401,883	44.48%	385,236	54.65%	319,667	45.35%
<b>Governor</b>								
<b>2018</b>								
DISTRICT	Gesham	Gesham %	Ronchetti	Ronchetti %	Gesham	Gesham %	Pearce	Pearce %
1	144,559	57.89%	105,158	42.11%	153,531	61.45%	96,296	38.55%
2	80,120	41.35%	113,624	58.65%	93,972	46.78%	106,922	53.22%
3	145,467	57.87%	105,883	42.13%	150,875	61.40%	94,833	38.60%
Statewide	370,146	55.27%	324,665	44.73%	398,378	57.20%	298,051	42.80%
<b>Secretary of State</b>								
<b>2018 (not in index)</b>								
DISTRICT	Oliver	Oliver %	Trujillo	Trujillo %	Oliver	Oliver %	Clarkson	Clarkson %
1	154,026	62.63%	91,914	37.37%	156,087	65.87%	80,889	34.13%
2	82,599	43.02%	109,414	56.98%	93,802	49.88%	94,260	50.12%
3	147,852	59.80%	99,404	40.20%	149,222	64.49%	82,160	35.51%
Statewide	384,477	56.11%	300,732	43.89%	399,111	60.80%	257,309	39.20%
<b>Treasurer</b>								
<b>2018 (not in index)</b>								
DISTRICT	Lmontoya	Lmontoya %	HMontoya	HMontoya %	Eichenberg	Eichenberg %	Castillo	Castillo %
1	143,323	57.86%	104,363	42.14%	153,967	63.14%	89,880	36.86%
2	81,829	41.68%	114,504	58.32%	93,281	47.32%	103,850	52.68%
3	144,894	57.45%	107,334	42.55%	147,489	61.32%	93,028	38.68%
Statewide	370,046	53.15%	326,201	46.85%	394,737	57.92%	286,758	42.08%
<b>2014</b>								
DISTRICT	Lopez	Lopez %	Lopez	Lopez %	Eichenberg	Eichenberg %	Espinosa	Espinosa %
1	143,323	57.86%	104,363	42.14%	97,751	55.75%	77,576	44.25%
2	81,829	41.68%	114,504	58.32%	62,719	43.77%	80,575	56.23%
3	144,894	57.45%	107,334	42.55%	100,742	56.18%	78,564	43.82%
Statewide	370,046	53.15%	326,201	46.85%	261,212	52.46%	236,715	47.54%
<b>Supreme Court (All Elections except 2014)</b>								
DISTRICT	SupDems	SupDems %	SupReps	SupReps %	CoADems	CoADems %	CoAReps	CoAReps %
1	1,087,029	56.93%	822,460	43.07%	1,755,634	57.62%	1,291,083	42.38%
2	699,633	44.99%	855,572	55.01%	1,117,983	44.80%	1,377,551	55.20%
3	1,111,060	58.66%	782,892	41.34%	1,761,028	58.11%	1,269,384	41.89%
Statewide	2,897,722	54.08%	2,460,924	45.92%	4,634,645	54.06%	3,938,018	45.94%

		2020		2018 (not in index)		US Senate		2014		2012					
Lujan	Lujan %	Ronchetti	Ronchetti %	Henrich	Henrich %	Rich	Rich %	Udall	Udall %	Webb	Webb %	Henrich	Henrich %	Wilson	Wilson %
182,692	57.57%	134,658	42.43%	144,127	68.65%	65,810	31.35%	102,695	56.69%	78,460	43.31%	149,722	52.24%	121,293	44.76%
112,033	43.12%	147,798	56.88%	91,393	53.14%	80,587	46.86%	69,745	46.98%	78,717	53.02%	100,887	46.45%	116,311	53.55%
179,737	56.92%	136,024	43.08%	141,483	68.07%	66,380	31.93%	113,977	61.31%	71,929	38.69%	145,113	56.07%	113,712	43.93%
474,462	53.13%	418,480	46.87%	377,003	63.92%	212,777	36.08%	286,417	55.56%	229,106	44.44%	395,722	52.97%	351,316	47.03%
<b>Attorney General</b>															
		2022 (not in index)		2018 (not in index)		2014									
Tonez	Tonez %	Gay	Gay %	Balderas	Balderas %	Hendricks	Hendricks %	Balderas	Balderas %	Riedel	Riedel %				
151,573	60.46%	99,135	39.54%	166,402	70.25%	70,470	29.75%	109,168	61.30%	68,914	38.70%				
85,906	43.45%	111,788	56.55%	102,332	54.07%	86,938	45.93%	70,645	48.37%	75,407	51.63%				
151,063	59.44%	103,076	40.56%	158,816	68.24%	73,918	31.76%	115,197	63.23%	66,988	36.77%				
388,542	55.31%	313,999	44.69%	427,550	64.89%	231,326	35.11%	295,010	58.27%	211,309	41.73%				
<b>Secretary of State</b>															
		2014		2022 (not in index)											
Oliver	Oliver %	Duran	Duran %	Maestas	Maestas %	Sanchez	Sanchez %	Colon	Colon %	Johnson	Johnson %	Keller	Keller %	Atagon	Atagon %
96,087	53.65%	82,997	46.35%	152,860	66.60%	76,659	33.40%	151,780	61.54%	94,849	38.46%	102,111	58.26%	73,145	41.74%
55,326	37.84%	90,902	62.16%	91,169	50.85%	88,114	49.15%	95,397	48.09%	102,965	51.91%	64,477	44.87%	79,225	55.13%
94,108	51.61%	88,239	48.39%	155,745	65.81%	80,923	34.19%	148,531	61.27%	93,900	38.73%	103,804	57.84%	75,668	42.16%
245,521	48.36%	262,138	51.64%	399,774	61.94%	245,696	38.06%	395,708	57.56%	291,714	42.44%	270,392	54.25%	228,038	45.75%
<b>Land Commissioner</b>															
		2022 (not in index)		2018											
Richard	Richard %	Byrd	Byrd %	Richard	Richard %	Lyons	Lyons %	Powell	Powell %	Dunn	Dunn %				
147,454	59.72%	99,466	40.28%	134,916	57.87%	98,210	42.13%	91,113	51.96%	84,223	48.04%				
82,765	42.98%	109,789	57.02%	83,851	44.80%	103,313	55.20%	58,596	40.56%	85,873	59.44%				
149,347	59.52%	101,560	40.48%	133,568	58.22%	95,856	41.78%	99,638	55.49%	79,920	44.51%				
379,566	54.98%	310,815	45.02%	352,335	54.23%	297,379	45.77%	249,347	49.93%	250,016	50.07%				

		Supreme Court (2022)			
		Contest 1		Contest 2	
DISTRICT		Vargas %	Montoya %	Zamora %	Morris %
1		141,782	57.36%	105,415	42.64%
2		81,179	41.39%	114,943	58.61%
3		143,363	57.01%	108,092	42.99%
Statewide		366,324	52.73%	328,450	47.27%
		Supreme Court (2020)			
		Contest 1		Contest 2	
DISTRICT		Bacot %	Fuller %	Thompson %	Morris %
1		191,580	60.70%	124,014	39.30%
2		117,513	45.08%	143,185	54.92%
3		186,655	59.44%	127,384	40.56%
Statewide		495,748	55.68%	394,583	44.32%
		Supreme Court (2018)			
		Contest 1		Contest 2	
DISTRICT		Vigil %	Clingman %	Bogardus %	French %
1		152,795	62.51%	91,653	37.49%
2		97,303	49.33%	99,932	50.67%
3		153,475	63.84%	86,917	36.16%
Statewide		403,573	59.17%	278,502	40.83%
		Court of Appeals (2016)			
		Contest 1		Contest 2	
DISTRICT		Vigil %	Nakamura %	Vargas %	French %
1		123,293	45.24%	149,214	54.76%
2		98,829	44.19%	124,805	55.81%
3		143,668	54.02%	122,284	45.98%
Statewide		365,790	48.00%	396,303	52.00%
		Court of Appeals (2014)			
		Contest 1		Contest 2	
DISTRICT		Kearman %	Hanisee %	Kearman %	Hanisee %
1		84,596	49.82%	85,201	50.18%
2		58,849	41.85%	81,762	58.15%
3		94,686	54.24%	79,898	45.76%
Statewide		238,131	49.10%	246,861	50.90%
		Court of Appeals (2012)			
		Contest 1		Contest 2	
DISTRICT		Vigil %	Kennedy %	Zamora %	Hanisee %
1		147,907	55.00%	121,015	45.00%
2		107,650	48.72%	113,319	51.28%
3		154,466	59.82%	103,769	40.18%
Statewide		410,023	54.81%	338,103	45.19%

Court of Appeals (2022)											
Contest 1				Contest 2				Contest 3			
Rank	Ballot %	Johnson	Johnson %	Wray	Wray %	Lee	Lee %	Yohalem	Yohalem %	Montoya	Montoya %
134,392	57.82%	98,026	42.18%	135,254	58.64%	95,402	41.36%				
76,971	41.40%	108,961	58.60%	77,609	42.45%	105,196	57.55%				
138,158	58.13%	99,504	41.87%	137,306	58.74%	96,430	41.26%				
349,521	53.28%	306,491	46.72%	350,169	54.11%	297,028	45.89%				
Court of Appeals (2020)											
Contest 1				Contest 2				Contest 3			
Rank	Ballot %	Johnson	Johnson %	Henderson	Henderson %	Lee	Lee %	Yohalem	Yohalem %	Montoya	Montoya %
180,999	58.01%	131,026	41.99%	172,970	59.62%	117,128	40.38%	178,110	57.31%	132,665	42.69%
109,473	42.10%	150,537	57.90%	107,443	44.46%	134,239	55.54%	107,652	41.52%	151,629	58.48%
173,540	55.64%	138,364	44.36%	170,134	58.76%	119,403	41.24%	170,853	54.99%	139,855	45.01%
464,012	52.49%	419,927	47.51%	450,547	54.86%	370,770	45.14%	456,615	51.84%	424,149	48.16%
Court of Appeals (2018)											
Contest 2				Contest 3				Contest 4			
Rank	Ballot %	Bohnhoff	Bohnhoff %	Zamora	Zamora %	Kiehne	Kiehne %	Duffy	Duffy %	Gallagos	Gallagos %
146,482	60.47%	95,763	39.53%	147,843	61.12%	94,036	38.88%	140,087	58.22%	100,515	41.78%
95,879	48.90%	100,186	51.10%	94,612	48.22%	101,579	51.78%	89,479	45.71%	106,287	54.29%
149,068	62.42%	89,732	37.58%	148,516	62.28%	89,939	37.72%	137,956	57.97%	100,012	42.03%
391,429	57.81%	285,681	42.19%	390,971	57.79%	285,554	42.21%	367,522	54.50%	306,814	45.50%

General Election Turnout (2022)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	215,193	46.5%	130,069	28.1%	117,774	25.4%	255,415	55.16%	
2	155,602	36.8%	159,890	37.8%	106,982	25.3%	200,730	47.51%	
3	231,636	48.6%	133,952	28.1%	110,923	23.3%	258,609	54.27%	
Statewide	602,431	44.2%	423,911	31.1%	335,679	24.6%	714,754	52.48%	
General Election Turnout (2020)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	216,834	46.9%	132,125	28.6%	113,715	24.6%	329,486	71.21%	
2	159,426	38.2%	157,924	37.9%	99,672	23.9%	271,752	65.16%	
3	234,256	49.8%	132,512	28.2%	103,778	22.1%	326,996	69.49%	
Statewide	610,516	45.2%	422,561	31.3%	317,165	23.5%	928,234	68.75%	
General Election Turnout (2018)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	201,127	46.2%	123,884	28.5%	110,078	25.3%	251,543	57.81%	
2	154,587	40.0%	138,844	35.9%	92,986	24.1%	202,494	52.40%	
3	222,608	50.6%	120,201	27.3%	97,212	22.1%	247,617	56.27%	
Statewide	578,322	45.8%	382,929	30.4%	300,276	23.8%	701,654	55.62%	
General Election Turnout (2016)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	216,369	46.4%	138,961	29.8%	111,091	23.8%	287,261	61.59%	
2	158,425	41.2%	138,785	36.1%	87,570	22.8%	235,844	61.29%	
3	225,015	51.4%	122,165	27.9%	91,001	20.8%	280,968	64.12%	
Statewide	599,809	46.5%	399,911	31.0%	289,662	22.5%	804,073	62.36%	
General Election Turnout (2014)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	207,352	45.5%	140,140	30.8%	107,814	23.7%	180,799	39.71%	
2	166,134	42.4%	138,989	35.4%	87,106	22.2%	150,459	38.36%	
3	227,055	51.6%	122,196	27.8%	90,858	20.6%	188,195	42.76%	
Statewide	600,541	46.6%	401,325	31.2%	285,778	22.2%	519,453	40.34%	
General Election Turnout (2012)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	205,968	46.2%	139,933	31.4%	100,004	22.4%	283,223	63.52%	
2	165,527	43.5%	135,642	35.6%	79,360	20.9%	231,132	60.74%	
3	224,745	52.4%	120,415	28.1%	83,732	19.5%	272,201	63.47%	
Statewide	596,240	47.5%	395,990	31.5%	263,096	21.0%	786,556	62.66%	

# Autobound EDGE - Compactness Report

Plan Name: Congress:NM\_Congress\_2011

[For more information on compactness calculations Click Here](#)



## Compactness measure: Polsby-Popper

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	4,607	467	17,334	241	0.27
2	71,903	1,497	178,265	951	0.40
3	45,082	1,220	118,465	753	0.38

Most Compact: 0.4 For District: 2

Least Compact: 0.27 For District: 1

## Compactness measure: Schwartzberg

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	4,607	467	17,334	241	0.52
2	71,903	1,497	178,265	951	0.64
3	45,082	1,220	118,465	753	0.62

Most Compact: 0.64 For District: 2

Least Compact: 0.52 For District: 1

## Compactness measure: Reock Score

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	4,607	467	17,334	241	0.37
2	71,903	1,497	178,265	951	0.55
3	45,082	1,220	118,465	753	0.37

Most Compact: 0.55 For District: 2

Least Compact: 0.37 For District: 1

## Compactness measure: Length-Width

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	4,607	467	17,334	241	1.59
2	71,903	1,497	178,265	951	1.50
3	45,082	1,220	118,465	753	2.07

Most Compact: 2.07 For District: 3

Least Compact: 1.5 For District: 2

## Compactness measure: Convex Hull

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	4,607	467	17,334	241	0.71
2	71,903	1,497	178,265	951	0.85
3	45,082	1,220	118,465	753	0.79

Most Compact: 0.85 For District: 2

Least Compact: 0.71 For District: 1









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Deviations

	A	B	C	D	E	F	G
1	DISTRICT	TAPERSONS	Target	Raw Dev	% Dev.	POPTOT	
2	01	705,832	705,841	(9)	0.0%	705,832	
3	02	705,846	705,841	5	0.0%	705,846	
4	03	705,844	705,841	3	0.0%	705,844	
5							
6	STATE TOT	2,117,522					
7							
8	Total Dev			14	0.0020%		
9	Highest			5	0.0008%		
10	Lowest			(9)	-0.0012%		
11							
12							

DISTRICT	Total Population			Racial Demographics as Percent of Total Population						Voting Age Population			Racial Demographics as Percent of Voting Population					
	1	2	3	45.52%	2.42%	4.15%	2.76%	40.89%	54.47%	564,033	79.9%	48.39%	2.43%	3.92%	2.85%	37.62%	50.81%	
1	705,832	705,841	9															
2	705,846	705,841	5	29.43%	1.78%	5.00%	1.07%	59.93%	70.57%	534,358	75.7%	33.25%	1.58%	4.89%	1.17%	56.14%	66.75%	
3	705,844	705,841	3	34.55%	1.24%	17.57%	1.16%	47.38%	55.45%	540,598	76.6%	18.44%	1.30%	16.69%	1.23%	38.70%	51.56%	
Assigned Total Pop	2,117,522																	
Unassigned	0																	

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1-PopRaceAlone

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T		
DISTRICT	POPOT	POPBL_A	POPWH_A	POPAS_A	POPFX	POPOT_A	POPBL_A	POPWH_A	POPAS_A	POPFX	POPOT_A	POPBL_A	POPWH_A	POPAS_A	POPFX	POPOT_A	POPBL_A	POPWH_A	POPAS_A	POPFX	
1	705,832	20,038	412,068	36,502	134,743	81,003	11,488%	134,743	19,099%	293,764	41.62%										
2	705,846	15,530	334,776	43,597	165,138	19,522%	165,138	23.40%	371,070	52.57%											
3	705,844	10,336	332,093	47,059%	122,365	14.15%	122,365	17.34%	373,751	52.95%											
4																					
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6	STATE TOTAL	2,117,522	1,078,937	50.95%	45,904	2.17%	212,241	10.02%	37,469	1.77%	2,093	0.10%	318,632	15.05%	422,246	19.94%	1,038,585	49.05%			
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1	DISTRICT		POPPTOT	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A	POPNNH A
2	001		705,832	100.00%	321,344	45.53%	17,047	2.42%	29,297	4.15%	19,506	2.76%	632	0.09%	3,911	0.55%	288,643	40.89%	25,452	3.61%	384,488	54.47%
3	002		705,846	100.00%	207,792	29.43%	12,663	1.78%	35,320	5.00%	7,568	1.07%	491	0.07%	3,151	0.45%	423,032	59.93%	15,959	2.26%	486,094	70.57%
4	003		705,844	100.00%	243,846	34.55%	8,720	1.24%	123,983	17.57%	8,187	1.16%	328	0.05%	3,278	0.46%	299,156	42.59%	18,356	2.60%	461,998	65.45%
5																						
6	STATE TOTAL		2,117,522	100.00%	772,982	36.50%	38,330	1.81%	188,610	8.91%	35,281	1.67%	1,451	0.07%	10,340	0.49%	1,010,811	47.74%	59,767	2.82%	1,344,570	63.50%
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	DISTRICT	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP
1	1	705 632	103 88%	344 72%	48 84%	22 94%	3 25%	39 32%	5 57%	28 16%	3 27%	1 7%	0 2%	9 50%	1 3%	288 63%	40 88%	361 104%	51 15%	
2	2	705 646	102 42%	222 35%	31 50%	16 38%	2 32%	42 12%	5 97%	10 6%	1 54%	1 30%	0 18%	6 87%	0 97%	423 62%	59 93%	483 481%	68 50%	
3	3	705 644	102 76%	280 77%	36 94%	12 28%	1 74%	133 28%	18 89%	11 23%	1 59%	1 04%	0 15%	7 67%	1 09%	299 136%	42 36%	449 073%	63 06%	
4	4	8741E 1071A	2 117 522	103 01%	827 894	39 10%	51 56%	2 44%	214 68%	10 14%	48 24%	2 28%	4 05%	0 19%	24 047	1 14%	1 010 811	47 74%	1 289 658	60 90%
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DISTRICT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
		POPOT		POPWH_A	POPWH_A	POPBL_W	POPBL_W	POPNA_W	POPNA_W	POPAS_W	POPAS_W	POPPI_W	POPPI_W	POPOT_W	POPOT_W	POPOT_W	POPOT_W	
1		705,632	82.54%	412,068	3.23%	22,829	39,746	5.63%	22,027	3.12%	1,478	0.21%	84,418	11.96%	293,764	41.62%		
2		705,646	78.05%	334,776	47.43%	17,672	46,336	6.56%	9,396	1.33%	1,260	0.18%	141,466	20.04%	371,070	52.57%		
3		705,644	83.99%	332,093	47.05%	12,103	135,366	19.18%	9,398	1.33%	903	0.13%	103,006	14.59%	373,751	52.95%		
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6	STATE TOTAL	2,117,522	81.53%	1,078,937	50.96%	52,604	221,438	10.46%	40,821	1.93%	3,641	0.17%	328,890	15.53%	1,038,585	49.05%		
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	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	
	705,832	705,846	705,844	98.69%	321,344	45.53%	18,488	2.62%	30,527	4.32%	20,332	2.88%	679	0.14%	4,292	0.61%	288,643	40.89%	394,459	54.47%	
	705,846	98.44%	207,782	29.43%	13,423	1.90%	1,907	0.27%	36,002	5.10%	8,137	1.15%	819	0.12%	3,507	0.50%	423,032	59.53%	498,054	70.57%	
	705,844	97.82%	243,846	34.55%	9,668	1.37%	1,378	0.19%	125,011	17.71%	8,630	1.22%	634	0.09%	3,534	0.50%	299,136	42.38%	461,998	65.45%	
	2,117,522	97.65%	772,952	36.50%	41,577	1.96%	191,540	9.05%	37,099	1.75%	2,432	0.11%	11,333	0.54%	1,010,811	47.74%	1,344,570	63.50%			
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1	SUBTOTAL	VAPTOT			VAPWA_A	VAPBI_A	VAPFA_A	VAPNA_A	VAPAS_A	VAPPL_A	VAPOT_A	VAPXX								
2	001	564,033	100.00%	100.00%	342,797	60.78%	15,245	2.70%	27,052	4.80%	16,696	2.96%	725	0.13%	63,047	11.18%	98,471	17.46%	221,236	39.22%
3	002	534,358	100.00%	100.00%	264,493	49.50%	11,436	2.14%	31,841	5.96%	6,731	1.26%	535	0.10%	100,520	18.81%	118,802	22.23%	269,865	50.50%
4	003	540,598	100.00%	100.00%	268,887	49.74%	7,763	1.44%	94,170	17.42%	6,951	1.29%	350	0.06%	73,924	13.67%	88,553	16.38%	271,711	50.26%
5	STATE TOTAL	1,638,989	100.00%	100.00%	876,177	53.46%	34,444	2.10%	153,083	9.34%	30,378	1.85%	1,610	0.10%	237,491	14.49%	305,826	18.66%	762,812	46.54%
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DISTRICT	VAPTOT	VAPNHHC.A	VAPNHBL.A	VAPNHHA.A	VAPNHAS.A	VAPNHHP.A	VAPNHOT.A	VAPNHIS.P	VAPNHXX	VAPNHXX	VAPNHXX	VAPNHXX	VAPNHXX	VAPNHXX	VAPNHXX	VAPNHXX	VAPNHXX	VAPNHXX	VAPNHXX	VAPNHXX	VAPNHXX
1	564,033	278,556	13,863	22,103	16,052	527	3,088	212,166	17,858	2,954,777	3,17%	295,477	50.61%								
2	534,359	177,892	10,068	26,128	6,276	403	2,354	299,999	11,448	3,565,676	66.75%	61,59%									
3	540,999	207,824	7,027	89,129	6,661	299	2,483	214,599	12,806	3,327,774	61.59%	0									
4																					
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6	1,639,899	664,062	30,778	137,360	28,999	1,199	7,925	726,764	41,912	2,56%	974,927	59.48%									
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1	DISTRICT	VAPTOT		VAPWH_C		VAPBI_C		VAPNA_C		VAPAS_C		VAPPI_C		VAPOT_C		VAPOT_C	
2	001	564,033	118.31%	437,571	77.58%	20,639	3.66%	40,712	7.22%	22,125	3.92%	1,748	0.31%	144,497	25.62%	126,462	22.42%
3	002	534,358	122.92%	380,019	71.12%	15,151	2.84%	42,357	7.93%	9,810	1.84%	1,383	0.26%	208,102	38.94%	154,339	28.88%
4	003	540,598	116.94%	354,574	65.59%	10,632	1.97%	105,408	19.50%	9,287	1.72%	1,073	0.20%	151,203	27.97%	186,024	34.41%
5	STATE TOTAL	1,638,989	119.36%	1,172,164	71.62%	46,422	2.83%	188,477	11.50%	41,222	2.52%	4,204	0.26%	503,802	30.74%	466,825	28.48%
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9	30%				0		0		0		0		0		0		0
10	40%				0		0		0		0		0		0		0
11	50%				2		0		0		0		0		0		0
12	60%				1		0		0		0		0		0		0
13	70%				0		0		0		0		0		0		0
14	80%				0		0		0		0		0		0		0
15	90%				0		0		0		0		0		0		0
16	95%				0		0		0		0		0		0		0
17	98%				0		0		0		0		0		0		0
18	99%				0		0		0		0		0		1		0
19	99.5%				0		0		0		0		0		0		1
20	99.9%				0		0		0		0		0		2		2
21	100%				0		0		1		0		0		0		0
22	100%				0		3		2		3		3		0		0
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A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
DISTRICT	VAPTOT	VAPHH_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C	VAPHHBL_C
1	564,033	103,35%	295,026	52,31%	17,291	3,07%	29,492	5,23%	20,169	3,59%	1,271	0,23%	7,516	1,33%	212,166	37,62%	269,007	47,69%	
2	534,358	102,28%	188,201	35,22%	12,351	2,31%	31,287	5,85%	8,409	1,57%	1,002	0,19%	5,294	0,99%	298,989	56,14%	346,157	64,78%	
3	540,398	102,46%	219,542	40,61%	8,973	1,66%	93,385	17,65%	8,474	1,57%	794	0,15%	5,943	1,10%	214,599	39,70%	321,056	59,39%	
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6	1,639,989	102,71%	702,769	42,88%	38,615	2,36%	156,344	9,54%	37,072	2,29%	3,067	0,19%	18,753	1,14%	726,764	44,34%	936,220	57,12%	
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DISTRICT	VAPTOT	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H	VAPM_H
1	564,033	83.89%	342,797	60.78%	16,918	3.00%	29,186	5.17%	17,652	3.13%	1,124	0.20%	65,421	11.60%	221,236	39.22%	
2	534,358	79.02%	264,493	49.50%	12,647	2.37%	33,718	6.31%	7,501	1.40%	942	0.18%	102,923	19.26%	269,865	50.50%	
3	540,598	84.70%	268,887	49.74%	8,645	1.60%	96,202	17.80%	7,470	1.38%	691	0.13%	76,015	14.06%	271,711	50.26%	
4	1,638,989	82.57%	876,177	53.46%	38,210	2.33%	159,106	9.71%	32,623	1.99%	2,757	0.17%	244,359	14.91%	762,812	46.54%	
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	Subtotal	VAPTOT			VAPNHW A		VAPNHB W		VAPNHA W		VAPNHAS W		VAPNHPL W		VAPNHOT W		VAPNISE			
2	564,033	564,033	97.34%	276,566	49.39%	14,614	2.60%	22,879	4.06%	16,612	2.95%	800	0.14%	3,394	0.60%	212,199	37.62%	285,477	50.61%	
3	534,358	534,358	98.21%	177,692	33.25%	10,615	1.99%	26,549	4.97%	6,690	1.25%	695	0.12%	2,611	0.49%	299,999	56.14%	356,676	66.75%	
4	540,598	540,598	98.01%	207,824	38.44%	7,564	1.40%	89,897	16.59%	6,971	1.29%	510	0.09%	2,681	0.50%	214,599	39.70%	332,774	61.58%	
5																				
6	Subtotal	1,639,989	97.94%	664,062	40.52%	32,763	2.00%	139,125	8.49%	30,273	1.85%	1,975	0.12%	8,676	0.53%	726,704	44.34%	974,927	59.48%	
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State Composite Score				Judicial Composite Score				
DISTRICT	Dem	Dem %	Rep	Rep %	Dem	Dem %	Rep	Rep %
1	5,225,445	53.57%	4,528,606	46.43%	2,906,996	53.26%	2,551,244	46.74%
2	3,667,152	52.73%	3,287,582	47.27%	2,066,051	52.88%	1,840,889	47.12%
3	4,613,804	55.97%	3,629,352	44.03%	2,559,320	56.05%	2,006,809	43.95%
Statewide	13,506,401	54.13%	11,445,540	45.87%	7,532,367	54.07%	6,398,942	45.93%
President								
2020								
DISTRICT	Biden	Biden %	Trump	Trump %	Clinton	Clinton %	Trump	Trump %
1	2,012,211	57.42%	1,491,191	42.58%	1,466,885	54.58%	1,222,335	45.42%
2	1,376,607	53.05%	1,217,783	46.95%	1,071,198	53.37%	936,651	46.63%
3	1,627,811	55.43%	1,309,909	44.57%	1,311,153	55.83%	1,037,811	44.17%
Statewide	5,015,999	55.52%	4,018,883	44.48%	3,852,236	54.65%	3,199,667	45.35%
Governor								
2022 (not in index)								
DISTRICT	Gisham	Gisham %	Ronchetti	Ronchetti %	Gisham	Gisham %	Pearce	Pearce %
1	150,543	54.04%	128,048	45.96%	157,049	57.21%	117,454	42.79%
2	94,290	49.84%	94,908	50.16%	107,399	55.40%	86,459	44.60%
3	125,313	55.20%	101,709	44.80%	133,930	58.72%	94,138	41.28%
Statewide	370,146	53.27%	324,665	46.73%	398,378	57.20%	298,051	42.80%
Secretary of State								
2018 (not in index)								
DISTRICT	Oliver	Oliver %	Trujillo	Trujillo %	Oliver	Oliver %	Clarkson	Clarkson %
1	160,673	58.54%	113,789	41.46%	159,396	61.36%	100,386	38.64%
2	97,009	51.83%	90,159	48.17%	106,961	58.83%	74,838	41.17%
3	126,795	56.71%	96,784	43.29%	132,754	61.79%	82,085	38.21%
Statewide	384,477	56.11%	300,732	43.89%	399,111	60.80%	257,309	39.20%
Treasurer								
2022 (not in index)								
DISTRICT	Montoya	Montoya %	Hmontoya	Hmontoya %	Eichenberg	Eichenberg %	Castillo	Castillo %
1	149,767	54.07%	127,208	45.93%	158,838	59.16%	109,672	40.84%
2	95,213	49.88%	95,678	50.12%	105,007	55.30%	84,872	44.70%
3	125,066	54.76%	103,315	45.24%	130,892	58.67%	92,214	41.33%
Statewide	370,046	53.15%	326,201	46.85%	394,737	57.92%	286,758	42.08%
2014								
DISTRICT	Eichenberg	Eichenberg %	Lopez	Lopez %	Eichenberg	Eichenberg %	Lopez	Lopez %
1	101,551	52.19%	93,017	47.81%	101,551	52.19%	93,017	47.81%
2	66,469	50.05%	66,327	49.95%	66,469	50.05%	66,327	49.95%
3	93,192	54.64%	77,371	45.36%	93,192	54.64%	77,371	45.36%
Statewide	261,212	52.46%	236,715	47.54%	261,212	52.46%	236,715	47.54%
Supreme Court (All Elections except 2014)								
DISTRICT	SupDems %	SupReps %	SupReps %	SupReps %	CoADems %	CoADems %	CoADems %	CoADems %
1	1,112,202	52.93%	989,027	47.07%	1,794,794	53.46%	1,562,217	46.54%
2	794,721	52.84%	709,308	47.16%	1,271,330	52.91%	1,131,581	47.09%
3	990,799	56.51%	762,589	43.49%	1,568,521	55.76%	1,244,220	44.24%
Statewide	2,897,722	54.08%	2,460,924	45.92%	4,634,645	54.06%	3,938,018	45.94%



		2020		2018 (not in index)		US Senate		2014		2012					
Lujan %	Ronchetti	Ronchetti %	Heinrich	Heinrich %	Rich	Rich %	Udall	Udall %	Weh	Weh %	Heinrich	Heinrich %	Wilson	Wilson %	
183,366	53.28%	162,513	46.72%	147,795	64.33%	81,945	35.67%	106,561	53.02%	94,425	46.98%	148,821	51.21%	141,809	48.79%
131,557	51.68%	122,987	48.32%	102,400	61.80%	63,300	38.20%	74,008	53.81%	63,537	46.19%	111,373	54.07%	94,622	45.93%
157,539	54.23%	132,980	45.77%	126,808	65.25%	67,532	34.75%	105,848	59.80%	71,144	40.20%	135,528	54.12%	114,885	45.88%
474,462	53.13%	418,480	46.87%	377,003	63.92%	212,777	36.08%	286,417	55.56%	229,106	44.44%	395,722	52.97%	351,316	47.03%
<b>Attorney General</b>															
		2022 (not in index)		2018 (not in index)		2014		2014		2014		2014		2014	
Torrez %	Gay	Gay %	Balderas	Balderas %	Henricks	Henricks %	Balderas	Balderas %	Riedel	Riedel %					
138,167	56.47%	121,911	43.53%	172,309	66.29%	87,621	33.71%	113,715	57.53%	83,953	42.47%				
99,655	51.77%	92,858	48.23%	114,167	62.37%	68,877	37.63%	74,937	55.38%	60,366	44.62%				
130,720	56.85%	99,230	43.15%	141,074	65.34%	74,828	34.66%	106,358	61.36%	66,990	38.64%				
388,542	55.31%	313,999	44.69%	427,550	64.89%	231,326	35.11%	295,010	58.27%	211,309	41.73%				
<b>Secretary of State</b>															
		2014		2022 (not in index)		2018		2014		2014		2014		2014	
Oliver %	Duran	Duran %	Maestas	Maestas %	Sanchez	Sanchez %	Colón	Colón %	Johnson	Johnson %	Keller	Keller %	Aragon	Aragon %	
97,664	49.17%	100,967	50.83%	161,190	62.89%	95,121	37.11%	155,481	57.32%	115,762	42.68%	106,342	54.67%	88,175	45.33%
61,689	45.53%	73,809	54.47%	103,286	58.72%	72,620	41.28%	107,801	56.34%	83,536	43.66%	68,040	51.11%	65,083	48.89%
86,168	49.66%	87,362	50.34%	135,298	63.44%	77,955	36.56%	132,426	58.90%	92,416	41.10%	96,010	56.22%	74,780	43.78%
245,521	48.36%	262,138	51.64%	399,774	61.94%	245,696	38.06%	395,708	57.56%	291,714	42.44%	270,392	54.25%	228,038	45.75%
<b>Land Commissioner</b>															
		2022 (not in index)		2018		2014		2014		2014		2014		2014	
Richard %	Byrd	Byrd %	Richard	Richard %	Lyons	Lyons %	Powell	Powell %	Dunn	Dunn %					
153,829	55.80%	121,833	44.20%	137,390	53.56%	119,128	46.44%	93,466	47.98%	101,326	52.02%				
96,861	51.17%	92,429	48.83%	95,913	53.30%	84,031	46.70%	63,478	47.57%	69,950	52.43%				
128,876	57.17%	96,553	42.83%	119,032	55.82%	94,220	44.18%	92,403	53.99%	78,740	46.01%				
379,566	54.98%	310,815	45.02%	352,335	54.25%	297,379	45.77%	249,347	49.93%	250,016	50.07%				

		Supreme Court (2022)					
		Contest 1			Contest 2		
DISTRICT		Vargas %	Montoya %	Montoya %	Zamora %	Zamora %	Morris %
1		148,063	53.53%	128,516	46.47%	151,461	45.22%
2		94,425	49.55%	96,159	50.45%	96,753	49.18%
3		123,836	54.41%	103,775	45.59%	127,571	43.83%
Statewide		366,324	52.73%	328,450	47.27%	375,785	45.85%
		Supreme Court (2020)					
		Contest 1			Contest 2		
DISTRICT		Bacon %	Bacon %	Fuller %	Fuller %	Thompson %	Thompson %
1		195,896	56.44%	151,205	43.56%	188,462	45.43%
2		137,032	53.72%	118,054	46.28%	132,987	47.73%
3		162,820	56.51%	125,324	43.49%	159,030	44.69%
Statewide		495,748	55.68%	394,583	44.32%	480,479	45.85%
		Supreme Court (2018)					
		Contest 1			Contest 1		
DISTRICT		Vigil %	Vigil %	Clingman %	Clingman %	Bogardus %	Bogardus %
1		156,555	58.21%	112,407	41.79%	142,655	46.67%
2		110,005	57.88%	80,046	42.12%	102,703	45.71%
3		137,013	61.42%	86,049	38.58%	124,956	43.66%
Statewide		403,573	59.17%	278,502	40.83%	370,314	45.42%
		Court of Appeals (2018)					
		Contest 1			Contest 1		
DISTRICT		Vigil %	Vigil %	Nakamura %	Nakamura %	Vargas %	Vargas %
1		124,687	41.91%	172,831	58.09%	144,996	49.49%
2		106,488	49.60%	108,221	50.40%	114,471	53.78%
3		134,615	53.87%	115,251	46.13%	135,760	54.91%
Statewide		365,790	48.00%	396,303	52.00%	395,227	52.48%
		Court of Appeals (2016)					
		Contest 1			Contest 1		
DISTRICT		Kiernan %	Kiernan %	Hanisee %	Hanisee %		
1		86,562	45.87%	102,152	54.13%		
2		63,542	48.92%	66,357	51.08%		
3		88,027	52.91%	78,352	47.09%		
Statewide		238,131	49.10%	246,861	50.90%		
		Supreme Court (2012)					
		Contest 1			Contest 1		
DISTRICT		Vigil %	Vigil %	Kennedy %	Kennedy %	Zamora %	Zamora %
1		147,078	50.85%	142,177	49.15%	149,494	52.42%
2		117,031	56.05%	91,768	43.95%	117,549	56.93%
3		145,914	58.35%	104,158	41.65%	143,144	57.88%
Statewide		410,023	54.81%	338,103	45.19%	410,187	55.51%



General Election Turnout (2022)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	213,837	42.9%	160,193	32.1%	124,422	25.0%	284,832	57.14%	
2	177,613	42.9%	128,006	30.9%	108,412	26.2%	196,107	47.37%	
3	210,981	46.9%	135,712	30.2%	102,845	22.9%	233,815	52.01%	
Statewide	602,431	44.2%	423,911	31.1%	335,679	24.6%	714,754	52.48%	
General Election Turnout (2020)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	215,022	43.3%	162,700	32.7%	119,215	24.0%	360,840	72.61%	
2	180,155	44.4%	124,949	30.8%	101,071	24.9%	266,081	65.51%	
3	215,339	48.2%	134,912	30.2%	96,879	21.7%	301,313	67.39%	
Statewide	610,516	45.2%	422,561	31.3%	317,165	23.5%	928,234	68.75%	
General Election Turnout (2018)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	199,139	42.8%	151,906	32.6%	114,748	24.6%	276,365	59.33%	
2	170,878	45.6%	109,381	29.2%	94,239	25.2%	195,407	52.18%	
3	208,305	49.5%	121,642	28.9%	91,289	21.7%	229,882	54.57%	
Statewide	578,322	45.8%	382,929	30.4%	300,276	23.8%	701,654	55.62%	
General Election Turnout (2016)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	213,296	43.1%	167,200	33.8%	114,880	23.2%	311,989	62.98%	
2	174,210	46.6%	110,207	29.5%	89,046	23.8%	227,360	60.88%	
3	212,303	50.5%	122,504	29.1%	85,736	20.4%	264,724	62.95%	
Statewide	599,809	46.5%	399,911	31.0%	289,662	22.5%	804,073	62.36%	
General Election Turnout (2014)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	206,001	42.5%	167,817	34.6%	110,555	22.8%	201,268	41.55%	
2	176,723	47.2%	109,997	29.4%	88,001	23.5%	138,862	37.06%	
3	217,817	50.8%	123,511	28.8%	87,222	20.4%	179,323	41.84%	
Statewide	600,541	46.6%	401,325	31.2%	285,778	22.2%	519,453	40.34%	
General Election Turnout (2012)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	205,260	43.2%	167,205	35.2%	102,849	21.6%	303,826	63.92%	
2	174,680	48.2%	107,608	29.7%	80,340	22.2%	219,263	60.46%	
3	216,300	51.8%	121,177	29.0%	79,907	19.1%	263,467	63.12%	
Statewide	596,240	47.5%	395,990	31.5%	263,096	21.0%	786,556	62.66%	

# Autobound EDGE - Compactness Report



Plan Name: Congress:NM\_Congress\_PassedSB1

[For more information on compactness calculations Click Here](#)

## Compactness measure: Polsby-Popper

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	17,590	858	58,575	470	0.30
2	51,554	1,468	171,402	805	0.30
3	52,449	1,571	196,342	812	0.27

Most Compact: 0.3 For District: 2

Least Compact: 0.27 For District: 3

## Compactness measure: Schwartzberg

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	17,590	858	58,575	470	0.55
2	51,554	1,468	171,402	805	0.55
3	52,449	1,571	196,342	812	0.52

Most Compact: 0.55 For District: 2

Least Compact: 0.52 For District: 3

## Compactness measure: Reock Score

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	17,590	858	58,575	470	0.48
2	51,554	1,468	171,402	805	0.39
3	52,449	1,571	196,342	812	0.33

Most Compact: 0.48 For District: 1

Least Compact: 0.33 For District: 3

## Compactness measure: Length-Width

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	17,590	858	58,575	470	1.32
2	51,554	1,468	171,402	805	1.49
3	52,449	1,571	196,342	812	1.40

Most Compact: 1.49 For District: 2

Least Compact: 1.32 For District: 1

## Compactness measure: Convex Hull

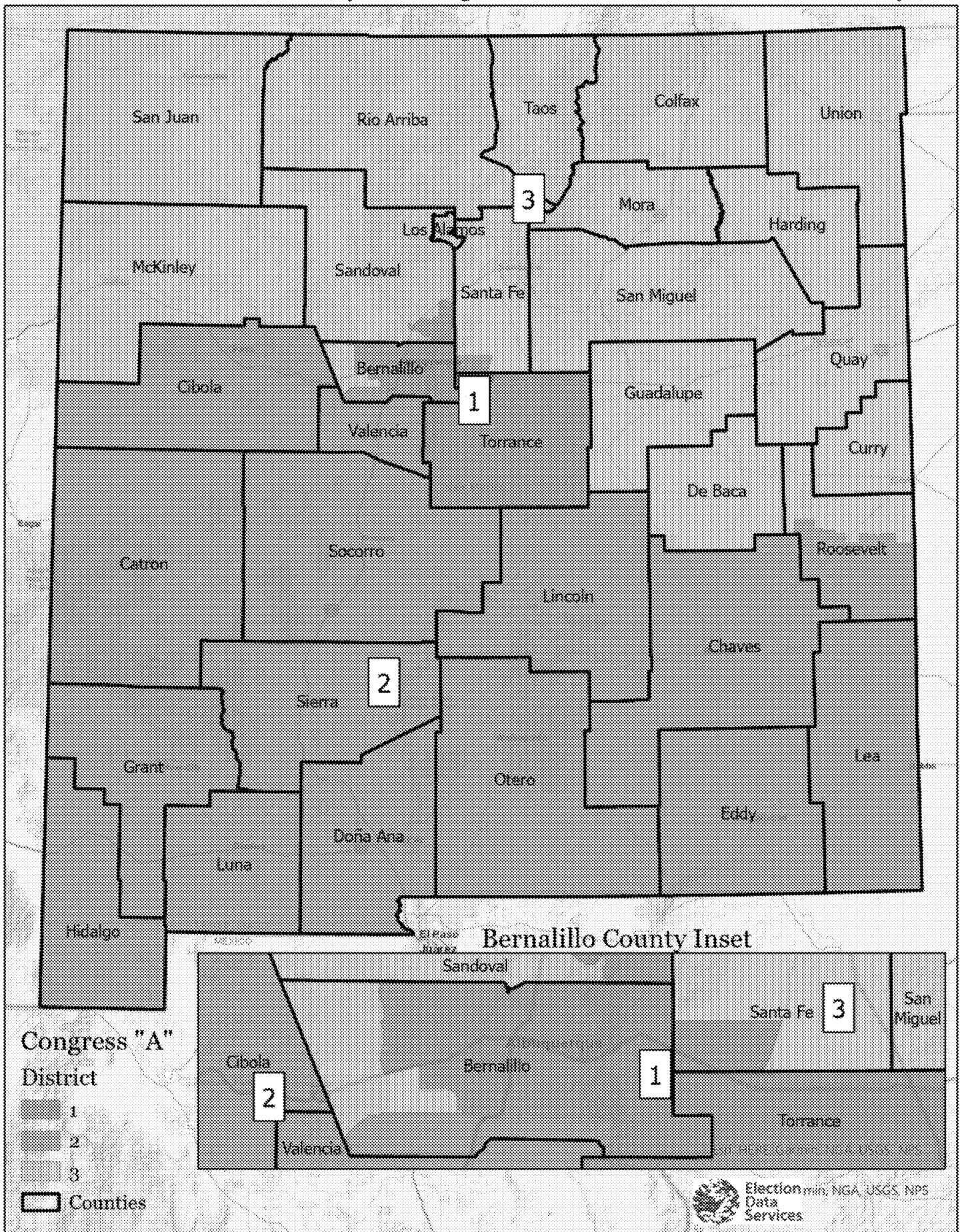
District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	17,590	858	58,575	470	0.77
2	51,554	1,468	171,402	805	0.75
3	52,449	1,571	196,342	812	0.67

Most Compact: 0.77 For District: 1

Least Compact: 0.67 For District: 3



# New Mexico - District Map of Congressional Commission "A" Concept





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Deviations

	A	B	C	D	E	F	G
1	DISTRICT	TAPERSONS	Target	Raw Dev	% Dev.	POPTOT	
2	01	705,845	705,841	4	0.0%	705,832	
3	02	705,840	705,841	(1)	0.0%	705,846	
4	03	705,837	705,841	(4)	0.0%	705,844	
5							
6	STATE TOT	2,117,522					
7							
8	Total Dev			8	0.0011%		
9	Highest			4	0.0006%		
10	Lowest			(4)	-0.0005%		
11							
12							



DISTRICT	Total Population		Racial Demographics as Percent of Total Population						Voting Age Population		Racial Demographics as Percent of Voting Population						
	Assigned	Total Pop	White	Black	Hispanic	Asian	Other	Minority	White	Total Pop	White	Black	Hispanic	Asian	Other	Minority	
1	705,845	705,841	38.41%	1.59%	3.92%	2.75%	48.52%	61.59%	557,489	79.0%	42.28%	2.57%	3.81%	2.86%	44.98%	57.72%	
2	705,840	705,841	-1	35.04%	1.63%	3.70%	0.96%	55.77%	64.96%	535,351	75.8%	39.32%	1.74%	3.57%	1.04%	51.54%	60.68%
3	705,837	705,841	-4	36.08%	1.25%	19.10%	1.29%	38.91%	63.94%	546,149	77.4%	39.89%	1.30%	17.76%	1.37%	36.84%	60.11%
Assigned Total Pop	2,117,522																
Unassigned	0																

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1-PopRaceAlone

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
DISTRICT	POP/TOT	POP/A	POP/WH_A	POP/BL_A	POP/AS_A	POP/LA_A	POP/PIA_A	POP/OT_A	POP/PA_A	POP/XX	POP/OT_A	POP/XX	POP/OT_A	POP/XX	POP/OT_A	POP/XX	POP/OT_A	POP/XX	POP/OT_A
1	705,846	100,000%	374,395	53.04%	21,470	3.04%	35,434	5.02%	20,417	2.89%	833	0.12%	105,631	14.97%	147,665	20.92%	331,450	46.96%	
2	705,840	100,000%	365,756	51.82%	14,021	1.99%	33,534	4.75%	7,340	1.04%	652	0.09%	130,002	18.42%	154,495	21.89%	340,044	48.18%	
3	705,837	100,000%	338,746	47.99%	10,413	1.48%	143,273	20.30%	9,712	1.38%	608	0.09%	82,989	11.76%	120,086	17.01%	367,091	52.01%	
4	STATE TOTAL	100,000%	1,078,937	50.95%	45,904	2.17%	212,241	10.02%	37,469	1.77%	2,093	0.10%	318,632	15.05%	422,246	19.94%	1,038,585	49.05%	
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	DISTRICT		POP TOT		POP NH A		POP NH A		POP NH A		POP NH A		POP NH A		POP NH A		POP NH A		POP NH A		POP NH A	
2	001		705,846	100.00%	271,140	38.41%	17,883	2.59%	27,688	3.92%	19,377	2.75%	560	0.08%	3,850	0.52%	342,484	48.52%	22,887	3.24%	134,705	19.07%
3	002		705,846	100.00%	247,317	35.04%	11,497	1.63%	26,129	3.70%	6,754	0.96%	446	0.06%	3,350	0.47%	393,658	55.71%	16,689	2.36%	458,523	64.95%
4	003		705,837	100.00%	254,485	36.06%	8,850	1.25%	134,783	19.10%	9,130	1.29%	425	0.06%	3,294	0.47%	274,689	38.91%	20,191	2.86%	451,342	63.94%
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6	SUB-TOTAL		2,117,822	100.00%	772,982	36.50%	38,330	1.81%	188,610	8.91%	35,281	1.67%	1,451	0.07%	10,340	0.49%	1,010,811	47.74%	59,767	2.82%	1,344,570	63.50%
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	DISTRICT	POP TOT	POPWH_C	POPWH_C	POPWH_C	POPBI_C	POPBI_C	POPNA_C	POPNA_C	POPAS_C	POPAS_C	POPII_C	POPII_C	POPOT_C	POPOT_C	POPOT_C	POPOT_C	POPOT_C
1	001	706,845	122,03%	516,011	73.11%	31,349	4.44%	53,876	7.63%	29,347	4.16%	2,347	0.33%	228,418	32.36%	189,834	26.89%	
2	002	706,840	122.60%	516,096	73.12%	20,371	2.89%	48,348	6.85%	11,691	1.66%	1,750	0.25%	267,123	37.84%	189,744	26.88%	
3	003	706,837	117.81%	453,866	64.30%	16,689	2.36%	161,391	22.87%	14,959	2.12%	1,915	0.27%	182,747	25.89%	251,971	35.70%	
4	STATE TOTAL	2,117,522	120.82%	1,485,973	70.18%	68,409	3.23%	263,615	12.45%	55,997	2.64%	6,012	0.28%	678,288	32.03%	631,549	29.82%	
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DISTRICT	POP TOT	POP NHR	POP NHR %	POP NHR C	POP NHR C %	POP NHR C	POP NHR C %	POP NHR C	POP NHR C %	POP NHR C	POP NHR C %	POP NHR C	POP NHR C %	POP NHR C	POP NHR C %	POP NHR C	POP NHR C %	POP NHR C	POP NHR C %
1	705 645	103 47%	291 941	41 36%	23 711	3 35%	36 387	5 16%	25 589	3 63%	1 561	0 22%	8 626	1 22%	342 484	48 52%	413 504	58 64%	
2	705 640	102 51%	292 984	37 28%	14 982	2 12%	33 771	4 78%	9 622	1 38%	1 152	0 16%	7 452	1 05%	393 658	55 77%	442 876	62 74%	
3	705 637	103 05%	272 949	38 67%	12 892	1 83%	144 527	20 48%	13 028	1 85%	1 326	0 19%	7 989	1 13%	274 689	38 91%	432 868	61 33%	
4	874 1074	2 117 522	103 01%	827 854	39 10%	51 565	2 44%	214 685	10 14%	48 249	2 28%	4 059	0 19%	24 047	1 14%	1 010 811	47 74%	1 289 658	60 90%
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DISTRICT	POPOT	POPWH_A	POPWH_A	POPWH_A	POPWH_A	POPBL_W	POPBL_W	POPBL_W	POPBL_W	POPBL_W	POPBL_W	POPBL_W	POPBL_W	POPBL_W	POPBL_W	POPBL_W	POPBL_W
1	705,845	80.83%	374,395	53.04%	24,480	3.47%	38,893	5.51%	21,876	3.10%	1,377	0.20%	109,487	15.51%	331,450	46.96%	
2	705,840	79.33%	365,796	51.82%	15,798	2.24%	35,759	5.07%	8,263	1.17%	1,138	0.16%	133,175	18.87%	340,044	48.18%	
3	705,837	84.42%	338,746	47.99%	12,326	1.75%	146,786	20.80%	10,682	1.51%	1,126	0.16%	86,228	12.22%	367,091	52.01%	
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5	2,117,522	81.53%	1,078,937	50.96%	52,604	2.48%	221,438	10.46%	40,821	1.93%	3,641	0.17%	328,890	15.53%	1,038,585	49.05%	
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	705,845	705,840	705,840	705,837	271,140	38,41%	19,484	2,75%	28,951	4,10%	20,172	2,88%	916	0,13%	4,079	0,58%	342,484	48,52%	434,705	61,59%
	97,24%	97,24%	97,24%	97,24%	247,317	35,04%	12,124	1,72%	26,912	3,77%	7,198	1,02%	742	0,11%	3,659	0,52%	393,699	55,77%	459,523	64,98%
	97,65%	97,65%	97,65%	97,65%	254,495	36,09%	9,989	1,42%	135,977	19,29%	9,729	1,39%	774	0,11%	3,595	0,51%	274,699	38,91%	451,342	63,94%
	2,117,522	97,65%	772,952	36,50%	41,577	1,96%	191,540	9,05%	37,099	1,75%	2,432	0,11%	11,333	0,54%	1,010,811	47,74%	1,344,570	63,50%		
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	RESTRICTED	VAPTOT			VAPWA_A		VAPBI_A		VAPNA_A		VAPFA_A		VAPPI_A		VAPOT_A		VAPXX			
2	001	557,489	100.00%	309,133	55.45%	16,112	2.89%	26,521	4.76%	16,601	2.98%	651	0.12%	80,380	14.42%	108,091	19.39%	248,356	44.55%	
3	002	535,351	100.00%	289,666	54.11%	10,503	1.96%	24,305	4.54%	5,928	1.11%	493	0.09%	94,016	17.56%	110,440	20.63%	245,685	45.89%	
4	003	546,149	100.00%	277,378	50.79%	7,829	1.43%	102,237	18.72%	7,849	1.44%	469	0.09%	63,095	11.55%	87,295	15.98%	268,771	49.21%	
5	STATE TOTAL	1,638,989	100.00%	876,177	53.46%	34,444	2.10%	153,083	9.34%	30,378	1.85%	1,610	0.10%	237,491	14.49%	305,826	18.66%	762,812	46.54%	
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1	DISTRICT	VAPTOT																			
2	001	557,489	100.00%	VAPNHHC_A	225,731	14,347	2.57%	21,214	3.81%	15,961	2.86%	482	0.08%	2,908	0.52%	250,761	44.88%	16,065	2.89%	321,758	57.72%
3	002	535,351	100.00%	VAPNHHC_A	210,477	9,331	1.74%	19,130	3.57%	5,556	1.04%	369	0.07%	2,453	0.46%	275,908	51.54%	12,127	2.27%	324,874	60.69%
4	003	546,149	100.00%	VAPNHHC_A	217,854	7,100	1.30%	97,016	17.76%	7,472	1.37%	348	0.06%	2,564	0.47%	200,095	36.64%	13,700	2.51%	328,295	60.11%
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6	STATE TOTAL	1,639,899	100.00%		664,062	30,778	1.88%	137,360	8.38%	28,989	1.77%	1,199	0.07%	7,925	0.48%	726,764	44.34%	41,912	2.56%	974,927	59.48%
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1	DISTRICT	VAPTOT	VAPWH_C	VAPBI_C	VAPNA_C	VAPAS_C	VAPPI_C	VAPOT_C									
2	001	557,489	120.25%	413,295	74.14%	21,542	3.86%	39,302	7.05%	21,826	3.92%	1,623	0.29%	172,765	30.99%	144,194	25.86%
3	002	535,551	121.22%	397,335	74.22%	13,745	2.57%	34,946	6.53%	8,587	1.60%	1,258	0.23%	193,107	36.07%	138,016	25.78%
4	003	546,149	116.63%	361,534	66.20%	11,135	2.04%	114,229	20.92%	10,809	1.98%	1,323	0.24%	137,930	25.26%	184,615	33.80%
5	STATE TOTAL	1,638,989	119.36%	1,172,164	71.52%	46,422	2.83%	188,477	11.50%	41,222	2.52%	4,204	0.26%	503,802	30.74%	466,825	28.48%
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9	30%				0		0		0		0		0		0		0
10	40%				0		0		0		0		0		0		0
11	50%				2		0		0		0		0		0		0
12	60%				1		0		0		0		0		0		0
13	70%				0		0		0		0		0		0		0
14	80%				0		0		0		0		0		0		0
15	90%				0		0		0		0		0		0		0
16	95%				0		0		0		0		0		0		0
17	45.9%				0		0		0		0		0		0		0
18	59.9%				0		0		0		0		0		1		0
19	64.9%				0		0		0		0		0		1		1
20	79.9%				0		0		1		0		0		1		2
21	89.9%				0		0		0		0		0		0		0
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DISTRICT	VAPTOT	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C	VAPHH_C
1	557,489	103,05%	250,451	44.92%	17,826	3.20%	27,595	4.95%	19,909	3.57%	1,198	0.22%	6,814	1.22%	250,761	44.99%	307,031	55.03%	
2	535,351	102.40%	221,649	41.44%	11,398	2.13%	25,062	4.68%	7,403	1.38%	992	0.17%	5,662	1.06%	275,908	51.54%	313,502	58.56%	
3	546,149	102.66%	230,699	42.20%	9,391	1.72%	103,697	18.98%	9,760	1.79%	966	0.18%	6,277	1.15%	200,095	36.64%	315,650	57.80%	
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6	1,639,989	102.71%	702,799	42.88%	36,615	2.36%	156,344	9.54%	37,072	2.29%	3,067	0.19%	18,753	1.14%	726,764	44.34%	936,220	57.12%	
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DISTRICT	VAPTOT	VAPM_H	VAPM_W	VAPBL_W	VAPNA_W	VAPAS_W	VAPFP_W	VAPOT_W	VAPOT_W	VAPOT_W	VAPOT_W	VAPOT_W	VAPOT_W	VAPOT_W	VAPOT_W	VAPOT_W	VAPOT_W
1	567,489	82.05%	309,133	55.45%	17,872	3.21%	28,779	5.16%	17,551	3.15%	1,051	0.19%	83,007	14.89%	248,356	44.55%	44,55%
2	535,351	80.43%	289,666	54.11%	11,487	2.15%	25,891	4.84%	6,601	1.23%	862	0.16%	96,078	17.95%	245,685	45.89%	45.89%
3	546,149	85.19%	277,378	50.79%	8,851	1.62%	104,436	19.12%	8,471	1.55%	844	0.15%	65,274	11.95%	268,771	49.21%	49.21%
4	1,638,989	82.57%	876,177	53.46%	38,210	2.33%	159,106	9.71%	32,623	1.99%	2,757	0.17%	244,359	14.91%	762,812	46.54%	46.54%
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1	557,489		557,489	97.61%	236,731	42.28%	15,270	2.74%	21,975	3.94%	16,502	2.96%	746	0.13%	3,201	0.57%	250,761	44.98%	321,753	57.72%
2	535,351		535,351	98.03%	210,477	39.32%	9,759	1.82%	19,489	3.64%	5,889	1.10%	611	0.11%	2,677	0.50%	275,908	51.54%	324,874	60.68%
3	546,149		546,149	97.90%	217,854	39.89%	7,754	1.42%	97,981	17.89%	7,982	1.44%	618	0.11%	2,798	0.51%	200,055	36.94%	328,295	60.11%
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6	1,639,989		1,639,989	97.94%	664,062	40.52%	32,763	2.00%	139,125	8.49%	30,273	1.85%	1,975	0.12%	8,676	0.53%	726,704	44.34%	974,927	59.48%
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Statewide Races

State Composite Score				Judicial Composite Score				
DISTRICT	Dem %	Rep %	Dem %	Rep %	Dem %	Rep %	Dem %	
1	5,179,773	57.42%	3,840,362	42.58%	2,881,321	57.07%	2,167,540	42.93%
2	3,174,650	44.59%	3,945,050	55.41%	1,777,527	44.69%	2,199,912	55.31%
3	5,151,978	58.46%	3,660,128	41.54%	2,873,519	58.58%	2,031,490	41.42%
Statewide	13,506,401	54.13%	11,445,540	45.87%	7,532,367	54.07%	6,398,942	45.93%
President								
2020				2016				
DISTRICT	Biden %	Trump %	Clinton %	Clinton %	Trump %	Obama %	Romney %	
1	201,178	61.47%	126,115	38.53%	148,773	59.20%	102,550	40.80%
2	113,645	43.72%	146,310	56.28%	91,533	44.23%	115,407	55.77%
3	186,776	59.06%	129,458	40.94%	144,930	58.76%	101,710	41.24%
Statewide	501,599	55.52%	401,883	44.48%	385,236	54.65%	319,667	45.35%
Governor								
2022 (not in index)				2018				
DISTRICT	Gishorn %	Ronchetti %	Gishorn %	Gishorn %	Pearce %	Fearce %	King %	
1	146,958	57.60%	108,191	42.40%	155,444	61.21%	98,506	38.79%
2	78,281	41.15%	111,941	58.85%	92,077	46.69%	105,138	53.31%
3	144,907	58.09%	104,533	41.91%	150,857	61.51%	94,407	38.49%
Statewide	370,146	53.27%	324,665	46.73%	398,378	57.20%	298,051	42.80%
Secretary of State								
2022 (not in index)				2018 (not in index)				
DISTRICT	Oliver %	Fuillio %	Fuillio %	Oliver %	Clarkson %	Clarkson %	Oliver %	
1	156,633	62.34%	94,603	37.66%	158,064	65.63%	82,791	34.37%
2	80,745	42.84%	107,756	57.16%	91,767	49.69%	92,920	50.31%
3	147,099	59.92%	98,373	40.08%	149,280	64.66%	81,598	35.34%
Statewide	384,477	56.11%	300,732	43.89%	399,111	60.80%	257,309	39.20%
Treasurer								
2022 (not in index)				2018				
DISTRICT	Montoya %	Hmartoya %	EMontoya %	Echenberg %	Castillo %	Castillo %	Echenberg %	
1	145,607	57.55%	107,392	42.45%	155,888	62.90%	91,957	37.10%
2	79,979	41.48%	112,813	58.52%	91,363	47.18%	102,282	52.82%
3	144,460	57.68%	105,996	42.32%	147,486	61.45%	92,519	38.55%
Statewide	370,046	53.15%	326,201	46.85%	394,737	57.92%	286,758	42.08%
2014								
DISTRICT	Montoya %	Hmartoya %	EMontoya %	Echenberg %	Castillo %	Echenberg %	Lopez %	
1	145,607	57.55%	107,392	42.45%	155,888	62.90%	91,957	37.10%
2	79,979	41.48%	112,813	58.52%	91,363	47.18%	102,282	52.82%
3	144,460	57.68%	105,996	42.32%	147,486	61.45%	92,519	38.55%
Statewide	370,046	53.15%	326,201	46.85%	394,737	57.92%	286,758	42.08%
Supreme Court (All Elections except 2014)								
DISTRICT	SupDems %	SupDems %	SupReps %	SupReps %	CoADems %	CoADems %	CoAReps %	
1	1,102,332	56.63%	844,053	43.37%	1,778,989	57.34%	1,323,487	42.66%
2	684,158	44.80%	843,016	55.20%	1,093,369	44.62%	1,356,896	55.38%
3	1,111,232	58.95%	773,855	41.05%	1,762,287	58.36%	1,257,635	41.64%
Statewide	2,897,722	54.08%	2,460,924	45.92%	4,634,645	54.06%	3,938,018	45.94%

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Statewide Races

		2020		2018 (not in index)				2014				2012					
		Lujan %	Ronchetti %	Heinrich %	Heinrich %	Rich %	Rich %	Edall %	Edall %	Weth %	Weth %	Heinrich %	Wilson %	Wilson %			
		185,874	57.28%	138,604	42.72%	145,782	68.39%	67,393	31.61%	102,957	56.35%	79,737	43.65%	150,746	54.91%	123,805	45.09%
		109,344	42.90%	145,555	57.10%	89,411	52.94%	79,477	47.06%	67,776	46.70%	77,367	53.30%	98,621	46.32%	114,299	53.68%
		179,244	57.16%	134,321	42.84%	141,810	68.27%	65,907	31.73%	115,684	61.64%	72,002	38.36%	146,355	56.38%	113,212	43.62%
		474,462	53.13%	418,480	46.87%	377,003	63.92%	212,777	36.08%	286,417	55.56%	229,106	44.44%	395,722	52.97%	351,316	47.03%
US Senate																	
		2022 (not in index)		2018 (not in index)				2014				2012					
		Jones %	Gay %	Gay %	Gay %	Palderas %	Palderas %	Hendricks %	Hendricks %	Palderas %	Palderas %	Riedel %	Riedel %	Palderas %	Wilson %	Wilson %	
		153,996	60.12%	102,149	39.88%	168,517	70.00%	72,214	30.00%	109,582	61.02%	69,997	38.98%	150,975	54.91%	123,805	45.09%
		83,971	43.26%	110,116	56.74%	100,095	53.88%	85,692	46.12%	68,710	48.11%	74,121	51.89%	104,904	54.91%	123,805	45.09%
		150,575	59.68%	101,734	40.32%	158,938	68.40%	73,420	31.60%	116,718	63.47%	67,191	36.53%	150,904	54.91%	123,805	45.09%
		388,542	55.31%	313,999	44.69%	427,550	64.89%	231,326	35.11%	295,010	58.27%	211,309	41.73%	388,542	55.31%	313,999	44.69%
Attorney General																	
		2022 (not in index)		2018 (not in index)				2014									
		Jones %	Gay %	Gay %	Gay %	Palderas %	Palderas %	Hendricks %	Hendricks %	Palderas %	Palderas %	Riedel %	Riedel %				
		153,996	60.12%	102,149	39.88%	168,517	70.00%	72,214	30.00%	109,582	61.02%	69,997	38.98%				
		83,971	43.26%	110,116	56.74%	100,095	53.88%	85,692	46.12%	68,710	48.11%	74,121	51.89%				
		150,575	59.68%	101,734	40.32%	158,938	68.40%	73,420	31.60%	116,718	63.47%	67,191	36.53%				
		388,542	55.31%	313,999	44.69%	427,550	64.89%	231,326	35.11%	295,010	58.27%	211,309	41.73%				
Secretary of State																	
		2014		2022 (not in index)				2018				2014					
		Duran %	Duran %	Maestas %	Maestas %	Sanchez %	Sanchez %	Sanchez %	Sanchez %	Calton %	Calton %	Johnson %	Johnson %	Keller %	Keller %	Aragon %	Aragon %
		96,598	53.49%	83,993	46.51%	155,411	66.35%	78,832	33.65%	153,547	61.24%	97,164	38.76%	102,470	57.98%	74,254	42.02%
		54,135	37.85%	88,908	62.15%	89,163	50.64%	86,892	49.36%	93,417	47.96%	101,368	52.04%	63,018	44.82%	77,599	55.18%
		94,788	51.51%	89,237	48.49%	155,200	65.99%	79,972	34.01%	148,744	61.48%	93,182	38.52%	104,904	57.93%	76,185	42.07%
		245,521	48.36%	262,138	51.64%	399,774	61.94%	245,696	38.06%	395,708	57.56%	291,714	42.44%	270,392	54.25%	228,038	45.75%
Land Commissioner																	
		2022 (not in index)		2018				2014									
		Byrd %	Byrd %	Richard %	Richard %	Lyons %	Lyons %	Lyons %	Lyons %	Powell %	Powell %	Dunn %	Dunn %				
		149,898	59.43%	102,343	40.57%	136,544	57.62%	100,415	42.38%	91,332	51.66%	85,472	48.34%				
		80,882	42.79%	108,151	57.21%	82,290	44.77%	101,529	55.23%	57,149	40.44%	84,176	59.56%				
		148,786	59.73%	100,321	40.27%	133,501	58.31%	95,435	41.69%	100,866	55.66%	80,368	44.34%				
		379,566	54.98%	310,815	45.02%	352,335	54.23%	297,379	45.77%	249,347	49.93%	250,016	50.07%				

		Supreme Court (2022)			
		Contest 1		Contest 2	
DISTRICT		Vargas %	Montoya %	Zamora %	Morris %
1		144,113	57.06%	108,443	42.94%
2		79,424	41.24%	113,167	58.76%
3		142,787	57.20%	106,840	42.80%
Statewide		366,324	52.73%	328,450	47.27%
		Supreme Court (2020)			
		Contest 1		Contest 2	
DISTRICT		Bacon %	Fueller %	Thompson %	Morris %
1		194,975	60.39%	127,889	39.61%
2		114,749	44.84%	141,147	55.16%
3		186,024	59.71%	125,547	40.29%
Statewide		495,748	55.68%	394,583	44.32%
		Court of Appeals (2018)			
		Contest 1		Contest 1	
DISTRICT		Vigil %	Clingman %	Bogardus %	French %
1		154,627	62.23%	93,855	37.77%
2		95,194	49.14%	98,535	50.86%
3		153,752	64.10%	86,112	35.90%
Statewide		403,573	59.17%	278,502	40.83%
		Court of Appeals (2016)			
		Contest 1		Contest 1	
DISTRICT		Vigil %	Nakamura %	Vargas %	French %
1		124,384	44.94%	152,413	55.06%
2		96,971	44.09%	122,973	55.91%
3		144,435	54.43%	120,917	45.57%
Statewide		365,790	48.00%	396,303	52.00%
		Court of Appeals (2014)			
		Contest 1		Contest 1	
DISTRICT		Kiernan %	Hanisee %	Hanisee %	
1		84,688	49.47%	86,501	50.53%
2		57,416	41.70%	80,273	58.30%
3		96,027	54.53%	80,087	45.47%
Statewide		238,131	49.10%	246,861	50.90%
		Supreme Court (2012)			
		Contest 1		Contest 1	
DISTRICT		Vigil %	Kennedy %	Zamora %	Hanisee %
1		148,917	54.68%	123,423	45.32%
2		105,182	48.51%	111,653	51.49%
3		155,924	60.21%	103,027	39.79%
Statewide		410,023	54.81%	338,103	45.19%
		Court of Appeals (2012)			
		Contest 1		Contest 1	
DISTRICT		Vigil %	Zamora %	Hanisee %	
1		148,917	54.68%	123,423	45.32%
2		105,182	48.51%	111,653	51.49%
3		155,924	60.21%	103,027	39.79%
Statewide		410,023	54.81%	338,103	45.19%





General Election Turnout (2022)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	218,220	46.2%	134,289	28.4%	120,244	25.4%	260,907	55.19%	
2	151,120	36.4%	157,497	38.0%	106,007	25.6%	196,977	47.51%	
3	233,091	49.1%	132,125	27.8%	109,428	23.1%	256,870	54.12%	
Statewide	602,431	44.2%	423,911	31.1%	335,679	24.6%	714,754	52.48%	
General Election Turnout (2020)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	219,523	46.5%	136,373	28.9%	115,865	24.6%	336,994	71.43%	
2	154,742	37.8%	155,539	38.0%	98,823	24.2%	266,579	65.16%	
3	236,251	50.3%	130,649	27.8%	102,477	21.8%	324,661	69.17%	
Statewide	610,516	45.2%	422,561	31.3%	317,165	23.5%	928,234	68.75%	
General Election Turnout (2018)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	202,692	45.9%	127,391	28.8%	111,753	25.3%	255,678	57.87%	
2	149,813	39.5%	136,678	36.1%	92,314	24.4%	198,739	52.46%	
3	225,817	51.2%	118,860	27.0%	96,209	21.8%	247,237	56.08%	
Statewide	578,322	45.8%	382,929	30.4%	300,276	23.8%	701,654	55.62%	
General Election Turnout (2016)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	217,925	46.1%	142,953	30.2%	112,335	23.7%	291,815	61.67%	
2	153,506	40.7%	136,668	36.2%	87,081	23.1%	231,753	61.43%	
3	228,378	52.0%	120,290	27.4%	90,246	20.6%	280,505	63.91%	
Statewide	599,809	46.5%	399,911	31.0%	289,662	22.5%	804,073	62.36%	
General Election Turnout (2014)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	208,447	45.2%	143,939	31.2%	108,523	23.5%	182,265	39.54%	
2	160,888	41.8%	137,005	35.6%	86,784	22.6%	147,001	38.21%	
3	231,206	52.3%	120,381	27.2%	90,471	20.5%	190,187	43.02%	
Statewide	600,541	46.6%	401,325	31.2%	285,778	22.2%	519,453	40.34%	
General Election Turnout (2012)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	206,889	45.8%	143,469	31.8%	101,059	22.4%	286,997	63.58%	
2	160,623	43.1%	133,747	35.9%	78,476	21.0%	226,881	60.85%	
3	228,728	53.1%	118,774	27.6%	83,561	19.4%	272,678	63.26%	
Statewide	596,240	47.5%	395,990	31.5%	263,096	21.0%	786,556	62.66%	

# Autobound EDGE - Compactness Report



Plan Name: Congress:NM\_Congress\_A

[For more information on compactness calculations Click Here](#)

## Compactness measure: Polsby-Popper

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	4,376	402	12,865	234	0.34
2	65,310	1,325	139,745	906	0.47
3	51,907	1,314	137,379	808	0.38

Most Compact: 0.47 For District: 2

Least Compact: 0.34 For District: 1

## Compactness measure: Schwartzberg

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	4,376	402	12,865	234	0.58
2	65,310	1,325	139,745	906	0.68
3	51,907	1,314	137,379	808	0.61

Most Compact: 0.68 For District: 2

Least Compact: 0.58 For District: 1

## Compactness measure: Reock Score

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	4,376	402	12,865	234	0.42
2	65,310	1,325	139,745	906	0.52
3	51,907	1,314	137,379	808	0.42

Most Compact: 0.52 For District: 2

Least Compact: 0.42 For District: 1

## Compactness measure: Length-Width

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	4,376	402	12,865	234	1.39
2	65,310	1,325	139,745	906	1.50
3	51,907	1,314	137,379	808	2.01

Most Compact: 2.01 For District: 3

Least Compact: 1.39 For District: 1

## Compactness measure: Convex Hull

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	4,376	402	12,865	234	0.75
2	65,310	1,325	139,745	906	0.85
3	51,907	1,314	137,379	808	0.83

Most Compact: 0.85 For District: 2

Least Compact: 0.75 For District: 1





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Deviations

	A	B	C	D	E	F	G
1	DISTRICT	TAPERSONS	Target	Raw Dev	% Dev.	POPTOT	
2	01	705,845	705,841	4	0.0%	705,832	
3	02	705,840	705,841	(1)	0.0%	705,846	
4	03	705,837	705,841	(4)	0.0%	705,844	
5							
6	STATE TOT	2,117,522					
7							
8	Total Dev			8	0.0011%		
9	Highest			4	0.0006%		
10	Lowest			(4)	-0.0005%		
11							
12							

DISTRICT	Total Population		Racial Demographics as Percent of Total Population						Voting Age Population		Racial Demographics as Percent of Voting Population						
	2010	2020	White	Black	Hispanic	Asian	Minority	White	Black	Hispanic	Asian	Minority	White	Black	Hispanic	Asian	Minority
1	705,845	705,841	38.41%	1.59%	3.92%	2.75%	48.52%	61.59%	557,489	79.0%	42.28%	2.57%	3.81%	2.86%	44.98%	57.72%	
2	705,840	705,841	-1	35.04%	1.63%	3.70%	0.96%	55.77%	64.96%	535,351	75.8%	39.32%	1.74%	3.57%	1.04%	51.54%	60.68%
3	705,837	705,841	-4	36.08%	1.25%	13.10%	1.29%	38.91%	63.94%	546,149	77.4%	39.89%	1.30%	17.76%	1.37%	36.84%	60.11%
Assigned Total Pop	2,117,522																
Unassigned	0																

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1-PopRaceAlone

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T							
DISTRICT	POP_TOT	POP_TOT_A	POP_TOT_P	POP_TOT_H	POP_TOT_O	POP_TOT_Y	POP_TOT_R	POP_TOT_S	POP_TOT_T	POP_TOT_A	POP_TOT_P	POP_TOT_H	POP_TOT_O	POP_TOT_Y	POP_TOT_R	POP_TOT_S	POP_TOT_T	POP_TOT_A	POP_TOT_P	POP_TOT_H	POP_TOT_O	POP_TOT_Y	POP_TOT_R	POP_TOT_S	POP_TOT_T	
1	705,846	100.00%	374,395	53.04%	21,470	3.04%	35,434	5.02%	20,417	2.89%	833	0.12%	105,631	14.97%	147,665	20.92%	331,450	46.96%								
2	705,840	100.00%	365,756	51.82%	14,021	1.99%	33,534	4.75%	7,340	1.04%	652	0.09%	130,002	18.42%	154,495	21.89%	340,044	48.18%								
3	705,837	100.00%	338,746	47.99%	10,413	1.48%	143,273	20.30%	9,712	1.38%	608	0.09%	82,989	11.76%	120,086	17.01%	367,091	52.01%								
4																										
5																										
6	STATE TOTAL	2,117,522	100.00%	1,078,937	50.95%	45,904	2.17%	212,241	10.02%	37,469	1.77%	2,093	0.10%	318,632	15.05%	422,246	19.94%	1,038,585	49.05%							
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	DISTRICT		POPPTOT	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A	POPNIHNA_A
2	001		705,846	100.00%	271,140	38.41%	17,883	2.55%	27,688	3.92%	19,377	2.75%	560	0.08%	3,858	0.52%	342,484	48.52%	22,887	3.24%	134,705	19.07%
3	002		705,846	100.00%	247,317	35.04%	11,497	1.63%	26,129	3.70%	6,754	0.96%	446	0.06%	3,350	0.47%	393,658	55.71%	16,689	2.36%	458,523	64.95%
4	003		705,837	100.00%	254,485	36.06%	8,850	1.25%	134,783	19.10%	9,130	1.29%	425	0.06%	3,294	0.47%	274,689	38.91%	20,191	2.86%	451,342	63.94%
5																						
6	SUB-TOTAL		2,117,822	100.00%	772,982	36.50%	38,330	1.81%	188,610	8.91%	35,281	1.67%	1,451	0.07%	10,340	0.49%	1,010,811	47.74%	59,767	2.82%	1,344,570	63.50%
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	DISTRICT	POP101	POP102	POP103	POP104	POP105	POP106	POP107	POP108	POP109	POP110	POP111	POP112	POP113	POP114	POP115	POP116	POP117	POP118	POP119
1	1	705,645	103,47%	291,941	41.36%	23,711	3.35%	36,387	5.16%	25,589	3.63%	1,561	0.22%	8,626	1.22%	342,484	48.52%	413,504	58.64%	
2	2	705,640	102.51%	292,984	37.28%	14,982	2.12%	33,771	4.78%	9,622	1.38%	1,152	0.16%	7,452	1.05%	393,658	55.77%	442,876	62.74%	
3	3	705,637	103.05%	272,949	38.67%	12,892	1.83%	144,527	20.48%	13,028	1.85%	1,326	0.19%	7,989	1.13%	274,689	38.91%	432,868	61.33%	
4	4	2,117,522	103.01%	827,854	39.10%	51,565	2.44%	214,685	10.14%	48,249	2.28%	4,059	0.19%	24,047	1.14%	1,010,811	47.74%	1,289,658	60.90%	
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DISTRICT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
	POPOT			POPWH_A	POPWH_A	POPBL_W	POPBL_W	POPNA_W	POPNA_W	POPAS_W	POPAS_W	POPPI_W	POPPI_W	POPOT_W	POPOT_W				
1	705,845	80.83%	374,395	53.04%	24,480	3.47%	38,893	5.51%	21,876	3.10%	1,377	0.20%	109,487	15.51%	331,450	46.96%			
2	705,840	79.33%	365,796	51.82%	15,798	2.24%	35,759	5.07%	8,263	1.17%	1,138	0.16%	133,175	18.87%	340,044	48.18%			
3	705,837	84.42%	338,746	47.99%	12,326	1.75%	146,786	20.80%	10,682	1.51%	1,128	0.16%	86,228	12.22%	367,091	52.01%			
4																			
5																			
6	2,117,522	81.53%	1,078,937	50.96%	52,604	2.48%	221,438	10.46%	40,821	1.93%	3,641	0.17%	328,890	15.53%	1,038,585	49.05%			
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9	80%																		
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	POPOT		705,845	97.26%	271,140	38.41%	19,484	2.75%	28,951	4.10%	20,172	2.86%	916	0.13%	4,079	0.58%	342,484	48.52%	434,705	61.59%
2			705,840	97.24%	247,317	35.04%	12,124	1.72%	26,612	3.77%	7,198	1.02%	742	0.11%	3,659	0.52%	393,698	55.77%	458,523	64.98%
3			705,837	97.65%	254,495	36.05%	9,989	1.42%	135,977	19.29%	9,729	1.38%	774	0.11%	3,595	0.51%	274,689	38.91%	451,342	63.94%
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6			2,117,522	97.65%	772,952	36.50%	41,577	1.96%	191,540	9.05%	37,099	1.75%	2,432	0.11%	11,333	0.54%	1,010,811	47.74%	1,344,570	63.50%
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4-VAPRaceAlone

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	RESTRICTED	VAPTOT			VAPWA_A	VAPBI_A	VAPFA_A	VAPNA_A	VAPAS_A	VAPPL_A	VAPOT_A	VAPXX								
2	001	557,489	100.00%	309,133	55.45%	16,112	2.89%	26,521	4.76%	16,601	2.98%	651	0.12%	80,380	14.42%	108,091	19.39%	248,356	44.55%	
3	002	535,351	100.00%	289,666	54.11%	10,503	1.96%	24,305	4.54%	5,928	1.11%	493	0.09%	94,016	17.56%	110,440	20.63%	245,685	45.89%	
4	003	546,149	100.00%	277,378	50.79%	7,829	1.43%	102,237	18.72%	7,849	1.44%	469	0.09%	63,095	11.55%	87,295	15.98%	268,771	49.21%	
5	STATE TOTAL	1,638,989	100.00%	876,177	53.46%	34,444	2.10%	153,083	9.34%	30,378	1.85%	1,610	0.10%	237,491	14.49%	305,826	18.66%	762,812	46.54%	
6	004				0				0											
7	005				0				0											
8	006				0				0											
9	007				0				0											
10	008				0				0											
11	009				0				0											
12	010				0				0											
13	011				0				0											
14	012				0				0											
15	013				1				0											
16	014				2				0											
17	015				0				0											
18	016				0				0											
19	017				0				0											
20	018				0				0											
21	019				0				1											
22	020				0				2											
23	021				0				3											

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	DISTRICT	VAPTOT																			
2		557,489	100.00%	225,731	42.28%	14,347	2.57%	21,214	3.81%	15,961	2.86%	482	0.08%	2,908	0.52%	250,761	44.98%	16,065	2.89%	321,758	57.72%
3		535,351	100.00%	210,477	39.32%	9,331	1.74%	19,130	3.57%	5,556	1.04%	369	0.07%	2,453	0.46%	275,908	51.54%	12,127	2.27%	324,874	60.69%
4		546,149	100.00%	217,854	39.89%	7,100	1.30%	97,016	17.76%	7,472	1.37%	348	0.06%	2,564	0.47%	200,095	36.64%	13,700	2.51%	328,295	60.11%
5																					
6	STATE TOTAL	1,639,899	100.00%	664,062	40.52%	30,778	1.88%	137,360	8.38%	28,989	1.77%	1,199	0.07%	7,925	0.48%	726,764	44.34%	41,912	2.56%	974,927	59.48%
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1	DISTRICT	VAPTOT	VAPWH_C	VAPBI_C	VAPNA_C	VAPAS_C	VAPPI_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C
2	001	557,489	120.25%	413,295	74.14%	21,542	3.86%	39,302	7.05%	21,826	3.92%	1,623	0.29%	172,765	30.99%	144,194	25.86%
3	002	535,551	121.22%	397,335	74.22%	13,745	2.57%	34,946	6.53%	8,587	1.60%	1,258	0.23%	193,107	36.07%	138,016	25.78%
4	003	546,149	116.63%	361,534	66.20%	11,135	2.04%	114,229	20.92%	10,809	1.98%	1,323	0.24%	137,930	25.26%	184,615	33.80%
5	STATE TOTAL	1,638,989	119.36%	1,172,164	71.52%	46,422	2.83%	188,477	11.50%	41,222	2.52%	4,204	0.26%	503,802	30.74%	466,825	28.48%
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9	30%				0		0		0		0		0		0		0
10	40%				0		0		0		0		0		0		0
11	50%				2		0		0		0		0		0		0
12	60%				1		0		0		0		0		0		0
13	70%				0		0		0		0		0		0		0
14	80%				0		0		0		0		0		0		0
15	90%				0		0		0		0		0		0		0
16	95%				0		0		0		0		0		0		0
17	98%				0		0		0		0		0		0		0
18	99%				0		0		0		0		0		0		0
19	99.5%				0		0		0		0		0		0		0
20	99.9%				0		0		1		0		0		1		1
21	100%				0		0		0		0		0		0		2
22	101%				0		3		2		3		3		0		0
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A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
DISTRICT	VAPTOT	VAPHHW_C	VAPHHB_C	VAPHHL_C	VAPHHI_C	VAPHNA_C	VAPNHAS_C	VAPNHPI_C	VAPNHOT_C	VAPHHIS_C	VAPHHIS_C	VAPHHIS_C	VAPHHIS_C	VAPHHIS_C	VAPHHIS_C	VAPHHIS_C	VAPHHIS_C	VAPHHIS_C	VAPHHIS_C
1	557,489	103,05%	250,451	44.92%	17,826	3.20%	27,595	4.95%	19,909	3.57%	1,198	0.22%	6,814	1.22%	250,761	44.99%	307,031	55.00%	
2	535,351	102.40%	221,649	41.44%	11,398	2.13%	25,062	4.68%	7,403	1.38%	902	0.17%	5,662	1.06%	275,908	51.54%	313,502	58.56%	
3	546,149	102.66%	230,699	42.20%	9,391	1.72%	103,697	18.98%	9,760	1.79%	966	0.18%	6,277	1.15%	200,095	36.64%	315,650	57.80%	
4																			
5	1,639,989	102.71%	702,769	42.88%	38,615	2.36%	156,344	9.54%	37,072	2.29%	3,067	0.19%	18,753	1.14%	726,764	44.34%	936,220	57.12%	
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6-VAPRace\_OMB

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	DISTRICT	VAPTOT	VAPWH	VAPBL_W	VAPNA_W	VAPAS_W	VAPFP_W	VAPOT_W									
2	001	567,489	82.05%	309,133	55.45%	17,872	3.21%	28,779	5.16%	17,551	3.15%	1,051	0.19%	83,007	14.89%	248,356	44.55%
3	002	535,351	80.43%	289,666	54.11%	11,487	2.15%	25,891	4.84%	6,601	1.23%	862	0.16%	96,078	17.95%	245,685	45.89%
4	003	546,149	85.19%	277,378	50.79%	8,851	1.62%	104,436	19.12%	8,471	1.55%	844	0.15%	65,274	11.95%	268,771	49.21%
5	STATE TOTAL	1,638,989	82.57%	876,177	53.46%	38,210	2.33%	159,106	9.71%	32,623	1.99%	2,757	0.17%	244,359	14.91%	762,812	46.54%
6																	
7																	
8	40%				0		0		0		0		0		0		0
9	50%				0		0		0		0		0		0		0
10	60%				0		0		0		0		0		0		0
11	70%				0		0		0		0		0		0		0
12	80%				0		0		0		0		0		0		0
13	90%				0		0		0		0		0		0		0
14	95%				1		0		0		0		0		0		0
15	96%				2		0		0		0		0		0		0
16	97%				0		0		0		0		0		0		1
17	98%				0		0		0		0		0		0		0
18	99%				0		0		0		0		0		0		0
19	99%				0		0		0		0		0		0		0
20	99%				0		0		0		0		0		0		0
21	99%				0		0		1		0		0		3		0
22	99%				0		3		2		3		3		0		0
23																	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	557,489																			
2	556,351																			
3	546,149																			
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5																				
6	1,639,989																			
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Statewide Races

DISTRICT	State Composite Score				Judicial Composite Score			
	Dem	Dem %	Rep	Rep %	Dem	Dem %	Rep	Rep %
1	5,062,253	57.02%	3,815,359	42.98%	2,833,346	56.71%	2,162,981	43.29%
2	3,182,545	45.43%	3,822,718	54.57%	1,781,916	45.50%	2,134,393	54.50%
3	5,261,603	58.02%	3,807,463	41.98%	2,917,105	58.13%	2,101,568	41.87%
Statewide	13,506,401	54.13%	11,445,540	45.87%	7,532,367	54.07%	6,398,942	45.93%
President								
2020								
DISTRICT	Biden	Biden %	Trump	Trump %	Clinton	Clinton %	Trump	Trump %
1	200,018	61.25%	126,554	38.75%	145,103	58.68%	102,185	41.32%
2	114,548	44.57%	142,484	55.43%	92,565	45.30%	111,780	54.70%
3	187,033	58.47%	132,845	41.53%	147,568	58.27%	105,702	41.73%
Statewide	501,599	55.52%	401,883	44.48%	385,236	54.65%	319,667	45.35%
Governor								
2018								
DISTRICT	Gishorn	Gishorn %	Ronchetti	Ronchetti %	Gishorn	Gishorn %	Pearce	Pearce %
1	146,118	57.49%	108,063	42.51%	152,704	60.92%	97,976	39.08%
2	78,272	41.93%	108,383	58.07%	92,206	47.62%	101,424	52.38%
3	145,756	57.39%	108,219	42.61%	153,468	60.87%	98,651	39.13%
Statewide	370,146	53.27%	324,665	46.73%	398,378	57.20%	298,051	42.80%
Secretary of State								
2018 (not in index)								
DISTRICT	Oliver	Oliver %	Fuillio	Fuillio %	Oliver	Oliver %	Clarkson	Clarkson %
1	155,362	62.11%	94,784	37.89%	154,880	65.19%	82,720	34.81%
2	80,757	43.63%	104,355	56.37%	91,867	50.60%	89,688	49.40%
3	148,358	59.35%	101,593	40.65%	152,364	64.22%	84,901	35.78%
Statewide	384,477	56.11%	300,732	43.89%	399,111	60.80%	257,309	39.20%
Treasurer								
2018 (not in index)								
DISTRICT	Montoya	Montoya %	HMontoya	HMontoya %	Echenberg	Echenberg %	Castillo	Castillo %
1	144,855	57.46%	107,221	42.54%	153,322	62.62%	91,551	37.38%
2	79,797	42.18%	109,401	57.82%	91,178	47.95%	98,971	52.05%
3	145,394	57.02%	109,579	42.98%	150,237	60.95%	96,256	39.05%
Statewide	370,046	53.15%	326,201	46.85%	394,737	57.92%	286,758	42.08%
2014								
DISTRICT	Montoya	Montoya %	HMontoya	HMontoya %	Echenberg	Echenberg %	Lopez	Lopez %
1	144,855	57.46%	107,221	42.54%	153,322	62.62%	91,551	37.38%
2	79,797	42.18%	109,401	57.82%	91,178	47.95%	98,971	52.05%
3	145,394	57.02%	109,579	42.98%	150,237	60.95%	96,256	39.05%
Statewide	370,046	53.15%	326,201	46.85%	394,737	57.92%	286,758	42.08%
Supreme Court (All Elections except 2014)								
DISTRICT	SupDems	SupDems %	SupReps	SupReps %	CoADems	CoADems %	CoAReps	CoAReps %
1	1,084,653	56.27%	842,901	43.73%	1,748,693	56.98%	1,320,080	43.02%
2	685,631	45.57%	819,012	54.43%	1,096,285	45.46%	1,315,381	54.54%
3	1,127,438	58.52%	799,011	41.48%	1,789,667	57.88%	1,302,557	42.12%
Statewide	2,897,722	54.08%	2,460,924	45.92%	4,634,645	54.06%	3,938,018	45.94%



		Supreme Court (2022)			
		Contest 1		Contest 2	
DISTRICT		Vargas %	Montoya %	Zamora %	Morris %
1		143,305	56.93%	108,426	43.07%
2		79,275	41.94%	109,738	58.06%
3		143,744	56.59%	110,286	43.41%
Statewide		366,324	52.73%	328,450	47.27%
		Supreme Court (2020)			
		Contest 1		Contest 2	
DISTRICT		Bacon %	Fueller %	Thompson %	Morris %
1		193,613	60.01%	129,008	39.99%
2		115,400	45.65%	137,396	54.35%
3		186,735	59.30%	128,179	40.70%
Statewide		495,748	55.68%	394,583	44.32%
		Supreme Court (2018)			
		Contest 1		Contest 2	
DISTRICT		Vigil %	Clingman %	Bogardus %	French %
1		151,761	61.82%	93,733	38.18%
2		95,060	49.94%	95,274	50.06%
3		156,752	63.66%	89,495	36.34%
Statewide		403,573	59.17%	278,502	40.83%
		Court of Appeals (2018)			
		Contest 1		Contest 2	
DISTRICT		Vigil %	Nakamura %	Vargas %	French %
1		121,170	44.39%	151,817	55.61%
2		97,170	44.75%	119,986	55.25%
3		147,450	54.22%	124,500	45.78%
Statewide		365,790	48.00%	396,303	52.00%
		Court of Appeals (2016)			
		Contest 1		Contest 2	
DISTRICT		Kiernan %	Hanisee %	Hanisee %	
1		80,386	48.77%	84,448	51.23%
2		57,263	42.54%	77,345	57.46%
3		100,482	54.15%	85,068	45.85%
Statewide		238,131	49.10%	246,861	50.90%
		Supreme Court (2012)			
		Contest 1		Contest 2	
DISTRICT		Vigil %	Kennedy %	Zamora %	Hanisee %
1		141,784	54.04%	120,568	45.96%
2		105,441	49.30%	108,450	50.70%
3		162,798	59.88%	109,085	40.12%
Statewide		410,023	54.81%	338,103	45.19%



General Election Turnout (2022)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	215,276	45.4%	136,565	28.8%	122,121	25.8%	259,707	54.79%	
2	151,570	36.9%	152,913	37.3%	105,797	25.8%	193,005	47.04%	
3	235,585	49.3%	134,433	28.1%	107,761	22.6%	262,042	54.85%	
Statewide	602,431	44.2%	423,911	31.1%	335,679	24.6%	714,754	52.48%	
General Election Turnout (2020)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	215,656	45.7%	138,590	29.4%	117,170	24.9%	336,182	71.31%	
2	155,368	38.4%	150,757	37.2%	98,708	24.4%	263,534	65.10%	
3	239,492	50.5%	133,214	28.1%	101,287	21.4%	328,518	69.31%	
Statewide	610,516	45.2%	422,561	31.3%	317,165	23.5%	928,234	68.75%	
General Election Turnout (2018)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	197,692	45.0%	129,231	29.4%	112,140	25.5%	252,373	57.48%	
2	150,196	40.1%	132,426	35.3%	92,280	24.6%	195,096	52.04%	
3	230,434	51.5%	121,272	27.1%	95,856	21.4%	254,185	56.79%	
Statewide	578,322	45.8%	382,929	30.4%	300,276	23.8%	701,654	55.62%	
General Election Turnout (2016)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	211,329	45.2%	144,577	30.9%	112,093	24.0%	287,453	61.42%	
2	154,143	41.2%	132,527	35.4%	87,433	23.4%	228,933	61.20%	
3	234,337	52.4%	122,807	27.5%	90,136	20.2%	287,687	64.32%	
Statewide	599,809	46.5%	399,911	31.0%	289,662	22.5%	804,073	62.36%	
General Election Turnout (2014)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	200,485	44.4%	144,436	32.0%	106,746	23.6%	175,405	38.84%	
2	160,389	42.2%	132,662	34.9%	87,115	22.9%	143,443	37.73%	
3	239,667	52.6%	124,227	27.3%	91,917	20.2%	200,605	44.01%	
Statewide	600,541	46.6%	401,325	31.2%	285,778	22.2%	519,453	40.34%	
General Election Turnout (2012)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	198,420	45.0%	143,414	32.5%	99,098	22.5%	276,318	62.67%	
2	160,326	43.5%	129,518	35.1%	78,789	21.4%	223,830	60.72%	
3	237,494	53.3%	123,058	27.6%	85,209	19.1%	286,408	64.25%	
Statewide	596,240	47.5%	395,990	31.5%	263,096	21.0%	786,556	62.66%	



# Autobound EDGE - Compactness Report



Plan Name: Congress:NM\_Congress\_Emod

[For more information on compactness calculations Click Here](#)

## Compactness measure: Polsby-Popper

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	605	165	2,173	87	0.28
2	56,424	1,631	211,597	842	0.27
3	64,564	1,581	198,857	901	0.32

Most Compact: 0.32 For District: 3

Least Compact: 0.27 For District: 2

## Compactness measure: Schwartzberg

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	605	165	2,173	87	0.53
2	56,424	1,631	211,597	842	0.52
3	64,564	1,581	198,857	901	0.57

Most Compact: 0.57 For District: 3

Least Compact: 0.52 For District: 2

## Compactness measure: Reock Score

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	605	165	2,173	87	0.44
2	56,424	1,631	211,597	842	0.45
3	64,564	1,581	198,857	901	0.52

Most Compact: 0.52 For District: 3

Least Compact: 0.44 For District: 1

## Compactness measure: Length-Width

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	605	165	2,173	87	1.53
2	56,424	1,631	211,597	842	1.61
3	64,564	1,581	198,857	901	1.51

Most Compact: 1.61 For District: 2

Least Compact: 1.51 For District: 3

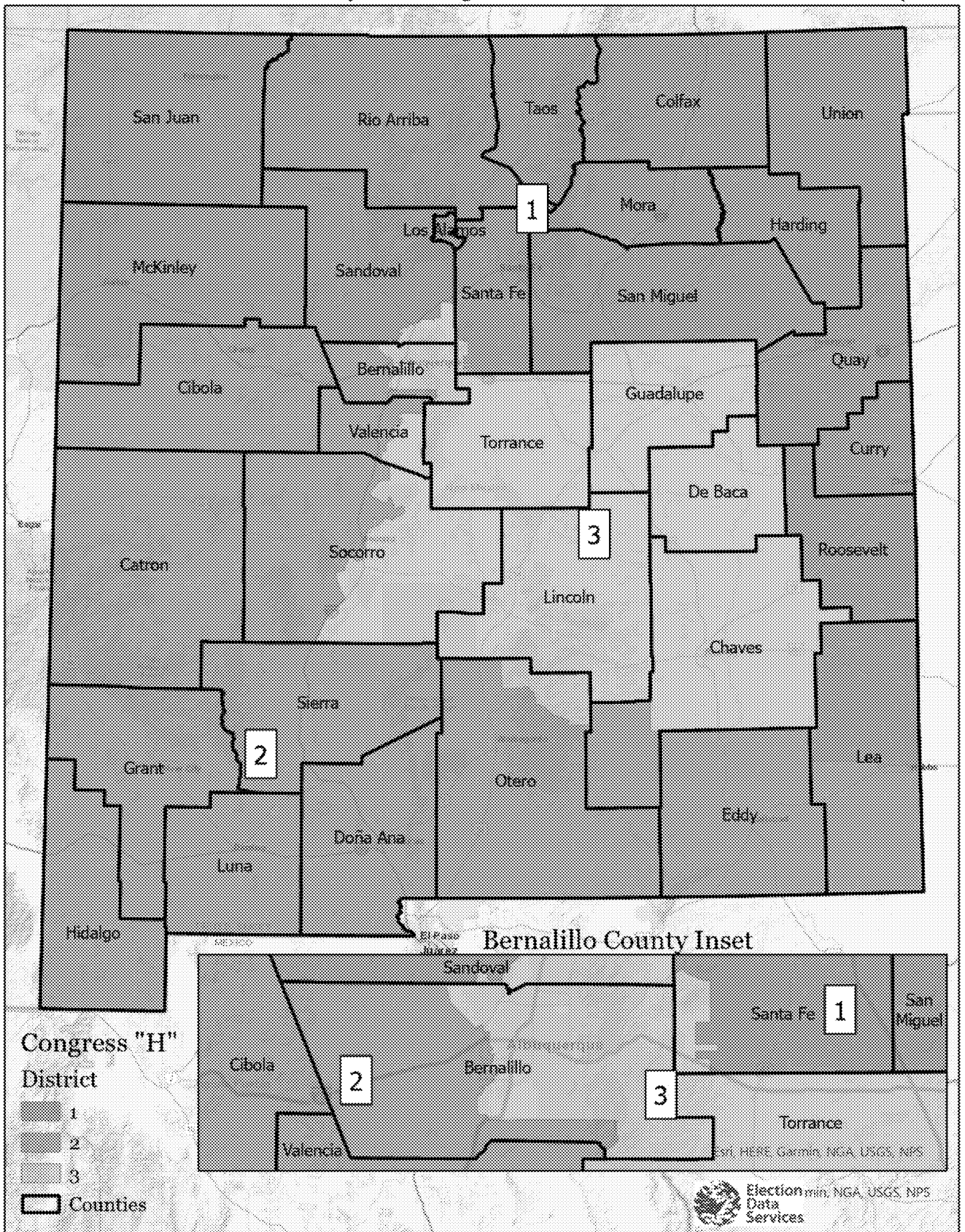
## Compactness measure: Convex Hull

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	605	165	2,173	87	0.79
2	56,424	1,631	211,597	842	0.75
3	64,564	1,581	198,857	901	0.84

Most Compact: 0.84 For District: 3

Least Compact: 0.75 For District: 2

# New Mexico - District Map of Congressional Commission "H" Concept





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Deviations

	A	B	C	D	E	F	G
1	DISTRICT	TAPERSONS	Target	Raw Dev	% Dev.	POPTOT	
2	01	705,808	705,841	(33)	0.0%	705,808	
3	02	705,904	705,841	63	0.0%	705,904	
4	03	705,810	705,841	(31)	0.0%	705,810	
5							
6	STATE TOT	2,117,522					
7							
8	Total Dev			96	0.0136%		
9	Highest			63	0.0090%		
10	Lowest			(33)	-0.0046%		
11							
12							

DISTRICT	Total Population		Racial Demographics as Percent of Total Population					Voting Age Population		Racial Demographics as Percent of Voting Population							
	705,808	705,841	35.99%	1.32%	17.89%	1.29%	40.24%	64.11%	541,667	76.7%	39.74%	1.87%	16.74%	1.87%	37.74%	60.28%	
1	705,904	705,841	63	29.74%	1.77%	4.98%	1.00%	59.75%	70.26%	534,170	75.7%	33.64%	1.88%	4.87%	55.86%	66.36%	
2	705,810	705,841	31	43.88%	2.34%	1.85%	2.70%	48.22%	58.12%	563,152	79.8%	47.78%	2.37%	3.67%	2.78%	39.77%	52.22%
3	2,117,822																
Assigned Total Pop	2,117,822																
Unassigned	0																

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1-PopRaceAlone

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
DISTRICT	POP_TOT	POP_TOT_A	POP_TOT_P	POP_TOT_Q	POP_TOT_R	POP_TOT_S	POP_TOT_T	POP_TOT_U	POP_TOT_V	POP_TOT_W	POP_TOT_X	POP_TOT_Y	POP_TOT_Z	POP_TOT_AA	POP_TOT_AB	POP_TOT_AC	POP_TOT_AD	POP_TOT_AE	POP_TOT_AF
1	705,808	100.00%	337,897	47.87%	47,87%	10,968	1.56%	134,703	19.08%	9,691	1.37%	580	0.08%	89,912	12.74%	122,057	17.29%	367,911	52.13%
2	705,904	100.00%	335,804	47.57%	47.57%	15,427	2.19%	43,296	6.13%	7,754	1.10%	691	0.10%	138,751	19.66%	164,181	23.26%	370,100	52.43%
3	705,810	100.00%	405,236	57.41%	57.41%	19,509	2.76%	34,242	4.85%	20,024	2.84%	822	0.12%	89,969	12.75%	136,008	19.27%	300,574	42.59%
4	STATE TOTAL	2,117,522	100.00%	1,078,937	50.95%	45,904	2.17%	212,241	10.02%	37,469	1.77%	2,093	0.10%	318,632	15.05%	422,246	19.94%	1,038,585	49.05%
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DISTRICT	POP/TOI	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR	POP/NIHR
1	705 608	103 04%	271 73%	38 60%	13 34%	1 85%	136 06%	19 28%	12 86%	1 82%	1 26%	0 18%	7 91%	1 12%	283 98%	40 24%	434 07%	61 50%	
2	705 604	102 38%	224 42%	31 79%	16 138	2 28%	42 07%	5 98%	10 124	1 43%	1 285	0 18%	6 926	0 98%	421 779	59 75%	481 482	68 21%	
3	705 610	103 61%	331 69%	47 00%	22 086	3 13%	36 523	5 17%	25 257	3 56%	1 506	0 21%	9 192	1 30%	305 046	43 22%	374 114	53 00%	
4	2 117 522	103 01%	827 854	39 10%	51 565	2 44%	214 685	10 14%	48 249	2 28%	4 059	0 19%	24 047	1 14%	1 010 811	47 74%	1 289 658	60 90%	
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DISTRICT	POP TOT	POP W	POP A	POP H	POP N	POP O	POP P	POP Q	POP R	POP S	POP T	POP U	POP V	POP W	POP X	POP Y	POP Z
1	705,808	84.12%	337,897	47.87%	12,874	1.82%	138,117	19.57%	10,625	1.51%	1,090	0.15%	93,151	13.20%	367,911	52.13%	
2	705,804	7.814%	335,804	47.57%	17,474	2.48%	45,839	6.51%	8,818	1.25%	1,218	0.17%	142,317	20.16%	370,100	52.43%	
3	705,810	82.32%	405,236	57.41%	22,256	3.15%	37,382	5.30%	21,378	3.03%	1,333	0.19%	93,422	13.24%	300,574	42.59%	
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5	2,117,522	81.53%	1,078,937	50.96%	52,604	2.48%	221,438	10.46%	40,821	1.93%	3,641	0.17%	328,890	15.53%	1,038,585	49.05%	
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	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	
	705,808	705,904	705,810	97.64%	253,285	29,744	10,430	1,488	127,443	18,056	9,693	1,370	752	0.11%	3,549	0.50%	283,986	40,24%	452,513	64.11%	
	97.64%	98.14%	97.17%	97.65%	97.65%	43.89%	17,850	2.53%	28,276	4.01%	19,787	2.80%	892	0.13%	4,245	0.60%	305,046	43.22%	396,096	56.12%	
	2,117,522				772,952	36,50%	41,577	1.96%	191,540	9.05%	37,099	1.75%	2,432	0.11%	11,333	0.54%	1,010,811	47.74%	1,344,570	63.50%	
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1	DISTRICT	VAPTOT																			
2		541,667	100.00%	215,278	39.74%	7,413	1.37%	90,702	16.72%	7,443	1.37%	330	0.06%	2,491	0.46%	204,405	37.74%	13,605	2.51%	326,389	60.28%
3		534,170	100.00%	179,709	33.64%	10,031	1.89%	26,013	4.87%	5,896	1.10%	375	0.07%	2,376	0.44%	298,399	55.86%	11,381	2.13%	354,461	66.39%
4		563,152	100.00%	289,075	47.78%	13,334	2.37%	20,645	3.67%	15,650	2.78%	464	0.09%	3,058	0.54%	223,970	39.77%	16,926	3.01%	294,077	52.22%
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6	STATE TOTAL	1,639,899	100.00%	664,062	40.52%	30,778	1.88%	137,360	8.38%	28,989	1.77%	1,199	0.07%	7,925	0.48%	726,764	44.34%	41,912	2.56%	974,927	59.48%
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DISTRICT	VAPTOT	VAPWH_C	VAPBI_C	VAPNA_C	VAPAS_C	VAPPI_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	VAPOT_C	
1	541,667	116,87%	359,163	66,31%	11,375	2,10%	107,699	19,89%	10,638	1,96%	1,289	0,24%	142,903	26,38%	182,504	33,69%	33,69%	
2	534,170	122,76%	380,295	71,19%	14,956	2,80%	42,152	7,89%	9,237	1,73%	1,333	0,25%	207,762	38,89%	153,875	28,81%	28,81%	
3	563,152	118,53%	432,706	76,84%	20,091	3,57%	38,626	6,86%	21,347	3,79%	1,582	0,28%	153,137	27,19%	130,446	23,16%	23,16%	
4	STATE TOTAL	1,638,989	119,36%	1,172,164	71,52%	46,422	2,83%	188,477	11,50%	41,222	2,52%	4,204	0,26%	503,802	30,74%	466,825	28,48%	28,48%
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DISTRICT	VAPTOT	VAPNHWC_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C	VAPNHBL_C
1	544,687	102,65%	227,636	42,06%	9,638	1,78%	97,405	17,95%	9,652	1,78%	951	0,18%	6,152	1,14%	204,405	37,74%	313,831	57,94%	
2	534,170	102,28%	190,196	35,61%	12,239	2,29%	31,289	5,85%	7,890	1,48%	958	0,18%	5,330	1,00%	298,389	55,89%	343,974	64,39%	
3	565,152	103,16%	284,137	50,58%	16,738	2,97%	27,686	4,97%	19,540	3,47%	1,198	0,21%	7,271	1,29%	225,970	39,77%	278,415	49,44%	
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5	1,639,989	102,71%	702,769	42,88%	38,615	2,36%	156,344	9,54%	37,072	2,28%	3,067	0,19%	18,753	1,14%	726,764	44,34%	936,220	57,12%	
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6-VAPRace\_OMB

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	DISTRICT	VAPTOT		VAPWH	VAPBL	VAPBL_W	VAPNA	VAPNA_W	VAPAS	VAPAS_W	VAPFP	VAPFP_W	VAPOT	VAPOT_W			
2	001	541,667	84.90%	274,178	50.62%	9,144	1.69%	98,006	18.09%	8,413	1.55%	822	0.15%	69,328	12.80%	267,489	49.38%
3	002	534,170	79.12%	265,433	49.69%	12,543	2.35%	33,497	6.27%	7,077	1.32%	893	0.17%	103,171	19.31%	268,737	50.31%
4	003	563,152	83.59%	336,566	59.76%	16,523	2.93%	27,603	4.90%	17,133	3.04%	1,042	0.19%	71,860	12.76%	226,586	40.24%
5	STATE TOTAL	1,638,989	82.57%	876,177	53.46%	38,210	2.33%	159,106	9.71%	32,623	1.99%	2,757	0.17%	244,359	14.91%	762,812	46.54%
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9	40%				0		0		0		0		0		0		0
10	50%				0		0		0		0		0		0		0
11	60%				0		0		0		0		0		0		0
12	65%				0		0		0		0		0		0		0
13	60%				0		0		0		0		0		0		0
14	55%				1		0		0		0		0		0		0
15	50%				1		0		0		0		0		0		0
16	45%				1		0		0		0		0		0		0
17	40%				0		0		0		0		0		0		0
18	35%				0		0		0		0		0		0		0
19	30%				0		0		0		0		0		0		0
20	20%				0		0		0		0		0		0		0
21	10%				0		0		1		0		0		3		0
22	0%				0		3		2		3		3		0		0
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A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	RESTRICT	VAPTOT		VAPNHWH		VAPNHBL		VAPNHNA		VAPNHAS		VAPNHPL		VAPNHQI		VAPNHSP			
2	541,667	97.69%	215,278	39,448	8,040	1,493	91,336	16,882	7,639	1,452	602	0.11%	2,720	0.50%	204,405	37.74%	326,380	60.28%	
3	534,170	98.21%	179,709	33,644	10,553	1,961	26,434	4,954	6,281	1,163	628	0.12%	2,629	0.49%	298,589	55.86%	354,461	66.36%	
4	563,152	97.45%	269,075	47,789	14,190	2,524	21,365	3,794	16,153	2,874	745	0.13%	3,527	0.59%	223,970	39.77%	294,077	52.22%	
5	STATE TOTAL	1,638,989	97.64%	664,062	40,524	32,783	2,004	139,125	8,494	30,273	1,894	1,975	0.12%	8,676	0.53%	726,764	44.34%	974,927	59.48%
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DISTRICT	State Composite Score			Judicial Composite Score								
	Dem	Dem %	Rep	Rep %	Dem	Dem %						
1	4,857,458	57.05%	3,657,636	42.95%	2,708,975	57.10%	2,035,274	42.90%				
2	3,542,040	51.27%	3,366,320	48.73%	1,991,584	51.42%	1,881,802	48.58%				
3	5,106,903	53.60%	4,421,584	46.40%	2,831,808	53.29%	2,481,866	46.71%				
Statewide	13,506,401	54.13%	11,445,540	45.87%	7,552,367	54.07%	6,398,942	45.93%				
<b>President</b>												
<b>2020</b>												
DISTRICT	Biden	Biden %	Trump	Trump %	Clinton	Clinton %	Trump	Trump %	Obama	Obama %	Romney	Romney %
1	175,377	57.15%	131,475	42.85%	136,953	57.09%	102,946	42.91%	148,816	58.59%	105,195	41.41%
2	131,236	51.17%	125,234	48.83%	103,477	51.70%	96,691	48.30%	112,743	53.51%	97,968	46.49%
3	194,986	57.32%	145,174	42.68%	144,806	54.68%	120,030	45.32%	153,797	53.69%	132,666	46.31%
Statewide	501,599	55.52%	401,883	44.48%	385,236	54.65%	319,667	45.35%	415,356	55.29%	335,829	44.71%
<b>Governor</b>												
<b>2018</b>												
DISTRICT	Gishorn	Gishorn %	Ronchetti	Ronchetti %	Gishorn	Gishorn %	Pearce	Pearce %	King	King %	Martinez	Martinez %
1	135,672	56.51%	104,407	43.49%	141,935	60.02%	94,545	39.98%	84,363	47.18%	94,429	52.82%
2	89,205	47.98%	96,715	52.02%	103,311	53.73%	88,953	46.27%	54,265	39.44%	83,334	60.56%
3	145,269	54.04%	123,543	45.96%	153,132	57.21%	114,553	42.79%	80,747	41.10%	115,703	58.90%
Statewide	370,146	53.27%	324,665	46.73%	398,378	57.20%	298,051	42.80%	219,375	42.78%	293,466	57.22%
<b>Secretary of State</b>												
<b>2016</b>												
DISTRICT	Oliver	Oliver %	Fuillio	Fuillio %	Oliver	Oliver %	Clarkson	Clarkson %	Oliver	Oliver %	Espinosa	Espinosa %
1	137,568	58.20%	98,820	41.80%	140,352	63.03%	82,327	36.97%	150,906	58.11%	108,800	41.89%
2	91,770	49.87%	92,258	50.13%	103,064	57.20%	77,121	42.80%	113,415	52.69%	101,824	47.31%
3	155,139	58.59%	109,654	41.41%	155,695	61.40%	97,861	38.60%	168,906	57.64%	124,109	42.36%
Statewide	384,477	56.11%	300,732	43.89%	399,111	60.80%	257,309	39.20%	433,227	56.41%	334,733	43.59%
<b>Treasurer</b>												
<b>2014</b>												
DISTRICT	Montoya	Montoya %	Hmartoya	HMontoya %	Echenberg	Echenberg %	Castillo	Castillo %	Echenberg	Echenberg %	Lopez	Lopez %
1	135,306	56.05%	106,086	43.95%	138,789	59.95%	92,704	40.05%	96,210	55.46%	77,264	44.54%
2	90,469	48.16%	97,375	51.84%	101,360	53.80%	87,050	46.20%	65,212	49.06%	67,719	50.94%
3	144,271	54.03%	122,740	45.97%	154,588	59.10%	107,004	40.90%	99,790	52.10%	91,732	47.90%
Statewide	370,046	53.15%	326,201	46.85%	394,737	57.92%	286,758	42.08%	261,212	52.46%	236,715	47.54%
<b>Supreme Court (All Elections except 2014)</b>												
DISTRICT	SupDems	SupDems %	SupReps	SupReps %	CoADems	CoADems %	CoAReps	CoAReps %				
1	1,048,399	57.48%	775,531	42.52%	1,660,576	56.86%	1,259,743	43.14%				
2	765,927	51.41%	723,879	48.59%	1,225,657	51.42%	1,157,923	48.58%				
3	1,083,396	52.98%	961,514	47.02%	1,748,412	53.49%	1,520,352	46.51%				
Statewide	2,897,722	54.08%	2,460,924	45.92%	4,634,645	54.06%	3,938,018	45.94%				

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Statewide Races

2020		2018 (not in index)				2014				2012					
Lujan %	Ronchetti %	Ronchetti %	Heinrich %	Heinrich %	Rich %	Rich %	Edall %	Edall %	Weth %	Weth %	Heinrich %	Heinrich %	Wilson %	Wilson %	
168,693	55.51%	135,229	44.49%	133,511	66.51%	67,234	33.49%	109,040	60.60%	70,900	39.40%	138,518	55.04%	113,157	44.96%
125,758	50.00%	125,755	50.00%	98,981	60.20%	65,452	39.80%	72,436	52.64%	65,179	47.36%	108,814	52.83%	97,175	47.17%
180,011	53.34%	157,496	46.66%	144,511	64.34%	80,091	35.66%	104,941	53.01%	93,027	46.99%	148,390	51.28%	140,984	48.72%
<b>474,462</b>	<b>53.13%</b>	<b>418,480</b>	<b>46.87%</b>	<b>377,003</b>	<b>63.92%</b>	<b>212,777</b>	<b>36.08%</b>	<b>286,417</b>	<b>55.56%</b>	<b>229,106</b>	<b>44.44%</b>	<b>395,722</b>	<b>52.97%</b>	<b>351,316</b>	<b>47.03%</b>
US Senate															
2022 (not in index)		2018 (not in index)				2014				2012					
Torrez %	Gay %	Gay %	Galderas %	Galderas %	Hendricks %	Hendricks %	Hendricks %	Galderas %	Galderas %	Riedel %	Riedel %	Keller %	Keller %	Aragon %	Aragon %
141,019	58.01%	102,073	41.99%	149,272	66.64%	74,715	33.36%	109,717	62.24%	66,564	37.76%	138,518	55.04%	113,157	44.96%
94,715	50.02%	94,638	49.98%	110,480	60.86%	71,051	39.14%	73,428	54.23%	61,972	45.77%	108,814	52.83%	97,175	47.17%
152,808	56.58%	117,288	43.42%	167,798	66.23%	85,560	33.77%	111,865	57.47%	82,773	42.53%	148,390	51.28%	140,984	48.72%
<b>388,542</b>	<b>55.31%</b>	<b>313,999</b>	<b>44.69%</b>	<b>427,550</b>	<b>64.89%</b>	<b>231,326</b>	<b>35.11%</b>	<b>295,010</b>	<b>58.27%</b>	<b>211,309</b>	<b>41.73%</b>	<b>395,722</b>	<b>52.97%</b>	<b>351,316</b>	<b>47.03%</b>
Attorney General															
2022 (not in index)		2018 (not in index)				2014				2012					
Torrez %	Gay %	Gay %	Galderas %	Galderas %	Hendricks %	Hendricks %	Hendricks %	Galderas %	Galderas %	Riedel %	Riedel %	Keller %	Keller %	Aragon %	Aragon %
89,235	50.58%	87,203	49.42%	145,794	64.54%	80,106	35.46%	139,981	60.00%	93,310	40.00%	99,003	56.99%	74,706	43.01%
59,795	44.10%	75,780	55.90%	98,662	57.11%	74,103	42.89%	104,250	54.93%	85,542	45.07%	66,609	50.00%	66,603	50.00%
96,491	49.32%	99,155	50.68%	155,318	62.93%	91,487	37.07%	151,477	57.30%	112,862	42.70%	104,780	54.71%	86,729	45.29%
<b>245,521</b>	<b>48.36%</b>	<b>262,138</b>	<b>51.64%</b>	<b>399,774</b>	<b>61.94%</b>	<b>245,696</b>	<b>38.06%</b>	<b>395,708</b>	<b>57.56%</b>	<b>291,714</b>	<b>42.44%</b>	<b>270,392</b>	<b>54.25%</b>	<b>228,038</b>	<b>45.75%</b>
Secretary of State															
2014		2022 (not in index)				2018				2014					
Oliver %	Duran %	Duran %	Maestas %	Maestas %	Sanchez %	Sanchez %	Sanchez %	Galton %	Galton %	Johnson %	Johnson %	Keller %	Keller %	Aragon %	Aragon %
139,462	58.14%	100,413	41.86%	125,833	56.94%	95,173	43.06%	95,114	54.70%	78,762	45.30%	138,518	55.04%	113,157	44.96%
91,924	49.43%	94,050	50.57%	92,456	51.79%	86,077	48.21%	61,891	46.34%	71,662	53.66%	108,814	52.83%	97,175	47.17%
148,180	56.02%	116,352	43.98%	134,046	53.58%	116,129	46.42%	92,342	48.11%	99,592	51.89%	148,390	51.28%	140,984	48.72%
<b>379,566</b>	<b>54.98%</b>	<b>310,815</b>	<b>45.02%</b>	<b>352,335</b>	<b>54.23%</b>	<b>297,379</b>	<b>45.77%</b>	<b>249,347</b>	<b>49.93%</b>	<b>250,016</b>	<b>50.07%</b>	<b>395,722</b>	<b>52.97%</b>	<b>351,316</b>	<b>47.03%</b>
Land Commissioner															
2022 (not in index)		2018				2014				2012					
Richard %	Byrd %	Byrd %	Richard %	Richard %	Lyons %	Lyons %	Lyons %	Powell %	Powell %	Dunn %	Dunn %	Keller %	Keller %	Aragon %	Aragon %
139,462	58.14%	100,413	41.86%	125,833	56.94%	95,173	43.06%	95,114	54.70%	78,762	45.30%	138,518	55.04%	113,157	44.96%
91,924	49.43%	94,050	50.57%	92,456	51.79%	86,077	48.21%	61,891	46.34%	71,662	53.66%	108,814	52.83%	97,175	47.17%
148,180	56.02%	116,352	43.98%	134,046	53.58%	116,129	46.42%	92,342	48.11%	99,592	51.89%	148,390	51.28%	140,984	48.72%
<b>379,566</b>	<b>54.98%</b>	<b>310,815</b>	<b>45.02%</b>	<b>352,335</b>	<b>54.23%</b>	<b>297,379</b>	<b>45.77%</b>	<b>249,347</b>	<b>49.93%</b>	<b>250,016</b>	<b>50.07%</b>	<b>395,722</b>	<b>52.97%</b>	<b>351,316</b>	<b>47.03%</b>

		Supreme Court (2022)			
		Contest 1		Contest 2	
DISTRICT		Vargas %	Montoya %	Zamora %	Morris %
1		133,886	106,713	137,811	102,296
2		89,694	97,829	91,916	95,415
3		142,744	123,908	146,058	120,473
Statewide		366,324	328,450	375,785	318,184
		55.65%	44.35%	57.40%	42.60%
		47.83%	52.17%	49.07%	50.93%
		53.53%	46.47%	54.80%	45.20%
		52.73%	47.27%	54.15%	45.85%
		Supreme Court (2020)			
		Contest 1		Contest 2	
DISTRICT		Bacon %	Fuller %	Thomson %	Morris %
1		174,995	127,059	170,657	130,606
2		131,340	120,714	127,279	124,331
3		189,413	146,810	182,543	151,862
Statewide		495,748	394,583	480,479	406,799
		57.94%	42.06%	56.65%	43.35%
		52.11%	47.89%	50.59%	49.41%
		56.34%	43.66%	54.59%	45.41%
		55.68%	44.32%	54.15%	45.85%
		Court of Appeals (2018)			
		Contest 1		Contest 1	
DISTRICT		Vigil %	Cingmar %	Bogardus %	French %
1		144,525	86,903	131,985	98,074
2		106,314	82,213	99,217	88,490
3		152,734	109,386	139,112	121,582
Statewide		403,573	278,502	370,314	308,146
		62.45%	37.55%	57.37%	42.63%
		56.39%	43.61%	52.86%	47.14%
		58.27%	41.73%	53.36%	46.64%
		59.17%	40.83%	54.58%	45.42%
		Court of Appeals (2016)			
		Contest 1		Contest 1	
DISTRICT		Vigil %	Nakamura %	Vargas %	French %
1		138,297	118,896	141,319	112,771
2		104,503	109,144	111,442	100,447
3		122,990	168,263	142,466	144,619
Statewide		365,790	396,303	395,227	357,837
		53.77%	46.23%	55.62%	44.38%
		48.91%	51.09%	52.59%	47.41%
		42.23%	57.77%	49.63%	50.37%
		48.00%	52.00%	52.48%	47.52%
		Court of Appeals (2014)			
		Contest 1		Contest 1	
DISTRICT		Kiernan %	Hanisee %		
1		90,708	78,410		
2		62,197	67,952		
3		85,226	100,499		
Statewide		238,131	246,861		
		53.64%	46.36%		
		47.79%	52.21%		
		45.89%	54.11%		
		49.10%	50.90%		
		Supreme Court (2012)			
		Contest 1		Contest 1	
DISTRICT		Vigil %	Kennedy %	Zamora %	Hanisee %
1		148,228	103,058	145,809	102,808
2		114,881	94,233	115,265	91,600
3		146,914	140,812	149,113	134,352
Statewide		410,023	338,103	410,187	328,760
		58.99%	41.01%	58.65%	41.35%
		54.94%	45.06%	55.72%	44.28%
		51.06%	48.94%	52.60%	47.40%
		54.81%	45.19%	55.51%	44.49%

Court of Appeals (2022)											
Contest 1				Contest 2				Contest 3			
Race	Baca %	Johnson	Johnson %	Wray	Wray %	Lee	Lee %	Yohalem	Yohalem %	Montoya	Montoya %
129,149	56.72%	98,531	43.28%	128,293	57.33%	95,498	42.67%				
84,921	47.95%	92,186	52.05%	85,409	48.95%	89,073	51.05%				
135,451	53.92%	115,774	46.08%	136,467	54.82%	112,457	45.18%				
349,521	53.28%	306,491	46.72%	350,169	54.11%	297,028	45.89%				
Court of Appeals (2020)											
Contest 1				Contest 2				Contest 3			
Yes	Yes %	Johnson	Johnson %	Henderson	Henderson %	Lee	Lee %	Yohalem	Yohalem %	Montoya	Montoya %
162,430	54.08%	137,928	45.92%	159,624	57.21%	119,391	42.79%	159,856	53.45%	139,221	46.55%
122,663	48.90%	128,167	51.10%	119,737	51.49%	112,789	48.51%	120,371	48.11%	129,823	51.89%
178,919	53.77%	153,832	46.23%	171,186	55.26%	138,590	44.74%	176,388	53.21%	155,105	46.79%
464,012	52.49%	419,927	47.51%	450,547	54.86%	370,770	45.14%	456,615	51.84%	424,149	48.16%
Court of Appeals (2018)											
Contest 2				Contest 3				Contest 4			
Medina	Medina %	Bohnhoff	Bohnhoff %	Zamora	Zamora	Kleine	Kleine %	Duffy	Duffy %	Gallejos	Gallejos %
140,938	61.31%	88,945	38.69%	140,348	61.15%	89,179	38.85%	130,117	56.79%	98,987	43.21%
104,404	55.71%	83,002	44.29%	103,110	54.99%	84,387	45.01%	96,921	51.85%	90,007	48.15%
146,087	56.23%	113,734	43.77%	147,513	56.84%	111,988	43.16%	140,484	54.39%	117,820	45.61%
391,429	57.81%	285,681	42.19%	390,971	57.79%	285,554	42.21%	367,522	54.50%	306,814	45.50%

General Election Turnout (2022)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	221,056	47.6%	135,994	29.3%	107,698	23.2%	247,377	53.23%	
2	171,604	41.8%	131,302	32.0%	107,508	26.2%	192,761	46.97%	
3	209,771	43.1%	156,615	32.2%	120,473	24.7%	274,616	56.41%	
Statewide	602,431	44.2%	423,911	31.1%	335,679	24.6%	714,754	52.48%	
General Election Turnout (2020)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	224,333	48.8%	134,654	29.3%	100,971	22.0%	314,961	68.48%	
2	174,732	43.3%	128,531	31.8%	100,413	24.9%	263,128	65.18%	
3	211,451	43.5%	159,376	32.8%	115,781	23.8%	350,145	71.96%	
Statewide	610,516	45.2%	422,561	31.3%	317,165	23.5%	928,234	68.75%	
General Election Turnout (2018)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	214,615	49.8%	121,573	28.2%	94,607	22.0%	238,353	55.33%	
2	167,115	44.8%	112,260	30.1%	93,631	25.1%	193,796	51.96%	
3	196,592	42.9%	149,096	32.6%	112,038	24.5%	269,505	58.88%	
Statewide	578,322	45.8%	382,929	30.4%	300,276	23.8%	701,654	55.62%	
General Election Turnout (2016)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	217,317	50.8%	122,586	28.6%	88,303	20.6%	271,981	63.52%	
2	170,610	45.9%	112,447	30.2%	88,684	23.9%	226,222	60.85%	
3	211,882	43.3%	164,878	33.7%	112,675	23.0%	305,870	62.49%	
Statewide	599,809	46.5%	399,911	31.0%	289,662	22.5%	804,073	62.36%	
General Election Turnout (2014)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	220,490	51.1%	122,529	28.4%	88,167	20.4%	182,263	42.27%	
2	174,680	46.5%	112,529	30.0%	88,103	23.5%	139,069	37.05%	
3	205,371	42.7%	166,267	34.6%	109,508	22.8%	198,121	41.18%	
Statewide	600,541	46.6%	401,325	31.2%	285,778	22.2%	519,453	40.34%	
General Election Turnout (2012)									
DISTRICT	Registered Dems	% Dem	Registered GOP	% GOP	Registered Other	% Other	Turnout	Turnout %	
1	218,463	52.0%	120,451	28.7%	81,010	19.3%	264,692	63.03%	
2	173,865	47.7%	110,117	30.2%	80,768	22.1%	219,399	60.15%	
3	203,912	43.3%	165,422	35.1%	101,318	21.5%	302,465	64.27%	
Statewide	596,240	47.5%	395,990	31.5%	263,096	21.0%	786,556	62.66%	

# Autobound EDGE - Compactness Report

Plan Name: Congress:NM\_Congress\_H



[For more information on compactness calculations Click Here](#)

## Compactness measure: Polsby-Popper

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	49,547	1,427	162,002	789	0.31
2	48,696	1,470	172,022	782	0.28
3	23,349	943	70,825	542	0.33

Most Compact: 0.33 For District: 3

Least Compact: 0.28 For District: 2

## Compactness measure: Schwartzberg

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	49,547	1,427	162,002	789	0.55
2	48,696	1,470	172,022	782	0.53
3	23,349	943	70,825	542	0.57

Most Compact: 0.57 For District: 3

Least Compact: 0.53 For District: 2

## Compactness measure: Reock Score

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	49,547	1,427	162,002	789	0.31
2	48,696	1,470	172,022	782	0.37
3	23,349	943	70,825	542	0.55

Most Compact: 0.55 For District: 3

Least Compact: 0.31 For District: 1

## Compactness measure: Length-Width

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	49,547	1,427	162,002	789	1.41
2	48,696	1,470	172,022	782	1.49
3	23,349	943	70,825	542	1.49

Most Compact: 1.49 For District: 3

Least Compact: 1.41 For District: 1

## Compactness measure: Convex Hull

District	District Area (SQM)	Perimeter (Miles)	Area of Circle with Same Perimeter	Perimeter of Circle with Same Area	Compactness Value
1	49,547	1,427	162,002	789	0.67
2	48,696	1,470	172,022	782	0.72
3	23,349	943	70,825	542	0.81

Most Compact: 0.81 For District: 3

Least Compact: 0.67 For District: 1

## New Mexico Redistricting A Vs B Report

A: Previous 2011 Congressional Districts (2012-2020) B:  
Counties



**Previous 2011 Congressional District: 01**

**Total Population: 694,577**

County

How much of this District is in:

This District consists of this much of:

<b>Bernalillo County</b>	<b>641,488</b>	92.4%	<b>641,488</b>	94.8%
<b>Sandoval County</b>	<b>21,361</b>	3.1%	<b>21,361</b>	14.4%
<b>Torrance County</b>	<b>15,045</b>	2.2%	<b>15,045</b>	100%
<b>Valencia County</b>	<b>11,231</b>	1.6%	<b>11,231</b>	14.7%
<b>Santa Fe County</b>	<b>5,452</b>	0.8%	<b>5,452</b>	3.5%

Previous 2011 Congressional District: 02

Total Population: 714,022

County	How much of this District is in:	This District consists of this much of:
<b>Doña Ana County</b>	<b>219,561</b> 30.7%	<b>219,561</b> 100%
<b>Lea County</b>	<b>74,455</b> 10.4%	<b>74,455</b> 100%
<b>Otero County</b>	<b>67,839</b> 9.5%	<b>67,839</b> 100%
<b>Chaves County</b>	<b>65,157</b> 9.1%	<b>65,157</b> 100%
<b>Valencia County</b>	<b>64,974</b> 9.1%	<b>64,974</b> 85.3%
<b>Eddy County</b>	<b>62,314</b> 8.7%	<b>62,314</b> 100%
<b>Grant County</b>	<b>28,185</b> 3.9%	<b>28,185</b> 100%
<b>Cibola County</b>	<b>27,172</b> 3.8%	<b>27,172</b> 100%
<b>Luna County</b>	<b>25,427</b> 3.6%	<b>25,427</b> 100%
<b>Lincoln County</b>	<b>20,269</b> 2.8%	<b>20,269</b> 100%
<b>Socorro County</b>	<b>16,595</b> 2.3%	<b>16,595</b> 100%
<b>Sierra County</b>	<b>11,576</b> 1.6%	<b>11,576</b> 100%
<b>Roosevelt County</b>	<b>7,015</b> 1%	<b>7,015</b> 36.6%
<b>McKinley County</b>	<b>6,693</b> 0.9%	<b>6,693</b> 9.2%
<b>Guadalupe County</b>	<b>4,452</b> 0.6%	<b>4,452</b> 100%
<b>Hidalgo County</b>	<b>4,178</b> 0.6%	<b>4,178</b> 100%
<b>Catron County</b>	<b>3,579</b> 0.5%	<b>3,579</b> 100%
<b>Bernalillo County</b>	<b>2,883</b> 0.4%	<b>2,883</b> 0.4%
<b>De Baca County</b>	<b>1,698</b> 0.2%	<b>1,698</b> 100%

**Previous 2011 Congressional District: 03**

**Total Population: 708,923**

County	How much of this District is in:	This District consists of this much of:
<b>Santa Fe County</b>	<b>149,371</b> 21.1%	<b>149,371</b> 96.5%
<b>Sandoval County</b>	<b>127,473</b> 18%	<b>127,473</b> 85.6%
<b>San Juan County</b>	<b>121,661</b> 17.2%	<b>121,661</b> 100%
<b>McKinley County</b>	<b>66,209</b> 9.3%	<b>66,209</b> 90.8%
<b>Curry County</b>	<b>48,430</b> 6.8%	<b>48,430</b> 100%
<b>Rio Arriba County</b>	<b>40,363</b> 5.7%	<b>40,363</b> 100%
<b>Taos County</b>	<b>34,489</b> 4.9%	<b>34,489</b> 100%
<b>Bernalillo County</b>	<b>32,073</b> 4.5%	<b>32,073</b> 4.7%
<b>San Miguel County</b>	<b>27,201</b> 3.8%	<b>27,201</b> 100%
<b>Los Alamos County</b>	<b>19,419</b> 2.7%	<b>19,419</b> 100%
<b>Colfax County</b>	<b>12,387</b> 1.7%	<b>12,387</b> 100%
<b>Roosevelt County</b>	<b>12,176</b> 1.7%	<b>12,176</b> 63.4%
<b>Quay County</b>	<b>8,746</b> 1.2%	<b>8,746</b> 100%
<b>Mora County</b>	<b>4,189</b> 0.6%	<b>4,189</b> 100%
<b>Union County</b>	<b>4,079</b> 0.6%	<b>4,079</b> 100%
<b>Harding County</b>	<b>657</b> 0.1%	<b>657</b> 100%

## New Mexico Redistricting A Vs B Report

A: Passed SBI Congressional Boundaries (2022-present)

B: Counties

**Passed Congressional District: 1      Total Population: 705,832**

County	How much of this District is in:	This District consists of this much of:
<b>Bernalillo County</b>	<b>486,295</b> 68.9%	<b>486,295</b> 71.9%
<b>Sandoval County</b>	<b>128,705</b> 18.2%	<b>128,705</b> 86.5%
<b>Valencia County</b>	<b>33,843</b> 4.8%	<b>33,843</b> 44.4%
<b>Lincoln County</b>	<b>20,269</b> 2.9%	<b>20,269</b> 100%
<b>Torrance County</b>	<b>15,045</b> 2.1%	<b>15,045</b> 100%
<b>Santa Fe County</b>	<b>9,549</b> 1.4%	<b>9,549</b> 6.2%
<b>Guadalupe County</b>	<b>4,452</b> 0.6%	<b>4,452</b> 100%
<b>Chaves County</b>	<b>3,967</b> 0.6%	<b>3,967</b> 6.1%
<b>Otero County</b>	<b>2,009</b> 0.3%	<b>2,009</b> 3%
<b>De Baca County</b>	<b>1,698</b> 0.2%	<b>1,698</b> 100%

**Passed Congressional District: 2      Total Population: 705,846**

County	How much of this District is in:	This District consists of this much of:
<b>Doña Ana County</b>	<b>219,561</b> 31.1%	<b>219,561</b> 100%
<b>Bernalillo County</b>	<b>190,149</b> 26.9%	<b>190,149</b> 28.1%
<b>Otero County</b>	<b>65,830</b> 9.3%	<b>65,830</b> 97%
<b>Eddy County</b>	<b>45,337</b> 6.4%	<b>45,337</b> 72.8%
<b>Valencia County</b>	<b>42,362</b> 6%	<b>42,362</b> 55.6%
<b>Grant County</b>	<b>28,185</b> 4%	<b>28,185</b> 100%
<b>Cibola County</b>	<b>27,172</b> 3.8%	<b>27,172</b> 100%
<b>Luna County</b>	<b>25,427</b> 3.6%	<b>25,427</b> 100%
<b>Lea County</b>	<b>19,038</b> 2.7%	<b>19,038</b> 25.6%
<b>Socorro County</b>	<b>16,595</b> 2.4%	<b>16,595</b> 100%
<b>Sierra County</b>	<b>11,576</b> 1.6%	<b>11,576</b> 100%
<b>McKinley County</b>	<b>6,693</b> 0.9%	<b>6,693</b> 9.2%
<b>Hidalgo County</b>	<b>4,178</b> 0.6%	<b>4,178</b> 100%
<b>Catron County</b>	<b>3,579</b> 0.5%	<b>3,579</b> 100%
<b>Chaves County</b>	<b>164</b> 0%	<b>164</b> 0.3%

Passed Congressional District: 3      Total Population: 705,844

County	How much of this District is in:	This District consists of this much of:
Santa Fe County	145,274      20.6%	145,274      93.8%
San Juan County	121,661      17.2%	121,661      100%
McKinley County	66,209      9.4%	66,209      90.8%
Chaves County	61,026      8.6%	61,026      93.7%
Lea County	55,417      7.9%	55,417      74.4%
Curry County	48,430      6.9%	48,430      100%
Rio Arriba County	40,363      5.7%	40,363      100%
Taos County	34,489      4.9%	34,489      100%
San Miguel County	27,201      3.9%	27,201      100%
Sandoval County	20,129      2.9%	20,129      13.5%
Los Alamos County	19,419      2.8%	19,419      100%
Roosevelt County	19,191      2.7%	19,191      100%
Eddy County	16,977      2.4%	16,977      27.2%
Colfax County	12,387      1.8%	12,387      100%
Quay County	8,746      1.2%	8,746      100%
Mora County	4,189      0.6%	4,189      100%
Union County	4,079      0.6%	4,079      100%
Harding County	657      0.1%	657      100%

## New Mexico Redistricting A Vs B Report

A: Passed SBI Congressional Districts (2022-present)

B: Cities & Census Places (over 2,500 population)



# Passed SB1 Congressional District: 1

Census Place	How much of the District is in:	The District consists of this much of:
<b>Albuquerque</b>	<b>428,643</b> 68.8%	<b>428,643</b> 75.9%
<b>Rio Rancho</b>	<b>102,051</b> 16.4%	<b>102,051</b> 98.1%
<b>North Valley</b>	<b>11,149</b> 1.8%	<b>11,149</b> 100%
<b>Bernalillo</b>	<b>8,976</b> 1.4%	<b>8,976</b> 100%
<b>Corrales</b>	<b>8,493</b> 1.4%	<b>8,493</b> 100%
<b>Ruidoso</b>	<b>7,679</b> 1.2%	<b>7,679</b> 100%
<b>Edgewood</b>	<b>6,174</b> 1%	<b>6,174</b> 100%
<b>Los Ranchos de Albuquerque</b>	<b>5,874</b> 0.9%	<b>5,874</b> 100%
<b>Placitas</b>	<b>5,041</b> 0.8%	<b>5,041</b> 91.2%
<b>Meadow Lake</b>	<b>4,573</b> 0.7%	<b>4,573</b> 100%
<b>El Cerro Mission</b>	<b>4,566</b> 0.7%	<b>4,566</b> 100%
<b>Bosque Farms</b>	<b>4,020</b> 0.6%	<b>4,020</b> 100%
<b>Kirtland AFB</b>	<b>3,838</b> 0.6%	<b>3,838</b> 100%
<b>Peralta</b>	<b>3,342</b> 0.5%	<b>3,342</b> 100%
<b>Paradise Hills</b>	<b>3,338</b> 0.5%	<b>3,338</b> 77.1%
<b>Sandia Heights</b>	<b>3,273</b> 0.5%	<b>3,273</b> 100%
<b>El Cerro</b>	<b>2,946</b> 0.5%	<b>2,946</b> 100%
<b>Santa Rosa</b>	<b>2,850</b> 0.5%	<b>2,850</b> 100%
<b>Ruidoso Downs</b>	<b>2,620</b> 0.4%	<b>2,620</b> 100%
<b>Los Lunas</b>	<b>2,066</b> 0.3%	<b>2,066</b> 12%

# Passed SB1 Congressional District: 1

Census Place      How much of the District is in:

The District consists of this much of:

<b>Roswell</b>	<b>906</b>	<b>0.1%</b>	<b>906</b>	<b>1.9%</b>
<b>Rio Communities</b>	<b>809</b>	<b>0.1%</b>	<b>809</b>	<b>16.4%</b>
<b>South Valley</b>	<b>0</b>	<b>0%</b>	<b>0</b>	<b>0%</b>

## Passed SB1 Congressional District: 2

Census Place	How much of the District is in:	The District consists of this much of:
<b>Albuquerque</b>	<b>135,916</b> 26.6%	<b>135,916</b> 24.1%
<b>Las Cruces</b>	<b>111,385</b> 21.8%	<b>111,385</b> 100%
<b>South Valley</b>	<b>38,338</b> 7.5%	<b>38,338</b> 100%
<b>Carlsbad</b>	<b>32,238</b> 6.3%	<b>32,238</b> 100%
<b>Alamogordo</b>	<b>30,898</b> 6.1%	<b>30,898</b> 100%
<b>Sunland Park</b>	<b>16,702</b> 3.3%	<b>16,702</b> 100%
<b>Chaparral</b>	<b>16,551</b> 3.2%	<b>16,551</b> 100%
<b>Los Lunas</b>	<b>15,176</b> 3%	<b>15,176</b> 88%
<b>Deming</b>	<b>14,758</b> 2.9%	<b>14,758</b> 100%
<b>Hobbs</b>	<b>11,430</b> 2.2%	<b>11,430</b> 28.2%
<b>Silver City</b>	<b>9,704</b> 1.9%	<b>9,704</b> 100%
<b>Grants</b>	<b>9,163</b> 1.8%	<b>9,163</b> 100%
<b>Socorro</b>	<b>8,707</b> 1.7%	<b>8,707</b> 100%
<b>Anthony</b>	<b>8,693</b> 1.7%	<b>8,693</b> 100%
<b>Belén</b>	<b>7,360</b> 1.4%	<b>7,360</b> 100%
<b>Truth or Consequences</b>	<b>6,052</b> 1.2%	<b>6,052</b> 100%
<b>Zuni Pueblo</b>	<b>6,025</b> 1.2%	<b>6,025</b> 97.6%
<b>Santa Teresa</b>	<b>5,044</b> 1%	<b>5,044</b> 100%
<b>Los Chaves</b>	<b>4,997</b> 1%	<b>4,997</b> 100%
<b>Rio Communities</b>	<b>4,117</b> 0.8%	<b>4,117</b> 83.6%

# Passed SB1 Congressional District: 2

Census Place      How much of the District is in:

The District consists of this much of:

Census Place	How much of the District is in:	The District consists of this much of:
<b>Holloman AFB</b>	<b>3,810</b> 0.7%	<b>3,810</b> 100%
<b>Eunice</b>	<b>3,056</b> 0.6%	<b>3,056</b> 100%
<b>University Park</b>	<b>3,007</b> 0.6%	<b>3,007</b> 100%
<b>Vado</b>	<b>2,930</b> 0.6%	<b>2,930</b> 100%
<b>Tularosa</b>	<b>2,553</b> 0.5%	<b>2,553</b> 100%
<b>Paradise Hills</b>	<b>991</b> 0.2%	<b>991</b> 22.9%
<b>Placitas</b>	<b>488</b> 0.1%	<b>488</b> 8.8%
<b>Artesia</b>	<b>194</b> 0%	<b>194</b> 1.5%
<b>Rio Rancho</b>	<b>0</b> 0%	<b>0</b> 0%

## Passed SB1 Congressional District: 3

Census Place	How much of the District is in:	The District consists of this much of:
<b>Santa Fe</b>	<b>87,505</b> 19.9%	<b>87,505</b> 100%
<b>Roswell</b>	<b>47,516</b> 10.8%	<b>47,516</b> 98.1%
<b>Farrington</b>	<b>46,624</b> 10.6%	<b>46,624</b> 100%
<b>Clovis</b>	<b>38,567</b> 8.8%	<b>38,567</b> 100%
<b>Hobbs</b>	<b>29,078</b> 6.6%	<b>29,078</b> 71.8%
<b>Gallup</b>	<b>21,899</b> 5%	<b>21,899</b> 100%
<b>Los Alamos</b>	<b>13,179</b> 3%	<b>13,179</b> 100%
<b>Las Vegas</b>	<b>13,166</b> 3%	<b>13,166</b> 100%
<b>Artesia</b>	<b>12,681</b> 2.9%	<b>12,681</b> 98.5%
<b>Portales</b>	<b>12,137</b> 2.8%	<b>12,137</b> 100%
<b>Lovington</b>	<b>11,668</b> 2.7%	<b>11,668</b> 100%
<b>Española</b>	<b>10,526</b> 2.4%	<b>10,526</b> 100%
<b>Shiprock</b>	<b>7,718</b> 1.8%	<b>7,718</b> 100%
<b>Bloomfield</b>	<b>7,421</b> 1.7%	<b>7,421</b> 100%
<b>North Hobbs</b>	<b>6,529</b> 1.5%	<b>6,529</b> 100%
<b>Taos</b>	<b>6,474</b> 1.5%	<b>6,474</b> 100%
<b>Aztec</b>	<b>6,201</b> 1.4%	<b>6,201</b> 100%
<b>Raton</b>	<b>6,041</b> 1.4%	<b>6,041</b> 100%
<b>Eldorado at Santa Fe</b>	<b>6,005</b> 1.4%	<b>6,005</b> 100%
<b>White Rock</b>	<b>5,852</b> 1.3%	<b>5,852</b> 100%

## Passed SB1 Congressional District: 3

Census Place	How much of the District is in:	The District consists of this much of:
<b>Tucumcari</b>	<b>5,278</b> 1.2%	<b>5,278</b> 100%
<b>Crouch Mesa</b>	<b>5,257</b> 1.2%	<b>5,257</b> 100%
<b>Lee Acres</b>	<b>4,170</b> 0.9%	<b>4,170</b> 100%
<b>La Cienega</b>	<b>3,885</b> 0.9%	<b>3,885</b> 100%
<b>Chimayo</b>	<b>3,077</b> 0.7%	<b>3,077</b> 100%
<b>Agua Fria</b>	<b>2,913</b> 0.7%	<b>2,913</b> 100%
<b>Crownpoint</b>	<b>2,900</b> 0.7%	<b>2,900</b> 100%
<b>Dulce</b>	<b>2,788</b> 0.6%	<b>2,788</b> 100%
<b>West Hammond</b>	<b>2,724</b> 0.6%	<b>2,724</b> 100%
<b>Ranchos de Taos</b>	<b>2,707</b> 0.6%	<b>2,707</b> 100%
<b>Clayton</b>	<b>2,643</b> 0.6%	<b>2,643</b> 100%
<b>San Felipe Pueblo</b>	<b>2,542</b> 0.6%	<b>2,542</b> 100%
<b>Rio Rancho</b>	<b>1,995</b> 0.5%	<b>1,995</b> 1.9%
<b>Zuni Pueblo</b>	<b>151</b> 0%	<b>151</b> 2.4%
<b>Bernalillo</b>	<b>1</b> 0%	<b>1</b> 0%
<b>Placitas</b>	<b>0</b> 0%	<b>0</b> 0%

## New Mexico Redistricting A Vs B Report

A: Previous 2011 Congressional Districts (2012-2020)

B: Passed SB 1 Districts (2022 - Present)

**Previous 2011 Congressional District: 01**

**Total Population: 694,577**

Passed SBI District      How much of the original District is in:

The original District consists of this much of:

<b>1</b>	<b>528,092</b>	74.8%
<b>2</b>	<b>166,485</b>	23.6%
<b>3</b>	<b>0</b>	0%

<b>528,092</b>	76%
<b>166,485</b>	24%
<b>0</b>	0%



Previous 2011 Congressional District: 02

Total Population: 714,022

Passed SBI District

The original District consists of this much of:

How much of the original District is in:

2	518,069	73.4%
3	140,435	19.9%
1	55,518	7.9%

518,069	72.6%
140,435	19.7%
55,518	7.8%

**Previous 2011 Congressional District: 03**

**Total Population: 708,923**

Passed SBI District      How much of the original District is in:

The original District consists of this much of:

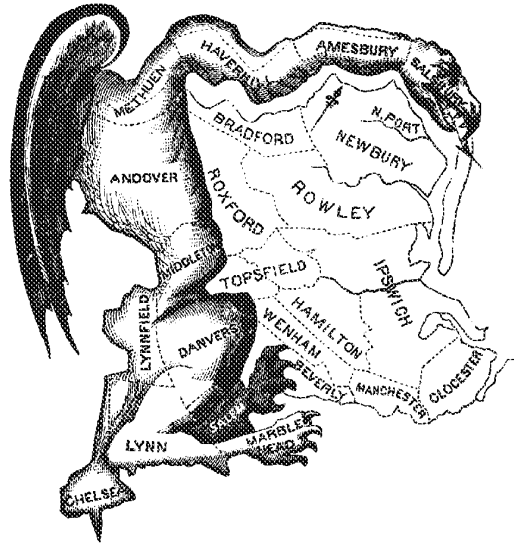
<b>3</b>	<b>565,409</b>	<b>80.1%</b>
<b>1</b>	<b>122,222</b>	<b>17.3%</b>
<b>2</b>	<b>21,292</b>	<b>3%</b>

<b>565,409</b>	<b>79.8%</b>
<b>122,222</b>	<b>17.2%</b>
<b>21,292</b>	<b>3%</b>

# Measuring Compactness

## The Original Gerrymander

The term Gerrymandering refers to the act of manipulating the boundaries of voting districts to achieve some political advantage. The term was coined during tenure Massachusetts Governor Elbridge Gerry, who in 1812 redrew the voting districts for the Massachusetts State Senate to favor his own party. One district caught the attention of the Boston Gazette, who published a political cartoon likening the district's shape to that of a salamander and labeling the phenomenon "The Gerry-mander" after the Governor.



The Original "Gerry-mander"

## Compactness and Geographic Gerrymandering

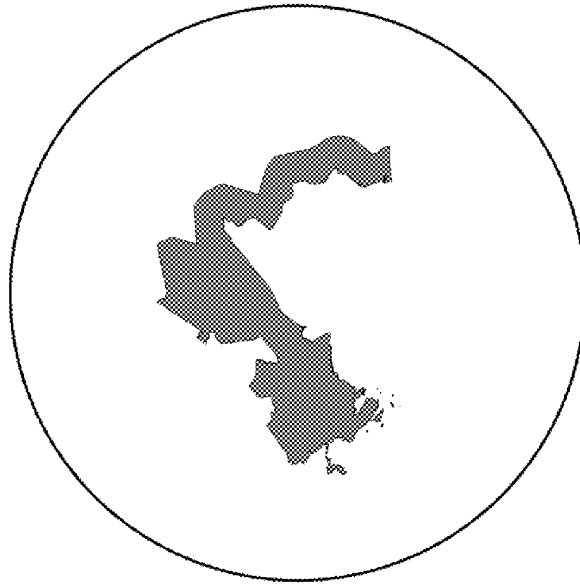
Compactness measures have been widely used to assess geographic gerrymandering. Although it is generally accepted that legislative districts should be "compact" the definition of compactness has proved elusive. Numerous, sometimes conflicting, measures of compactness across a number of theoretical dimensions have been proposed in the academic literature. These measures are typically based on comparing geometric features of the district (e.g. perimeters, areas) to the features of a related base geometric object (e.g. minimum bounding circle, convex hull).

Here we provide six of the most frequently used measures of compactness used by academic researchers: (1) Polsby-Popper (Polsby and Popper, 1991); (2) Schwartzberg (1965); (3) Reock (1961); (4) Convex Hull; (5) X-Symmetry; and (6) Length-Width Ratio (C.C. Harris, 1964). As no one threshold for determining if a district has been gerrymandered exists we provide three cutoffs from which to compare scores from different districts (1) the scores for the original gerrymander, (2) the state mean, and (3) the state median.

### Polsby-Popper

The Polsby-Popper ( $PP$ ) measure (polsby & Popper, 1991) is the ratio of the area of the district ( $A_D$ ) to the area of a circle whose circumference is equal to the perimeter of the district ( $P_D$ ). A district's Polsby-Popper score falls with the range of  $[0, 1]$  and a score closer to 1 indicates a more compact district.

$$PP = 4\pi \times \frac{A_D}{P_D^2}$$

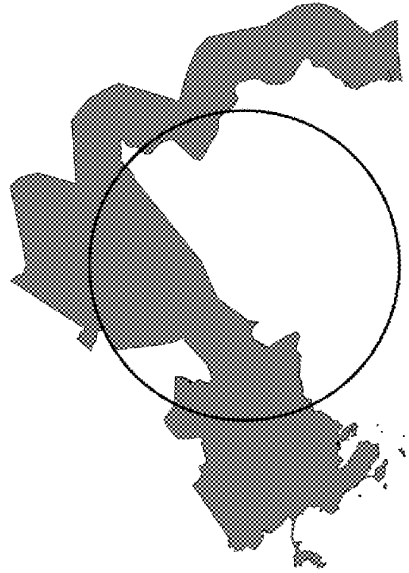


Circumference Equal to District Perimeter

## Schwartzberg

The Schwartzberg score ( $S$ ) compactness score is the ratio of the perimeter of the district ( $P_D$ ) to the circumference of a circle whose area is equal to the area of the district. A district's Schwartzberg score as calculated below falls with the range of  $[0, 1]$  and a score closer to 1 indicates a more compact district.

$$S = \frac{1}{P_D/C} = \frac{1}{P_D/(2\pi\sqrt{A_D/\pi})}$$

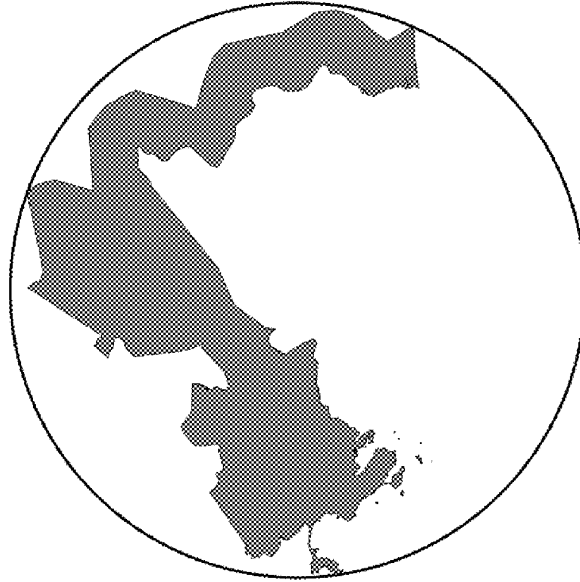


Circle with Area Equivalent to the District

## Reock Score

The Reock Score ( $R$ ) is the ratio of the area of the district  $A_D$  to the area of a minimum bounding circle ( $A_{MBC}$ ) that encloses the district's geometry. A district's Reock score falls within the range of  $[0, 1]$  and a score closer to 1 indicates a more compact district.

$$R = \frac{A_D}{A_{MBC}}$$

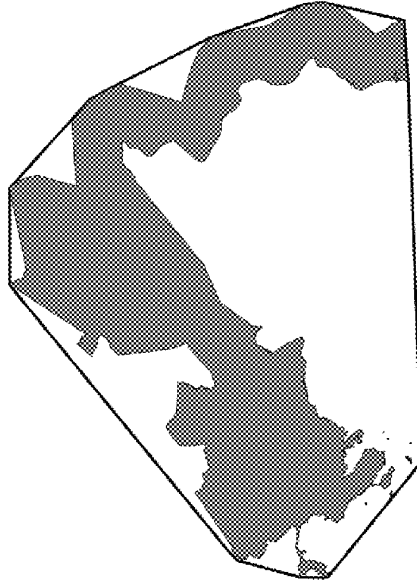


Minimum Bounding Circle of Original Gerrymander

## Convex Hull

The Convex Hull score is a ratio of the area of the district to the area of the minimum convex polygon that can enclose the district's geometry. A district's Convex Hull score falls within the range of  $[0, 1]$  and a score closer to 1 indicates a more compact district.

$$CH = \frac{A_D}{A_{MCP}}$$



Convex Hull of Original Gerrymander

## X-Symmetry

X-Symmetry is calculated by dividing the overlapping area  $A_O$ , between a district and its reflection across the horizontal axis by the area of the original district  $A_D$ . A district's X-Symmetry score falls with the range of  $[0, 1]$  and a score closer to 1 indicates a more compact district.

$$XS = \frac{A_O}{A_D}$$



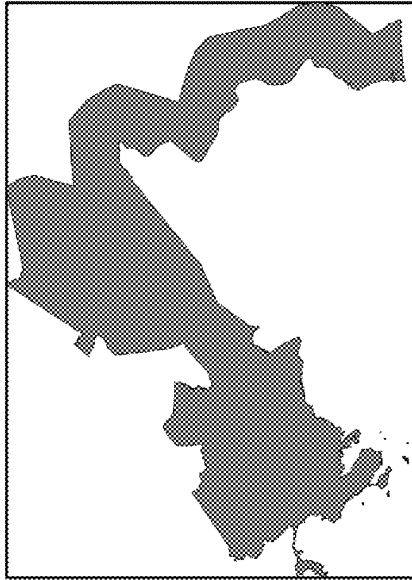
Area of Overlapping X-Symmetry

## Length-Width

The Length-Width Ratio ( $LW$ ) is calculated as the ratio of the length ( $L_{MBR}$ ) to the width ( $W_{MBR}$ ) of the minimum bounding rectangle surrounding the district. To orient the Length-Width score towards other compactness measures the maximum value of a district's width or length has been set to the denominator, making scores close to 1 more compact, and scores closer to zero less compact.

$$LW = \frac{W_{MBR}}{L_{MBR}}$$





Minimum Bounding Rectangle of Original Gerrymander

## References

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Reock, Ernest C. 1961. "A note: Measuring compactness as a requirement of legislative apportionment." *Midwest Journal of Political Science* 1(5), 70–74.

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Nationwide\_Compactness\_wStates.xlsx  
Using Coastal Boundary Files

State	District	Perimeter (miles)	Area (sq miles)	Polsby Popper	Schwartzberg	Reock	Length-Width	Convex Hull
Wyoming	01	1261.27	97809.44	0.77	0.88	0.55	0.57	1.00
<b>Wyoming</b>	<b>SW</b>	<b>1,261.27</b>	<b>97,809.44</b>	<b>0.77</b>	<b>0.88</b>	<b>0.55</b>	<b>0.57</b>	<b>1.00</b>
Indiana	07	70.71	282.84	0.71	0.84	0.51	0.54	0.97
Ohio	14	223.20	2481.84	0.63	0.79	0.52	0.76	0.91
Nevada	02	1189.76	65518.00	0.58	0.76	0.49	0.58	0.89
Florida	15	121.20	674.87	0.58	0.76	0.53	0.67	0.88
Michigan	07	251.62	2814.38	0.56	0.75	0.43	0.47	0.90
Colorado	05	182.13	1474.30	0.56	0.75	0.53	0.76	0.91
Indiana	05	222.97	2209.31	0.56	0.75	0.49	0.63	0.84
South Dakota	01	1317.98	77115.61	0.56	0.75	0.41	0.44	0.93
<b>South Dakota</b>	<b>SW</b>	<b>1,317.98</b>	<b>77,115.61</b>	<b>0.56</b>	<b>0.75</b>	<b>0.41</b>	<b>0.44</b>	<b>0.93</b>
Minnesota	04	87.61	333.99	0.55	0.74	0.45	0.53	0.89
Texas	19	845.62	30260.41	0.53	0.73	0.46	0.65	0.84
Indiana	03	324.93	4445.57	0.53	0.73	0.49	0.60	0.93
Indiana	02	323.36	4397.73	0.53	0.73	0.63	0.93	0.88
Missouri	07	373.82	5864.90	0.53	0.73	0.45	0.48	0.90
North Dakota	01	1314.27	70694.70	0.52	0.72	0.43	0.41	0.99
<b>North Dakota</b>	<b>SW</b>	<b>1,314.27</b>	<b>70,694.70</b>	<b>0.52</b>	<b>0.72</b>	<b>0.43</b>	<b>0.41</b>	<b>0.99</b>
California	11	31.81	40.55	0.50	0.71	0.48	0.63	0.82
Montana	02	1629.20	106260.33	0.50	0.71	0.45	0.44	0.95
Nevada	04	1025.53	42008.70	0.50	0.71	0.40	0.53	0.92
Washington	05	689.81	18983.52	0.50	0.71	0.58	0.82	0.89
Ohio	03	74.54	221.10	0.50	0.71	0.59	0.69	0.94
New York	26	108.54	460.74	0.49	0.70	0.55	0.75	0.87
Michigan	12	70.50	191.56	0.49	0.70	0.60	0.90	0.84
Florida	06	313.53	3773.30	0.48	0.70	0.73	0.88	0.92
Florida	05	133.98	683.67	0.48	0.69	0.51	0.61	0.87
Utah	01	547.58	11356.24	0.48	0.69	0.36	0.42	0.86
North Carolina	04	235.63	2088.27	0.47	0.69	0.41	0.62	0.85
Florida	16	180.75	1228.19	0.47	0.69	0.48	0.93	0.75
Florida	21	212.24	1688.43	0.47	0.69	0.48	0.75	0.80
Indiana	01	172.84	1114.97	0.47	0.69	0.38	0.64	0.76
Florida	09	222.59	1846.11	0.47	0.68	0.49	0.66	0.86
<b>Indiana</b>	<b>SW</b>	<b>336.75</b>	<b>4,021.13</b>	<b>0.47</b>	<b>0.67</b>	<b>0.47</b>	<b>0.66</b>	<b>0.83</b>
Florida	03	458.71	7537.03	0.45	0.67	0.55	0.83	0.90
Kansas	03	253.07	2293.77	0.45	0.67	0.40	0.60	0.79
Florida	24	59.04	124.07	0.45	0.67	0.47	0.72	0.89
Kansas	04	641.35	14637.46	0.45	0.67	0.34	0.35	0.88
Florida	01	319.52	3578.44	0.44	0.66	0.44	0.46	0.86
Michigan	04	265.80	2443.97	0.44	0.66	0.38	0.60	0.76
Ohio	10	169.91	996.60	0.43	0.66	0.43	0.50	0.87
California	23	722.42	17985.35	0.43	0.66	0.51	0.54	0.91
Arkansas	03	351.20	4244.95	0.43	0.66	0.46	0.92	0.83
<b>Nevada</b>	<b>SW</b>	<b>676.53</b>	<b>27,642.59</b>	<b>0.44</b>	<b>0.66</b>	<b>0.43</b>	<b>0.59</b>	<b>0.85</b>
Kentucky	03	97.22	323.09	0.43	0.66	0.36	0.55	0.78
Minnesota	05	63.36	137.19	0.43	0.66	0.60	0.77	0.86
Nevada	01	173.07	1018.89	0.43	0.65	0.56	0.87	0.89
Oregon	02	1464.27	72876.55	0.43	0.65	0.40	0.53	0.87
Pennsylvania	15	621.56	13083.10	0.43	0.65	0.46	0.47	0.86
Pennsylvania	02	44.67	67.46	0.43	0.65	0.33	0.40	0.84
North Carolina	06	227.63	1744.26	0.42	0.65	0.43	0.57	0.79
Florida	18	459.48	7085.31	0.42	0.65	0.45	0.65	0.82
Indiana	06	314.01	3298.23	0.42	0.65	0.41	0.50	0.78
Iowa	02	624.17	12985.59	0.42	0.65	0.45	0.66	0.80
Pennsylvania	07	188.73	1184.47	0.42	0.65	0.46	0.69	0.78

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State	District	Perimeter (miles)	Area (sq miles)	Polsby Popper	Schwartzberg	Reock	Length-Width	Convex Hull
Nebraska	02	194.06	1248.99	0.42	0.65	0.38	0.40	0.88
New York	22	290.20	2767.45	0.41	0.64	0.42	0.56	0.84
Michigan	11	101.15	336.10	0.41	0.64	0.42	0.56	0.82
Michigan	10	83.87	229.37	0.41	0.64	0.40	0.61	0.75
Indiana	04	433.56	6126.14	0.41	0.64	0.43	0.67	0.84
New York	16	63.92	132.79	0.41	0.64	0.60	0.80	0.88
Florida	08	246.21	1964.84	0.41	0.64	0.31	0.39	0.75
Florida	07	171.58	941.03	0.40	0.63	0.47	0.72	0.83
Pennsylvania	16	349.74	3898.15	0.40	0.63	0.50	0.57	0.86
New York	09	21.83	15.16	0.40	0.63	0.56	0.67	0.83
Connecticut	02	256.63	2094.61	0.40	0.63	0.56	0.79	0.84
Michigan	02	559.31	9915.62	0.40	0.63	0.57	0.85	0.78
Wisconsin	02	371.96	4368.26	0.40	0.63	0.58	0.77	0.88
Florida	25	81.27	208.49	0.40	0.63	0.45	0.60	0.83
Pennsylvania	01	151.06	718.12	0.40	0.63	0.32	0.46	0.82
Arizona	03	81.46	206.47	0.39	0.63	0.45	0.61	0.83
Pennsylvania	13	455.01	6403.49	0.39	0.62	0.46	0.52	0.83
New Jersey	01	110.99	380.35	0.39	0.62	0.46	0.74	0.80
Georgia	07	102.62	322.70	0.39	0.62	0.42	0.58	0.82
New York	17	172.74	904.75	0.38	0.62	0.44	0.64	0.83
Utah	02	1149.99	40040.15	0.38	0.62	0.50	0.98	0.81
Missouri	05	119.37	431.41	0.38	0.62	0.42	0.69	0.84
Mississippi	01	577.99	10094.62	0.38	0.62	0.47	0.85	0.82
New York	20	231.26	1610.65	0.38	0.62	0.47	0.64	0.79
Oregon	01	339.35	3453.64	0.38	0.61	0.48	0.85	0.79
Arizona	01	232.88	1614.18	0.37	0.61	0.41	0.54	0.84
North Carolina	12	124.41	460.27	0.37	0.61	0.61	0.83	0.84
Pennsylvania	11	228.11	1545.08	0.37	0.61	0.37	0.49	0.88
Florida	10	95.82	272.54	0.37	0.61	0.38	0.49	0.75
Georgia	14	333.27	3293.01	0.37	0.61	0.45	0.72	0.80
Delaware	01	262.73	2044.03	0.37	0.61	0.31	0.45	0.75
Delaware	SW	262.73	2,044.03	0.37	0.61	0.31	0.45	0.75
Oregon	06	253.82	1906.82	0.37	0.61	0.47	0.72	0.80
Minnesota	02	247.33	1809.86	0.37	0.61	0.35	0.43	0.85
Wisconsin	05	274.59	2219.22	0.37	0.61	0.56	0.74	0.86
Vermont	01	571.97	9601.95	0.37	0.61	0.42	0.64	0.82
Vermont	SW	571.97	9,601.95	0.37	0.61	0.42	0.64	0.82
Florida	17	237.18	1646.83	0.37	0.61	0.26	0.40	0.76
Florida	22	94.83	262.66	0.37	0.61	0.40	0.83	0.69
California	27	229.64	1528.47	0.36	0.60	0.45	0.56	0.89
Texas	27	628.26	11423.82	0.36	0.60	0.48	0.65	0.81
Florida	12	249.54	1784.94	0.36	0.60	0.49	0.86	0.75
Michigan	08	282.47	2270.96	0.36	0.60	0.46	0.61	0.76
Florida	SW	238.88	2,093.29	0.37	0.60	0.42	0.64	0.77
Florida	11	254.39	1836.15	0.36	0.60	0.52	0.85	0.82
Virginia	05	582.56	9609.92	0.36	0.60	0.46	0.74	0.89
Mississippi	04	510.30	7368.86	0.36	0.60	0.55	0.86	0.87
Iowa	03	619.59	10748.55	0.35	0.59	0.36	0.51	0.77
North Carolina	07	434.16	5274.03	0.35	0.59	0.45	0.66	0.78
Kansas	01	1337.73	49841.14	0.35	0.59	0.32	0.44	0.82
New York	25	174.78	848.78	0.35	0.59	0.24	0.35	0.76
Oregon	03	227.17	1427.05	0.35	0.59	0.29	0.37	0.78
Utah	SW	827.64	21,224.44	0.35	0.59	0.45	0.73	0.78
Indiana	09	471.46	6098.47	0.35	0.59	0.47	0.75	0.77
South Carolina	03	461.70	5845.83	0.35	0.59	0.43	0.55	0.85

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State	District	Perimeter (miles)	Area (sq miles)	Polsby Popper	Schwartzberg	Reock	Length-Width	Convex Hull
Oklahoma	05	362.51	3584.18	0.34	0.59	0.47	0.74	0.76
North Carolina	10	332.63	2999.46	0.34	0.58	0.41	0.66	0.79
Texas	03	235.31	1495.99	0.34	0.58	0.44	0.52	0.85
Michigan	SW	438.90	4,465.82	0.35	0.58	0.38	0.56	0.75
Kansas	SW	841.21	20,569.47	0.35	0.58	0.38	0.58	0.78
Montana	SW	1,619.86	73,517.98	0.35	0.58	0.40	0.52	0.83
Iowa	SW	732.90	14,068.13	0.33	0.58	0.38	0.61	0.74
California	14	149.43	585.02	0.33	0.57	0.32	0.47	0.74
Florida	26	303.71	2405.54	0.33	0.57	0.27	0.40	0.77
Oklahoma	01	205.80	1103.44	0.33	0.57	0.39	0.65	0.74
North Carolina	08	379.58	3747.35	0.33	0.57	0.54	0.98	0.80
Washington	03	536.89	7482.34	0.33	0.57	0.36	0.49	0.79
Colorado	02	666.87	11539.73	0.33	0.57	0.59	0.66	0.90
Nebraska	SW	805.69	25,782.38	0.33	0.57	0.35	0.47	0.81
Michigan	09	425.62	4680.23	0.33	0.57	0.59	0.83	0.84
Pennsylvania	03	46.08	54.80	0.32	0.57	0.47	0.80	0.72
Florida	04	271.38	1895.23	0.32	0.57	0.42	0.61	0.78
North Carolina	02	140.47	507.43	0.32	0.57	0.34	0.51	0.79
California	06	99.47	254.26	0.32	0.57	0.27	0.37	0.84
Oregon	SW	611.04	16,178.11	0.33	0.57	0.41	0.65	0.76
Georgia	05	98.83	250.22	0.32	0.57	0.60	0.92	0.80
Idaho	02	1311.15	43663.14	0.32	0.57	0.50	0.70	0.81
Alabama	05	372.29	3501.96	0.32	0.56	0.25	0.32	0.80
Arizona	08	151.42	578.79	0.32	0.56	0.50	0.89	0.76
Michigan	06	198.96	999.22	0.32	0.56	0.33	0.48	0.73
Florida	27	73.01	134.46	0.32	0.56	0.43	0.71	0.67
Pennsylvania	SW	269.16	2,664.89	0.32	0.56	0.42	0.60	0.78
Minnesota	SW	558.84	10,525.28	0.32	0.56	0.40	0.57	0.77
Wisconsin	04	75.53	142.35	0.31	0.56	0.50	0.74	0.85
Arizona	05	127.57	405.75	0.31	0.56	0.51	0.78	0.73
Nebraska	03	1677.30	70044.81	0.31	0.56	0.29	0.34	0.85
Ohio	04	445.58	4921.23	0.31	0.56	0.30	0.40	0.73
California	22	417.92	4320.67	0.31	0.56	0.48	0.64	0.79
North Carolina	11	502.21	6228.24	0.31	0.56	0.31	0.38	0.88
Missouri	SW	537.03	8,713.32	0.32	0.56	0.42	0.62	0.79
Missouri	01	102.55	258.53	0.31	0.56	0.57	0.96	0.77
North Carolina	09	387.87	3679.48	0.31	0.55	0.52	0.84	0.79
Ohio	12	480.16	5633.28	0.31	0.55	0.61	0.87	0.78
Ohio	02	552.08	7441.88	0.31	0.55	0.38	0.51	0.77
Connecticut	04	139.20	471.78	0.31	0.55	0.29	0.48	0.68
New York	23	515.44	6462.20	0.31	0.55	0.22	0.34	0.73
Texas	11	892.12	19344.55	0.31	0.55	0.22	0.35	0.74
Maryland	08	107.42	280.29	0.31	0.55	0.59	0.86	0.78
Virginia	08	80.22	156.32	0.31	0.55	0.43	0.55	0.78
Texas	21	510.82	6332.88	0.31	0.55	0.36	0.48	0.83
Colorado	03	1439.92	50086.60	0.30	0.55	0.33	0.67	0.76
Pennsylvania	14	446.33	4808.87	0.30	0.55	0.42	0.60	0.76
Missouri	04	779.71	14664.47	0.30	0.55	0.51	0.82	0.79
Missouri	06	924.42	20483.43	0.30	0.55	0.25	0.33	0.82
Michigan	03	186.33	831.40	0.30	0.55	0.29	0.50	0.64
<b>New Mexico</b>	<b>02</b>	<b>1467.61</b>	<b>51552.50</b>	<b>0.30</b>	<b>0.55</b>	<b>0.35</b>	<b>0.65</b>	<b>0.75</b>
New York	11	53.29	67.95	0.30	0.55	0.26	0.41	0.72
<b>New Mexico</b>	<b>01</b>	<b>857.95</b>	<b>17589.64</b>	<b>0.30</b>	<b>0.55</b>	<b>0.43</b>	<b>0.69</b>	<b>0.77</b>
New York	18	293.27	2050.43	0.30	0.55	0.37	0.51	0.77

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State	District	Perimeter (miles)	Area (sq miles)	Polsby Popper	Schwartzberg	Reock	Length-Width	Convex Hull
California	26	268.99	1724.50	0.30	0.55	0.43	0.60	0.86
Arizona	02	1568.17	58490.56	0.30	0.55	0.60	0.85	0.84
North Carolina	13	280.16	1849.90	0.30	0.54	0.46	0.55	0.83
New York	12	19.48	8.93	0.30	0.54	0.40	0.48	0.83
California	37	47.41	52.83	0.30	0.54	0.44	0.62	0.78
Virginia	04	388.41	3529.21	0.29	0.54	0.49	0.76	0.85
Minnesota	03	148.69	516.99	0.29	0.54	0.51	0.77	0.73
Missouri	02	279.13	1821.36	0.29	0.54	0.41	0.55	0.80
Pennsylvania	06	200.47	935.74	0.29	0.54	0.43	0.84	0.73
Florida	13	112.66	294.71	0.29	0.54	0.27	0.35	0.79
Tennessee	08	635.74	9379.35	0.29	0.54	0.56	0.77	0.87
Colorado	04	1180.56	32295.80	0.29	0.54	0.45	0.82	0.83
Ohio	SW	326.58	2,754.86	0.30	0.54	0.37	0.54	0.74
<b>New Mexico</b>	SW	<b>1,298.78</b>	<b>40,530.57</b>	<b>0.29</b>	<b>0.54</b>	<b>0.37</b>	<b>0.68</b>	<b>0.73</b>
North Carolina	SW	447.94	3,553.81	0.30	0.54	0.41	0.61	0.78
Minnesota	01	736.91	12454.82	0.29	0.54	0.17	0.23	0.77
Iowa	01	696.34	10997.57	0.29	0.53	0.28	0.50	0.68
Virginia	10	274.39	1705.78	0.29	0.53	0.48	0.69	0.74
Florida	02	674.11	10272.07	0.28	0.53	0.34	0.46	0.74
Georgia	10	476.47	5125.88	0.28	0.53	0.51	0.74	0.81
South Carolina	07	494.22	5514.20	0.28	0.53	0.35	0.53	0.79
Oklahoma	SW	724.03	13,979.77	0.29	0.53	0.39	0.63	0.75
Utah	04	450.06	4541.06	0.28	0.53	0.47	0.81	0.71
Hawaii	01	82.53	152.52	0.28	0.53	0.26	0.56	0.61
Kentucky	05	728.56	11880.45	0.28	0.53	0.39	0.52	0.80
Ohio	08	284.18	1804.95	0.28	0.53	0.37	0.50	0.78
Pennsylvania	09	524.91	6153.48	0.28	0.53	0.47	0.74	0.74
Pennsylvania	08	356.88	2840.23	0.28	0.53	0.45	0.74	0.74
Massachusetts	01	321.01	2292.89	0.28	0.53	0.28	0.43	0.74
Texas	13	1260.63	35360.81	0.28	0.53	0.24	0.46	0.67
Georgia	12	666.11	9824.61	0.28	0.53	0.56	0.74	0.86
Illinois	02	421.54	3930.67	0.28	0.53	0.41	0.64	0.77
Illinois	14	301.07	1998.04	0.28	0.53	0.35	0.56	0.70
Florida	20	329.86	2397.24	0.28	0.53	0.50	0.84	0.77
Michigan	13	98.61	214.24	0.28	0.53	0.20	0.37	0.65
Virginia	03	127.14	355.22	0.28	0.53	0.34	0.54	0.67
Iowa	04	991.50	21540.81	0.28	0.53	0.44	0.75	0.73
Georgia	03	440.52	4249.29	0.28	0.53	0.47	0.81	0.82
Pennsylvania	10	243.12	1294.24	0.28	0.53	0.43	0.72	0.71
Arizona	SW	606.02	12,664.69	0.28	0.52	0.39	0.64	0.74
Michigan	05	499.29	5354.71	0.27	0.52	0.14	0.20	0.75
Oklahoma	02	1021.62	22414.35	0.27	0.52	0.48	0.74	0.81
Utah	03	1162.93	28960.33	0.27	0.52	0.46	0.72	0.75
Ohio	13	171.79	630.98	0.27	0.52	0.49	0.61	0.82
Washington	06	586.45	7343.90	0.27	0.52	0.40	0.59	0.81
Tennessee	01	457.36	4465.20	0.27	0.52	0.29	0.42	0.81
Illinois	10	158.50	534.76	0.27	0.52	0.25	0.47	0.71
Georgia	02	689.68	10119.75	0.27	0.52	0.50	0.66	0.80
Missouri	08	932.23	18484.53	0.27	0.52	0.42	0.65	0.73
<b>New Mexico</b>	<b>03</b>	<b>1570.77</b>	<b>52449.57</b>	<b>0.27</b>	<b>0.52</b>	<b>0.32</b>	<b>0.71</b>	<b>0.67</b>
Wisconsin	SW	535.92	7,018.91	0.27	0.52	0.42	0.64	0.76
Arkansas	02	507.14	5458.28	0.27	0.52	0.42	0.68	0.77
Tennessee	07	533.29	6034.41	0.27	0.52	0.42	0.73	0.78
Mississippi	SW	802.73	11,922.62	0.28	0.52	0.43	0.69	0.78

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State	District	Perimeter (miles)	Area (sq miles)	Polsby Popper	Schwartzberg	Reock	Length-Width	Convex Hull
Pennsylvania	05	106.29	239.58	0.27	0.52	0.36	0.65	0.72
Connecticut	SW	208.67	1,004.10	0.27	0.52	0.42	0.68	0.73
Virginia	11	109.84	254.33	0.27	0.52	0.54	0.85	0.77
Pennsylvania	17	207.81	909.07	0.26	0.51	0.42	0.58	0.76
Washington	08	689.25	9995.92	0.26	0.51	0.47	0.67	0.74
Arkansas	04	1050.10	23110.98	0.26	0.51	0.52	0.74	0.80
Illinois	12	826.69	14273.59	0.26	0.51	0.48	0.69	0.78
New York	19	619.98	7989.58	0.26	0.51	0.26	0.38	0.72
Wisconsin	01	275.35	1575.49	0.26	0.51	0.30	0.40	0.76
Wisconsin	06	507.94	5358.32	0.26	0.51	0.34	0.49	0.72
California	12	67.03	93.14	0.26	0.51	0.40	0.50	0.83
Georgia	SW	397.61	4,207.64	0.26	0.51	0.45	0.69	0.76
Texas	34	492.53	5010.49	0.26	0.51	0.41	0.58	0.73
Arkansas	SW	840.35	13,299.50	0.27	0.51	0.44	0.77	0.77
Texas	25	666.15	9135.52	0.26	0.51	0.40	0.66	0.71
Alabama	02	717.90	10524.22	0.26	0.51	0.48	0.73	0.76
Nebraska	01	545.72	6053.34	0.26	0.51	0.38	0.66	0.70
New York	21	916.26	17037.53	0.26	0.51	0.57	0.97	0.82
Kentucky	06	434.66	3831.54	0.26	0.51	0.44	0.63	0.80
Minnesota	08	1301.79	34310.16	0.25	0.50	0.30	0.57	0.69
Georgia	09	446.46	4005.43	0.25	0.50	0.33	0.55	0.70
Nevada	03	317.77	2024.75	0.25	0.50	0.24	0.36	0.71
California	52	84.55	143.19	0.25	0.50	0.37	0.72	0.75
Oklahoma	04	703.12	9890.05	0.25	0.50	0.39	0.62	0.76
Washington	10	199.35	791.03	0.25	0.50	0.28	0.34	0.80
California	35	94.52	177.42	0.25	0.50	0.30	0.52	0.71
Idaho	SW	1,477.40	41,783.98	0.25	0.50	0.39	0.55	0.77
West Virginia	01	856.28	14450.03	0.25	0.50	0.37	0.53	0.80
Connecticut	03	158.97	497.63	0.25	0.50	0.33	0.55	0.73
Alabama	03	655.70	8456.45	0.25	0.50	0.42	0.62	0.77
Tennessee	06	554.71	6044.48	0.25	0.50	0.31	0.44	0.77
Colorado	SW	584.50	13,011.81	0.27	0.50	0.40	0.65	0.76
New Jersey	05	186.18	677.85	0.25	0.50	0.24	0.37	0.68
California	07	190.18	707.00	0.25	0.50	0.27	0.51	0.64
Georgia	04	146.28	417.64	0.25	0.50	0.30	0.40	0.76
Colorado	07	607.75	7200.09	0.25	0.50	0.46	0.77	0.80
Mississippi	03	779.06	11822.98	0.25	0.50	0.36	0.55	0.69
Ohio	01	177.76	611.07	0.24	0.49	0.29	0.57	0.61
Nationwide		474.44	7147.79	0.26	0.49	0.37	0.59	0.72
Ohio	11	106.70	218.41	0.24	0.49	0.29	0.46	0.71
New York	07	34.22	22.27	0.24	0.49	0.38	0.64	0.69
Florida	19	225.23	960.95	0.24	0.49	0.23	0.47	0.61
California	09	270.33	1383.49	0.24	0.49	0.44	0.60	0.81
North Carolina	14	161.16	491.38	0.24	0.49	0.37	0.55	0.72
Washington	SW	485.97	6,812.30	0.25	0.49	0.38	0.57	0.74
New Jersey	03	242.63	1104.52	0.24	0.49	0.35	0.79	0.62
Oklahoma	03	1327.10	32906.84	0.24	0.48	0.22	0.38	0.67
Georgia	01	640.22	7640.09	0.23	0.48	0.47	0.66	0.78
Virginia	SW	409.89	3,704.82	0.24	0.48	0.36	0.58	0.73
South Carolina	04	259.25	1249.08	0.23	0.48	0.36	0.50	0.77
New York	SW	211.50	1,866.38	0.25	0.48	0.35	0.55	0.70
Oregon	04	798.78	11773.98	0.23	0.48	0.36	0.79	0.65
California	13	588.39	6349.22	0.23	0.48	0.39	0.54	0.78
Connecticut	05	264.24	1280.33	0.23	0.48	0.50	0.92	0.75

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State	District	Perimeter (miles)	Area (sq miles)	Polsby Popper	Schwartzberg	Reock	Length-Width	Convex Hull
New York	06	37.62	25.93	0.23	0.48	0.28	0.41	0.75
Texas	16	131.51	316.31	0.23	0.48	0.26	0.35	0.73
Washington	09	104.93	201.26	0.23	0.48	0.43	0.61	0.75
Washington	04	997.70	18188.08	0.23	0.48	0.40	0.77	0.69
California	10	175.54	560.98	0.23	0.48	0.39	0.53	0.74
Kentucky	SW	634.93	6,734.29	0.24	0.48	0.34	0.53	0.69
Texas	02	190.82	659.67	0.23	0.48	0.39	0.71	0.69
Kentucky	02	641.33	7445.89	0.23	0.48	0.49	0.70	0.77
California	17	99.85	180.27	0.23	0.48	0.48	0.83	0.74
Florida	23	98.24	173.69	0.23	0.48	0.40	0.65	0.73
Minnesota	06	381.22	2615.21	0.23	0.48	0.41	0.71	0.64
South Carolina	05	540.53	5252.10	0.23	0.48	0.30	0.40	0.78
North Carolina	05	503.78	4561.67	0.23	0.48	0.25	0.34	0.74
North Carolina	01	669.03	8040.75	0.23	0.48	0.39	0.47	0.85
Arizona	06	874.49	13711.15	0.23	0.48	0.38	0.81	0.70
Texas	08	409.66	3000.67	0.23	0.47	0.29	0.48	0.63
Massachusetts	03	209.21	779.07	0.22	0.47	0.22	0.41	0.67
Ohio	07	272.98	1325.60	0.22	0.47	0.34	0.61	0.67
California	01	1243.44	27048.21	0.22	0.47	0.52	0.88	0.78
Ohio	06	532.41	4842.39	0.22	0.46	0.33	0.52	0.75
Texas	36	597.28	6091.00	0.21	0.46	0.34	0.51	0.75
Arizona	04	103.06	179.76	0.21	0.46	0.21	0.38	0.65
Indiana	08	696.95	8216.91	0.21	0.46	0.42	0.67	0.73
Ohio	05	573.60	5562.17	0.21	0.46	0.20	0.35	0.62
Massachusetts	02	332.47	1863.67	0.21	0.46	0.26	0.39	0.68
Wisconsin	07	1196.03	24054.26	0.21	0.46	0.39	0.66	0.71
Georgia	08	813.94	11080.43	0.21	0.46	0.37	0.60	0.73
Alabama	SW	659.33	7,386.04	0.21	0.46	0.39	0.67	0.71
Texas	28	830.03	11468.71	0.21	0.46	0.28	0.59	0.64
Oregon	05	582.85	5630.60	0.21	0.46	0.43	0.68	0.66
New Jersey	11	157.89	412.56	0.21	0.46	0.52	0.69	0.80
Texas	12	245.18	994.85	0.21	0.46	0.37	0.50	0.74
California	49	174.27	502.39	0.21	0.46	0.26	0.45	0.68
Virginia	07	409.98	2775.86	0.21	0.46	0.32	0.55	0.68
Georgia	11	266.24	1168.28	0.21	0.46	0.48	0.96	0.71
Colorado	08	250.54	1031.47	0.21	0.45	0.44	0.73	0.74
California	34	55.28	50.05	0.21	0.45	0.37	0.69	0.68
Maine	02	1350.65	29430.41	0.20	0.45	0.52	0.80	0.83
Virginia	06	625.41	6305.94	0.20	0.45	0.23	0.32	0.74
New Jersey	07	292.79	1377.64	0.20	0.45	0.46	0.85	0.68
California	48	475.83	3634.05	0.20	0.45	0.41	0.64	0.81
Maryland	04	117.27	219.35	0.20	0.45	0.35	0.55	0.67
California	39	134.00	285.77	0.20	0.45	0.39	0.63	0.68
Tennessee	SW	510.80	4,680.90	0.20	0.45	0.34	0.59	0.71
California	15	86.69	119.26	0.20	0.45	0.19	0.29	0.64
Texas	23	1928.69	58956.20	0.20	0.45	0.24	0.37	0.73
Georgia	06	226.60	810.60	0.20	0.45	0.47	0.68	0.73
Texas	31	602.83	5712.94	0.20	0.44	0.49	0.78	0.72
Montana	01	1610.52	40775.63	0.20	0.44	0.35	0.59	0.71
California	43	68.03	72.42	0.20	0.44	0.31	0.57	0.67
Texas	30	153.76	369.77	0.20	0.44	0.36	0.57	0.75
California	21	239.94	893.51	0.20	0.44	0.24	0.36	0.75
Tennessee	04	650.91	6567.61	0.20	0.44	0.23	0.37	0.70
South Carolina	SW	561.75	4,446.68	0.20	0.44	0.35	0.55	0.74
Alabama	07	847.50	11014.55	0.19	0.44	0.47	0.86	0.68

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State	District	Perimeter (miles)	Area (sq miles)	Polsby Popper	Schwartzberg	Reock	Length-Width	Convex Hull
New York	04	78.93	95.46	0.19	0.44	0.38	0.53	0.72
Wisconsin	08	671.58	6889.27	0.19	0.44	0.36	0.63	0.69
New York	15	35.57	19.15	0.19	0.44	0.41	0.81	0.65
Ohio	09	421.76	2688.28	0.19	0.44	0.15	0.22	0.65
California	SW	326.09	3,041.76	0.20	0.44	0.34	0.56	0.69
Alabama	04	774.26	9056.13	0.19	0.44	0.32	0.65	0.61
Louisiana	03	704.34	7455.89	0.19	0.43	0.28	0.36	0.77
New York	10	31.96	15.33	0.19	0.43	0.37	0.62	0.70
Virginia	09	824.75	10162.63	0.19	0.43	0.17	0.26	0.76
California	33	113.29	190.23	0.19	0.43	0.23	0.39	0.68
Idaho	01	1643.66	39904.81	0.19	0.43	0.29	0.40	0.74
Texas	10	727.84	7799.59	0.19	0.43	0.34	0.63	0.66
West Virginia	SW	915.62	12,114.97	0.19	0.43	0.29	0.53	0.65
Rhode Island	02	235.17	807.15	0.18	0.43	0.36	0.56	0.68
New Jersey	04	213.86	663.80	0.18	0.43	0.47	0.67	0.81
Hawaii	SW	476.16	3,208.48	0.19	0.43	0.16	0.39	0.41
Arizona	09	1272.65	23375.15	0.18	0.43	0.33	0.57	0.62
New York	13	30.75	13.62	0.18	0.43	0.34	0.57	0.60
Pennsylvania	12	173.70	433.75	0.18	0.43	0.49	0.64	0.78
California	32	144.31	299.15	0.18	0.43	0.27	0.44	0.72
California	04	523.35	3912.60	0.18	0.42	0.35	0.55	0.68
New York	03	112.57	180.84	0.18	0.42	0.32	0.65	0.64
Arizona	07	1042.45	15420.43	0.18	0.42	0.16	0.31	0.69
Minnesota	07	1503.80	32024.04	0.18	0.42	0.38	0.56	0.70
California	29	95.94	129.33	0.18	0.42	0.38	0.72	0.59
Texas	SW	519.09	7,023.71	0.19	0.42	0.32	0.54	0.66
New Jersey	12	179.28	445.77	0.17	0.42	0.33	0.53	0.66
Wisconsin	03	914.38	11544.15	0.17	0.42	0.31	0.67	0.59
California	08	200.24	551.93	0.17	0.42	0.37	0.63	0.62
Pennsylvania	04	231.28	733.55	0.17	0.42	0.21	0.33	0.68
California	24	598.54	4912.47	0.17	0.42	0.33	0.67	0.61
New Jersey	SW	194.09	633.98	0.18	0.42	0.34	0.63	0.64
California	18	581.37	4607.85	0.17	0.41	0.27	0.41	0.77
Massachusetts	05	130.53	230.44	0.17	0.41	0.26	0.41	0.62
Connecticut	01	224.32	676.16	0.17	0.41	0.43	0.67	0.66
California	05	870.14	9967.61	0.17	0.41	0.28	0.42	0.75
Tennessee	02	452.31	2684.66	0.17	0.41	0.39	0.75	0.63
South Carolina	02	494.82	3201.26	0.16	0.41	0.44	0.68	0.72
New Hampshire	02	730.33	6969.61	0.16	0.41	0.30	0.50	0.74
Texas	09	129.87	220.01	0.16	0.41	0.43	0.74	0.68
California	47	117.24	178.90	0.16	0.40	0.26	0.51	0.60
New Hampshire	SW	576.55	4,639.91	0.16	0.40	0.32	0.57	0.67
California	46	76.09	74.98	0.16	0.40	0.49	0.77	0.69
California	25	977.33	12351.79	0.16	0.40	0.42	0.82	0.61
Texas	22	519.30	3485.60	0.16	0.40	0.39	0.64	0.66
New Hampshire	01	422.78	2310.22	0.16	0.40	0.34	0.63	0.60
New Jersey	09	95.56	117.75	0.16	0.40	0.28	0.54	0.56
California	44	87.36	97.61	0.16	0.40	0.37	0.64	0.64
Massachusetts	04	234.51	703.27	0.16	0.40	0.42	0.75	0.61
Illinois	06	134.36	229.78	0.16	0.40	0.38	0.57	0.65
California	02	1019.88	13210.87	0.16	0.40	0.22	0.47	0.60
Missouri	03	784.98	7697.92	0.16	0.40	0.30	0.49	0.64
Georgia	13	219.27	599.05	0.16	0.40	0.34	0.66	0.59
Texas	01	890.72	9868.83	0.16	0.40	0.34	0.62	0.70
Louisiana	04	1048.79	13666.27	0.16	0.40	0.34	0.71	0.61



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Maine	SW	998.09	16,617.12	0.16	0.39	0.37	0.61	0.67
Washington	07	113.48	159.04	0.16	0.39	0.24	0.40	0.59
Alabama	06	515.46	3259.78	0.15	0.39	0.36	0.56	0.68
Texas	37	136.15	227.02	0.15	0.39	0.42	0.68	0.72
Texas	06	701.65	6019.70	0.15	0.39	0.26	0.45	0.62
Tennessee	03	577.25	4066.41	0.15	0.39	0.35	0.64	0.65
Kansas	02	1132.71	15505.51	0.15	0.39	0.44	0.92	0.63
Kentucky	04	641.71	4967.79	0.15	0.39	0.19	0.41	0.52
California	16	211.41	537.42	0.15	0.39	0.29	0.56	0.61
Virginia	02	464.78	2592.22	0.15	0.39	0.15	0.42	0.49
Texas	26	416.17	2057.34	0.15	0.39	0.35	0.88	0.63
Texas	05	569.25	3784.82	0.15	0.38	0.30	0.49	0.64
California	40	183.97	393.25	0.15	0.38	0.42	0.59	0.71
Illinois	11	282.76	928.12	0.15	0.38	0.25	0.60	0.53
Massachusetts	SW	277.43	900.55	0.16	0.38	0.31	0.58	0.61
Ohio	15	412.11	1943.16	0.14	0.38	0.23	0.48	0.55
Washington	01	174.76	349.38	0.14	0.38	0.36	0.58	0.66
California	30	126.21	180.08	0.14	0.38	0.35	0.65	0.63
Illinois	SW	408.93	3,313.99	0.15	0.38	0.27	0.54	0.57
California	38	117.01	150.69	0.14	0.37	0.34	0.49	0.68
Alabama	01	732.17	5889.23	0.14	0.37	0.42	0.92	0.66
Texas	17	987.29	10661.54	0.14	0.37	0.25	0.39	0.65
Texas	14	520.18	2869.50	0.13	0.37	0.15	0.26	0.51
California	03	1442.30	22048.48	0.13	0.37	0.13	0.25	0.55
California	28	274.44	789.68	0.13	0.36	0.36	0.55	0.70
Florida	28	500.98	2626.72	0.13	0.36	0.17	0.57	0.38
Tennessee	05	445.70	2077.32	0.13	0.36	0.24	0.54	0.56
Massachusetts	06	230.62	554.56	0.13	0.36	0.36	0.63	0.69
Illinois	01	244.28	620.34	0.13	0.36	0.27	0.56	0.57
West Virginia	02	974.95	9779.92	0.13	0.36	0.21	0.54	0.50
Texas	20	132.33	179.98	0.13	0.36	0.45	0.79	0.63
Mississippi	02	1343.56	18404.03	0.13	0.36	0.34	0.51	0.73
Maryland	02	284.99	820.48	0.13	0.36	0.28	0.46	0.73
Illinois	15	1298.81	16987.95	0.13	0.36	0.36	0.57	0.65
Texas	38	176.93	310.42	0.12	0.35	0.39	0.73	0.59
Louisiana	05	1240.80	15196.67	0.12	0.35	0.36	0.77	0.60
New York	24	831.34	6778.00	0.12	0.35	0.23	0.47	0.51
Illinois	07	84.19	69.18	0.12	0.35	0.23	0.49	0.50
New York	08	50.97	25.31	0.12	0.35	0.25	0.71	0.45
Arkansas	01	1452.96	20383.80	0.12	0.35	0.36	0.75	0.68
Tennessee	09	289.92	808.64	0.12	0.35	0.29	0.68	0.62
New York	05	70.28	46.65	0.12	0.34	0.22	0.56	0.53
California	42	101.63	97.49	0.12	0.34	0.32	0.64	0.51
Illinois	04	101.40	96.95	0.12	0.34	0.33	0.56	0.56
California	36	102.46	98.68	0.12	0.34	0.20	0.39	0.50
Maryland	06	508.95	2432.31	0.12	0.34	0.15	0.28	0.47
Maine	01	645.52	3803.83	0.11	0.34	0.22	0.42	0.51
Texas	24	174.67	277.04	0.11	0.34	0.23	0.32	0.67
Massachusetts	08	182.48	302.16	0.11	0.34	0.44	0.80	0.63

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California	51	145.32	191.05	0.11	0.34	0.51	0.78	0.66
Florida	14	187.52	314.69	0.11	0.34	0.32	0.67	0.51
New Jersey	02	483.80	2087.62	0.11	0.34	0.31	0.63	0.61
Texas	15	840.79	6294.52	0.11	0.33	0.13	0.22	0.54
Rhode Island	SW	241.94	544.73	0.12	0.33	0.28	0.52	0.57
New Jersey	10	96.08	79.25	0.11	0.33	0.31	0.74	0.56
Virginia	01	621.37	3305.64	0.11	0.33	0.37	0.68	0.65
Illinois	08	184.47	291.32	0.11	0.33	0.24	0.46	0.59
Louisiana	SW	904.15	7,953.54	0.11	0.33	0.32	0.67	0.59
Illinois	13	524.37	2300.23	0.11	0.32	0.11	0.34	0.38
California	31	159.26	210.96	0.10	0.32	0.37	0.60	0.67
Hawaii	02	869.79	6264.44	0.10	0.32	0.05	0.22	0.22
Illinois	09	145.25	172.03	0.10	0.32	0.10	0.26	0.43
South Carolina	01	609.08	2956.57	0.10	0.32	0.24	0.42	0.65
Washington	02	767.08	4628.52	0.10	0.31	0.28	0.47	0.68
Illinois	16	1074.13	9022.55	0.10	0.31	0.33	0.84	0.58
Colorado	06	200.25	310.96	0.10	0.31	0.22	0.40	0.66
California	20	1120.54	9722.52	0.10	0.31	0.35	0.69	0.60
Kentucky	01	1266.13	11957.01	0.09	0.31	0.15	0.34	0.49
Maryland	SW	565.00	1,235.11	0.11	0.30	0.31	0.51	0.66
Texas	29	169.25	209.31	0.09	0.30	0.30	0.58	0.57
Texas	07	134.82	132.81	0.09	0.30	0.22	0.50	0.48
New Jersey	06	169.16	206.84	0.09	0.30	0.18	0.44	0.42
Colorado	01	148.00	155.55	0.09	0.30	0.16	0.38	0.49
Massachusetts	07	97.14	62.19	0.08	0.29	0.25	0.64	0.47
California	50	205.51	274.51	0.08	0.29	0.17	0.47	0.43
Illinois	17	843.89	4567.46	0.08	0.28	0.24	0.94	0.35
Illinois	03	157.52	156.82	0.08	0.28	0.15	0.42	0.42
California	45	128.27	103.97	0.08	0.28	0.36	0.83	0.52
Texas	35	290.90	527.47	0.08	0.28	0.08	0.17	0.44
South Carolina	06	1072.68	7107.74	0.08	0.28	0.36	0.73	0.59
Texas	32	157.17	151.20	0.08	0.28	0.22	0.60	0.48
Louisiana	01	976.54	5789.47	0.08	0.28	0.37	0.88	0.54
Texas	04	947.60	5432.04	0.08	0.28	0.22	0.45	0.53
California	19	688.11	2849.61	0.08	0.28	0.12	0.31	0.38
Illinois	05	168.61	158.12	0.07	0.26	0.12	0.28	0.48
New York	02	228.91	287.45	0.07	0.26	0.14	0.23	0.62
Texas	18	207.35	232.11	0.07	0.26	0.41	0.86	0.54
New Jersey	08	100.82	53.81	0.07	0.26	0.21	0.52	0.49
New York	14	65.55	22.38	0.07	0.26	0.22	0.50	0.48
Louisiana	06	891.94	4143.41	0.07	0.26	0.44	0.91	0.63
Maryland	07	162.72	128.46	0.06	0.25	0.26	0.44	0.67
California	41	530.17	1345.68	0.06	0.25	0.20	0.34	0.63
Louisiana	02	562.49	1469.54	0.06	0.24	0.16	0.41	0.38
Rhode Island	01	248.71	282.31	0.06	0.24	0.20	0.48	0.46
Michigan	01	2682.14	27773.89	0.05	0.22	0.19	0.36	0.50
New York	01	409.27	636.64	0.05	0.22	0.08	0.18	0.48
Maryland	03	372.48	502.92	0.05	0.21	0.23	0.29	0.71
Alaska	01	5364.04	87561.93	0.04	0.20	0.13	0.47	0.34
Alaska	SW	5,364.04	87,561.93	0.04	0.20	0.13	0.47	0.34
Texas	33	274.00	225.62	0.04	0.19	0.20	0.49	0.39
Massachusetts	09	758.88	1316.72	0.03	0.17	0.26	0.72	0.38
North Carolina	03	1892.38	8080.85	0.03	0.17	0.25	0.53	0.47
Maryland	05	843.95	1525.66	0.03	0.16	0.36	0.74	0.68
Maryland	01	2122.25	3971.38	0.01	0.11	0.27	0.50	0.57

Nationwide\_Compactness\_fromTiger.xlsx  
Districts

State	District	Perimeter	Area	PolsbyPop	Schwartzbe	Reock	LengthWidt	ConvexHull
Alabama	01	649.16	6606.81	0.20	0.44	0.41	0.94	0.71
Alabama	02	717.29	10524.22	0.26	0.51	0.48	0.73	0.76
Alabama	03	656.48	8456.45	0.25	0.50	0.42	0.62	0.77
Alabama	04	775.01	9056.13	0.19	0.44	0.32	0.65	0.61
Alabama	05	371.31	3501.96	0.32	0.57	0.25	0.32	0.80
Alabama	06	515.52	3259.77	0.15	0.39	0.36	0.56	0.68
Alabama	07	847.95	11014.56	0.19	0.44	0.47	0.86	0.68
Alaska	01	11438.13	665761.57	0.06	0.25	0.01	0.06	0.76
Arizona	01	232.71	1614.19	0.38	0.61	0.41	0.54	0.84
Arizona	02	1568.35	58490.55	0.30	0.55	0.60	0.85	0.84
Arizona	03	81.39	206.47	0.39	0.63	0.45	0.61	0.83
Arizona	04	102.90	179.75	0.21	0.46	0.21	0.38	0.65
Arizona	05	127.45	405.76	0.31	0.56	0.51	0.78	0.73
Arizona	06	876.16	13711.30	0.22	0.47	0.38	0.81	0.70
Arizona	07	1041.11	15422.64	0.18	0.42	0.16	0.31	0.69
Arizona	08	151.42	578.79	0.32	0.56	0.50	0.89	0.76
Arizona	09	1273.42	23375.15	0.18	0.43	0.33	0.57	0.62
Arkansas	01	1451.02	20400.78	0.12	0.35	0.36	0.75	0.68
Arkansas	02	506.86	5441.29	0.27	0.52	0.42	0.68	0.77
Arkansas	03	351.46	4244.93	0.43	0.66	0.46	0.92	0.83
Arkansas	04	1050.41	23111.02	0.26	0.51	0.52	0.74	0.80
California	01	1243.85	27048.21	0.22	0.47	0.52	0.88	0.78
California	02	1027.70	14629.53	0.17	0.42	0.24	0.49	0.61
California	03	1441.91	22048.49	0.13	0.37	0.13	0.25	0.55
California	04	528.49	3926.94	0.18	0.42	0.35	0.55	0.68
California	05	870.39	9967.61	0.17	0.41	0.28	0.42	0.75
California	06	99.21	254.26	0.33	0.57	0.27	0.37	0.84
California	07	190.15	707.00	0.25	0.50	0.27	0.51	0.64
California	08	187.07	615.22	0.22	0.47	0.40	0.61	0.68
California	09	270.39	1383.49	0.24	0.49	0.44	0.60	0.81
California	10	175.33	560.98	0.23	0.48	0.39	0.53	0.74
California	11	103.66	226.55	0.27	0.52	0.10	0.27	0.36
California	12	61.26	141.33	0.47	0.69	0.49	0.53	0.94
California	13	588.47	6349.22	0.23	0.48	0.39	0.54	0.78
California	14	153.77	609.38	0.32	0.57	0.34	0.45	0.73
California	15	88.25	228.58	0.37	0.61	0.26	0.38	0.82
California	16	223.17	713.54	0.18	0.42	0.33	0.59	0.66
California	17	97.69	187.71	0.25	0.50	0.49	0.83	0.76
California	18	580.81	4607.85	0.17	0.41	0.27	0.41	0.77
California	19	671.78	3584.23	0.10	0.32	0.15	0.33	0.45
California	20	1119.70	9722.53	0.10	0.31	0.35	0.69	0.60
California	21	239.74	893.51	0.20	0.44	0.24	0.36	0.75

Nationwide\_Compactness\_fromTiger.xlsx

Districts

State	District	Perimeter	Area	PolsbyPop	Schwartzbe	Reock	LengthWidt	ConvexHull
California	22	418.20	4320.67	0.31	0.56	0.48	0.64	0.79
California	23	720.52	17985.20	0.44	0.66	0.51	0.54	0.91
California	24	724.03	6357.79	0.15	0.39	0.25	0.51	0.55
California	25	976.75	12352.03	0.16	0.40	0.42	0.82	0.61
California	26	282.93	1835.08	0.29	0.54	0.46	0.64	0.86
California	27	229.55	1528.47	0.37	0.60	0.45	0.56	0.89
California	28	274.35	789.68	0.13	0.36	0.36	0.55	0.70
California	29	95.89	129.33	0.18	0.42	0.38	0.72	0.59
California	30	126.21	180.08	0.14	0.38	0.35	0.65	0.63
California	31	159.22	210.96	0.10	0.32	0.37	0.60	0.67
California	32	148.99	388.62	0.22	0.47	0.33	0.48	0.79
California	33	112.93	190.22	0.19	0.43	0.23	0.39	0.68
California	34	55.25	50.05	0.21	0.45	0.37	0.69	0.68
California	35	94.43	177.42	0.25	0.50	0.30	0.52	0.71
California	36	111.50	194.62	0.20	0.44	0.31	0.47	0.68
California	37	47.41	52.83	0.30	0.54	0.44	0.62	0.78
California	38	116.88	150.70	0.14	0.37	0.34	0.49	0.68
California	39	133.76	285.91	0.20	0.45	0.39	0.63	0.68
California	40	184.04	393.21	0.15	0.38	0.42	0.59	0.71
California	41	529.76	1345.59	0.06	0.25	0.20	0.34	0.63
California	42	244.77	664.80	0.14	0.37	0.13	0.40	0.33
California	43	68.03	72.42	0.20	0.44	0.31	0.57	0.67
California	44	95.35	116.70	0.16	0.40	0.31	0.55	0.64
California	45	128.18	103.97	0.08	0.28	0.36	0.83	0.52
California	46	76.05	74.98	0.16	0.40	0.49	0.77	0.69
California	47	127.65	283.87	0.22	0.47	0.36	0.60	0.70
California	48	475.66	3634.40	0.20	0.45	0.41	0.64	0.81
California	49	178.37	671.26	0.27	0.52	0.35	0.52	0.75
California	50	212.99	411.97	0.11	0.34	0.25	0.50	0.52
California	51	145.28	191.05	0.11	0.34	0.51	0.78	0.66
California	52	84.57	143.29	0.25	0.50	0.37	0.72	0.75
Colorado	01	147.87	155.55	0.09	0.30	0.16	0.38	0.49
Colorado	02	666.26	11539.72	0.33	0.57	0.59	0.66	0.90
Colorado	03	1439.83	50086.59	0.30	0.55	0.33	0.67	0.76
Colorado	04	1181.81	32295.84	0.29	0.54	0.45	0.82	0.83
Colorado	05	182.06	1474.30	0.56	0.75	0.53	0.76	0.91
Colorado	06	199.84	310.93	0.10	0.31	0.22	0.40	0.66
Colorado	07	608.40	7200.09	0.24	0.49	0.46	0.77	0.80
Colorado	08	250.53	1031.47	0.21	0.45	0.44	0.73	0.74
Connecticut	01	224.27	676.18	0.17	0.41	0.43	0.67	0.66
Connecticut	02	253.56	2136.43	0.42	0.65	0.57	0.79	0.85
Connecticut	03	163.65	501.08	0.24	0.49	0.33	0.55	0.73

Nationwide\_Compactness\_fromTiger.xlsx

Districts

State	District	Perimeter	Area	PolsbyPop	Schwartzbe	Reock	LengthWidt	ConvexHull
Connecticut	04	141.36	526.65	0.33	0.58	0.33	0.52	0.70
Connecticut	05	264.57	1280.31	0.23	0.48	0.50	0.92	0.75
Delaware	01	261.77	2488.77	0.46	0.68	0.37	0.50	0.84
Florida	01	340.55	4416.06	0.48	0.69	0.51	0.56	0.87
Florida	02	578.14	12838.50	0.48	0.70	0.42	0.51	0.82
Florida	03	455.55	8270.72	0.50	0.71	0.60	0.92	0.90
Florida	04	280.00	1980.53	0.32	0.56	0.41	0.66	0.76
Florida	05	140.92	829.03	0.53	0.72	0.58	0.71	0.89
Florida	06	320.15	3928.27	0.48	0.69	0.72	0.85	0.92
Florida	07	180.96	1053.41	0.40	0.64	0.45	0.69	0.83
Florida	08	252.62	2299.14	0.45	0.67	0.35	0.43	0.78
Florida	09	222.53	1846.11	0.47	0.69	0.49	0.66	0.86
Florida	10	95.86	272.54	0.37	0.61	0.38	0.49	0.75
Florida	11	254.35	1836.15	0.36	0.60	0.52	0.85	0.82
Florida	12	289.51	2538.30	0.38	0.62	0.43	0.80	0.75
Florida	13	125.21	730.15	0.59	0.77	0.55	0.66	0.93
Florida	14	117.79	523.83	0.48	0.69	0.53	0.67	0.83
Florida	15	121.27	674.87	0.58	0.76	0.53	0.67	0.88
Florida	16	204.99	1500.18	0.45	0.67	0.43	0.82	0.73
Florida	17	262.17	2148.70	0.39	0.63	0.27	0.41	0.77
Florida	18	458.90	7085.18	0.42	0.65	0.45	0.65	0.82
Florida	19	248.43	1896.77	0.39	0.62	0.34	0.53	0.78
Florida	20	329.53	2397.14	0.28	0.53	0.50	0.84	0.77
Florida	21	218.80	1888.21	0.50	0.70	0.50	0.83	0.82
Florida	22	101.50	345.34	0.42	0.65	0.45	0.86	0.74
Florida	23	105.09	254.27	0.29	0.54	0.51	0.83	0.79
Florida	24	68.88	182.83	0.49	0.70	0.50	0.84	0.90
Florida	25	88.40	236.65	0.38	0.62	0.40	0.51	0.81
Florida	26	307.53	2440.11	0.32	0.57	0.27	0.43	0.77
Florida	27	69.68	280.69	0.73	0.85	0.71	0.88	0.95
Florida	28	593.64	6709.61	0.24	0.49	0.20	0.43	0.55
Georgia	01	599.58	8155.68	0.29	0.53	0.50	0.69	0.79
Georgia	02	689.84	10119.75	0.27	0.52	0.50	0.66	0.80
Georgia	03	440.93	4249.30	0.28	0.52	0.47	0.81	0.82
Georgia	04	146.21	417.65	0.25	0.50	0.30	0.40	0.76
Georgia	05	98.92	250.35	0.32	0.57	0.61	0.92	0.80
Georgia	06	226.55	810.60	0.20	0.45	0.47	0.68	0.73
Georgia	07	102.39	322.69	0.39	0.62	0.42	0.58	0.82
Georgia	08	814.01	11080.43	0.21	0.46	0.37	0.60	0.73
Georgia	09	445.48	4005.71	0.25	0.50	0.33	0.55	0.70
Georgia	10	476.22	5125.88	0.28	0.53	0.51	0.74	0.81
Georgia	11	266.17	1168.28	0.21	0.46	0.48	0.96	0.71

Nationwide\_Compactness\_fromTiger.xlsx

Districts

State	District	Perimeter	Area	PolsbyPop	Schwartzbe	Reock	LengthWidt	ConvexHull
Georgia	12	666.04	9824.61	0.28	0.53	0.56	0.74	0.86
Georgia	13	219.13	598.92	0.16	0.40	0.34	0.66	0.59
Georgia	14	333.25	3293.00	0.37	0.61	0.45	0.72	0.80
Hawaii	01	100.58	348.23	0.43	0.66	0.40	0.58	0.75
Hawaii	02	1437.86	10621.58	0.06	0.25	0.00	0.07	0.07
Idaho	01	1642.43	39905.08	0.19	0.43	0.29	0.40	0.74
Idaho	02	1310.82	43663.14	0.32	0.57	0.50	0.70	0.81
Illinois	01	245.68	621.15	0.13	0.36	0.27	0.56	0.57
Illinois	02	424.16	3931.82	0.28	0.52	0.41	0.64	0.77
Illinois	03	157.55	156.82	0.08	0.28	0.15	0.42	0.42
Illinois	04	101.36	96.95	0.12	0.34	0.33	0.56	0.56
Illinois	05	168.62	158.15	0.07	0.26	0.12	0.28	0.48
Illinois	06	134.42	229.78	0.16	0.40	0.38	0.57	0.65
Illinois	07	82.60	69.27	0.13	0.36	0.23	0.49	0.50
Illinois	08	184.57	291.33	0.11	0.33	0.24	0.46	0.59
Illinois	09	145.94	172.20	0.10	0.32	0.10	0.26	0.43
Illinois	10	164.33	536.07	0.25	0.50	0.25	0.47	0.71
Illinois	11	282.74	928.11	0.15	0.38	0.25	0.60	0.53
Illinois	12	826.66	14273.60	0.26	0.51	0.48	0.69	0.78
Illinois	13	524.55	2300.22	0.11	0.32	0.11	0.34	0.38
Illinois	14	301.10	1998.04	0.28	0.53	0.35	0.56	0.70
Illinois	15	1298.40	16987.95	0.13	0.36	0.36	0.57	0.65
Illinois	16	1073.12	9022.63	0.10	0.31	0.33	0.84	0.58
Illinois	17	843.05	4567.37	0.08	0.28	0.24	0.94	0.35
Indiana	01	169.18	1345.91	0.59	0.77	0.46	0.72	0.88
Indiana	02	323.45	4397.73	0.53	0.73	0.63	0.93	0.88
Indiana	03	325.96	4445.57	0.53	0.73	0.49	0.60	0.93
Indiana	04	434.64	6126.14	0.41	0.64	0.43	0.67	0.84
Indiana	05	222.78	2209.31	0.56	0.75	0.49	0.63	0.84
Indiana	06	313.92	3298.23	0.42	0.65	0.41	0.50	0.78
Indiana	07	70.60	282.84	0.71	0.85	0.51	0.54	0.97
Indiana	08	698.14	8216.91	0.21	0.46	0.42	0.67	0.73
Indiana	09	471.71	6098.47	0.35	0.59	0.47	0.75	0.77
Iowa	01	695.98	10997.79	0.29	0.53	0.28	0.50	0.68
Iowa	02	623.68	12985.59	0.42	0.65	0.45	0.66	0.80
Iowa	03	618.41	10748.33	0.35	0.59	0.36	0.51	0.77
Iowa	04	991.20	21540.81	0.28	0.53	0.44	0.75	0.73
Kansas	01	1336.20	49841.15	0.35	0.59	0.32	0.44	0.82
Kansas	02	1133.00	15505.50	0.15	0.39	0.44	0.92	0.63
Kansas	03	253.66	2293.77	0.45	0.67	0.40	0.60	0.79
Kansas	04	639.94	14637.45	0.45	0.67	0.34	0.35	0.88
Kentucky	01	1264.25	11957.01	0.09	0.31	0.15	0.34	0.49

Nationwide\_Compactness\_fromTiger.xlsx

Districts

State	District	Perimeter	Area	PolsbyPop	Schwartzbe	Reock	LengthWidt	ConvexHull
Kentucky	02	641.23	7445.89	0.23	0.48	0.49	0.70	0.77
Kentucky	03	97.22	323.09	0.43	0.66	0.36	0.55	0.78
Kentucky	04	641.33	4967.80	0.15	0.39	0.19	0.41	0.52
Kentucky	05	727.73	11880.45	0.28	0.53	0.39	0.52	0.80
Kentucky	06	434.55	3831.53	0.26	0.51	0.44	0.63	0.80
Louisiana	01	841.25	8991.18	0.16	0.40	0.46	0.81	0.71
Louisiana	02	563.54	1470.65	0.06	0.24	0.16	0.41	0.38
Louisiana	03	609.63	8602.61	0.29	0.54	0.33	0.40	0.79
Louisiana	04	1048.37	13666.27	0.16	0.40	0.34	0.71	0.61
Louisiana	05	1240.03	15196.67	0.12	0.35	0.36	0.77	0.60
Louisiana	06	864.68	4447.83	0.07	0.27	0.45	0.90	0.64
Maine	01	629.10	5117.52	0.16	0.40	0.28	0.48	0.57
Maine	02	1164.29	30262.19	0.28	0.53	0.53	0.81	0.84
Maryland	01	442.26	5509.75	0.35	0.60	0.36	0.60	0.70
Maryland	02	237.51	852.41	0.19	0.44	0.25	0.42	0.72
Maryland	03	170.41	612.09	0.27	0.52	0.26	0.32	0.75
Maryland	04	111.11	224.34	0.23	0.48	0.35	0.55	0.66
Maryland	05	296.95	2313.41	0.33	0.57	0.40	0.77	0.78
Maryland	06	507.95	2432.31	0.12	0.34	0.15	0.28	0.47
Maryland	07	89.30	181.24	0.29	0.53	0.24	0.36	0.69
Maryland	08	107.42	280.29	0.31	0.55	0.59	0.86	0.78
Massachusetts	01	320.64	2292.89	0.28	0.53	0.28	0.43	0.74
Massachusetts	02	332.30	1863.67	0.21	0.46	0.26	0.39	0.68
Massachusetts	03	208.99	779.07	0.22	0.47	0.22	0.41	0.67
Massachusetts	04	226.49	709.79	0.17	0.42	0.42	0.75	0.62
Massachusetts	05	128.74	239.67	0.18	0.43	0.25	0.40	0.63
Massachusetts	06	166.63	866.63	0.39	0.63	0.45	0.62	0.82
Massachusetts	07	95.04	66.95	0.09	0.31	0.27	0.69	0.48
Massachusetts	08	212.08	460.87	0.13	0.36	0.33	0.57	0.61
Massachusetts	09	394.57	3274.54	0.26	0.51	0.56	0.83	0.77
Michigan	01	1351.19	57170.03	0.39	0.63	0.30	0.35	0.87
Michigan	02	636.87	13067.55	0.41	0.64	0.49	0.70	0.78
Michigan	03	279.76	1885.60	0.30	0.55	0.24	0.30	0.75
Michigan	04	346.45	3904.30	0.41	0.64	0.33	0.44	0.78
Michigan	05	551.82	6478.33	0.27	0.52	0.14	0.18	0.77
Michigan	06	179.90	1017.56	0.40	0.63	0.32	0.47	0.73
Michigan	07	251.27	2814.38	0.56	0.75	0.43	0.47	0.90
Michigan	08	267.43	2453.86	0.43	0.66	0.49	0.67	0.78
Michigan	09	404.90	6899.29	0.53	0.73	0.57	0.79	0.88
Michigan	10	79.72	241.63	0.48	0.69	0.39	0.59	0.76
Michigan	11	101.19	336.10	0.41	0.64	0.42	0.56	0.82
Michigan	12	70.54	191.56	0.48	0.70	0.60	0.90	0.84

Nationwide\_Compactness\_fromTiger.xlsx

Districts

State	District	Perimeter	Area	PolsbyPop	Schwartzbe	Reock	LengthWidt	ConvexHull
Michigan	13	105.44	252.91	0.29	0.54	0.17	0.31	0.66
Minnesota	01	735.46	12454.82	0.29	0.54	0.17	0.23	0.77
Minnesota	02	246.93	1809.83	0.37	0.61	0.35	0.43	0.85
Minnesota	03	148.63	517.03	0.29	0.54	0.51	0.77	0.73
Minnesota	04	87.61	333.99	0.55	0.74	0.45	0.53	0.89
Minnesota	05	63.37	137.19	0.43	0.66	0.60	0.77	0.86
Minnesota	06	381.01	2615.19	0.23	0.48	0.41	0.71	0.64
Minnesota	07	1504.37	32024.97	0.18	0.42	0.38	0.56	0.70
Minnesota	08	1330.35	37049.93	0.26	0.51	0.33	0.58	0.70
Mississippi	01	578.02	10094.62	0.38	0.62	0.47	0.85	0.82
Mississippi	02	1343.92	18404.03	0.13	0.36	0.34	0.51	0.73
Mississippi	03	779.36	11822.98	0.25	0.49	0.36	0.55	0.69
Mississippi	04	469.22	8114.05	0.46	0.68	0.61	0.83	0.93
Missouri	01	102.67	258.53	0.31	0.56	0.57	0.96	0.77
Missouri	02	278.55	1821.22	0.30	0.54	0.41	0.55	0.80
Missouri	03	783.93	7697.93	0.16	0.40	0.30	0.49	0.64
Missouri	04	779.47	14664.47	0.30	0.55	0.51	0.82	0.79
Missouri	05	119.62	431.41	0.38	0.62	0.42	0.69	0.84
Missouri	06	922.44	20483.43	0.30	0.55	0.25	0.33	0.82
Missouri	07	373.00	5864.90	0.53	0.73	0.45	0.48	0.90
Missouri	08	931.36	18484.66	0.27	0.52	0.42	0.65	0.73
Montana	01	1611.66	40777.69	0.20	0.44	0.35	0.59	0.71
Montana	02	1631.69	106265.04	0.50	0.71	0.45	0.44	0.95
Nebraska	01	545.41	6053.34	0.26	0.51	0.38	0.66	0.70
Nebraska	02	193.58	1248.99	0.42	0.65	0.38	0.40	0.88
Nebraska	03	1673.06	70044.65	0.31	0.56	0.29	0.34	0.85
Nevada	01	173.17	1018.89	0.43	0.65	0.56	0.87	0.89
Nevada	02	1189.42	65518.00	0.58	0.76	0.49	0.58	0.89
Nevada	03	317.99	2024.75	0.25	0.50	0.24	0.36	0.71
Nevada	04	1025.13	42008.70	0.50	0.71	0.40	0.53	0.92
New Hampshire	01	432.47	2328.03	0.16	0.40	0.33	0.67	0.58
New Hampshire	02	734.98	6971.04	0.16	0.40	0.30	0.50	0.74
New Jersey	01	110.94	380.35	0.39	0.62	0.46	0.74	0.80
New Jersey	02	385.00	2966.71	0.25	0.50	0.33	0.65	0.67
New Jersey	03	243.00	1104.52	0.24	0.49	0.35	0.79	0.62
New Jersey	04	180.15	702.44	0.27	0.52	0.50	0.75	0.82
New Jersey	05	185.97	677.88	0.25	0.50	0.24	0.37	0.68
New Jersey	06	178.81	386.07	0.15	0.39	0.26	0.53	0.56
New Jersey	07	292.98	1378.09	0.20	0.45	0.46	0.85	0.68
New Jersey	08	88.62	66.80	0.11	0.33	0.26	0.55	0.57
New Jersey	09	95.64	117.74	0.16	0.40	0.28	0.54	0.56
New Jersey	10	93.72	80.02	0.11	0.34	0.31	0.74	0.57



Nationwide\_Compactness\_fromTiger.xlsx

Districts

State	District	Perimeter	Area	PolsbyPop	Schwartzbe	Reock	LengthWidt	ConvexHull
New Jersey	11	157.97	412.52	0.21	0.46	0.52	0.69	0.80
New Jersey	12	179.26	445.80	0.17	0.42	0.33	0.53	0.66
New Mexico	01	857.21	17589.64	0.30	0.55	0.43	0.69	0.77
New Mexico	02	1466.77	51553.60	0.30	0.55	0.35	0.65	0.75
New Mexico	03	1569.77	52449.57	0.27	0.52	0.32	0.71	0.67
New York	01	246.70	1832.39	0.38	0.62	0.22	0.24	0.86
New York	02	128.80	572.66	0.43	0.66	0.26	0.29	0.89
New York	03	91.26	249.28	0.38	0.61	0.41	0.72	0.77
New York	04	62.40	188.96	0.61	0.78	0.60	0.80	0.91
New York	05	70.20	112.54	0.29	0.54	0.28	0.50	0.64
New York	06	37.52	25.95	0.23	0.48	0.28	0.41	0.75
New York	07	34.40	22.37	0.24	0.49	0.39	0.64	0.69
New York	08	45.58	44.76	0.27	0.52	0.33	0.63	0.61
New York	09	21.82	15.16	0.40	0.63	0.56	0.67	0.83
New York	10	28.97	23.43	0.35	0.59	0.57	0.78	0.79
New York	11	50.02	114.45	0.58	0.76	0.45	0.54	0.89
New York	12	20.62	13.58	0.40	0.63	0.52	0.72	0.85
New York	13	26.26	14.57	0.27	0.52	0.36	0.57	0.64
New York	14	42.89	47.10	0.32	0.57	0.34	0.47	0.80
New York	15	32.84	19.95	0.23	0.48	0.42	0.81	0.68
New York	16	63.11	157.08	0.50	0.70	0.55	0.69	0.90
New York	17	172.81	904.43	0.38	0.62	0.44	0.64	0.83
New York	18	293.30	2050.75	0.30	0.55	0.37	0.51	0.77
New York	19	618.98	7989.58	0.26	0.51	0.26	0.38	0.72
New York	20	231.40	1610.62	0.38	0.62	0.47	0.64	0.79
New York	21	916.97	17135.37	0.26	0.51	0.58	0.97	0.82
New York	22	290.13	2767.34	0.41	0.64	0.42	0.56	0.84
New York	23	516.68	7040.94	0.33	0.58	0.24	0.34	0.76
New York	24	800.37	9146.31	0.18	0.42	0.25	0.44	0.60
New York	25	213.74	1980.32	0.55	0.74	0.46	0.63	0.90
New York	26	114.07	478.56	0.46	0.68	0.55	0.74	0.83
North Carolina	01	518.85	8464.10	0.40	0.63	0.38	0.44	0.88
North Carolina	02	140.37	507.43	0.32	0.57	0.34	0.51	0.79
North Carolina	03	849.47	11413.05	0.20	0.45	0.34	0.53	0.63
North Carolina	04	235.34	2088.27	0.47	0.69	0.41	0.62	0.85
North Carolina	05	503.09	4561.67	0.23	0.48	0.25	0.34	0.74
North Carolina	06	227.26	1744.24	0.43	0.65	0.43	0.57	0.79
North Carolina	07	444.71	5583.51	0.36	0.60	0.46	0.65	0.78
North Carolina	08	378.09	3747.35	0.33	0.57	0.54	0.98	0.80
North Carolina	09	387.60	3679.49	0.31	0.56	0.52	0.84	0.79
North Carolina	10	332.03	2999.46	0.34	0.59	0.41	0.66	0.79
North Carolina	11	499.90	6228.24	0.31	0.56	0.31	0.38	0.88

Nationwide\_Compactness\_fromTiger.xlsx

Districts

State	District	Perimeter	Area	PolsbyPop	Schwartzbe	Reock	LengthWidt	ConvexHull
North Carolina	12	124.31	460.27	0.37	0.61	0.61	0.83	0.84
North Carolina	13	280.00	1849.90	0.30	0.55	0.46	0.55	0.83
North Carolina	14	159.07	491.38	0.24	0.49	0.37	0.55	0.72
North Dakota	01	1317.31	70698.55	0.51	0.72	0.43	0.41	0.99
Ohio	01	177.76	611.02	0.24	0.49	0.29	0.57	0.61
Ohio	02	552.04	7441.89	0.31	0.55	0.38	0.51	0.77
Ohio	03	74.53	221.10	0.50	0.71	0.59	0.69	0.94
Ohio	04	445.09	4921.24	0.31	0.56	0.30	0.40	0.73
Ohio	05	618.75	5991.16	0.20	0.44	0.20	0.35	0.57
Ohio	06	532.35	4842.32	0.22	0.46	0.33	0.52	0.75
Ohio	07	273.72	1329.14	0.22	0.47	0.34	0.61	0.67
Ohio	08	285.08	1805.00	0.28	0.53	0.37	0.50	0.78
Ohio	09	408.03	3567.72	0.27	0.52	0.20	0.29	0.67
Ohio	10	169.86	996.66	0.43	0.66	0.43	0.50	0.87
Ohio	11	179.16	999.63	0.39	0.63	0.55	0.81	0.85
Ohio	12	479.31	5633.33	0.31	0.56	0.61	0.87	0.78
Ohio	13	172.20	630.98	0.27	0.52	0.49	0.61	0.82
Ohio	14	274.91	3891.38	0.65	0.81	0.55	0.73	0.95
Ohio	15	412.40	1943.10	0.14	0.38	0.23	0.48	0.55
Oklahoma	01	205.60	1103.44	0.33	0.57	0.39	0.65	0.74
Oklahoma	02	1023.44	22414.35	0.27	0.52	0.48	0.74	0.81
Oklahoma	03	1323.48	32906.84	0.24	0.49	0.22	0.38	0.67
Oklahoma	04	703.34	9890.05	0.25	0.50	0.39	0.62	0.76
Oklahoma	05	362.97	3584.18	0.34	0.59	0.47	0.74	0.76
Oregon	01	349.94	3876.41	0.40	0.63	0.47	0.82	0.80
Oregon	02	1462.75	72876.55	0.43	0.65	0.40	0.53	0.87
Oregon	03	227.18	1427.06	0.35	0.59	0.29	0.37	0.78
Oregon	04	803.20	12660.78	0.25	0.50	0.38	0.80	0.66
Oregon	05	582.77	5630.60	0.21	0.46	0.43	0.68	0.66
Oregon	06	253.81	1906.82	0.37	0.61	0.47	0.72	0.80
Pennsylvania	01	151.03	718.12	0.40	0.63	0.32	0.46	0.82
Pennsylvania	02	44.73	67.46	0.42	0.65	0.33	0.40	0.84
Pennsylvania	03	46.11	54.80	0.32	0.57	0.47	0.80	0.72
Pennsylvania	04	231.03	733.55	0.17	0.42	0.21	0.33	0.68
Pennsylvania	05	106.06	239.58	0.27	0.52	0.36	0.65	0.72
Pennsylvania	06	200.29	935.74	0.29	0.54	0.43	0.84	0.73
Pennsylvania	07	188.67	1184.47	0.42	0.65	0.46	0.69	0.78
Pennsylvania	08	356.21	2840.35	0.28	0.53	0.45	0.74	0.74
Pennsylvania	09	524.41	6153.45	0.28	0.53	0.47	0.74	0.74
Pennsylvania	10	243.03	1294.23	0.28	0.53	0.43	0.72	0.71
Pennsylvania	11	227.70	1545.08	0.38	0.61	0.37	0.49	0.88
Pennsylvania	12	173.53	433.75	0.18	0.43	0.49	0.64	0.78

Nationwide\_Compactness\_fromTiger.xlsx

Districts

State	District	Perimeter	Area	PolsbyPop	Schwartzbe	Reock	LengthWidt	ConvexHull
Pennsylvania	13	453.80	6403.55	0.39	0.63	0.46	0.52	0.83
Pennsylvania	14	446.11	4808.87	0.30	0.55	0.42	0.60	0.76
Pennsylvania	15	618.69	13082.96	0.43	0.66	0.46	0.47	0.86
Pennsylvania	16	385.79	4648.94	0.39	0.63	0.46	0.49	0.87
Pennsylvania	17	207.69	909.07	0.27	0.52	0.42	0.58	0.76
Rhode Island	01	157.96	510.63	0.26	0.51	0.29	0.61	0.58
Rhode Island	02	207.86	1034.34	0.30	0.55	0.41	0.57	0.76
South Carolina	01	549.19	3558.96	0.15	0.39	0.29	0.46	0.71
South Carolina	02	494.74	3201.25	0.16	0.41	0.44	0.68	0.72
South Carolina	03	461.74	5845.83	0.35	0.59	0.43	0.55	0.85
South Carolina	04	259.00	1249.07	0.23	0.48	0.36	0.50	0.77
South Carolina	05	536.51	5252.13	0.23	0.48	0.30	0.40	0.78
South Carolina	06	1091.04	7137.61	0.08	0.27	0.37	0.73	0.58
South Carolina	07	492.32	5778.50	0.30	0.55	0.35	0.52	0.79
South Dakota	01	1317.47	77115.77	0.56	0.75	0.41	0.44	0.93
Tennessee	01	457.12	4465.95	0.27	0.52	0.29	0.42	0.81
Tennessee	02	451.88	2684.91	0.17	0.41	0.39	0.75	0.63
Tennessee	03	576.81	4066.55	0.15	0.39	0.35	0.64	0.65
Tennessee	04	650.29	6567.61	0.20	0.44	0.23	0.37	0.70
Tennessee	05	445.82	2077.96	0.13	0.36	0.24	0.54	0.56
Tennessee	06	553.90	6043.82	0.25	0.50	0.31	0.44	0.77
Tennessee	07	533.14	6034.42	0.27	0.52	0.42	0.73	0.78
Tennessee	08	634.44	9379.35	0.29	0.54	0.56	0.77	0.87
Tennessee	09	289.55	808.64	0.12	0.35	0.29	0.68	0.62
Texas	01	891.17	9868.81	0.16	0.40	0.34	0.62	0.70
Texas	02	190.84	659.67	0.23	0.48	0.39	0.71	0.69
Texas	03	235.03	1495.99	0.34	0.58	0.44	0.52	0.85
Texas	04	947.37	5432.06	0.08	0.28	0.22	0.45	0.53
Texas	05	568.88	3784.84	0.15	0.38	0.30	0.49	0.64
Texas	06	700.94	6019.67	0.15	0.39	0.26	0.45	0.62
Texas	07	134.82	132.81	0.09	0.30	0.22	0.50	0.48
Texas	08	409.71	3000.67	0.23	0.47	0.29	0.48	0.63
Texas	09	129.87	220.01	0.16	0.41	0.43	0.74	0.68
Texas	10	727.84	7799.59	0.19	0.43	0.34	0.63	0.66
Texas	11	890.72	19344.55	0.31	0.55	0.22	0.35	0.74
Texas	12	245.03	994.85	0.21	0.46	0.37	0.50	0.74
Texas	13	1259.86	35360.81	0.28	0.53	0.24	0.46	0.67
Texas	14	520.52	3470.66	0.16	0.40	0.18	0.29	0.56
Texas	15	841.30	6295.20	0.11	0.33	0.13	0.22	0.54
Texas	16	131.54	316.37	0.23	0.48	0.26	0.35	0.73
Texas	17	986.77	10661.54	0.14	0.37	0.25	0.39	0.65
Texas	18	207.36	232.11	0.07	0.26	0.41	0.86	0.54

Nationwide\_Compactness\_fromTiger.xlsx  
Districts

State	District	Perimeter	Area	PolsbyPop	Schwartzbe	Reock	LengthWidt	ConvexHull
Texas	19	845.17	30260.41	0.53	0.73	0.46	0.65	0.84
Texas	20	132.33	179.98	0.13	0.36	0.45	0.79	0.63
Texas	21	510.62	6332.89	0.31	0.55	0.36	0.48	0.83
Texas	22	533.34	3706.61	0.16	0.41	0.37	0.65	0.65
Texas	23	1938.00	58961.12	0.20	0.44	0.24	0.37	0.73
Texas	24	174.51	277.04	0.11	0.34	0.23	0.32	0.67
Texas	25	665.96	9135.61	0.26	0.51	0.40	0.66	0.71
Texas	26	416.32	2057.35	0.15	0.39	0.35	0.88	0.63
Texas	27	630.66	11669.69	0.37	0.61	0.49	0.65	0.82
Texas	28	830.44	11469.81	0.21	0.46	0.28	0.59	0.64
Texas	29	169.25	209.31	0.09	0.30	0.30	0.58	0.57
Texas	30	153.48	369.75	0.20	0.44	0.36	0.57	0.75
Texas	31	602.70	5712.88	0.20	0.44	0.49	0.78	0.72
Texas	32	157.08	151.20	0.08	0.28	0.22	0.60	0.48
Texas	33	273.94	225.62	0.04	0.19	0.20	0.49	0.39
Texas	34	503.08	5399.84	0.27	0.52	0.43	0.61	0.74
Texas	35	290.87	527.47	0.08	0.28	0.08	0.17	0.44
Texas	36	565.69	6320.64	0.25	0.50	0.35	0.51	0.77
Texas	37	136.16	227.02	0.15	0.39	0.42	0.68	0.72
Texas	38	176.94	310.42	0.12	0.35	0.39	0.73	0.59
Utah	01	546.57	11356.23	0.48	0.69	0.36	0.42	0.86
Utah	02	1148.43	40040.85	0.38	0.62	0.50	0.98	0.81
Utah	03	1162.09	28959.74	0.27	0.52	0.46	0.72	0.75
Utah	04	450.80	4540.96	0.28	0.53	0.47	0.81	0.71
Vermont	01	572.40	9615.19	0.37	0.61	0.42	0.64	0.82
Virginia	01	496.63	3882.61	0.20	0.45	0.41	0.63	0.72
Virginia	02	494.49	3936.00	0.20	0.45	0.22	0.50	0.59
Virginia	03	132.27	447.61	0.32	0.57	0.42	0.77	0.71
Virginia	04	388.24	3529.21	0.29	0.54	0.49	0.76	0.85
Virginia	05	582.27	9609.92	0.36	0.60	0.46	0.74	0.89
Virginia	06	625.91	6305.95	0.20	0.45	0.23	0.32	0.74
Virginia	07	410.11	2782.11	0.21	0.46	0.32	0.55	0.68
Virginia	08	82.67	158.51	0.29	0.54	0.40	0.52	0.78
Virginia	09	822.50	10162.63	0.19	0.43	0.17	0.26	0.76
Virginia	10	274.47	1705.78	0.29	0.53	0.48	0.69	0.74
Virginia	11	109.91	254.33	0.27	0.51	0.54	0.85	0.77
Washington	01	174.62	349.38	0.14	0.38	0.36	0.58	0.66
Washington	02	480.20	5836.68	0.32	0.56	0.33	0.46	0.77
Washington	03	486.06	7747.01	0.41	0.64	0.36	0.48	0.80
Washington	04	997.71	18189.92	0.23	0.48	0.40	0.77	0.69
Washington	05	688.53	18983.80	0.50	0.71	0.58	0.82	0.89
Washington	06	476.46	8939.97	0.50	0.70	0.46	0.64	0.84

Nationwide\_Compactness\_fromTiger.xlsx

Districts

State	District	Perimeter	Area	PolsbyPop	Schwartzbe	Reock	LengthWidt	ConvexHull
Washington	07	93.58	253.03	0.36	0.60	0.37	0.46	0.83
Washington	08	689.83	9995.92	0.26	0.51	0.47	0.67	0.74
Washington	09	106.89	213.61	0.24	0.49	0.45	0.62	0.76
Washington	10	199.34	791.03	0.25	0.50	0.28	0.34	0.80
West Virginia	01	856.47	14450.03	0.25	0.50	0.37	0.53	0.80
West Virginia	02	975.67	9779.92	0.13	0.36	0.21	0.54	0.50
Wisconsin	01	355.88	3039.13	0.30	0.55	0.24	0.26	0.87
Wisconsin	02	371.93	4368.26	0.40	0.63	0.58	0.77	0.88
Wisconsin	03	914.92	11544.15	0.17	0.42	0.31	0.67	0.59
Wisconsin	04	153.48	548.02	0.29	0.54	0.21	0.28	0.76
Wisconsin	05	274.65	2219.22	0.37	0.61	0.56	0.74	0.86
Wisconsin	06	572.23	7886.68	0.30	0.55	0.33	0.40	0.79
Wisconsin	07	1110.52	26083.51	0.27	0.52	0.42	0.74	0.72
Wisconsin	08	592.67	9807.61	0.35	0.59	0.37	0.57	0.77
Wyoming	01	1260.75	97809.44	0.77	0.88	0.55	0.57	1.00

Nationwide\_Compactness\_fromTiger.xlsx

Row Labels	Average of PolsbyPop	Average of Schwartzbe	Average of Reock	Average of LengthWidt	Average of ConvexHull
Alabama	0.22	0.47	0.39	0.67	0.72
Alaska	0.06	0.25	0.01	0.06	0.76
Arizona	0.28	0.52	0.39	0.64	0.74
Arkansas	0.27	0.51	0.44	0.77	0.77
California	0.21	0.45	0.34	0.56	0.69
Colorado	0.27	0.50	0.40	0.65	0.76
Connecticut	0.28	0.52	0.43	0.69	0.74
Delaware	0.46	0.68	0.37	0.50	0.84
Florida	0.43	0.65	0.46	0.68	0.81
Georgia	0.27	0.51	0.45	0.69	0.76
Hawaii	0.25	0.46	0.20	0.33	0.41
Idaho	0.25	0.50	0.39	0.55	0.77
Illinois	0.15	0.38	0.27	0.54	0.57
Indiana	0.48	0.68	0.48	0.67	0.85
Iowa	0.33	0.58	0.38	0.61	0.74
Kansas	0.35	0.58	0.38	0.58	0.78
Kentucky	0.24	0.48	0.34	0.53	0.69
Louisiana	0.14	0.37	0.35	0.67	0.62
Maine	0.22	0.47	0.41	0.64	0.71
Maryland	0.26	0.50	0.32	0.52	0.70
Massachusetts	0.22	0.46	0.34	0.57	0.67
Michigan	0.41	0.64	0.38	0.52	0.79
Minnesota	0.33	0.56	0.40	0.57	0.77
Mississippi	0.30	0.54	0.45	0.68	0.79
Missouri	0.32	0.56	0.42	0.62	0.79
Montana	0.35	0.58	0.40	0.52	0.83
Nebraska	0.33	0.57	0.35	0.47	0.81
Nevada	0.44	0.66	0.43	0.59	0.85
New Hampshire	0.16	0.40	0.32	0.58	0.66
New Jersey	0.21	0.45	0.36	0.64	0.67
New Mexico	0.29	0.54	0.37	0.68	0.73
New York	0.36	0.59	0.41	0.59	0.78
North Carolina	0.33	0.57	0.42	0.60	0.79
North Dakota	0.51	0.72	0.43	0.41	0.99
Ohio	0.32	0.55	0.39	0.56	0.75
Oklahoma	0.29	0.53	0.39	0.63	0.75
Oregon	0.33	0.57	0.41	0.65	0.76
Pennsylvania	0.32	0.56	0.41	0.60	0.78
Rhode Island	0.28	0.53	0.35	0.59	0.67
South Carolina	0.21	0.45	0.36	0.55	0.74
South Dakota	0.56	0.75	0.41	0.44	0.93
Tennessee	0.21	0.45	0.34	0.59	0.71
Texas	0.19	0.42	0.32	0.55	0.66
Utah	0.35	0.59	0.45	0.73	0.78
Vermont	0.37	0.61	0.42	0.64	0.82
Virginia	0.26	0.50	0.38	0.60	0.75
Washington	0.32	0.56	0.40	0.58	0.78
West Virginia	0.19	0.43	0.29	0.53	0.65
Wisconsin	0.31	0.55	0.38	0.55	0.78
Wyoming	0.77	0.88	0.55	0.57	1.00
Nationwide Avg	0.28	0.52	0.38	0.59	0.73

Prepared by Election Data Services, Inc.

-- 12:36 PM 8/25/2023

# **PLAINTIFFS' EXHIBIT 5**

**STATE OF NEW MEXICO  
COUNTY OF LEA  
FIFTH JUDICIAL DISTRICT**

FILED  
5th JUDICIAL DISTRICT COURT  
Lea County  
8/25/2023 9:12 PM  
NELDA CUELLAR  
CLERK OF THE COURT  
Jazmin Yanez

**REPUBLICAN PARTY OF NEW MEXICO,  
DAVID GALLEGOS, TIMOTHY JENNINGS,  
DINAH VARGAS, MANUEL GONZALES, JR.  
BOBBY AND DEE ANN KIMBRO, and  
PEARL GARCIA,**

**Plaintiffs,**

**v.**

**Cause No. D-506-CV-2022-00041**

**MAGGIE TOULOUSE OLIVER, in her official capacity as  
New Mexico Secretary of State, MICHELLE LUJAN  
GRISHAM, in her official capacity as Governor of New  
Mexico, HOWIE MORALES, in his official capacity as  
New Mexico Lieutenant Governor and President of the  
New Mexico Senate, MIMI STEWART, in her official  
capacity as President Pro Tempore of the New Mexico  
Senate, and JAVIER MARTINEZ, in his official capacity as  
Speaker of the New Mexico House of Representatives,**

**Defendants.**

**EXPERT REPORT OF BRIAN SANDEROFF**



## **I. Expert Qualifications**

Research & Polling, Inc. (RPI), was founded in 1986, and I have served as the President of RPI since its inception. RPI is the largest market research, demographic analysis, and public opinion polling corporation in New Mexico. We have 8 full-time employees and 30 professional interviewers. RPI specializes in public policy polling for New Mexico's most prominent organizations. I have supervised the administration of over 2,000 survey research studies. Included in many of the survey research studies were topics directly related to upcoming elections, including ballot issues and candidate preferences.

RPI has conducted all of the election polls for the Albuquerque Journal since 1986, including Primary, General, and special elections. Since 2002, I have been the political analyst for KOAT (local broadcast, Channel 7), providing live on-air and taped analysis of election results and topics.

The nationally recognized FiveThirtyEight website currently ranks RPI as only one of four polling organizations in the nation with an A+ accuracy rating for election polling.

Our major clients include New Mexico Administrative Office of the Courts, New Mexico State Legislature, Presbyterian Healthcare Services, PNM, University of New Mexico, Sandia National Laboratories, and Los Alamos National Laboratory.

We have provided redistricting and demographic analysis services on more than 180 occasions for various local and state government entities.

### **Redistricting experience for the New Mexico Legislature**

I have participated in statewide redistricting efforts in New Mexico following every decennial census since 1981. In 1981-82, I played an active role in the redistricting process on behalf of the Governor's office, where I was employed at the time. Beginning in 1991 and for every redistricting cycle since then (2001, 2011 and 2021), RPI has contracted with the New Mexico Legislature to provide technical consulting services for redistricting. In 1991, I worked

on behalf of the Legislature to consult with the United States Department of Justice on obtaining pre-clearance for New Mexico's State Senate redistricting plan under Section 5 of the Voting Rights Act. In 2001 and 2011, I was also qualified as an expert witness in redistricting litigation, which is discussed in more detail below.

For the latest redistricting cycle, RPI was hired by the Legislative Council Service ("LCS") to deliver professional technical consulting services related to designing redistricting plans as requested, finalizing alternative redistricting plans, providing expert technical assistance, and assisting in preparation for committee hearings. RPI's contract with LCS began November 9, 2020 and ran until June 30, 2022. The agreement provides that, "[i]n performing services pursuant to this Agreement, the Contractor shall comply with the laws and policies of the LCS just as if the Contractor were a member of the LCS staff."

RPI also entered a *Memorandum of Understanding between the Citizen Redistricting Committee and Research and Polling, Inc.*, pursuant to which RPI agreed to assist the Citizen Redistricting Committee in performing its redistricting duties. RPI also agreed to refrain from consulting with or taking requests from legislators from July 2, 2021, to October 23, 2021.

As part of its consulting role in support of statewide redistricting, RPI develops and updates a partisan performance index that is used as the official index for all the redistricting plans prepared by the Legislature. The partisan performance index is based on the results of all statewide elections in New Mexico over the previous decade (the partisan performance index that was used for redistricting in 2021 included election results from 2012, 2014, 2016, 2018, and 2020), except any races in which the margin of victory was 20 points or greater. The RPI partisan performance index is widely used and has been relied upon in judicial decisions regarding redistricting.

### **Previous Expert Work**

I have been qualified as an expert witness in state and federal courts for survey research, demographic analysis, and redistricting on over 40 occasions over the past 30 years. A detailed list of those cases is provided on my C.V., a copy of which is attached to this report. With respect to redistricting specifically, my experience serving as an expert is as follows. In 2001, I was qualified as an expert and provided deposition and trial testimony in *Michael Jepsen, et al. v. Rebecca Vigil-Giron*, in her official capacity as New Mexico Secretary of State, et al., First Judicial District Court, County of Santa Fe, D-101-CV-2001-02177. At issue in that case were New Mexico's redistricting plans for United States Congress and for the New Mexico State House of Representatives.

In 2011, I was qualified as an expert witness and provided deposition and trial testimony in *Brian F. Egolf, Jr., et al. v. Diana J. Duran et al.*, First Judicial District Court, County of Santa Fe, D-101-CV-2011-02942. I provided expert testimony on behalf of the New Mexico Legislature in connection with the litigation over redistricting plans for the New Mexico State House of Representatives, the State Senate, and the State Public Regulation Commission. Issues in that litigation ultimately were reviewed by the New Mexico Supreme Court, and upon remand to the trial court, the state Supreme Court suggested that the district court could use my services as a Rule 706 expert to assist the Court. The district court designated me as a 706 expert without any objection by any of the parties to the litigation.

### **Education and Early Career**

I earned a B.A. in Political Science from the University of New Mexico in 1977. I was also a guest lecturer in the Political Science Department at UNM in 1985, where I taught an undergraduate 300 level course called Campaign Management.

Early in my career, I served in various positions in state government, with a focus on public policy development and agency management and administration. Those positions are

outlined in more detail in my C.V., a copy of which is attached to this report. From 1983 to 1986, I ran Sanderoff and Associates, a market research, demographic analysis, and public opinion polling company which was the precursor to RPI.

## **II. Scope of Expert Engagement**

I was retained by counsel for the Legislative Defendants in this case to evaluate the political competitiveness of the congressional redistricting plan for New Mexico that was passed by the New Mexico Legislature in December 2021 and enacted into law. The plan is commonly referred to as “SB-1” and I will refer to it as such throughout this report.

## **III. Data and Materials Relied Upon**

In carrying out this engagement and developing my opinions, I relied upon the following information and materials:

- Maps and data for SB-1, as available on the nmlegis.gov website
- RPI’s partisan performance index for New Mexico that was utilized during the New Mexico special redistricting session
- Election results for New Mexico congressional districts, 2002 through 2022
- The New Mexico Supreme Court’s Order of July 5, 2023
- Justice Elena Kagan’s dissenting opinion in *Rucho v. Common Cause*, 139 S. Ct. 2484 (2019)

I did not have any involvement in designing SB-1, nor did any RPI staffers. Nor did I or any RPI staffers have any communications with any legislators, legislative staff or consultants about the design effects, intent, or policies behind SB-1. My opinions regarding the political competitiveness of SB-1 are solely my own and were developed based only on the information and materials identified above, using my knowledge and expertise.

#### **IV. Expert Opinions**

Through my review and analysis of the materials identified above, I have reached the following opinions concerning the political competitiveness of SB-1:

##### **1. SB-1 does not entrench the Democratic party in power.**

In her dissent in the *Rucho* case, Justice Kagan set out a test for determining whether a particular districting plan constitutes an unconstitutional partisan gerrymander. The first of the three parts of Justice Kagan's test looks at whether "state officials' 'predominant purpose' in drawing a district's lines was to 'entrench [their party] in power' by diluting the votes of citizens favoring its rival." As defined in the Oxford English Dictionary, "entrenchment" means "establishing something firmly, especially so that change is difficult or impossible."

Under SB-1, Congressional District 2 ("CD 2") is a competitive district. The partisan performance measure for CD 2 under SB-1 is 53.0% Democrat and 47.0% Republican. Based on my experience, political consultants consider a district to be competitive if the gap between the average Democratic and Republican performance falls within a 54% to 46% range. So, in this case, the partisan average Democratic and Republican performance is narrower, at 53% to 47%, respectively. Other factors are taken into account to determine whether a race is competitive, such as the candidates' name recognition, favorability, the relative strength and quality of the candidates, and their ability to raise campaign funds, etc.

The highly competitive nature of CD 2 was demonstrated in the 2022 congressional election in New Mexico, which was conducted using the SB-1 map. In CD 2, the Republican candidate was Yvette Herrell, and the Democratic candidate was Gabe Vasquez. The race was extremely close. Candidate Vasquez ultimately won the election by just 1,350 votes out of 192,673 votes cast, or a margin of 0.7%. This very close outcome demonstrates that under SB-1, CD 2 can be won by either a Democrat or a Republican. Any time the margin of victory in an election falls within one percentage point, that race is considered a "toss up", in which the

winner is extremely vulnerable to being challenged and possibly defeated in the next general election cycle.

Therefore, while the Democratic performance of CD 2 increased under SB-1, and the Republican performance of CD 2 decreased under SB-1, CD 2 is by no means a “safe” Democratic district. By drawing CD 2 as a competitive, toss-up district that could be won by a candidate of either party, the Legislature did not entrench the Democratic party in power in CD 2.

**2. Prior to SB-1, CD 2 was not a safe Republican district, but was a strong leaning Republican district.**

Reviewing the actual congressional races that occurred in a given district over time (known as endogenous races) can shed additional light on the partisan strength of that district. Relying only on exogenous races, such as president or governor, to determine the relative partisan strength of a congressional district can risk missing the subtleties that occur at the local level, within the congressional elections. For example, the residential location of the candidates within the congressional district will impact voting behavior, whether a candidate lives in Las Cruces or Hobbs. Or whether the local candidate is well known or not. These types of factors have historically come into play in congressional elections in CD 2.

First, it is worth noting that the congressional district boundaries of CD 2 from 2012 to 2020 are very similar to the boundaries from 2002 and 2010. In the 2011 congressional district litigation, the district judge adopted a “least change congressional plan.” Thus, the boundaries of CD 2 were very similar from 2002 to 2020.

Based upon the congressional district election history in the former CD 2 (2002 to 2020), this district was a strong leaning Republican congressional district, not a safe Republican district (see appendix 1 and appendix 2). Republican Steve Pearce was first elected to CD 2 in the 2002 General Election. He later stepped down from his congressional seat to run unsuccessfully in the

2008 US Senate race. He was then reelected to his congressional seat in 2010. He later stepped down again from his congressional district to run unsuccessfully in the 2018 Governor's race.

Despite Steve Pearce's inability to win two statewide election contests, he was extremely successful in winning all his congressional district races in CD 2. He was a hard-working incumbent candidate who was well-known throughout the district due to his long tenure in office, serving stints between 2003 and 2019. Steve Pearce prided himself on working closely with traditional Democratic constituencies such as Hispanic and Native American voters. As a result, he won his elections by large margins. The power of incumbency and the popularity of Steve Pearce contributed to his impressive election outcomes.

However, it is interesting to note, that the two times Steve Pearce stepped down to seek higher office, a Democrat won the election in CD 2. Specifically, in 2008, after Steve Pearce stepped down to run for U.S. Senate, Democrat Harry Teague won the election by a very comfortable margin. Then, in 2018, after Steve Pearce stepped down to run for Governor, Democrat Xochitl Torres Small won the election by 1.8 percentage points. Thus, once the playing field was leveled, and the powerful incumbent was no longer a factor, a Democrat candidate won the election on two occasions. It is worth noting, that once Steve Pearce sought to regain his congressional seat in 2010, he beat Harry Teague by a large margin. It is also worth noting that Democrat Xochitl Torres Small was defeated by Republican Yvette Herrell after serving one term.

To summarize, a review of the congressional election results in CD 2 between 2002 and 2020 illustrates that CD 2 was not a safe Republican district, but was a strong leaning Republican district, before it was changed to a competitive district under SB-1.

**3. Under SB-1, all three of New Mexico's Congressional Districts became more politically competitive.**

Any analysis to determine whether the political competitiveness of the three congressional districts increased, or not, should also include a review of the actual congressional races in the congressional districts over time. Again, this is because relying solely on exogenous races such as president or governor to determine the change in competitiveness of a congressional district can risk missing the subtleties that occur at the local level, within the congressional elections.

In CD 1, from 2012 to 2020 (see appendix 3), under the old district boundaries, there were five general elections and one special election to fill a vacancy. The Democratic candidate won those general elections by a wide margin, an average of 21.0%. In the 2022 general election, under the new district boundaries, the Democrat won the election by 11.5%, a significantly narrower margin of victory.

In CD 2, from 2012 to 2020 (see appendix 2), under the old district boundaries, there were five general elections in which the Republican candidate won 4 times. The average margin of victory was 16.4%. In the 2022 general election, under the new district boundaries, the Democrat won by less than one percent, thus the gap between the winning and losing candidate narrowed significantly, and the Democratic candidate won the election.

In CD 3 (see appendix 4), from 2012 to 2020, under the old district boundaries, there were five general elections. The Democratic candidate won all those elections by a wide margin, an average of 24.7%. In the 2022 general election, under the new district boundaries, the Democrat won the election by 16.4%, thus narrowing the margin of victory between the Democratic and Republican candidates.



Thus, for all three congressional districts, when one compares the average margin of victory from the old district boundaries (2012 to 2020 elections) to the new district boundaries (2022 election) the margin of victory narrows. (Chart 1)

Chart 1

GENERAL ELECTION FOR CONGRESSIONAL DISTRICT RACES			
Average % Margin of Victory			
"Old" Congressional District Boundaries vs. "New" Congressional District Boundaries			
Congressional District 1			
General Elections	District Boundaries	Margin of Victory (Mean)	Margin of Victory (Median)
2012 through 2020 {5 election cycles}	Old	21.0%	18.3%
2022 {1 election cycle}	New	11.5%	11.5%
Congressional District 2			
General Elections	District Boundaries	Margin of Victory (Mean)	Margin of Victory (Median)
2012 through 2020 {3 election cycles}	Old	16.4%	18.2
2022 {3 election cycle}	New	0.7%	0.7%
Congressional District 3			
General Elections	District Boundaries	Margin of Victory (Mean)	Margin of Victory (Median)
2012 through 2020 {5 election cycles}	Old	24.7%	24.8%
2022 {1 election cycle}	New	16.4%	16.4%
RESEARCH & POLLING, INC.			

**4. Political party registration numbers are not meaningful predictors of partisan performance in elections, especially in Southeastern New Mexico.**

In reviewing the New Mexico Supreme Court’s July 5 Order, I noted that the Court directed the district court to consider (among other things) “evidence comparing the relevant congressional district’s voter registration percentage/data, regarding the individual plaintiffs’ party affiliation under the challenged congressional maps, as well as the same source of data under the prior maps.” N.M. Supreme Court Order, July 5, 2023 at para. 7.<sup>1</sup>

<sup>1</sup> On August 25, 2023, as this report was being finalized, the New Mexico Supreme Court issued an Amended Order that does not include any mention of voter registration data. However, I have kept this discussion in my report in case it is useful to the Court.

In general, and specifically in New Mexico, political party registration is often not a reliable or meaningful predictor of partisan performance and election outcomes. There are many reasons for this. A good example to demonstrate that voter registration statistics, by party affiliation, are not a good indicator of partisan performance is to look at the Democratic performance in the presidential elections from 2000 to 2020 compared to the percentage of registered Democrats over a similar time. As the accompanying chart shows (Chart 2), in 2000 and 2004, New Mexico was a battleground state in the presidential elections, where a tiny margin determined the outcome of the races. Then, since 2008, the Democratic presidential candidates have won by large margins. This shows how New Mexico is trending more Democratic over time. But, during that same time, the percentage of registered Democrats in New Mexico declined significantly, while the percentage of registered Republicans remained roughly constant (Chart 3).

**Chart 2**

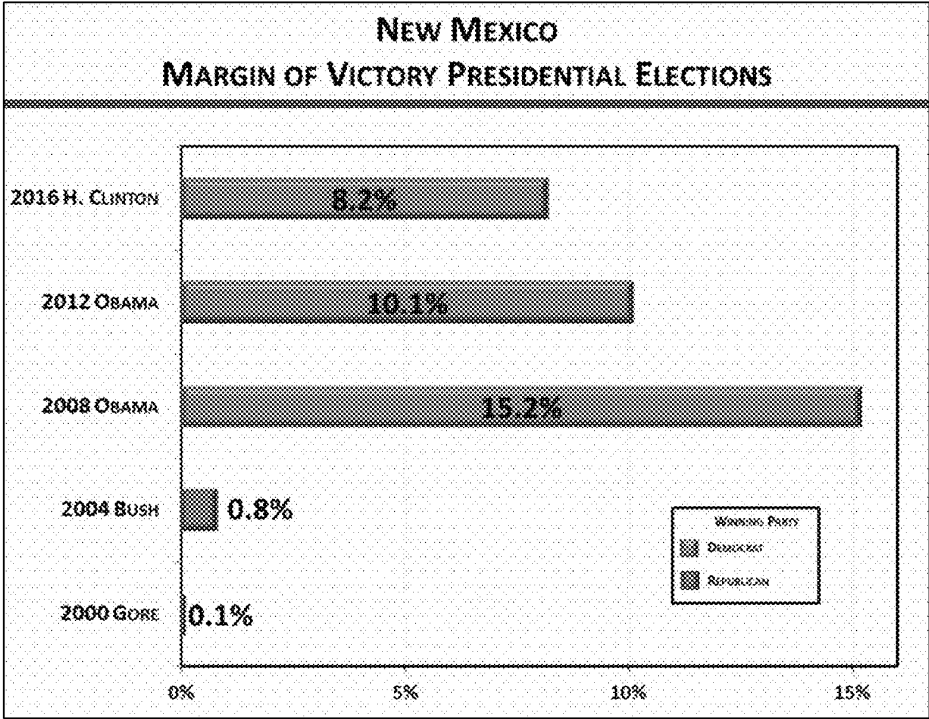
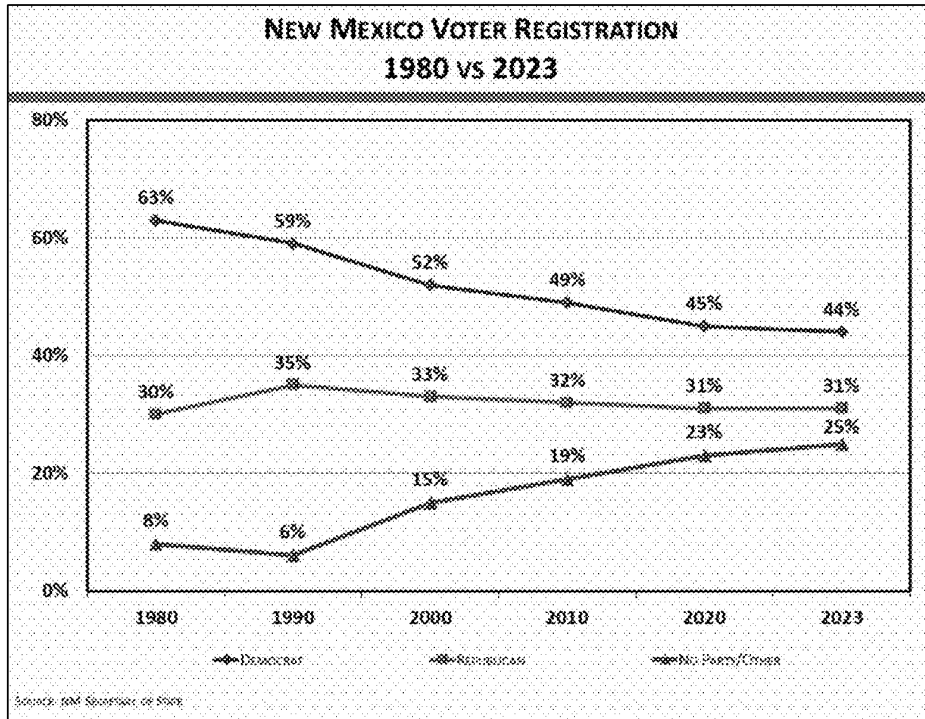


Chart 3



There are numerous reasons for this phenomenon. First, many conservative Democrats switched to the Republican Party over time. Second, many young people decline to state a political party affiliation when they register to vote, but they often vote for Democratic candidates. Third, some registered Republicans moved out of the state or died and were replaced by conservative Democrats who changed their registration to Republican. Therefore, political party registration is often not a reliable or meaningful predictor of partisan performance and election outcomes.

Dated: August 25, 2023

By:   
Brian Sanderoff

**Brian Sanderoff**  
*Curriculum Vitae*

**Address**

Office:  
5140 San Francisco Road, NE  
Albuquerque, NM 87109  
505-821-5454  
sanderoff@rpinc.com

**Education**

University of New Mexico, B.A. Political Science

University of New Mexico, Attended Graduate School,  
Political Science Department

Guest Lecturer

Taught an undergraduate 300 level course in Political Science Department of the University of New Mexico called *Campaign Management* (1985)

**Professional Experience**

*April 1986-Present*

President of Research & Polling, Inc.

Brian Sanderoff has been the political pollster/election analyst for the *Albuquerque Journal* for 37 years and for KOAT TV for over 20 years.

Research & Polling, Inc. has provided redistricting services on more than 180 occasions for New Mexico's congressional districts, state legislative districts, Public Regulation Commission Districts, Public Education Commission Districts, as well as county commission, city council, and school board districts throughout the state.

Research & Polling Inc. is the largest market research, demographic analysis, and public opinion polling corporation in New Mexico. Research & Polling has 8 full-time employees and 30 professional interviewers. Research & Polling specializes in public policy polling and litigation support including change of venue surveys. Brian Sanderoff has supervised the administration of over 2,000 survey research studies. Brian Sanderoff's major clients include New Mexico Administrative Office of the Courts, New Mexico State Legislature, Presbyterian Healthcare Services, PNM, University of New Mexico, and Sandia National Laboratories and Los Alamos National Laboratory. Research & Polling has provided demographic analysis services on more than 100 occasions for various local and state government entities.

*January 1983  
To March 1986*

President of Sanderoff and Associates

A market research, demographic analysis and public opinion polling company in Albuquerque, New Mexico. Sanderoff and Associates specialized in serving government agencies at the city, county, and state level.

**Professional Experience** *(continued)*

*November 1978  
To December 1982*

State Government service as a public policy director.  
Positions held include:

Director, Management Analysis Division, Department of Finance Administration.

Responsible for administering this division of state government. The Management Analysis Division identified troubled areas in state government and recommended means to improve the management and operations of the agencies.

Director, Governor's Office of Community Affairs.

Responsible for improving the management and administration of this agency which delivered services throughout the State of New Mexico.

Director, Human Rights Commission.

Responsible for improving the management and administration of this agency which ruled on discrimination cases.

Chairman, Commission of Children and Youth.

Was the first chairman of the Governor's Commission on Children and Youth. The purpose of this commission was to establish a coordinating body within the executive branch to deal with children's issues that were inter-departmental in nature. As chairman of this commission, Sanderoff worked closely with many cabinet departments and division directors to implement pilot programs and to more efficiently administer children's programs which were interdisciplinary in nature.

Aide to the Governor, Governor's Office

## **Expert Witness Experience, 1992-Present**

Brian Sanderoff has qualified as an expert witness in both state and federal district courts for survey research, demographic analysis, and redistricting on over 40 occasions in the past thirty years.

Art Bustos, As Personal Representative of the Estate of Edgar Garcia, and Selena Rodrigues, Individually, and as Next Friend of Ileana Rodriguez and Sophia Garcia, Minors vs. Caza Operating, LLC and Azteca Manufacturing, Inc. f/k/a Azteca Fabrication and Banta Oilfield Services, Inc. 4<sup>th</sup> Judicial District Court, County of San Miguel, State of New Mexico, #D-412-CV-2017-00592, 2019

El Encanto, Inc., d/b/a Bueno Foods, and Hatch Chile Association v. Hatch Chile Company, Inc. United States Patent and Trademark Office, Opposition Proceeding #91223190, 2017

Robert Pidcock v. Albuquerque Public School District and Governing Board of the Central New Mexico Community District. 2<sup>nd</sup> Judicial District Court, County of Bernalillo, State of New Mexico. #D-202-CV-2016-01002

Phillip Patrick Baca, Mary Molina Mescall v. Richard J. Berry in his official capacity as Mayor of Albuquerque. United States District Court for the District of New Mexico. #1:13-CV-0076 WJ/WPL, 2013

Brian F. Egolf Jr., et al. v. Diana J. Duran et al. Remand by the New Mexico State Supreme Court to the District Court for New Mexico State House of Representatives Redistricting, 1<sup>st</sup> Judicial District Court, County of Santa Fe, State of New Mexico, 2012. Appointed by the New Mexico District Court as a 706 Expert to aid the District Court in addressing New Mexico Supreme Court issues. #D-101-CV-2011-02942

Brian F. Egolf Jr., et al. v. Diana J. Duran et al. New Mexico State House of Representatives Redistricting, 1<sup>st</sup> Judicial District Court, County of Santa Fe, State of New Mexico, 2011-2012 #D-101-CV-2011-02942

Brian F. Egolf Jr., et al. v. Diana J. Duran et al. New Mexico State Senate Redistricting, 1<sup>st</sup> Judicial District Court, County of Santa Fe, State of New Mexico, 2011-2012 #D-101-CV-2011-02942

Brian F. Egolf Jr., et al. v. Diana J. Duran et al. New Mexico State Public Regulation Commission Redistricting, 1<sup>st</sup> Judicial District Court, County of Santa Fe, State of New Mexico, 2011-2012 #D-101-CV-2011-02942

Michael Archuleta (ACLU) et al. v City of Albuquerque et al. 2<sup>nd</sup> Judicial District Court, County of Bernalillo, State of New Mexico, 2011 #CV 2011-5792 (city council redistricting)

Ernest S. Mondragon, Gonsalo Arenas, Veronica Arenas, Scott Limbourne, Michael Cardenas, Jessica Cardenas and Medardo Vigil v. New Mexico Gas Company. State of New Mexico, County of Taos, Eighth District Judicial Court, 2011. # D-0820-CV-2011-00106

Ray and Cathy Collins et al v. America West Airlines Inc. d/b/a US Airways, Ever-Ready Oil Co., Inc d/b/a Chevron Redi-Mart, et al., 4<sup>th</sup> Judicial District Court, County of San Miguel, State of New Mexico, Change of Venue Hearing, June 2011 #D-412-CV-2006-00627

John Ivan Sutter, MD, PA, individually and on behalf of all others similarly situated v. Horizon Blue Cross Blue Shield of New Jersey, Superior Court of New Jersey, Essex County, State of New Jersey, Settlement Value Survey, #ESX-L-3685-02, February 2010

**Expert Witness Experience, 1992-Present (continued)**

Ray and Cathy Collins et al v. America West Airlines Inc. d/b/a US Airways, et al., 4<sup>th</sup> Judicial District Court, County of San Miguel, State of New Mexico, Change of Venue Survey (Affidavit Only) #D-412-CV-2006-00627

State of New Mexico v. Jessica Livingston, 4<sup>th</sup> Judicial District Court, County of San Miguel, State of New Mexico, Change of Venue Hearing #CR02007 00250, January 2009

U.S. v. Larry Lujan, Federal District Court, State of New Mexico, Southern Division, Comparison of Demographic Profile of Jury Wheel and Jury Pool Population vs. Adult Population (Census Data) USDC NM 05-CR-00924, September 2008.

State of New Mexico v. Jerry Fuller, 9<sup>th</sup> Judicial District Court, County of Roosevelt, State of New Mexico, Change of Venue Hearing #CR2005 00047, April 2006.

USA v. Cisneros, Federal District Court, State of Arizona, Comparison of Demographic Profile of Jury Wheel Population vs. Adult Population (Census Data) #CR 03-0730-PHX-SRB (Docket 1141), November 2005.

State of New Mexico v. Zachariah Craig, 13<sup>th</sup> Judicial District Court, County of Sandoval, State of New Mexico, Change of Venue Hearing #D-1333-CR-200100155, June 2005.

Johnny Bierner, et al. v. Cortez Gas Co., et al., 7<sup>th</sup> Judicial District Court, County of Sierra, State of New Mexico, Change of Venue Hearing # D-0721-CV-2001-0076, January 2005.

Robert Harshbarger as the Personal Representative of the Estate of Shawn H. Harshbarger v. The Regents of the University of California, Johnson Controls Northern New Mexico, L.L.C., and Johnson Controls World Services, Inc., 1<sup>st</sup> Judicial District Court, County of Rio Arriba, State of New Mexico, Change of Venue Hearing # D-0117-CV-2002-02073, September 2003.

Gilbert Armijo and Maria Casaus v. Wal-Mart Stores, Inc., a Delaware corporation, Sam's Club, an operating segment of Wal-Mart Stores, Inc., First Judicial District, County of Rio Arriba, State of New Mexico, Survey Research (Face-to-Face Interviews), Hearing # D-0117-CV-200002211, May 2003.

Frankie Pasquale v. Omkar Tiku, M.D., Second Judicial District Court, County of Bernalillo, State of New Mexico, Hearing # CV 2001-07418, April 2003.

State of New Mexico and State of New Mexico ex rel Patricia Madrid v. General Electric, et al., Federal District Court, Change of Venue Hearing # CV 99-1254 BSJ/DJS & # CV 99-1118 BSJ/LFG, October 2002 (Affidavit Only).

State of New Mexico v. Ruben Flores, 5<sup>th</sup> Judicial District Court, County of Lea, State of New Mexico, Change of Venue Hearing # CR 99-028, July 2002.

Michael Jepsen, et al. v. Rebecca Vigil-Giron, in her official capacity as New Mexico Secretary of State, et al., 1<sup>st</sup> Judicial District Court, County of Santa Fe, State of New Mexico, # D0101 CV 2001 02177 (Consolidated), Redistricting of United States Congress, Redistricting of New Mexico State House of Representatives, December 2001.

Martha Chapman, et al. v. El Paso Energy Corporation, a Foreign Corporation, El Paso Natural Gas Company, a Foreign Corporation, and John Cole, 5<sup>th</sup> Judicial District Court, County of Eddy, State of New Mexico, Change of Venue Hearing # CV 2001-62, September 2001.



**Expert Witness Experience, 1992-Present (continued)**

Delfina Archuleta & Rio Grande Café, Inc., v. Beneficial Standard Life Insurance, Company, Franklin Life Insurance Company, Usg Annuity & Life Company, American Life and Casualty Insurance Company, A/k/a Conseco Annuity Assurance Company, Joe A. Casados, Ronald J. Casados, Elsie A. Casados, and Camille Koehler, 1<sup>st</sup> Judicial District Court, County of Rio Arriba, State of New Mexico, Change of Venue Hearing # D-0117-CV0200000651, August 2001.

State of New Mexico v. Paul Payne; 5<sup>th</sup> Judicial District Court, County of Lea, State of New Mexico, Change of Venue Hearing, Case # CR99-0319G, March 2001.

Levi Garcia and Roger Rodriguez v. University of California, Los Alamos National Laboratories, Louis Schulte, and John and Jane Does I-X; 1<sup>st</sup> Judicial District Court, State of New Mexico, Change of Venue Survey, Case # D-D-0117-CV-9900563, February 2001.

State of New Mexico v. John Price, 5<sup>th</sup> Judicial District Court, County of Lea, State of New Mexico, Change of Venue Hearing # 99-318 C, December 2000.

State of New Mexico v. Jeffrey Taylor, 13<sup>th</sup> Judicial District Court, County of Sandoval, State of New Mexico, Change of Venue Hearing, February 2000.

Citadel v. Trumper, et al., District of New Mexico, #99-CV00922, August 1999.

James E. Schwiner v. Regents of the University of California DBA Los Alamos National Laboratory, 1<sup>st</sup> Judicial District Court, County of Rio Arriba, State of New Mexico, Change of Venue Hearing RA # 97-2120C, November 1998.

David Luhan and Pablo Lopez v. Albuquerque Metropolitan Arroyo Flood Control Authority District et al., USDC, CIV # 98-704 LH/RLP, August 1998.

State of New Mexico v. Shawn Popeleski, 7<sup>th</sup> Judicial District Court, County of Torrance, State of New Mexico, Change of Venue Hearing CR # 97-100 TOR, September 1998.

State of New Mexico v. Shawn Popeleski, 7<sup>th</sup> Judicial District Court, County of Torrance, State of New Mexico, Change of Venue Hearing CR # 97-100 TOR, June 1998.

Saberhagen v. Random House, et al., District of New Mexico, Trademark/Brand Confusion Survey, #98-CV01183, September 1998.

Cheesecake Factory, Inc. v. The Cheesecake Factory, District of New Mexico, Trademark/Brand Confusion Survey, #97-CV00187, February 1997.

State of New Mexico v. Roy Buchner, 7<sup>th</sup> Judicial District Court, County of Torrance, State of New Mexico, Change of Venue Hearing CR # 96-066 TOR, September 1997.

State of New Mexico v. Shaun Wilkins, 7<sup>th</sup> Judicial District Court, County of Torrance, State of New Mexico, Change of Venue Hearing CR # 96-92 TOR, May 1997.

United States v. Jason De La Torre, USDC, Criminal Case # 95-538 MV, May 1997, Demographic analysis, Survey Research, Voter File analysis (statewide).

United States v. Jason De La Torre, USDC, Criminal Case # 95-538 MV, February 1997, Demographic analysis, Survey Research, Voter File analysis (statewide).

**Expert Witness Experience, 1992-Present (continued)**

Aragon v. University of California Los Alamos National Laboratory, 1<sup>st</sup> Judicial District Court, County of Rio Arriba, State of New Mexico/# RA-95-2387, October 1996, Change of Venue Survey (Los Alamos, Taos, Rio Arriba, Santa Fe, San Miguel, Bernalillo, Chaves, Doña Ana Counties).

State of New Mexico v. Gordon House, July 1994, First Retrial, Change of Venue Survey, (Taos, Doña Ana Counties).

State of New Mexico v. Gordon House, March 1995, Second Retrial, Change of Venue Survey, (Taos, Doña Ana Counties), Media Analysis.

Docket # 93-218-T.C. Before the New Mexico State Corporation Commission. Expansion of the US West Albuquerque Metro calling area. October 1993, Market Research Study (Bernalillo County, Belen, Peña Blanca, Acoma, Laguna and Estancia).

Revo v. the New Mexico Disciplinary Board, et al. USDC CIV # 92-764 JB/RWM, December 1992, Federal District Court, Public Opinion Poll regarding Lawyer Direct Mail Advertising.

United States v. Cibola County, et al. USDC CIV # 93-1134 SC/LFG, Public Opinion Poll (Cibola County).

## Appendix 1:

### CD 2: 2002-2010

**Median Spread: 12.51**

**Mean Spread: 14.79**

**2010: 169,762**

- Democrat – Harry Teague, 44.60%, 75,709
- Republican – Steve Pearce, 55.40%, 94,053
- Spread: 10.8

**2008: 231,552**

- Democrat – Harry Teague, 55.96%, 129,572
- Republican – Edward Tinsley, 44.04%, 101,980
- Spread: 11.29

**2006: 155,739**

- Democrat – Albert Kissling, 40.53%, 63,119
- Republican – Steve Pearce, 59.47%, 92,620
- C. Dean Burke (write-in) - 135
- Spread: 18.94

**2004: 216,790**

- Democrat – Gary King, 39.80%, 86,292
- Republican – Steve Pearce, 60.20%, 130,498
- Spread: 20.4

**2002: 141,628**

- Democrat – John Arthur Smith, 43.72%, 61,916
- Republican – Steve Pearce, 56.23%, 79,631
- Padraig Lynch (write-in), 0%, 39
- Geroge Dewey (write-in), 0%, 43
- Spread: 12.51

## Appendix 2:

### CD 2: 2012-2020

**Median Spread: 18.2**

**Mean Spread: 16.4**

**2012: 225,515**

- Democrat – Evelyn Madrid Erhard, 40.9%, 92,162
- Republican – Steve Pearce, 59.1%, 133,180
- Independent- Jack McGrann , .0%, 173
- Spread: 18.2

**2014: 147,708**

- Democrat – Roxanne Lara, 35.5%, 52,499
- Republican – Steve Pearce, 64.4%, 95,209
- Republican (write-in) – Jack McGrann, 0% 69
- Spread: 29

**2016: 228,817**

- Democrat – Merrie Lee Soules, 37.2%, 85,232
- Republican – Steve Pearce, 62.7%, 143,515
- Republican (write-in) – Jack McGrann, 0% 70
- Spread: 25.5

**2018: 199,373**

- Democrat – Xochitl Torres Small, 50.9%, 101,489
- Republican – Yvette Herrell, 49.0%, 97,767
- Independent - Steve Jones – 0%, 117
- Spread: 1.9

**2020: 264,829**

- Democrat – Xochitl Torres Small, 46.3%, 122,546
- Republican – Yvette Herrell, 53.7%, 142,283
- Spread: 7.4

**2022: 192,673**

- Democrat – Gabe Vasquez, 50.3%, 96,986
- Republican - Yvette Herrell, 49.6%, 95,636
- Democrat (write-in) - Eliseo Luna – 0%, 51
- Spread: 0.7

### **Appendix 3:**

#### **CD 1: 2012-2020**

**2012-2020 Median Spread: 18.3**

**2012-2020 Mean Spread: 20.98**

**2012: 275,855**

- Democrat – Michelle Lujan Grisham, 59.1%, 162,924
- Republican – Janice Arnold Jones, 40.8%, 112,472
- Green Party – Jeanna Pahls, .0%, 459
- Spread: 18.3

**2014: 180,032**

- Democrat – Michelle Lujan Grisham, 58.6%, 105,474
- Republican – Michael Frese, 41.4%, 74,558
- Spread: 17.2

**2016: 277,967**

- Democrat – Michelle Lujan Grisham, 65.1%, 181,088
- Republican – Richard Priem, 34.9%, 96,879
- Spread: 30.2

**2018: 249,162**

- Democrat – Deb Haaland, 59.1%, 147,336
- Republican – Janice Arnold Jones, 36.3%, 90,507
- Libertarian – Lloyd Princeton, 4.5%, 11,319
- Spread: 22.8

**2020: 321,209**

- Democrat – Deb Haaland, 58.2%, 186,953
- Republican – Michelle Garcia Holmes, 41.8%, 134,337
- Spread: 16.4

**2021: 132,217 (Special Election)**

- Democrat – Melanie Stansbury, 60.4%, 79,838
- Republican – Mark Moores, 35.6%, 47,111
- Independent - Aubrey Dunn, 2.7%, 3534
- Libertarian – Chris Manning, 1.3%, 1734
- Spread: 24.8

**2022: 280,671**

- Democrat – Melanie Stansbury, 55.7%, 156,462
- Republican – Michelle Garcia Holmes, 44.2%, 124,151
- Independent -Victoria Gonzales, 0%, 58
- Spread: 11.5

**Appendix 4:**

**CD 3: 2012-2020**

**2012-2020 Median Spread: 24.8**

**2012-2020 Mean Spread: 24.74**

**2012: 264,719**

- Democrat – Ben Ray Lujan, 63.1%, 167,103
- Republican – Jefferson Byrd, 36.9%, 97,616
- Spread: 26.2

**2014: 184,076**

- Democrat – Ben Ray Lujan – 61.5%, 113,249
- Republican – Jefferson Byrd – 38.4%, 70,775
- Republican (write-in) Thomas Hook – 0%, 52
- Spread: 23.1

**2016: 273,342**

- Democrat – Ben Ray Lujan, 62.4%, 170,612
- Republican – Michael Romero, 37.6%, 102,730
- Spread: 24.8

**2018: 244,893**

- Democrat – Ben Ray Lujan, 63.4%, 155,201
- Republican – Jerald McFall, 31.2%, 76,427
- Libertarian – Chris Manning, 5.4%, 13,265
- Spread: 32.2

**2020: 317,448**

- Democrat – Teresa Leger Fernandez, 58.7%, 186,282
- Republican – Alexis Johnson, 41.3%, 131,166
- Spread: 17.4

**2022: 230,782**

- Democrat – Teresa Leger Fernandez, 58.2%, 134,217
- Republican – Alexis Johnson, 41.8%, 96,565
- Spread: 16.4

# **PLAINTIFFS' EXHIBIT 6**

FILED  
5th JUDICIAL DISTRICT COURT  
Lea County  
8/25/2023 9:12 PM  
NELDA CUELLAR  
CLERK OF THE COURT  
Jazmin Yanez

**STATE OF NEW MEXICO  
COUNTY OF LEA  
FIFTH JUDICIAL DISTRICT**

**REPUBLICAN PARTY OF NEW MEXICO,  
DAVID GALLEGOS, TIMOTHY JENNINGS,  
DINAH VARGAS, MANUEL GONZALES, JR.  
BOBBY AND DEE ANN KIMBRO, and  
PEARL GARCIA,**

**Plaintiffs,**

**v.**

**Cause No. D-506-Cv-2022-00041**

**MAGGIE TOLOUSE OLIVER, in her official capacity as  
New Mexico Secretary of State, MICHELLE LUJAN  
GRISHAM, in her official capacity as Governor of New  
Mexico, HOWIE MORALES, in his official capacity as  
New Mexico Lieutenant Governor and President of the  
New Mexico Senate, MIMI STEWART, in her official  
capacity as President Pro Tempore of the New Mexico  
Senate, and JAVIER MARTINEZ, in his official capacity as  
Speaker of the New Mexico House of Representatives,**

**Defendants.**

**EXPERT REPORT OF JOWEI CHEN, Ph.D.**



1. I am an Associate Professor in the Department of Political Science at the University of Michigan, Ann Arbor. I am also a Research Associate Professor at the Center for Political Studies of the Institute for Social Research at the University of Michigan and a Research Associate at the Spatial Social Science Laboratory at Stanford University. In 2004, I received a B.A. in Ethics, Politics, and Economics from Yale University. In 2007, I received a M.S. in Statistics from Stanford University, and in 2009, I received a Ph.D. in Political Science from Stanford University.

2. I have published academic papers on legislative districting and political geography in several academic journals, including *Yale Law Journal*, *Stanford Law Review*, *The American Journal of Political Science*, *The American Political Science Review*, and *Election Law Journal*. My academic areas of expertise include legislative elections, spatial statistics, geographic information systems (GIS) data, redistricting, racial politics, legislatures, and political geography. I have expertise in the use of computer simulations of legislative districting and in analyzing political geography, elections, and redistricting. In 2019, Common Cause honored me as a “Defender of Democracy” for developing the use of random computer-simulated districting maps in partisan gerrymandering court challenges around the country.<sup>1</sup>

3. I have authored expert reports in the following redistricting court cases: *The League of Women Voters of Florida v. Detzner* (Fla. 2d Judicial Cir. Leon Cnty. 2012); *Romo v. Detzner* (Fla. 2d Judicial Cir. Leon Cnty. 2013); *Missouri National Association for the Advancement of Colored People v. Ferguson-Florissant School District & St. Louis County Board of Election Commissioners* (E.D. Mo. 2014); *Raleigh Wake Citizens Association v. Wake County Board of Elections* (E.D.N.C. 2015); *Brown v. Detzner* (N.D. Fla. 2015); *City of Greensboro v. Guilford County Board of Elections* (M.D.N.C. 2015); *Common Cause v. Rucho*

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<sup>1</sup> <https://www.commoncause.org/press-release/common-cause-honors-four-defenders-of-democracy/>

(M.D.N.C. 2016); *The League of Women Voters of Pennsylvania v. Commonwealth of Pennsylvania* (No. 261 M.D. 2017); *Georgia State Conference of the NAACP v. The State of Georgia* (N.D. Ga. 2017); *The League of Women Voters of Michigan v. Johnson* (E.D. Mich. 2017); *Whitford v. Gill* (W.D. Wis. 2018); *Common Cause v. Lewis* (N.C. Super. 2018); *Harper v. Lewis* (N.C. Super. 2019); *Baroody v. City of Quincy, Florida* (N.D. Fla. 2020); *McConchie v. Illinois State Board of Elections* (N.D. Ill. 2021); *Adams v. DeWine* (Ohio 2021); *Harper v. Hall* (N.C. Super. 2021); *Rivera v. Schwab and Abbott* (Wyandotte County D. Ct. 2022); *Norelli v. David Scanlan* (Hillsborough County Super. Ct. 2022). I have testified at deposition or at trial in the following cases: *Romo v. Detzner* (Fla. 2d Judicial Cir. Leon Cnty. 2013); *Missouri National Association for the Advancement of Colored People v. Ferguson-Florissant School District & St. Louis County Board of Election Commissioners* (E.D. Mo. 2014); *Raleigh Wake Citizens Association v. Wake County Board of Elections* (E.D.N.C. 2015); *City of Greensboro v. Guilford County Board of Elections* (M.D.N.C. 2015); *Common Cause v. Rucho* (M.D.N.C. 2016); *The League of Women Voters of Pennsylvania v. Commonwealth of Pennsylvania* (No. 261 M.D. 2017); *Georgia State Conference of the NAACP v. The State of Georgia* (N.D. Ga. 2017); *The League of Women Voters of Michigan v. Johnson* (E.D. Mich. 2017); *Whitford v. Gill* (W.D. Wis. 2018); *Common Cause v. Lewis* (N.C. Super. 2018); *Baroody v. City of Quincy, Florida* (N.D. Fla. 2020); *McConchie v. Illinois State Board of Elections* (N.D. Ill. 2021); *Harper v. Hall* (N.C. Super. 2021); *Rivera v. Schwab and Abbott* (Wyandotte County D. Ct. 2022).

4. **Research Question:** Defendants’ counsel asked me to evaluate the partisanship of New Mexico’s Congressional districting plan, as enacted in December 2021 by the State Legislature in Senate Bill 1 (hereinafter: “The SB 1 plan”). Specifically, Defendants’ counsel asked me to determine whether the partisan characteristics of the SB 1 plan could have plausibly

emerged from a partisan-neutral map-drawing process adhering to certain non-partisan districting criteria. The non-partisan districting criteria that I was asked to incorporate into my analysis include population equality, district contiguity, precinct preservation, municipal boundary considerations, Indian (Native American) reservation considerations, avoiding county splits, oil industry considerations, and district compactness. These districting criteria are described in detail later in this report in Paragraph 9. Defendants counsel asked me to determine how likely a map-drawing process following these criteria could have produced a map with the partisan characteristics of the SB 1 plan.

5. ***Summary of Findings:*** I programmed a partisan-blind computer algorithm to generate a large number of random districting plans while strictly adhering to the aforementioned districting criteria. The partisan characteristics of the SB 1 plan are well within the normal range of these computer-generated districting plans drawn with the partisan-blind algorithm. Thus, the SB 1 plan is neither extreme nor a statistical outlier in terms of its partisanship. The partisan characteristics of the SB 1 plan could reasonably have emerged from a partisan-neutral map-drawing process adhering to all of the aforementioned districting criteria.

6. ***The Use of Computer-Simulated Districting Plans:*** In conducting my academic research on legislative districting, partisan and racial gerrymandering, and electoral bias, I have developed various computer simulation programming techniques that allow me to produce a large number of partisan-blind districting plans that adhere to any set of specified districting criteria using US Census geographies, such as precincts, as building blocks. This simulation process ignores all partisan and racial considerations when drawing districts. Instead, the computer simulations are programmed to draw districting plans following any set of specified districting considerations, such as population equality, avoiding county splits, protecting

municipal boundaries, and pursuing geographic compactness. By randomly generating a large number of districting plans that adhere to a specified set of districting criteria, I am able to assess an enacted plan drawn by a state legislature and determine whether its partisanship is similar to or different from the sorts of plans that would naturally emerge from the specified set of districting criteria. More specifically, by holding constant the application of these districting criteria through the computer simulations, I am able to determine whether the enacted plan could have naturally emerged from these specified districting criteria, without any intentional partisan manipulation by the map-drawer.

7. Defendants' counsel asked me to use this approach to analyze the partisanship of the SB 1 plan. Defendants' counsel gave me a list of partisan-neutral districting considerations and asked me to determine the partisan distribution of districting maps that naturally emerge from a map-drawing process adhering strictly to these considerations. I programmed a computer algorithm adhering only to these specified districting considerations, and the algorithm produced a set of 1,000 random computer-simulated maps for New Mexico's congressional districts. I analyzed the partisanship of these computer-simulated maps, and I found that the SB 1 plan is well within the normal distribution of the computer-simulated plans in terms of its partisanship. In other words, the partisan characteristics of the SB 1 plan are typical of partisan characteristics exhibited by the random computer-simulated plans. Hence, the SB 1 plan does not exhibit extreme partisan characteristics when accounting for the various non-partisan districting criteria that I incorporated into the computer algorithm.

8. These computer simulation methods are widely used by academic scholars to analyze districting maps. For over a decade, political scientists have used such computer-simulated districting techniques to analyze the racial and partisan characteristics of legislative

and congressional districting maps.<sup>2</sup> Several courts have also relied upon computer simulations to assess claims of partisan bias in enacted districting plans.<sup>3</sup>

9. **Redistricting Criteria:** I programmed the computer algorithm to create 1,000 independent simulated plans adhering to the following eight districting criteria:

a) **Population Equality:** Because New Mexico's 2020 Census population was 2,117,522, districts in every three-member congressional plan have an ideal population of 705,840.7. In the SB 1 plan, the most-populated district (CD-2) and the least-populated district (CD-1) have a difference in population of only 14 people. Defendants' counsel instructed me to follow this same degree of population equality by requiring that all computer-simulated districts deviate from perfect equality by no more than seven people. Therefore, every computer-simulated district that my algorithm produced is required to have a population of between 705,834 and 705,847, resulting in a total difference between the highest-populated district and the lowest-populated district of no more than 14 people.

b) **Precinct Boundaries:** New Mexico is divided into 2,163 precincts. These precincts are the lowest geographic unit at which elections are administered in New Mexico. Defendants' counsel informed me that precincts serve as the primary building block for congressional districting plans in New Mexico, and the SB 1 plan was intentionally drawn to avoid splitting any of New Mexico's 2,163 precincts. Therefore,

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<sup>2</sup> *E.g.*, Carmen Cirincione, Thomas A. Darling, Timothy G. O'Rourke. "Assessing South Carolina's 1990s Congressional Districting," *Political Geography* 19 (2000) 189–211; Jowei Chen, "The Impact of Political Geography on Wisconsin Redistricting: An Analysis of Wisconsin's Act 43 Assembly Districting Plan." *Election Law Journal*.

<sup>3</sup> *See, e.g.*, *League of Women Voters of Pa. v. Commonwealth*, 178 A. 3d 737, 818-21 (Pa. 2018); *Raleigh Wake Citizens Association v. Wake County Board of Elections*, 827 F.3d 333, 344-45 (4th Cir. 2016); *City of Greensboro v. Guilford County Board of Elections*, No. 1:15-CV-599, 2017 WL 1229736 (M.D.N.C. Apr 3, 2017); *Common Cause v. Rucho*, No. 1:16-CV-1164 (M.D.N.C. Jan 11, 2018); *The League of Women Voters of Michigan v. Johnson* (E.D. Mich. 2017); *Common Cause v. David Lewis* (N.C. Super. 2018); *Harper v. Hall* (N.C. Feb 14, 2022).

Defendants' counsel instructed me to similarly avoid splitting any precincts in the construction of the computer-simulated plans. Every computer-simulated district is composed entirely of whole precincts, with no precinct split across two or more districts.

c) Contiguity: The simulation algorithm required all congressional districts to be geographically contiguous.

d) Municipality Considerations: Defendants' counsel instructed me to program the computer algorithm to consider municipal boundaries in the following ways: First, Albuquerque, Las Cruces, and the Santa Fe metro area were each primarily assigned to their own respective districts. Las Cruces and the Santa Fe metro area were always kept intact and not split across two or more districts. Due to the large size of the Albuquerque metro area, Albuquerque could be partially split across districts, but at least 60% or more of Albuquerque's population was required to be assigned to a single district. Finally, the South Valley and the Rio Grande River Valley were required to be kept together in the same district. Collectively, these municipality considerations resulted in computer-simulated plans in which one district contains the entire Santa Fe metro area, a second district contains all of Las Cruces, and a third district contains most of Albuquerque.

e) Indian Reservation Considerations: Defendants' counsel instructed me to program the simulation algorithm to treat Indian (Native American) reservations as follows: First, the Mescalero Apache Reservation was always split apart, such that Precinct 11 was always placed in a different district than Precinct 56 in Otero County. Next, the Zuni Indian Reservation (The Pueblo of Zuni) was always split apart, such that Precincts 27, 29, 30, 64 and 66 in McKinley County were always placed in a different

district than Precinct 28 in McKinley County. Finally, in order to keep the Navajo Nation together, San Juan County and most of McKinley County were always kept together in the same district, with the exception of the aforementioned Zuni Pueblo portion of McKinley County.

f) Oil Industry Considerations: Defendants' counsel informed me that due to the economic importance of the oil production industry in New Mexico, a policy consideration in the state's congressional districting process was to spread out the state's oil wells across multiple districts. Therefore, Defendants' counsel instructed me to require that no single congressional district in any computer-simulated plan contains more than 60% of the state's active oil wells. I was instructed to use geospatial data from New Mexico's Oil Conservation Division to identify the locations of all active oil wells in the state.<sup>4</sup>

g) Minimizing County Splits: Following instructions from Defendants' counsel, I programmed the simulation algorithm to avoid splitting New Mexico's 33 counties, except when doing so was necessary to avoid violating one of the aforementioned criteria. Most commonly, splitting counties was necessary for the purpose of achieving population equality across districts, as well as satisfying the Indian Reservation considerations described earlier.

h) Geographic Compactness: The simulation algorithm favored the drawing of more compact district boundaries whenever doing so does not violate any of the aforementioned criteria.

10. On the following three pages of this report, Map 1, Map 2, and Map 3 display three examples of computer-simulated plans produced by the computer algorithm. The upper

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<sup>4</sup> <https://ocd-hub-run-enmrd.hub.arcgis.com/>

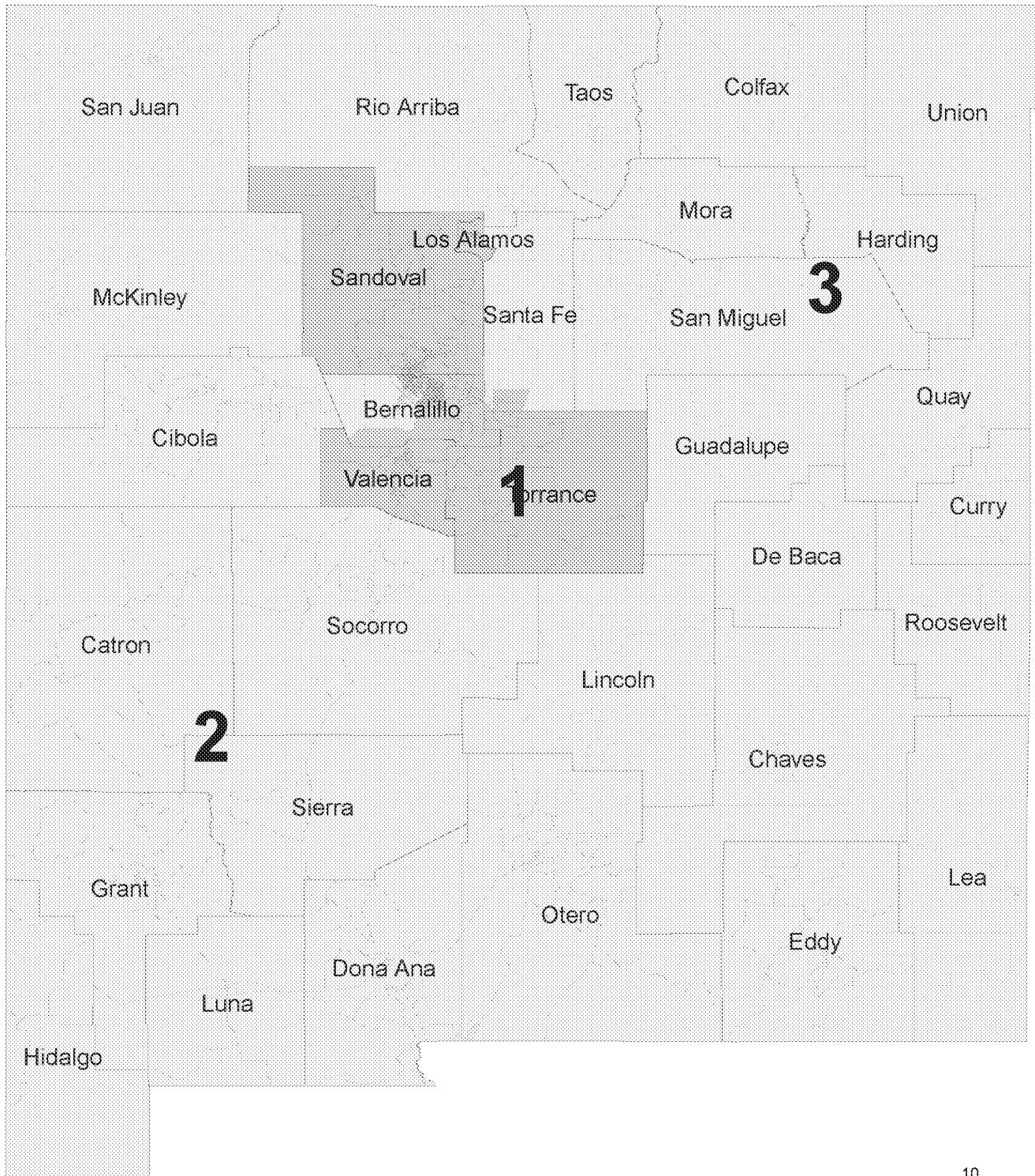
portion of each Map also reports the total population and the Republican partisanship of each of the three districts in the computer-simulated plan. Specifically, the partisanship of each district is measured using both the district's Republican Performance Index and the district's Republican two-party share of registered voters ("Republican Registered Voters %"). Both of these two measures of district partisanship are explained in more detail in the following section of this report.



## Map 1 : Example of a Computer-Simulated Congressional Plan

District:	Population:	Republican Performance Index:	Republican Registered Voters %:
1	705,841	46.7%	42.6%
2	705,836	45%	39.3%
3	705,845	45.4%	40.3%

Plan Average: 705,840.7



## Map 2 : Example of a Computer-Simulated Congressional Plan

District:	Population:	Republican Performance Index:	Republican Registered Voters %:
1	705,840	45.7%	40.6%
2	705,842	46%	41.3%
3	705,840	45.7%	40.7%

Plan Average: 705,840.7



### Map 3 : Example of a Computer-Simulated Congressional Plan

District:	Population:	Republican Performance Index:	Republican Registered Voters %:
1	705,844	45.1%	40.6%
2	705,838	46.8%	41.3%
3	705,840	45.7%	40.7%

Plan Average: 705,840.7



## Measuring the Partisanship of Districting Plans

11. In this report, I measure the partisanship of districts in the SB 1 plan and compare them to the partisanship of districts in the computer-simulated congressional plans. By using the same measure of partisanship for both the SB 1 plan and for the computer-simulated plans, I am able to assess whether or not the partisanship of SB 1 plan districts are typical of and within the normal distribution of the computer-simulated plans' districts. As explained below, I use past results from New Mexico's statewide election contests as well as voter registration numbers for each political party to measure and compare the partisanship of districts in the SB 1 plan and the computer-simulated plans.

12. In most states, redistricting map-drawers commonly measure the partisanship of congressional and legislative districting plans by using election results from several recent, statewide election results. It is common practice to aggregate together election results from several recent elections because in general, the most reliable method of comparing the partisanship of different districts within a state is to consider whether these districts have tended to favor Republican or Democratic candidates in recent, competitive statewide elections.

13. ***The Republican Performance Index:*** In New Mexico, the most commonly recognized formula for measuring the partisanship of districts using recent statewide elections is the "Performance Index" developed by Research & Polling, Inc. The Performance Index used during the 2021 redistricting cycle is simply an aggregation of results of all competitive statewide general elections from 2012, 2014, 2016, 2018, and 2020. Non-competitive elections, defined as those contests in which the victor won by more than 20 percentage points, were

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<sup>6</sup> The 2018 US Senate, the 2018 Secretary of State, and the 2018 Attorney General elections were excluded because the victor won by more than 20 percentage points.

excluded from the Performance Index.<sup>6</sup> There were a total of 26 competitive statewide election contests held during these years, and the election results for these contests are available at the level of New Mexico’s 2,163 precincts.<sup>7</sup> For any given geographic area, such as a congressional district, the Republican Performance Index is calculated as the Republican share of two-party votes (Republican and Democratic candidates’ votes) cast across all 26 election contests. In other words, one would first sum the total number of votes cast in favor of the Republican candidates in these 26 contests and the total number of votes cast in favor of the Democratic candidates in these same contests. The Republican candidates’ total share of the two-party votes across all 26 contests is referred to as the Republican Performance Index.

14. The election data necessary for calculating the Republican Performance Index were reported in the Legislature’s 2021 precinct-level geographic files, which the Legislature made publicly available as part of its 2021 congressional redistricting process.<sup>8</sup> Across the entire state of New Mexico, there were a total of 10,194,444 votes cast in favor of the Republican candidates in these 26 contests and 12,064,492 votes cast in favor of the Democratic candidates. Therefore, the Republican Performance Index for the entire state is 45.8%. For the three individual districts in the SB 1 plan, the Republican Performance Index is as follows:

<b>SB 1 Plan Districts:</b>	<b>Votes for Republican Candidates in the 26 Contests:</b>	<b>Votes for Democratic Candidates in the 26 Contests:</b>	<b>Republican Performance Index:</b>
CD-1	4,038,053	4,643,322	46.5%
CD-2	2,918,452	3,294,911	47.0%
CD-3	3,237,939	4,126,259	44.0%

<sup>7</sup> These 26 competitive statewide election contests were: The 2012 US Presidential, 2012 US Senate, the 2012 Supreme Court, the 2012 Court of Appeals, the 2014 US Senate, the 2014 Governor, the 2014 Secretary of State, the 2014 Attorney General, the 2014 Auditor, the 2014 Treasurer, the 2014 State Land Commissioner, the 2014 Court of Appeals, the 2016 US Presidential, 2016 Secretary of State, the 2016 Supreme Court, the 2016 Court of Appeals, the 2018 Governor, the 2018 Auditor, the 2018 Treasurer, the 2018 State Land Commissioner, the 2018 Court of Appeals, the 2018 Supreme Court, the 2020 US President, the 2020 US Senate, the 2020 Supreme Court, and the 2020 Court of Appeals elections.

<sup>8</sup> [https://www.nmlegis.gov/sessions/div\\_redistricting/2021/](https://www.nmlegis.gov/sessions/div_redistricting/2021/)

15. *Partisan Affiliation of Registered Voters:* In addition to measuring the partisanship of districts according to their Republican Performance Index, Defendants’ counsel also instructed me to measure the partisanship of each district using the Republican Party’s two-party share of registered voters. In other words, for each district, I count the number of registered Republican voters residing within the district as a share of all registered Republicans and Democrats in the district. These registered voter counts were calculated and reported in the Legislature’s 2021 precinct-level geographic files, which the Legislature made publicly available as part of its 2021 congressional redistricting process.<sup>9</sup>

16. Across the entire state, there were a total of 414,327 registered Republicans and 600,720 registered Democrats as of 2021. Therefore, the Republican two-party share of registered voters for the entire state was 40.8%. This percentage does not count anyone who was neither a Republican nor a Democrat. For the three individual districts in the SB 1 plan, the Republican share of registered voters was as follows:

<b>SB 1 Plan Districts:</b>	<b>Registered Republicans:</b>	<b>Registered Democrats:</b>	<b>Republican Share of Registered Voters:</b>
CD-1	157,461	211,916	42.6%
CD-2	123,390	177,183	41.1%
CD-3	133,476	211,621	38.7%

17. In the following section of this report, I use both the Republican Performance Index as well as the Republican share of registered voters to measure the partisanship of districts. I compare the SB 1 plan districts to the districts in the computer-simulated plans in order to assess whether the SB 1 plan exhibits partisan characteristics which could reasonably have arisen from a map-drawing process based on the districting criteria that were programmed into the simulation algorithm.

<sup>9</sup> [https://www.nmlegis.gov/sessions/div\\_redistricting/2021/](https://www.nmlegis.gov/sessions/div_redistricting/2021/)

### **District-Level and Plan-Wide Partisan Comparisons of the SB 1 Plan and Simulated Plans:**

18. In this section, I present partisan comparisons of the SB 1 plan to the computer-simulated plans at both a district-by-district level as well as a plan-wide level, with partisanship measured using both the Republican Partisan Index as well as the Republican share of registered voters. First, I compare the district-level Republican partisanship of the SB 1 plan's districts to the partisanship of the districts in the computer-simulated plans. Additionally, I compare the partisanship of the SB 1 plan containing Las Cruces (CD-2) to the partisanship of the district in each simulated plan containing Las Cruces. Finally, I compare the total number of districts in the SB 1 Plan and in each of the computer-simulated plans with a Republican Performance Index between 46-54%.

19. Overall, I find that all three of the districts in the SB 1 plan exhibit partisan characteristics that are typical of and could have reasonably emerged from the partisan-neutral computer-simulated districting process adhering to non-partisan districting criteria. In particular, the partisan composition of CD-2, which is the most Republican-favorable district in the SB 1 plan, is well within the normal range of the simulated plans' most-Republican districts. None of the three districts in the SB 1 plan are statistical outliers when compared to the computer-simulated plans' districts. Additionally, CD-2 in the SB 1 plan exhibits a partisan composition that is quite typical among the Las Cruces-based districts in the computer-simulated plans. Finally, the total number of districts with a Republican Performance Index between 46-54% is greater in the SB 1 plan than in most of the computer-simulated plans. I describe each of these findings in detail below:

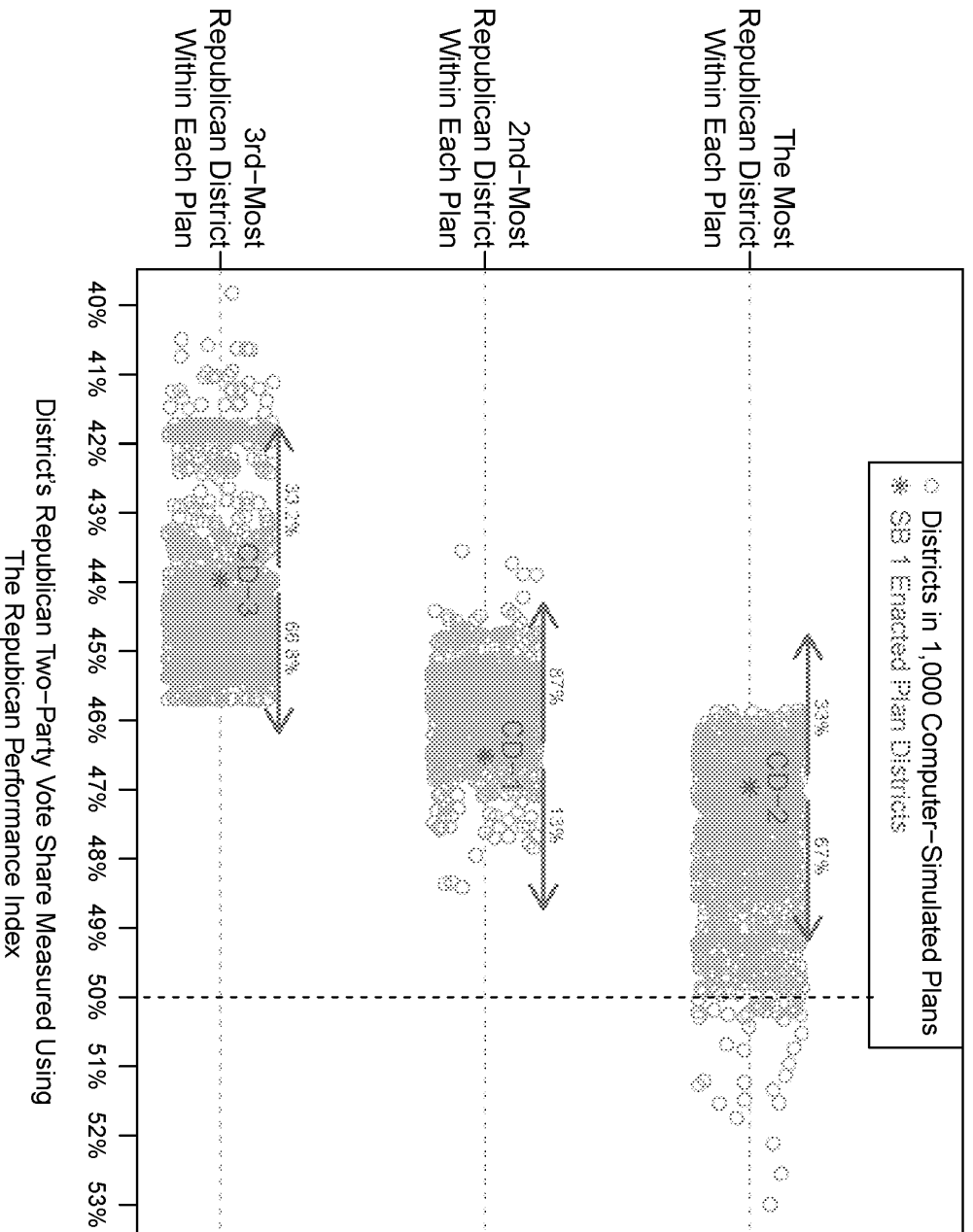
20. *District-By-District Comparisons Using the Partisan Index*: In Figure 1, I directly compare the partisan distribution of districts in the SB 1 plan to the partisan distribution of districts in the 1,000 computer-simulated plans. I first order the SB 1 plan's districts from most-Republican to least-Republican, as measured by Republican vote share using the Performance Index. The most-Republican district appears on the top row, the second-most-Republican district appears on the second row, and the least-Republican district appears on the bottom row. Next, I analyze each of the 1,000 computer-simulated plans and similarly order each simulated plan's districts from the most- to the least-Republican district

21. I then directly compare the most-Republican SB 1 plan district (CD-2) to the most-Republican simulated district from each of the 1,000 computer-simulated plans. In other words, I compare one district from the SB 1 plan to 1,000 computer-simulated districts, and I compare these districts based on their Republican Performance Index. I then directly compare the second-most-Republican district in the Enacted Plan (CD-1) to the second-most Republican district from each of the 1,000 simulated plans. And finally, the third row compares the least-Republican district in the SB 1 plan (CD-3) to the least-Republican district from each of the 1,000 simulated plans. In each row of this Figure, the SB 1 plan's district is depicted with a red star and labeled in red with its district number; meanwhile, the 1,000 computer-simulated districts are depicted with 1,000 gray circles on each row.



Figure 1:

Comparisons of SB 1 Enacted Plan Districts to 1,000 Computer-Simulated Plans' Districts



Note: Percentages in red above arrows indicate the percent of simulated districts in each row with a lower/higher Republican vote share than each Enacted Plan district.

District's Republican Two-Party Vote Share Measured Using  
The Republican Performance Index

22. In the top row of Figure 1, I directly compare the most-Republican SB 1 plan district (CD-2) to the most-Republican simulated district from each of the 1,000 computer-simulated plans. In other words, I compare one district from the SB 1 plan to 1,000 computer-simulated districts, and I compare these districts based on their Republican Performance Index. In the second row of Figure 1, I then directly compare the second-most-Republican district in the Enacted Plan (CD-1) to the second-most Republican district from each of the 1,000 simulated plans. And finally, the third row compares the least-Republican district in the SB 1 plan (CD-3) to the least-Republican district from each of the 1,000 simulated plans. In each row of this Figure, the SB 1 plan's district is depicted with a red star and labeled in red with its district number; meanwhile, the 1,000 computer-simulated districts are depicted with 1,000 gray circles on each row

23. The top row of Figure 1 illustrates that the most-Republican district in the SB 1 plan (CD-2) has a Republican Performance Index of 47.0%, which is well within the normal partisan distribution of the most-Republican district in the 1,000 simulated plans. The red percentages above the two arrows in the top row of this Figure report that in 33% of the simulated plans, the most-Republican district has a lower Republican Performance Index than CD-2, while in 67% of the simulated plans, the most-Republican district has a higher Republican Performance Index than CD-2.

24. In other words, CD-2 in the SB 1 plan is less favorable to Republicans than 67% of the simulated plans' most-Republican districts, and CD-2 is more favorable to Republicans than 33% of the simulated plans' most-Republican districts. Hence, CD-2 is squarely within the normal partisan distribution when compared to the most-Republican districts created by the 1,000 computer-simulated plans. It is clearly not a statistical outlier in terms of its partisanship.

The partisan composition of CD-2 is quite typical among the most-Republican districts in the computer-simulated plans.

25. The second row of Figure 1 illustrates a similar finding regarding CD-1, the second-most-Republican district in the SB 1 plan. CD-1 has a Republican Performance Index of 46.5%, which is higher than 87% of the simulated districts' second-most-Republican districts. In other words, CD-1 is more favorable to Republicans than most of the simulated plans' second-most-Republican districts, but CD-1 is still within the normal partisan distribution of these simulated districts. Hence, it is clear that CD-1 is not a statistical outlier in terms of its partisanship.

26. Finally, the bottom row of Figure 1 illustrates a similar finding regarding CD-3, the least-Republican district in the SB 1 plan. CD-3 has a Republican Performance Index of 44.0%, which is higher than 33.2% and lower than 66.8% of the simulated districts' least-Republican districts. In other words, CD-3 is more favorable to Republicans than one-third of the simulated plans' second-most-Republican districts and less favorable to Republicans than two-thirds of the simulated districts. Hence, CD-1 is very much within the normal partisan distribution of the simulated plans' second-most Republican districts. It is therefore clear that CD-1 is not a statistical outlier in terms of its partisanship.

27. Overall, I conclude that a non-partisan map-drawing process adhering to the non-partisan districting criteria outlined in Paragraph 9 could reasonably have resulted in a congressional plan with the SB 1 plan's district-level partisan characteristics. The partisan characteristics of all three districts are clearly quite typical of districts produced by the partisan-blind computer-simulation process. None of the three districts are partisan outliers, nor are they extreme when compared to the partisanship of the simulated plans' districts.

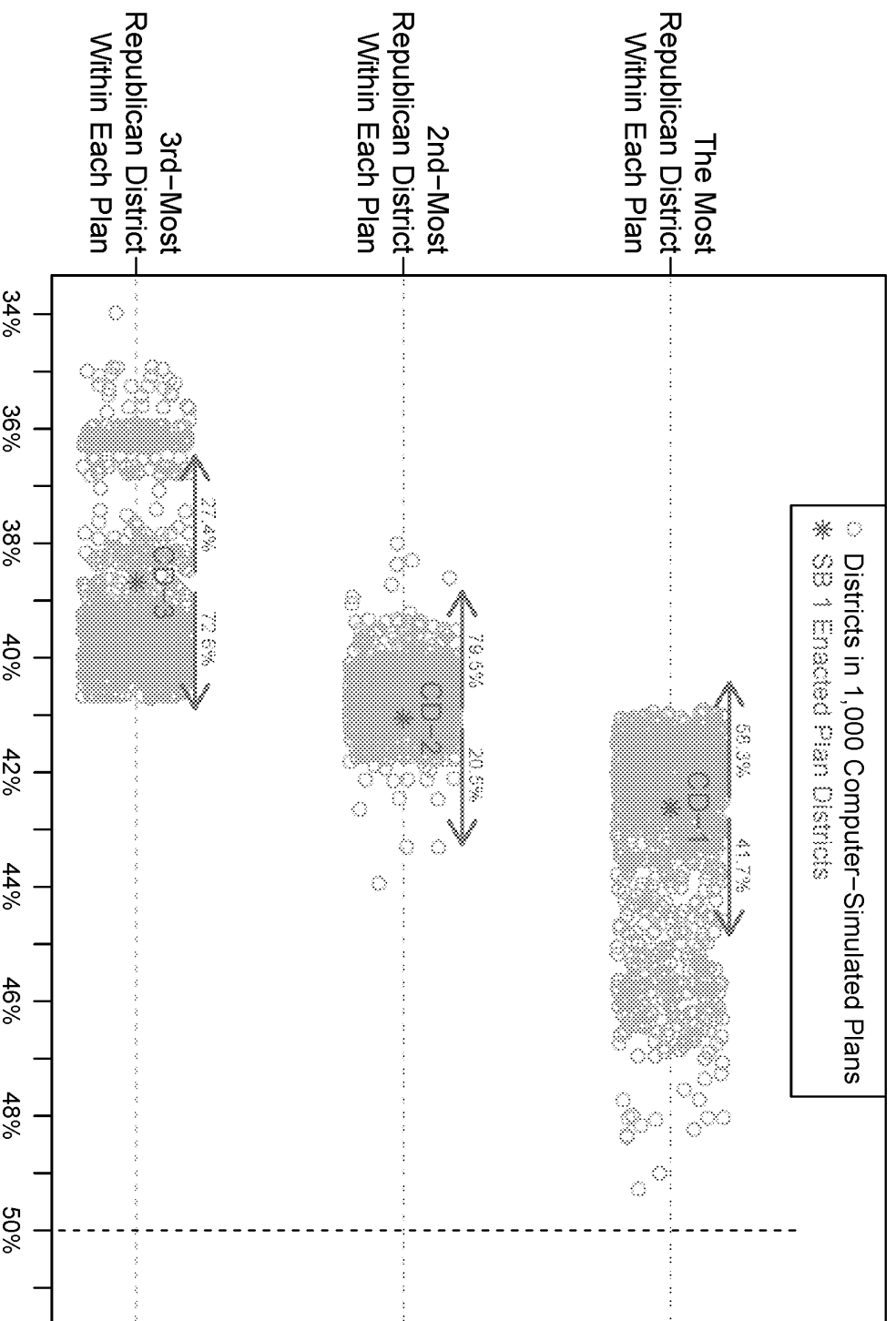
28. *District-By-District Comparisons Using Voters' Party Registration:* Figure 2 presents a similar partisan comparison of the SB 1 plan's districts to the districts in the 1,000 computer-simulated plans, but in this Figure, partisanship is measured using each district's Republican share of registered voters. When the partisanship of districts is measured using registered voters, the most-Republican district in the SB 1 plan is CD-1, which has a 42.6% Republican two-party share of registered voters. The second-most-Republican district in the SB 1 plan is CD-2, which has a 41.1% Republican two-party share of registered voters. And finally, the least-Republican district in the SB 1 plan is CD-3, which has a 38.7% Republican two-party share of registered voters.

29. The top row of Figure 2 illustrates that the most-Republican district in the SB 1 plan (CD-1) is well within the normal partisan distribution of the most-Republican district in the 1,000 simulated plans. The red percentages above the two arrows in the top row of this Figure report that in 58.3% of the simulated plans, the most-Republican district has a lower Republican share than CD-1, while in 41.7% of the simulated plans, the most-Republican district has a higher Republican Performance Index than CD-1.

30. In other words, CD-1 in the SB 1 plan is less favorable to Republicans than 41.7% of the simulated plans' most-Republican districts, and CD-1 is more favorable to Republicans than 58.3% of the simulated plans' most-Republican districts. Hence, CD-1 is very close to the median of the distribution when compared to the most-Republican districts created by the 1,000 computer-simulated plans. It is clearly not a statistical outlier in terms of its partisanship. The partisan composition of CD-1 is quite typical among the most-Republican districts in the computer-simulated plans.

Figure 2:

Comparisons of 2021 Enacted Plan Districts to 1,000 Computer-Simulated Plans' Districts



District's Republican Two-Party Share of Registered Voters

Note: Percentages in red above arrows indicate the percent of simulated districts in each row with a lower/higher Republican share of registered voters than each Enacted Plan district.

31. The second row of Figure 2 illustrates a similar finding regarding CD-2, the second-most-Republican district in the SB 1 plan. The Republican share of registered voters in CD-2 is higher than 79.5% of the simulated districts' second-most-Republican districts. In other words, CD-2 is more favorable to Republicans than most of the simulated plans' second-most-Republican districts, but CD-2 is still within the normal partisan distribution of these simulated districts. Hence, it is clear that CD-2 is not a statistical outlier in terms of its partisanship when measured using party registration.

32. Finally, the bottom row of Figure 2 illustrates a similar finding regarding CD-3, the least-Republican district in the SB 1 plan. The Republican share of registered voters in CD-3 is higher than 27.4% and lower than 72.6% of the simulated districts' least-Republican districts. Hence, CD-3 is very much within the normal partisan distribution of the simulated plans' second-most Republican districts, when partisanship is measured using voters' party registration. It is thus clear that CD-3 is not a statistical outlier in terms of its partisanship.

33. Overall, Figure 2 illustrates that even when partisanship is measured using voters' party registration, my earlier conclusions do not change: A non-partisan map-drawing process adhering to the non-partisan districting criteria outlined in Paragraph 9 could reasonably have resulted in a congressional plan with the SB 1 plan's district-level partisan characteristics. The Republican share of registered voters within each of the SB 1 plan's districts are typical of districts produced by the partisan-blind computer-simulation process. None of the three districts are partisan outliers, nor are they extreme when compared to the partisanship of the simulated plans' districts.

34. *Partisanship of the District Containing Las Cruces:* In the SB 1 Plan, Las Cruces is assigned to CD-2, which has a 47.0% Republican Performance Index and a 41.1%

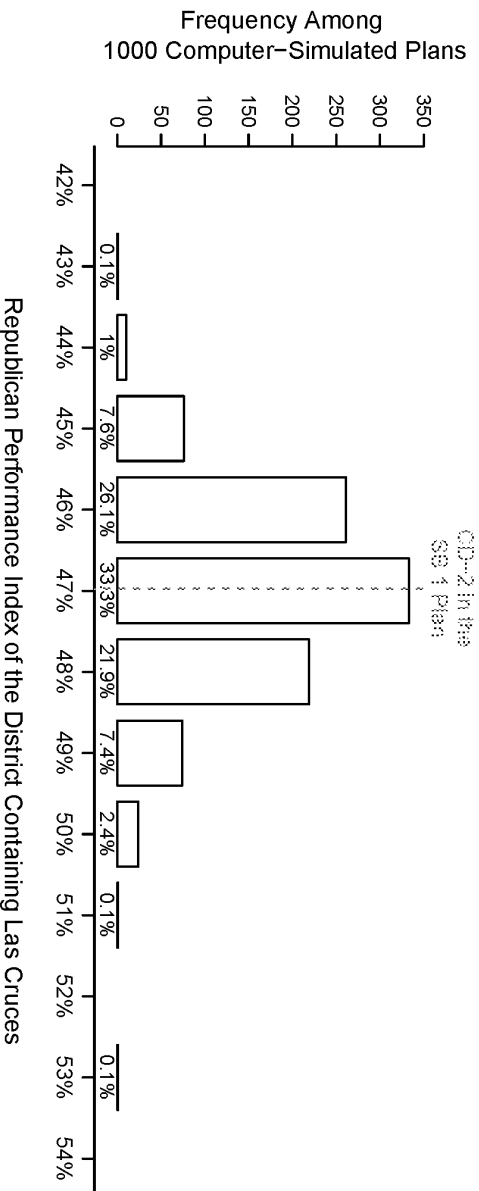
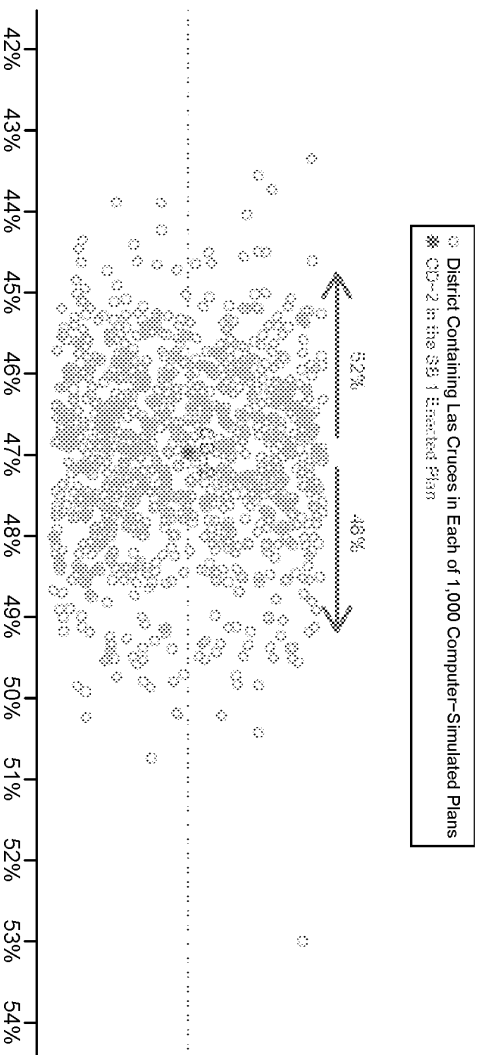
Republican two-party share of registered voters. In Figures 3 and 4, I analyze how the partisanship of CD-2 compares to the district in each computer-simulated plan that similarly contains Las Cruces. These comparisons allow me to determine whether or not the partisanship of the Las Cruces-based district in the SB 1 plan is within the distribution of all of the Las Cruces-based districts in the 1,000 computer-simulated plans.

35. Figure 3 compares CD-2 from the SB 1 plan to the simulated plans' Las Cruces-based districts along each district's Republican Performance Index. The upper half of this Figure is a plot depicting each district's precise Republican Performance Index, while the lower half of the Figure is a histogram showing the statistical distribution of the Performance Index across all computer-simulated plans. In the upper half, the red star depicts CD-2 from the SB 1 plan, while in the lower half, the red dotted line indicates the Performance Index of CD-2.

36. Figure 3 illustrates that CD-2 from the SB 1 plan is almost perfectly at the median of the distribution of the computer-simulated districts in terms of their Republican Performance Index. 48% of the simulated plans produce a Las Cruces-based district that is more favorable to Republicans than CD-2, while 52% of the simulated plans produce a Las Cruces-based district that is less Republican favorable. In other words, CD-2 is extremely close to the median of the distribution of the simulated districts. I therefore conclude that the partisanship of the SB 1 Plan's Las Cruces-based district could very reasonably have emerged from a non-partisan districting process adhering to the criteria outlined in Paragraph 9.

Figure 3:

Republican Performance Index of the District Containing Las Cruces  
 In the SB 1 Plan and 1,000 Computer-Simulated Plans

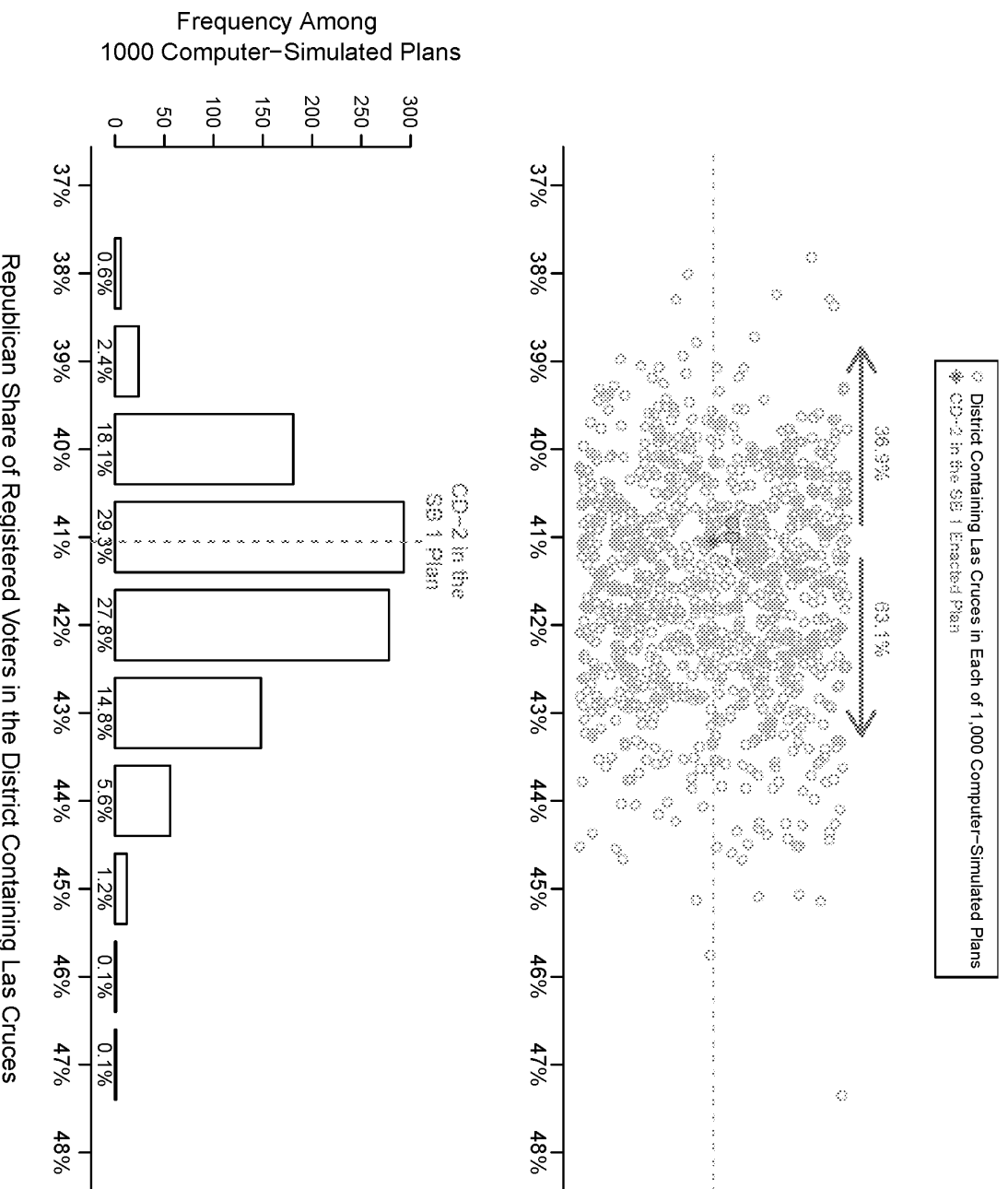




37. Figure 4 illustrates the same comparisons as Figure 3, except that in Figure 4, the partisanship of each district is measured using the district's Republican two-party share of registered voters. Figure 4 illustrates that my conclusions do not change when using voter registration to measure district partisanship. In the upper half of Figure 4, 63.1% of the simulated plans produce a Las Cruces-based district that is more favorable to Republicans than CD-2, while 36.9% of the simulated plans produce a Las Cruces-based district that is less Republican favorable. In other words, CD-2 is very much within the normal distribution of the simulated plans' Las Cruces-based districts when using voter registration to measure partisanship. Therefore, using either measure of partisanship, I conclude that the partisanship of CD-2 in the SB 1 Plan is neither extreme nor a statistical outlier when compared to Las Cruces-based districts created by the non-partisan computer simulation algorithm.

Figure 4:

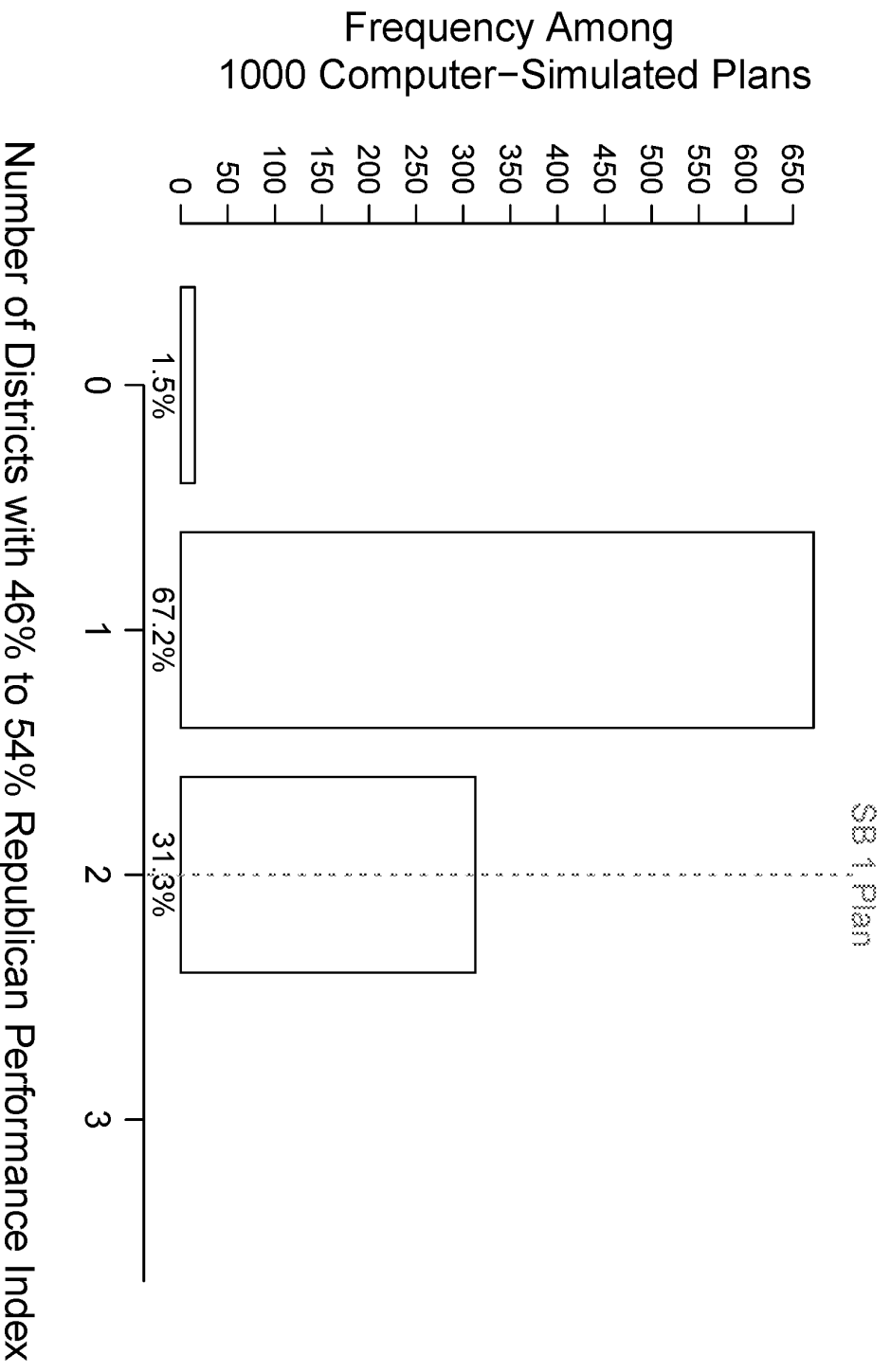
Republican Share of Registered Voters in the District Containing Las Cruces  
 In the SB 1 Plan and 1,000 Computer-Simulated Plans



38. *Statewide Comparisons:* The histogram in Figure 5 reports the number of districts in each computer-simulated plan exhibiting a Republican Performance Index of 46–54%. Within this range of partisanship, a district has relatively close to the same number of Democrat and Republican voters. The vast majority of the computer-simulated plans contain either zero or one such district, while only 31.3% of the simulated plans contain two districts with a Republican Performance Index of 46–54%. No simulated plan contains more than two such districts. Meanwhile, the SB 1 plan, which is depicted in this Figure with a dashed red line, contains two districts with a Republican Performance Index of 46–54%, thus equaling the highest number of such districts ever achieved in the computer-simulated plans. The SB 1 plan contains more such districts than over two-thirds of the computer-simulated plans. Compared to the SB 1 plan, over two-thirds of the computer-simulated plans produced fewer districts with relatively close to the same number of Democrat and Republican voters.

Figure 5:

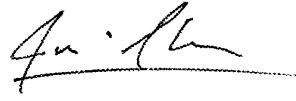
Comparisons of SB 1 Plan to 1,000 Computer-Simulated Plans



### **Conclusion:**

39. In summary, I programmed a partisan-blind computer algorithm to produce random maps for New Mexico's congressional plan by adhering only to non-partisan districting criteria. I then analyzed the partisan characteristics of these computer-simulated maps as well as the SB 1 plan. I concluded that the partisan characteristics of the SB 1 plan are well within the normal range of these computer-generated districting plans drawn with the partisan-blind algorithm. The SB 1 plan is neither extreme nor a statistical outlier in terms of its partisanship. The partisan characteristics of the SB 1 plan could plausibly have emerged from a partisan-neutral map-drawing process adhering to non-partisan districting criteria.

This 25th day of August, 2023.

A handwritten signature in black ink, appearing to read 'Jowei Chen', written over a horizontal line.

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Dr. Jowei Chen

**Jowei Chen**  
**Curriculum Vitae**

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**Academic Positions:**

Associate Professor (2015-present), Assistant Professor (2009-2015), Department of Political Science, University of Michigan.  
Research Associate Professor (2016-present), Faculty Associate (2009-2015), Center for Political Studies, University of Michigan.  
W. Glenn Campbell and Rita Ricardo-Campbell National Fellow, Hoover Institution, Stanford University, 2013.  
Principal Investigator and Senior Research Fellow, Center for Governance and Public Policy Research, Willamette University, 2013 – Present.

**Education:**

Ph.D., Political Science, Stanford University (June 2009)  
M.S., Statistics, Stanford University (January 2007)  
B.A., Ethics, Politics, and Economics, Yale University (May 2004)

**Publications:**

Chen, Jowei and Neil Malhotra. 2007. "The Law of  $k/n$ : The Effect of Chamber Size on Government Spending in Bicameral Legislatures."

*American Political Science Review*, 101(4): 657-676.

Chen, Jowei, 2010. "The Effect of Electoral Geography on Pork Barreling in Bicameral Legislatures."

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Chen, Jowei, 2013. "Voter Partisanship and the Effect of Distributive Spending on Political Participation."

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Chen, Jowei and Jonathan Rodden, 2013. "Unintentional Gerrymandering: Political Geography and Electoral Bias in Legislatures"

*Quarterly Journal of Political Science*, 8(3): 239-269.

Bradley, Katharine and Jowei Chen, 2014. "Participation Without Representation? Senior Opinion, Legislative Behavior, and Federal Health Reform."

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Chen, Jowei and Tim Johnson, 2015. "Federal Employee Unionization and Presidential Control of the Bureaucracy: Estimating and Explaining Ideological Change in Executive Agencies."

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Bonica, Adam, Jowei Chen, and Tim Johnson, 2015. "Senate Gate-Keeping, Presidential Staffing of 'Inferior Offices' and the Ideological Composition of Appointments to the Public Bureaucracy."

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Chen, Jowei and Jonathan Rodden, 2015. "Cutting Through the Thicket: Redistricting Simulations and the Detection of Partisan Gerrymanders."

*Election Law Journal*, Volume 14, Number 4: 331-345.

Chen, Jowei and David Cottrell, 2016. "Evaluating Partisan Gains from Congressional Gerrymandering: Using Computer Simulations to Estimate the Effect of Gerrymandering in the U.S. House."

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Chen, Jowei, 2017. "Analysis of Computer-Simulated Districting Maps for the Wisconsin State Assembly."

*Election Law Journal*, Volume 16, Number 4 (December 2017): 417-442.

Chen, Jowei and Nicholas Stephanopoulos, 2021. "The Race-Blind Future of Voting Rights."

*Yale Law Journal*, Forthcoming, Volume 130, Number 4: 778-1049.

Kim, Yunsieg and Jowei Chen, 2021. "Gerrymandered by Definition: The Distortion of 'Traditional' Districting Principles and a Proposal for an Empirical Redefinition."

*Wisconsin Law Review*, Forthcoming, Volume 2021, Number 1.

Chen, Jowei and Nicholas Stephanopoulos, 2021. "Democracy's Denominator."

*California Law Review*, Accepted for Publication, Volume 109.

#### **Non-Peer-Reviewed Publication:**

Chen, Jowei and Tim Johnson. 2017. "Political Ideology in the Bureaucracy."

*Global Encyclopedia of Public Administration, Public Policy, and Governance*.



### **Research Grants:**

"How Citizenship-Based Redistricting Systemically Disadvantages Voters of Color". 2020 (\$18,225). Combating and Confronting Racism Grant. University of Michigan Center for Social Solutions and Poverty Solutions.

Principal Investigator. National Science Foundation Grant SES-1459459, September 2015 – August 2018 (\$165,008). "The Political Control of U.S. Federal Agencies and Bureaucratic Political Behavior."

"Economic Disparity and Federal Investments in Detroit," (with Brian Min) 2011. Graham Institute, University of Michigan (\$30,000).

"The Partisan Effect of OSHA Enforcement on Workplace Injuries," (with Connor Raso) 2009. John M. Olin Law and Economics Research Grant (\$4,410).

### **Invited Talks:**

September, 2011. University of Virginia, American Politics Workshop.

October 2011. Massachusetts Institute of Technology, American Politics Conference.

January 2012. University of Chicago, Political Economy/American Politics Seminar.

February 2012. Harvard University, Positive Political Economy Seminar.

September 2012. Emory University, Political Institutions and Methodology Colloquium.

November 2012. University of Wisconsin, Madison, American Politics Workshop.

September 2013. Stanford University, Graduate School of Business, Political Economy Workshop.

February 2014. Princeton University, Center for the Study of Democratic Politics Workshop.

November 2014. Yale University, American Politics and Public Policy Workshop.

December 2014. American Constitution Society for Law & Policy Conference: Building the Evidence to Win Voting Rights Cases.

February 2015. University of Rochester, American Politics Working Group.

March 2015. Harvard University, Voting Rights Act Workshop.

May 2015. Harvard University, Conference on Political Geography.

October 2015. George Washington University School of Law, Conference on Redistricting Reform.

September 2016. Harvard University Center for Governmental and International Studies, Voting Rights Institute Conference.

March 2017. Duke University, Sanford School of Public Policy, Redistricting Reform Conference.

October 2017. Willamette University, Center for Governance and Public Policy Research

October 2017, University of Wisconsin, Madison. Geometry of Redistricting Conference.

February 2018: University of Georgia Law School

September 2018. Willamette University.

November 2018. Yale University, Redistricting Workshop.

November 2018. University of Washington, Severyns Ravenholt Seminar in Comparative Politics.  
January 2019. Duke University, Reason, Reform & Redistricting Conference.  
February 2019. Ohio State University, Department of Political Science. Departmental speaker series.  
March 2019. Wayne State University Law School, Gerrymandering Symposium.  
November 2019. Big Data Ignite Conference.  
November 2019. Calvin College, Department of Mathematics and Statistics.  
September 2020 (Virtual). Yale University, Yale Law Journal Scholarship Workshop  
September 2021, Duke University, Redistricting and American Democracy Conference  
July 2022, ICPSR Blalock Lecture, University of Michigan

### **Conference Service:**

Section Chair, 2017 APSA (San Francisco, CA), Political Methodology Section  
Discussant, 2014 Political Methodology Conference (University of Georgia)  
Section Chair, 2012 MPSA (Chicago, IL), Political Geography Section.  
Discussant, 2011 MPSA (Chicago, IL) “Presidential-Congressional Interaction.”  
Discussant, 2008 APSA (Boston, MA) “Congressional Appropriations.”  
Chair and Discussant, 2008 MPSA (Chicago, IL) “Distributive Politics: Parties and Pork.”

### **Conference Presentations and Working Papers:**

“Ideological Representation of Geographic Constituencies in the U.S. Bureaucracy,” (with Tim Johnson). 2017 APSA.

“Incentives for Political versus Technical Expertise in the Public Bureaucracy,” (with Tim Johnson). 2016 APSA.

“Black Electoral Geography and Congressional Districting: The Effect of Racial Redistricting on Partisan Gerrymandering”. 2016 Annual Meeting of the Society for Political Methodology (Rice University)

“Racial Gerrymandering and Electoral Geography.” Working Paper, 2016.

“Does Deserved Spending Win More Votes? Evidence from Individual-Level Disaster Assistance,” (with Andrew Healy). 2014 APSA.

“The Geographic Link Between Votes and Seats: How the Geographic Distribution of Partisans Determines the Electoral Responsiveness and Bias of Legislative Elections,” (with David Cottrell). 2014 APSA.

“Gerrymandering for Money: Drawing districts with respect to donors rather than voters.” 2014 MPSA.

“Constituent Age and Legislator Responsiveness: The Effect of Constituent Opinion on the Vote for Federal Health Reform.” (with Katharine Bradley) 2012 MPSA.

“Voter Partisanship and the Mobilizing Effect of Presidential Advertising.” (with Kyle Dropp) 2012 MPSA.

“Recency Bias in Retrospective Voting: The Effect of Distributive Benefits on Voting Behavior.” (with Andrew Feher) 2012 MPSA.

“Estimating the Political Ideologies of Appointed Public Bureaucrats,” (with Adam Bonica and Tim Johnson) 2012 Annual Meeting of the Society for Political Methodology (University of North Carolina)

“Tobler’s Law, Urbanization, and Electoral Bias in Florida.” (with Jonathan Rodden) 2010 Annual Meeting of the Society for Political Methodology (University of Iowa)

“Unionization and Presidential Control of the Bureaucracy” (with Tim Johnson) 2011 MPSA.

“Estimating Bureaucratic Ideal Points with Federal Campaign Contributions” 2010 APSA. (Washington, DC).

“The Effect of Electoral Geography on Pork Spending in Bicameral Legislatures,” Vanderbilt University Conference on Bicameralism, 2009.

“When Do Government Benefits Influence Voters’ Behavior? The Effect of FEMA Disaster Awards on US Presidential Votes,” 2009 APSA (Toronto, Canada).

“Are Poor Voters Easier to Buy Off?” 2009 APSA (Toronto, Canada).

“Credit Sharing Among Legislators: Electoral Geography’s Effect on Pork Barreling in Legislatures,” 2008 APSA (Boston, MA).

“Buying Votes with Public Funds in the US Presidential Election,” Poster Presentation at the 2008 Annual Meeting of the Society for Political Methodology (University of Michigan).

“The Effect of Electoral Geography on Pork Spending in Bicameral Legislatures,” 2008 MPSA.

“Legislative Free-Riding and Spending on Pure Public Goods,” 2007 MPSA (Chicago, IL).

“Free Riding in Multi-Member Legislatures,” (with Neil Malhotra) 2007 MPSA (Chicago, IL).

“The Effect of Legislature Size, Bicameralism, and Geography on Government Spending: Evidence from the American States,” (with Neil Malhotra) 2006 APSA (Philadelphia, PA).

# **PLAINTIFFS' EXHIBIT 7**

STATE OF NEW MEXICO  
COUNTY OF LEA  
FIFTH JUDICIAL DISTRICT COURT

REPUBLICAN PARTY OF NEW MEXICO,  
DAVID GALLEGOS, TIMOTHY JENNINGS,  
DINAH VARGAS, MANUEL GONZALES,  
JR., BOBBY and DEANN KIMBRO, and  
PEARL GARCIA,

Plaintiffs,

vs.

No. D-506-CV-2022-

00041

MAGGIE TOULOUSE OLIVER in her official capacity as New Mexico Secretary of State, MICHELLE LUJAN GRISHAM in her official capacity as Governor of New Mexico, HOWIE MORALES in his official capacity as New Mexico Lieutenant Governor and President of the New Mexico Senate, MIMI STEWART in her official capacity as President Pro Tempore of the New Mexico Senate, and JAVIER MARTINEZ in his official capacity as Speaker of the New Mexico House of Representatives,

Defendants.

**DECLARATION OF FORMER CONGRESSMAN STEVE PEARCE**

My name is Steve Pearce, I am over the age of 18 and competent to make this Declaration, and I declare under penalty of perjury the following:

1. I served as the duly elected congressman for New Mexico's Second Congressional District from 2003 to 2009 and then again from 2011 to 2019. Since shortly after leaving Congress, I have served as the Chairman of the Republican Party of New Mexico. I am from Hobbs, New Mexico.

2. In my capacity as a longtime elected leader in the region, and simply as a small-business owner and resident I am intimately familiar with the strong community of interest that is southeastern New Mexico.

3. The region I am referring is understood to encompass Chaves, Eddy, and Lea Counties, with Curry, De Baca, Lincoln, Otero, Roosevelt, also often included.

4. This region has its own economy, culture, values, and identity distinct from the rest of New Mexico.

5. Economically, the region is most closely identified with the oil-and-gas industry and agriculture. The Permian Basin — one of the most important petroleum-producing formations in the world — underlies the majority of Chaves, Eddy, Lea, and Roosevelt Counties. That industry brings immense economic investment into the region, supports countless high-paying jobs, and allows for locals to develop meaningful wealth by investing or partnering with existing extraction companies or starting small businesses that support oil production. The region also has

other things, as feed for cattle.

6. An overwhelmingly disproportionate percentage of the state's budget and tax base come from the southeastern region, mostly from taxes and state royalties on oil and gas. Local elected leaders and even ordinary citizens in the southeast are scarcely aware of this fact.

7. In terms of culture, ideology, and values, the southeast is distinctly conservative, and in terms of way of life, it is distinctly rural. Even the accents in this part of the state are different from what is heard elsewhere in New Mexico.

8. The pairing of the region's economic importance to the rest of the state and its divergence from values and the economic interests of much of it — most especially Santa Fe, the capital — has not infrequently led to residents of the southeast region having intense dissatisfaction with their state-level elected leadership. To use just one example, in 2021 a state senator from the region introduced a bill specifically aimed at the region that would allow counties to secede from the state; while I am not saying I supported that effort, it goes to show the frustration that people in southeast New Mexico can have with statewide governance.

9. One thing that residents of the region have always had, however, is a congressional representative, with the region never having been meaningfully split among congressional districts in the state's entire history.

10. This normally resulted in the election of a Republican to represent the region in Congress, but, even when a Democrat was successful, it was typically a more conservative or moderate Democrat with strong roots, community values, and a deep understanding of the importance of the oil-and-gas industry.

11. Under the new Senate Bill 1 map, however, the southeastern region is divided not just into two but three districts, deliberately preventing us from electing a representative whom we approve of or who embodies our values or understands or respects our economic interests.

12. This creates real problems that I have observed firsthand. There are huge swaths of federal land in the region, which are subject to close regulation by federal agencies based out East (with the individual regulators often also not based on-site, or located here only temporarily). These regulators lack an understanding of the livelihoods, values, and economic priorities of our community, and a core function of a congressperson is advocating for the interests of the community to federal agencies in circumstances where the federal government is contravening local values and priorities.

13. The current congressional map all but ensures that our community will not have such an advocate on the federal level. Instead, we have three congresspeople who represent districts in which the southeast — having been torn into thirds — is a minuscule part, not capable of meaningfully influencing their views or actions.

14. Opposition to the Senate Bill 1 map is overwhelming within the region, and outrage is commonplace. Among elected officials in my county, I cannot think of a single one who supports the map.

Pursuant to Rule 1-011(B) NMRA, I hereby affirm under penalty of perjury under the laws of the State of New Mexico that this statement is true and correct. I gave this statement the \_\_\_\_\_<sup>th</sup> day of September 2023.



Steve Pearce

14 Sept 2023

# **PLAINTIFFS' EXHIBIT 8**

STATE OF NEW MEXICO  
COUNTY OF LEA  
FIFTH JUDICIAL DISTRICT COURT

REPUBLICAN PARTY OF NEW MEXICO,  
DAVID GALLEGOS, TIMOTHY JENNINGS,  
DINAH VARGAS, MANUEL GONZALES,  
JR., BOBBY and DEANN KIMBRO, and  
PEARL GARCIA,

Plaintiffs,

vs.

No. D-506-CV-2022-00041

MAGGIE TOULOUSE OLIVER in her official  
capacity as New Mexico Secretary of State,  
MICHELLE LUJAN GRISHAM in her official  
capacity as Governor of New Mexico, HOWIE  
MORALES in his official capacity as New  
Mexico Lieutenant Governor and President of  
the New Mexico Senate, MIMI STEWART in  
her official capacity as President Pro Tempore  
of the New Mexico Senate, and JAVIER  
MARTINEZ in his official capacity as Speaker  
of the New Mexico House of Representatives,

Defendants.

**DECLARATION OF SENATE MINORITY FLOOR LEADER GREG BACA**

My name is Gregory A. Baca, I am over the age of 18 and competent to make this  
Declaration, and I declare under penalty of perjury the following:

1. At the time of the 2021 special session of the New Mexico Legislature, I was a duly  
elected Senator representing Senate District 29, which is located in Valencia and Bernalillo  
Counties. I am a member of the Republican Party and was elected as such.

2. I am (and was in 2021) additionally the Senate Minority Floor Leader, who is the  
person elected by the Republican members of the Senate (collectively known as a “caucus”) to  
serve as their leader. This role has numerous responsibilities, both internal and external to the



caucus itself, including negotiating with Democratic/majority leadership — which is headed by the President Pro Tempore of the Senate and Majority Floor Leader — on the substance of many major bills. In the 2021 Second Special Session, which was limited to redistricting, that certainly included the congressional-redistricting bill known as Senate Bill 1 (“S.B. 1”).

3. S.B. 1 was sponsored by Senator Joseph Cervantes, among others, who drafted it in consultation with Democratic legislative leadership and who stated on the Senate floor that he had been hand-selected by said leadership to “carry the bill.” Although it sometimes happens that bills disfavored by leadership become law, based on my knowledge and experience, and especially considering the circumstances of the bill’s movement through the legislative process, a bill like this one would have been approved if not crafted by Democratic leadership. This is especially evident when one considers that this special session only involved a handful of bills, only three of which — the redistricting bills for Congress, the Senate, and the House — were considered politically high-priority, and only two of which were meaningfully considered by any one chamber (although redistricting maps, like all legislation, must pass both chambers, by convention, the Senate does not involve itself with the House redistricting bill and vice versa).

4. Neither I nor, to my knowledge, any Republican Member of the Legislature had seen the S.B. 1 map before its introduction as legislation. Senator Cervantes stated that the map was modeled after the Citizen Redistricting Committee’s Concept H — with something in the neighborhood of a 14% deviation between the two maps — but I have no idea what the process was that was used to either select Concept H as a starting point or to make the deviations that transformed Concept H to S.B. 1, nor do I know the specific individuals involved. This process was a closed-door, and I believe exclusively Democratic-run, one. I strongly believe that I would

have known, and certainly would know now, if any Republican legislator had been involved in that process.

5. Once S.B. 1 was introduced, it was referred to and heard by first the Senate Rules Committee, on December 8, and then the Senate Judiciary Committee, on December 9. I am (and was at the time) a member of both committees. Republican legislators were unified in opposing the bill, as did many Democrats outside the Legislature — including current Mayor of Roswell and former Senate President Pro Tempore Tim Jennings, who testified passionately before the Senate Rules Committee — as a clear partisan gerrymander designed to elect a Democrat in all three districts. Republicans (and Mayor Jennings) were particularly offended at the cracking of the community of interest in the southeastern portion of the state into not two but all three congressional districts, although this was by no means the only complaint — for example, longtime Democratic Senator Jacob Candelaria later testified eloquently that the map’s placement of largely Hispanic populations in Albuquerque’s South Valley into the Second Congressional District was “inherently racist,” in that it pretextually relied on a supposed commonality of those individuals with Hispanics in the southern part of the state to justify disenfranchising those individuals from the ability to vote for the congressperson who would certainly have the most impact on their lives (that being the Albuquerque Metro representative).

6. These severe problems with the map were conveyed to the S.B. 1 sponsors and Democratic leadership not just by way of committee and floor testimony, but in unofficial meetings I had with them throughout the four-day period from the start of the session to the bill’s passage, which was on a near-pure party-line vote (with one Democratic and one longtime Democrat-turned-independent voting against the bill, and no Republicans voting for it).

7. Democratic leadership would appear to listen to the complaints and requests for modification I made on behalf of my caucus, and at various points would indicate a willingness to consider amending the map or addressing our concerns, but I can completely confidently say that no changes were incorporated to S.B. 1 to address any of the concerns raised by me or my Republican colleagues.

8. In fact, S.B. 1 only underwent a single change during its entire time in the Legislature, and that was the substitution of what is known as a “committee substitute bill,” which was done after the aforementioned Senate Judiciary Committee hearing. As a general proposition not specific to redistricting, committee substitutes are sometimes used to make extensive changes to a bill in circumstances when the more standard method of amending the bill — which involves specifying the page and line of amendments and stating any verbiage to be added or removed, and Legislative Council Services subsequently producing a redline version — would be unwieldy. The S.B. 1 Senate Judiciary Committee substitute, which ultimately became the passed and enacted map, did not address in any way the complaints that the Republican caucus had about the originally introduced bill. Neither I nor, as far as I am aware, any Republican Member of the Legislature was involved in the process of formulating the committee substitute, which strongly appears to have been conducted from start to finish on the afternoon and evening of December 9 and/or morning of December 10 — since the pre-substitute bill was approved at a Senate Judiciary Committee meeting that ended just before noon, with no indication given by any Democrat that a substitute bill (or indeed any amendment) was needed or even being considered. I strongly believe that I would have known, and certainly would know now, if any Republican legislator had been involved in that process.

9. S.B. 1 passed the Senate and the House on a pure party-line vote of 25-15 and 44-24, respectively; this was a pure party-line vote, except that Democrats Candie Sweetser and Jacob Candelaria (the latter of whom had recently registered as an independent) crossed the aisle and voted against the bill. No Republican Member of the Legislature supported the map, and I am not even aware of any Republican non-legislator from among the myriad witnesses who gave public comment during the session who supported the map.

10. Formal Republican efforts to amend S.B. 1 — *i.e.*, not including our continual efforts imploring Democratic leaders and sponsors off the floor — largely focused on attempting to rally support for the Citizen Redistricting Committee’s Concept E, also known as the Justice Chávez Compromise Map, which had been approved by the Committee with by far the largest support (only one dissenting vote on the seven-member Committee). That said, the fact that the Democrats in the Legislature did not introduce *any* of the three Committee-approved maps underscores what was widely understood both now and at the time: the primary purpose of S.B. 1, without which feature it would not have been approved by Democratic leadership, was the election of a Democrat in all three congressional districts, including specifically the southern Second District.

11. In summary, S.B. 1 was, procedurally, a completely Democratic Party project, in which Republicans were allowed to voice their ongoing and strenuous disapproval of the map, but their input was in no way whatsoever reflected in the final product.

Pursuant to Rule 1-011(B) NMRA, I hereby affirm under penalty of perjury under the laws of the State of New Mexico that this statement is true and correct to the best of my knowledge. I gave this statement on the 15<sup>th</sup> day of September 2023.

A handwritten signature in black ink, appearing to read 'G. Baca', written over a horizontal line.

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Senator Gregory A. Baca

# **PLAINTIFFS' EXHIBIT 9**

**A GUIDE  
TO  
STATE AND CONGRESSIONAL REDISTRICTING  
IN  
NEW MEXICO**

**2011**

Prepared by the  
New Mexico Legislative Council Service  
Room 411, State Capitol  
Santa Fe, New Mexico  
April 2011

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## **INTRODUCTION**

No other single issue ignites the interests of legislators, sparks such a variety of alternatives or creates such an intense atmosphere of maneuver and compromise as does redistricting. Redistricting can be an agonizing experience. Shifts in population leave some legislators in the unhappy position of having to vote on a redistricting bill that may cost them their legislative seats. Some residents will find themselves in new districts. Some areas of the state lose power in the lawmaking process to other areas. Political control of the legislature may move from one party to another or from one political philosophy to another.

On March 15, 2011, the United States Census Bureau released the decennial count of the population of New Mexico — 2,059,179 — as assigned to its 1,448 precincts. The New Mexico Legislature is now faced with the task of redistricting its house and senate seats, the Public Regulation Commission districts and the state's three congressional districts.

In view of this impending drama and the importance of redistricting to basic citizenship, it is appropriate for the Legislative Council Service to summarize the basic process of redistricting and provide an overview of that process in New Mexico. We hope the following will provide all New Mexicans with a nontechnical and informative introduction to the subject.

## **WHAT DOES IT MEAN TO REAPPORTION OR REDISTRICT?**

### **Reapportionment**

"Reapportionment" is the process of dividing or redividing a given number of seats in a legislative body among established governmental units, usually according to a plan or formula. We generally use the term reapportionment when referring to the process by which the 435 seats of the United States House of Representatives are apportioned among the 50 states. This is accomplished through the use of a mathematical formula, which is recalculated every 10 years following the federal census. At that time, the 435 congressional seats are reapportioned among the 50 states. The fastest growing states are apportioned more representatives, and states that are not growing as fast lose representatives.

### **Redistricting**

"Redistricting" is often used synonymously with reapportionment but the terms do not mean the same thing. Redistricting means redrawing the boundaries of existing voting districts. In this process, the number of representatives per district does not change but the district's boundaries do. For example, New Mexico has 70 house districts and 42 senate districts. Redistricting will not change the number of districts but it will change the boundaries of those districts.

Unlike reapportionment, which is a mathematical process, redistricting is a political process. In redistricting, there is discretion in where new boundaries are placed.

## **WHY REAPPORTION AND REDISTRICT?**

### **Constitutional and Statutory Authority**

The history of redistricting begins with the United States Constitution and its requirement that members of the United States House of Representatives be apportioned among the states according to the number of persons in each state as determined by an actual enumeration every 10 years. Section 2 of the Fourteenth Amendment and Article 1, Section 2 of the United States Constitution, in pertinent part, state:

Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State<sup>1</sup> . . . The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as they shall by Law direct<sup>2</sup> . . .

Beginning with the first census in 1790, there has been a census every 10 years, for an unbroken series of 23 nationwide population counts. The census provides the statistical basis for state-drawn congressional district lines, almost all state legislative redistricting plans, most local redistricting measures and many distribution formulas for allocating revenues and government funds.

Congress has delegated the responsibility for taking the census to the United States Department of Commerce and its Census Bureau. The law directs the secretary of commerce to take a decennial census of the population as of the first day of April of the first year in each decade. The census must be completed within nine months and the state population totals reported to the president by December 31 of the census year.<sup>3</sup>

Following the census, the president transmits to Congress the apportionment of the 435 representatives among the states. Each state is guaranteed at least one representative. The remaining 385 seats are apportioned among the states based on census results and a mathematical formula known as the "method of equal proportions".

New Mexico's population did not grow enough between 2000 and 2010 to warrant the addition of a fourth congressional district.

Statutory law further requires that the secretary of commerce, no later than April 1, 2011, provide more detailed reports by state sub-units to the governors and bodies or officials charged with state legislative redistricting. This population data is commonly referred to as PL 94-171 data, after the federal law requiring the data reports.<sup>4</sup> It is this data that is used to redraw congressional and legislative districts in New Mexico.

### **The Drawing of Boundaries**

While redistricting has been a fundamental issue in American representative democracy since the 1787 constitutional convention, the Founding Fathers did not design a set of blueprints for achieving fair and equal representation for all people. It was not until 1911 that Congress established redistricting criteria for use by the states in the drawing of congressional districts. However, Congress dropped those criteria in 1921, allowing states to once again redistrict on any basis, which in practice was rarely on the basis of population figures.

By 1946, the failure of the legislative branch to remedy the inequities of the redistricting process led to the question being put to the United States Supreme Court in *Colegrove v. Green*. The Court determined the issue was nonjusticiable. Justice Felix Frankfurter, in the majority opinion, concluded:

Courts ought not to enter this political thicket. The remedy for unfairness in districting is to secure state legislators that will apportion properly, or to invoke the ample powers of Congress.<sup>5</sup>

Judicial nonintervention continued to be the Court's policy for the next 16 years. Then, in 1962, in *Baker v. Carr*, the Court changed direction, holding that state legislative districting cases are subject to judicial review.<sup>6</sup> Since *Baker*, the Court has consistently held that legislative and congressional redistricting cases are subject to review by the courts. Over time, this review has focused on two major areas — the population of districts and the dilution of voter strength in minority districts.

### **The Population of Districts**

In the year following *Baker*, the Supreme Court issued its now famous opinion in *Gray v. Sanders*. In *Gray*, the Court was asked to consider the constitutionality of districts that varied significantly in population. Writing for the majority, Justice William O. Douglas wrote the historic words:

. . . the conception of political equality from the Declaration of Independence, to Lincoln's Gettysburg Address, to the Fifteenth, Seventeenth, and Nineteenth Amendments can mean only one thing — one person, one vote.<sup>7</sup>

Once the Supreme Court opted for judicial review of districting cases, it stayed in the fray, handing down 17 redistricting rulings the next year. In 1964, in *Wesberry v. Sanders*, the Court held that congressional districts must be redrawn so that "as nearly as is practicable one man's vote in a congressional election is . . . worth as much as another's".<sup>8</sup> By 1983, the Court developed a standard of equality for congressional districts that required them to be mathematically equal unless justified by some "legitimate objective".<sup>9</sup> Since 1983, mathematical equality for congressional districts has remained the standard.

While the population of congressional districts must be as nearly equal as practicable, the Court has allowed a more lenient standard for state legislative districts. The Court has held that legislative districts need not be mathematically equal; nonetheless, absent some rational state policy, they should not differ by more than plus or minus five percent from the ideal and, even then, may be subject to an equal protection challenge if traditional redistricting principles are ignored.<sup>10</sup>

### **Reporting Population Data**

In 1975, in order to facilitate the drawing of districts with equal populations, Congress enacted PL 94-171. The law requires the secretary of commerce to report census results no later than April 1 of the year following the census to governors and officials charged with state legislative redistricting.<sup>11</sup> It also requires the secretary to cooperate with state redistricting officials in developing a nonpartisan plan for reporting census tabulations.

While such a requirement may appear relatively noncontroversial, the reporting of census data has in fact generated significant controversy. Questions about how census numbers were obtained and what numbers were reported brought the Census Bureau under significant scrutiny in the 1990s. The bureau has long acknowledged that its federal decennial census misses some people, and post-enumeration surveys show that some populations are more likely to be undercounted than others. This situation set the stage for significant undercount litigation in the 1990s.

After the release of the 1990 census figures, New York City and other jurisdictions challenged the release of census figures that undercounted minority populations, alleging a violation of minority voting rights.<sup>12</sup> Although acknowledging an undercount, the secretary of commerce declined to allow the bureau to adjust the count to make it more accurate. Subsequently, Wisconsin and Oklahoma joined the suit on the side of the Department of Commerce in order to preserve their federal funding under the 1990 census. Without dissent, the Supreme Court held that in light of the United States Constitution's broad grant of authority to Congress, which delegated its authority to the secretary of commerce through the Census Act, "the Secretary's decision not to adjust need only bear a reasonable relationship to the accomplishment of an actual enumeration of the population, keeping in mind the constitutional purposes of the census".<sup>13</sup> Thus, the federal government did not have to adjust census figures that undercounted minority populations if the secretary had a reasonable explanation for not doing so. The Court found that the secretary's emphasis on distributional accuracy over numerical accuracy of the census was within the secretary's discretion.<sup>14</sup>

As the country prepared for the 2000 census, undercount and statistical sampling issues once again occupied the spotlight. When the Department of Commerce announced its intention to use statistical sampling techniques to adjust the 2000 census, several sets of plaintiffs filed suit. Among the plaintiffs was the United States House of Representatives, which sought to enjoin the Department of Commerce from using statistical sampling. Ruling in January 1999, the Supreme Court held that the Census Act prohibits the use of statistical sampling for purposes of apportioning representatives among the states.<sup>15</sup> However, the Court did not rule on whether adjusted figures could be used for redrawing congressional district lines within each state. In March 2001, the Department of Commerce announced that it would not statistically adjust the 2001 census numbers and would only release data based on the actual count.

### **Racial and Ethnic Discrimination**

In the 1960s, as the courts forced states to seek population equality in voting districts to ensure that one person's vote was equal to any other person's vote, the issue of ethnic and racial discrimination in state and congressional redistricting also loomed large. The passage and ratification in 1870 of the Fifteenth Amendment to the United States Constitution guaranteed citizens that their right to vote shall not be abridged by the United States or any state on account of race, color or previous condition of servitude. However, in practice, states often circumvented the spirit and intent of this guarantee. Nearly a century after the passage of the Fifteenth Amendment, Congress passed the Voting Rights Act of 1965.<sup>16</sup> The Voting Rights Act was

primarily intended to enforce the Fifteenth Amendment but also to enforce the equal protection clause of the Fourteenth Amendment and Article 1, Section 4 of the United States Constitution. Additionally, the act was later amended to provide for protection of language minorities as well as racial minorities.

Over the years, many cases have been brought before the courts alleging discrimination in the districting process. Most of the cases alleged violations of the equal protection clause of the Constitution and Section 2 of the Voting Rights Act of 1965. Section 2 prohibits a state or political subdivision from imposing any voting qualification, standard, practice or procedure that results in denial or abridgment of a United States citizen's right to vote on account of race, color or status as a member of a language minority group.<sup>17</sup> It creates a legal cause of action against a jurisdiction violating this mandate. The legal test by which such cases are adjudicated is the "results" test.<sup>18</sup> This means that a plaintiff may prove a Section 2 violation if, as a result of the challenged practice or structure, the plaintiff did not have equal opportunity to participate in the political process and to elect candidates of the plaintiff's choice.

Section 5 of the Voting Rights Act has also been used to battle discriminatory practices in redistricting. Section 5 does not apply to all jurisdictions but only to "covered" jurisdictions, which originally included only those state and local jurisdictions that, as of November 1, 1964, maintained literacy or educational prerequisites, evidence of good moral character or other similar qualifying prerequisites for voting and that had less than 50 percent of the voting-age population either registered on November 1, 1964 or voting in the presidential election of 1964.<sup>19</sup> Under Section 5, a covered jurisdiction must preclear changes in its electoral laws, practices or procedures with either the United States Department of Justice or the United States district court for the District of Columbia. The same preclearance requirement is imposed on those jurisdictions where discriminatory voting practices have been found.<sup>20</sup>

In the years following the passage of the Voting Rights Act of 1965, Congress continued to broaden the scope of the law. Subsequent amendments to that act created additional categories of "covered jurisdictions" subject to preclearance. For New Mexico, the most significant were the amendments passed in 1975, which expanded the scope of Section 5 beyond race and color to include members of language minority groups.<sup>21</sup> The law requires the use of preclearance procedures in jurisdictions in which more than five percent of the voting-age citizens are members of a single language minority and in which printed election materials are available only in the English language. American Indians, Asian Americans, Alaska Natives and persons of Spanish heritage are members of language minority groups.<sup>22</sup> These amendments brought New Mexico under Section 5 of the Voting Rights Act of 1965 for a short time in the 1970s, but New Mexico was released from preclearance requirements in 1976.

### **Applying the Voting Rights Act**

During the 1990s redistricting process, Sections 2 and 5 of the Voting Rights Act and the equal protection clause of the United States Constitution provided the basis for significant voting rights litigation across the country. Much of that litigation came about when states created

additional majority-minority voting districts — districts configured so that a racial or language minority population constituted a majority — often in an effort to forestall Section 2 challenges. This was a particularly common occurrence in jurisdictions subject to Section 5 preclearance. In those jurisdictions, Department of Justice officials frequently pushed to maximize the number of majority-minority districts without regard for the traditional districting principles of compactness, contiguity and the preservation of communities of interest.

Eventually, many jurisdictions found themselves in court, forced to justify the creation of bizarrely shaped districts created for the purpose of increasing minority voting strength. In *Shaw v. Reno* and subsequent cases, the Supreme Court rejected the creation of bizarrely shaped districts created for the purpose of maximizing minority voting strength, holding that the use of race as the predominant factor in making districting decisions violated the equal protection clause.<sup>23</sup> In subsequent cases, however, the Court stated that race may still be a factor appropriately considered in the districting process. Nonetheless, when legislative bodies set aside traditional districting principles (such as compactness, contiguity, the preservation of communities of interest and political subdivisions) in favor of race-based districting, the districting process may violate the equal protection clause.<sup>24</sup> Writing for the Court in *Bush v. Vera*, Justice Sandra Day O'Connor stated that when traditional districting principles are subordinated to race-based decisions, the Court would apply a standard of strict scrutiny.<sup>25</sup> And though the court, in *Hunt v. Cromartie*, stressed that the plaintiff has a high burden of proof in challenging a plan on these grounds,<sup>26</sup> once a strict scrutiny standard applies, the Court will allow race-based districts only if the state can demonstrate that the district is narrowly tailored to further a compelling state interest.

## **A BRIEF HISTORY OF REDISTRICTING IN NEW MEXICO**

While neither the Constitution of New Mexico nor state law mandates redistricting after every decennial census, Article 4 of the Constitution of New Mexico authorizes it,<sup>27</sup> and the process has become necessary as the population of each district changes dramatically each decade. Redistricting is necessary to ensure population equality and to prevent dilution of minority voting strength, as required under federal law.

Legislative redistricting in New Mexico has a turbulent history. A study of that history, *Legislative Apportionment in New Mexico: 1844-1966*,<sup>28</sup> shows that the job of allocating representation among the counties of the territory, and of the state prior to the 1960s, was at some times neglected and at other times circuitous. Until 1949, population was the major basis of representation in both houses, although equal representation, as the courts use the term today, was seldom achieved.

In 1949, a constitutional amendment provided for the apportionment of the New Mexico Senate in a fashion similar to that of the United States Senate. One senator was allotted to each county, except counties of the sixth class. The districts of the New Mexico House of Representatives were changed little from the original 1910 constitutional apportionment. The

size of the house increased from 49 to 55, with the additional six representatives going to fast-growing Bernalillo County.

### **1960s**

Then came the 1960s and the impact of the federal reapportionment cases. In 1962, a suit was filed in state district court challenging the 1949 constitutional apportionment of the house. Two years later, a suit was filed in the United States district court for the district of New Mexico challenging the 1949 apportionment of the senate. The result of those two suits was that the courts declared the 1949 apportionment provisions of the Constitution of New Mexico unconstitutional and in violation of the equal protection clause of the Fourteenth Amendment of the United States Constitution.

The state was then without an apportionment law, and, with the exception of 1964, the legislature spent every year from 1963 to 1966 trying to find a workable solution. This apportionment marathon resulted in the legislature adopting, in 1965, a house plan based on 70 members, with five multicounty districts and, in 1966, a 42-member senate plan.

The 42-member plan for the senate was subsequently modified twice by a three-judge federal district court. Those modifications included two at-large positions in counties that were already districted and three at-large positions in multicounty districts. Voters in at-large districts were allowed to vote for two senators instead of one. This decision was not appealed.

### **1970s**

Faced with redistricting in the 1970s, the 1971 legislature passed a 71-member reapportionment house plan and a 45-member senate plan. Both plans were based on estimated population derived from the vote for governor at the previous general election, using the so-called "votes cast formula". Actual census figures were not used because New Mexico's precinct boundary lines in most cases did not coincide with census enumeration district lines.

Two suits challenging the 1971 acts were filed, one in state district court and the other in United States district court. The state court directed that because redistricting is primarily a legislative function, the issue should be submitted to the 1972 legislature.

The 1972 acts passed by the legislature retained 70 representatives and 42 senators. In both houses, two plans were enacted, one for the 1972 elections and one for the 1974 and 1976 elections for the house and senate. The provisional districts drawn for the 1972 plans were based on census-enumeration districts, and precincts were to be redrawn so their boundaries would correspond to census-enumeration district lines. The provisional 1972 house apportionment plan included one floterial district in which six representatives were to run from districts and one was to run at large. The provisional senate plan provided for staggered terms, subject to court determination.



In 1972, the state district court in Santa Fe ruled the house provisional plan constitutional except for the sections relating to the floterial district, accepting instead the alternate provisions for seven single-member districts. The provisional senate plan was also ruled constitutional except for the sections relating to the terms of office of the eight senators elected in 1970 whose new districts were either coterminous or wholly composed of the area within their old districts. Under the plan, they were not required to run for re-election until 1974. The remaining senators had to run for re-election in 1972, and the court ruled that staggered terms, where one-half of the senate ran every two years, were no longer acceptable.

The federal district court dismissed its case in 1972, finding that the state court had adequately handled the situation. For a variety of reasons, in 1973 the legislature repealed both the house and senate census-enumeration district plans. The 1972 provisional plans, as modified by the state court, remained in effect until the 1980s.

Federal congressional action provided the next reapportionment hurdle for New Mexico. With the passage of the 1975 amendments to the Voting Rights Act of 1965, New Mexico, because of the minority language extension, joined a number of other, mostly southern, states as a jurisdiction covered under Section 5 of the act. However, under Section 4 of the act, a covered jurisdiction could "bail out" if it could prove to the satisfaction of the federal court that it had not used a discriminatory test or device for a specified period of time.

In 1975 and 1976, New Mexico petitioned the United States district court for the District of Columbia for permission to be exempt from preclearance. The state successfully showed that for the prior 10 years, New Mexico did not have any discriminatory election laws on its books. In 1976, by order of the United States district court for the District of Columbia, the state was released from preclearance procedures.

### **1980s**

Following the tradition of the 1960s and 1970s, the 1980s redistricting task in New Mexico was difficult. First, in 1981, the Census Bureau provided states detailed breakdowns of population data in enumerator districts in rural areas and in blocks in urban areas. This posed a huge problem for New Mexico because the bureau's enumerator district and block boundaries still did not coincide with New Mexico's voting precinct lines. Many, if not most, of New Mexico's precinct boundaries were not along visible boundaries acceptable to the bureau. Therefore, New Mexico continued to use the votes cast formula, which had been used in the 1960s and 1970s and defended successfully in court in 1972, to determine precinct population. Using the population so derived, the legislature, in a special session in early January 1982, redistricted both houses and the congressional districts. However, a number of New Mexico's residents and some of its legislators challenged the constitutionality of these districts. The various cases were consolidated and cited as *Sanchez v. King*.<sup>29</sup>

On April 8, 1982, the United States district court for the district of New Mexico found that using the votes cast formula to ascertain precinct population "causes substantial variations

between the numbers thereby derived and United States census figures".<sup>30</sup> Consequently, the 1982 Reapportionment Acts were declared unconstitutional due to the deviations in population between districts that resulted from using the votes cast formula, which violated the one-person, one-vote principle established in *Reynolds v. Sims*. The court noted "that the census figures, with adjustments for obvious errors which can always occur, are the only reliable and official figures available" and required that "the Legislature employ a good-faith effort to construct legislative districts on the basis of actual population" rather than population figures derived using its votes cast formula.<sup>31</sup>

The result was that, with the help of the Census Bureau and contract demographers, the legislature was able to obtain estimated populations for each of the precincts in the state and make a good-faith effort to construct districts on the basis of actual population. In a third special session in June 1982, the legislature repealed its unconstitutional redistricting efforts and enacted a new 1982 Senate Reapportionment Act and 1982 House Reapportionment Act.

This was not the end of the road. The plaintiffs, in the second phase of *Sanchez v. King*, challenged 19 of the 70 districts adopted by the legislature, claiming that the legislature's second redistricting effort constituted an intentional, racially motivated gerrymander and that it also resulted in an impermissible dilution of minority voting strength.<sup>32</sup>

The federal three-judge court stated that although it was apparent that racially motivated gerrymandering existed in the state redistricting plan, because the Voting Rights Act no longer required a finding of intentional discrimination, the court would not rule on the issue of intent with respect to any particular district.<sup>33</sup> However, on August 8, 1984, the court did find that the redistricting plans for 16 house districts in six counties — Sandoval, Cibola, McKinley, Curry, Otero and Chaves — were illegal under Section 2 of the Voting Rights Act. In December 1984, in its final judgment, the court:

- declared house districts 5, 6, 7, 44, 51, 52, 53, 57, 58, 59, 63, 64, 65, 66, 67 and 69 invalid and implemented a remedial redistricting plan for those districts contained in the August decision;

- declared the results of the June 5, 1984 primary contests for house seats in those districts void;

- appointed federal examiners for a period of 10 years in McKinley, Cibola, Sandoval, Curry, Chaves and Otero counties;

- ordered that all future legislative redistricting be based on actual population and race data by precinct provided by the Census Bureau rather than on population figures derived from the state's votes cast formula; and

- ordered state legislative redistricting plans adopted prior to 1994 to be precleared pursuant to the Voting Rights Act by court determination or submission to the United States attorney general before the plans could be enforced.<sup>34</sup>

A special primary was held on September 18, 1984 for contested legislative races in those districts redrawn by the court. This brought the 1980s round of redistricting to an end and set the stage for the 1990s.

## 1990s

The 1990s decennial redistricting of New Mexico's congressional and legislative districts was really a decade-long process. Though the 1980s decennial redistricting was not finished until 1984, preparation had already begun in 1983 for the 1990s decennial redistricting.

This preparation began when the legislature enacted the Precinct Boundary Adjustment Act and appropriated funds to provide for readjustment and mapping of all precincts in the state to conform with visible boundaries acceptable to the Census Bureau.<sup>35</sup> Participating in the "1990 Census Redistricting Data Program" administered by the bureau, New Mexico joined the majority of the states in working with the bureau to prepare maps that would for the first time show precinct lines and provide for reporting 1990 census data by precinct.

In Phase I of that program, called the "Block Boundary Suggestion Project", New Mexico began the task of collecting election precinct information from counties and redrawing those boundary lines that did not coincide with visible features on the ground. Phase II of the program involved making sure all precinct boundary lines and existing boundary lines on the census maps were correct, thus allowing the Census Bureau to report census data to the state precinct by precinct. New Mexico received population data by precinct for the first time in 1991.

In September 1991, the governor called the Fortieth Legislature into its first special session. The legislature convened on September 10 and adjourned on September 19. During that time, the legislature considered 30 house bills and 25 senate bills and passed legislation to provide for the redistricting of the State Board of Education, the New Mexico House of Representatives, the New Mexico Senate and the New Mexico seats in the United States House of Representatives.

Pursuant to the court order stemming from the litigation following redistricting in the 1980s, the legislature submitted for review its completed legislative redistricting plans to the United States Department of Justice on October 9, 1991. On December 10, 1991, the department precleared the redistricting plan for the state house but objected to the state senate redistricting plan, citing the state's failure to sufficiently explain creation of districts in southeastern New Mexico that potentially fragmented minority voting strength in that area.

In response to the Department of Justice decision, the governor called the legislature into a second special session beginning on January 3, 1992. At that time, the legislature passed an amended senate redistricting act that changed the boundaries of state senate districts 27, 32, 33, 34, 41 and 42, resulting in the creation of two additional majority-minority districts in southeastern New Mexico. The newly amended act was resubmitted to the Department of Justice and, on January 17, 1992, the department precleared the amended plan.

In August 1995, the United States and the remaining *Sanchez* plaintiffs agreed not to pursue a motion extending the Section 3 preclearance requirements that the court had imposed in December 1984.

The 1990s marked the first time in more than 30 years that New Mexico conducted its decennial redistricting without any involvement in litigation. In large part, this was due to extensive preparation — extensive public hearings and public input, participation in the Census Bureau's census redistricting data program and setting and carefully following redistricting guidelines. Much of the attention to detail was probably due to the fact that New Mexico was required to preclear its redistricting plans prior to implementation. As noted above, though the first senate plan was rejected by the Department of Justice, the five districts in question, along with an adjacent sixth district, were redrawn and approved before the regular legislative session, and no judicial challenges ensued.

### **2000s**

New Mexico began preparing for the 2001 redistricting in 1995 by participating in the "Census 2000 Redistricting Data Program". This program once again enabled the Census Bureau to report precinct level census data to the state. Phase II of the program, which entailed matching precinct lines with Census Bureau block boundaries and redrawing precinct lines as necessary to account for estimated changes in population, was completed in the spring of 2000, though some minor adjustments had to be made following the 2000 election to comply with the Precinct Boundary Adjustment Act.

During the 2000 legislative session, all precinct boundaries were frozen until February 2002 so that the precinct level census data supplied to the state under Phase III of the program would match the actual precincts used for redistricting.

During the 2001 session, the New Mexico Legislature created a redistricting committee (Laws 2001, Chapter 220) to review the requirements of redistricting law, conduct public hearings and recommend legislation in line with guidelines for redistricting that were approved by the New Mexico Legislative Council. The committee held 14 public meetings in 12 communities, beginning May 14, 2001 and ending August 30, 2001, during which time it heard from more than 100 New Mexicans and developed numerous redistricting concepts.

The New Mexico Legislature met in special session from September 4, 2001 to September 20, 2001, but only a plan to redistrict the Public Regulation Commission was signed into law; the governor vetoed two senate plans, two house of representatives plans, a congressional plan and a State Board of Education plan. Litigation followed, with the first lawsuit being filed while the legislature was still in special session. Suits were filed challenging the state's legislative, congressional, State Board of Education and Public Regulation Commission districts.

The challenge to the Public Regulation Commission districts was eventually dropped, and the lawsuit over the State Board of Education was resolved relatively easily. Upon agreement of the parties, the state district court ordered the adoption of the legislatively approved State Board of Education plan.<sup>36</sup> Trial on the senate districts was averted when, during

the 2002 regular session, the legislature approved and the governor signed a senate plan<sup>37</sup> (Laws 2002, Chapter 98), effectively ending that litigation before the trial started.

The suits over the congressional and house of representatives plans<sup>38</sup> were not as easily resolved. After an extensive round of jockeying among various plaintiffs and defendants over whether the cases should be heard in federal or state court and, once that issue was decided in favor of state court, the disqualification by the governor of the state judge assigned to the matter, the New Mexico Supreme Court appointed State District Court Judge Frank H. Allen, Jr., to hear the congressional, house of representatives and senate cases.

The congressional case was tried in mid-December 2001. On January 2, 2002, Judge Allen adopted a plan submitted by the *Vigil* plaintiffs that shifted just eight precincts to equalize the populations among the three congressional districts.<sup>39</sup> The decision was not appealed.

The house of representatives case was heard immediately after Judge Allen issued his decision in the congressional case. On January 24, 2002, Judge Allen adopted a house of representatives plan that had been approved by the legislature but altered eight districts to accommodate plans submitted at trial by the Navajo Nation and the Jicarilla Apache Nation.<sup>40</sup> The decision was appealed by the governor, and the *Vigil*, *Padilla* and *Gutierrez* plaintiffs-in-intervention moved unsuccessfully to have the federal court declare the plan unconstitutional. The governor and lieutenant governor then appealed to state court and the appeal eventually was dismissed with prejudice by the New Mexico Supreme Court on September 6, 2002.<sup>41</sup>

All told, the litigation surrounding the 2001 redistricting efforts cost the state more than \$3.5 million.

## **REDISTRICTING IN NEW MEXICO IN 2011**

As in previous decades, the 2011 redistricting process began years earlier as the state and the Census Bureau worked to update geographic information and political boundaries to ensure that census population counts would be correctly assigned to the correct precincts. Precinct boundaries were frozen from July 1, 2009 until January 31, 2012, except for those boundaries that need adjustment as approved by the secretary of state to meet the legal requirements of the redistricting process. A redistricting committee was created by Senate Bill 408 (2011) to hold public hearings around the state during the summer of 2011.

The legislature expects to meet in special session in September 2011 to consider legislative, congressional, Public Education Commission and Public Regulation Commission redistricting plans.

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1. U.S. CONST., amend. XIV, §2.

2. U.S. CONST., art. I, §2.

3. 13 U.S.C. § 141.
4. *Id.*
5. 328 U.S. 549, 556 (1946).
6. 369 U.S. 186 (1962).
7. 372 U.S. 368, 381 (1963).
8. 376 U.S. 1, 8 (1964).
9. *Karcher v. Daggett*, 462 U.S. 725 (1983).
10. *White v. Regester*, 412 U.S. 755 (1973), *Brown v. Thomson*, 462 U.S. 835 (1983).
11. 13 U.S.C. § 141.
12. *Wisconsin v. City of New York*, 517 U.S. 1, 19 (1996).
13. *Id.* at 20.
14. *Id.*
15. *Department of Commerce v. House of Representatives*, 525 U.S. 316 (1999).
16. 42 U.S.C. § § 1971, 1973 to 1973bb-1 (1996).
17. 42 U.S.C. § 1973 (a) (1982).
18. *Thornburg v. Gingles*, 478 U.S. 30, 35, 43-44 (1986).
19. 42 U.S.C. § 1973c (1996).
20. *Id.*
21. Act of June 29, 1982, Pub. L. 94-73. Title II, §§ 203, 206, 207, 89 Stat. 400, 401-02 (codified as amended at 42 U.S.C. §§ 1973 (a), 1973b(f), 1973d, 1973k, 1973l(c)(3)).
22. *Id.*
23. *Shaw v. Reno*, 509 U.S. 630 (1993).
24. *Bush v. Vera*, 517 U.S. 952 (1996).
25. *Id.* at 971.
26. *Hunt v. Cromartie*, 532 U.S. 234 (2001).
27. N.M. CONST. art. IV, § 3.
28. RICHARD FOLMAR, LEGISLATIVE APPORTIONMENT IN NEW MEXICO, 1844-1966 (New Mexico Legislative Council Service, 1966).
29. 550 F. Supp. 13 (N.M. 1982), *aff'd*, 459 U.S. 801 (1982).
30. *Id.* at 14.
31. *Id.* at 15.
32. *Sanchez v. King*, No. Civ. 82-0067-M Consolidated New Mexico Redistricting Litigation, at 2 (D.N.M. filed Aug. 8, 1984).
33. *Id.* at 9.
34. *Sanchez v. Anaya*, No. Civ. 82-0067-M Consolidated New Mexico Redistricting Litigation, (D.N.M. filed Dec. 17, 1984).
35. Precinct Boundary Adjustment Act, N.M. Laws 1983, Chap. 223, §§1-5, as amended.
36. *Sanchez v. Vigil-Giron*, No. D-101-CV-2001-02250 (N.M. 1st Jud. Dist. Feb. 6, 2002) (order adopting redistricting plan for state board of education).
37. 2002 Senate Redistricting Act, N.M. Laws 2002, Chap. 98.
38. *Vigil v. Lujan*, No. CIV 01-1077 (consolidated with *Padilla v. Johnson*, No. CIV 01-1081) (D.N.M. March 15, 2001) (order dismissing case); *Jepsen v. Vigil-Giron*, No. D-0101-CV-2001-02177 (consolidated) (N.M. 1st Jud. Dist. filed Sept. 13, 2001).
39. *Jepsen v. Vigil-Giron*, No. D-0101-CV-2001-02177 (consolidated) (N.M. 1st Jud. Dist. Jan. 8, 2002) (order adopting congressional redistricting plan).
40. *Jepsen v. Vigil-Giron*, No. D-0101-CV-2001-02177 (consolidated) (N.M. 1st Jud. Dist. Jan. 28, 2002) (order adopting house of representatives redistricting plan).
41. *Jepsen v. Vigil-Giron*, No. 27,540 (N.M. Sup. Ct. Sept. 6, 2002) (order dismissing appeal).



## **GUIDELINES FOR THE DEVELOPMENT OF STATE AND CONGRESSIONAL REDISTRICTING PLANS**

WHEREAS, it is incumbent on the New Mexico legislative council to issue redistricting guidelines that articulate principles based on federal and state law and the prior experience of this legislature; and

WHEREAS, such guidelines are necessary to assist the appropriate legislative committees involved in redistricting in the development and evaluation of redistricting plans following the 2010 decennial census; and

WHEREAS, such guidelines are also intended to help facilitate the completion of the redistricting process before the nominating petitions are first made available in October 2011 for the 2012 primary election;

NOW, THEREFORE, IT IS HEREBY RESOLVED that the New Mexico legislative council adopt the following redistricting guidelines with the intent that the appropriate legislative committees involved in redistricting use them to develop and evaluate redistricting plans.

1. Congressional districts shall be as equal in population as practicable.
2. State districts shall be substantially equal in population; no plans for state office will be considered that include any district with a total population that deviates more than plus or minus five percent from the ideal.
3. The legislature shall use 2010 federal decennial census data generated by the United States bureau of the census.
4. Since the precinct is the basic building block of a voting district in New Mexico, proposed redistricting plans to be considered by the legislature shall not be comprised of districts that split precincts.
5. Plans must comport with the provisions of the Voting Rights Act of 1965, as amended, and federal constitutional standards. Plans that dilute a protected minority's voting strength are unacceptable. Race may be considered in developing redistricting plans but shall not be the predominant consideration. Traditional race-neutral districting principles (as reflected in paragraph seven) must not be subordinated to racial considerations.
6. All redistricting plans shall use only single-member districts.
7. Districts shall be drawn consistent with traditional districting principles. Districts shall be composed of contiguous precincts, and shall be reasonably compact. To the extent feasible, districts shall be drawn in an attempt to preserve communities of interest and shall take into consideration political and geographic boundaries. In addition, and to the extent feasible, the legislature may seek to preserve the core of existing districts, and may consider the residence of incumbents.

Adopted by the New Mexico legislative council  
January 17, 2011



## GLOSSARY OF REDISTRICTING TERMS

**Apportionment:** The process of assigning the number of members of Congress that each state may elect following each census.

**At Large:** When one or several candidates run for an office, and they are elected by the whole area of a local political subdivision, they are being elected at large.

**Census:** The enumeration or count of the population as mandated by the United States Constitution.

**Census Block:** The smallest unit of geography used by the Census Bureau for counting people. Blocks are almost always bounded by visible features such as roads and rivers.

**Census Tract:** A geographic area made up of block groups recommended by the states and used by the Census Bureau for the collection and presentation of decennial census data.

**Community of Interest:** A community defined by actual shared interests, be they political, social or economic.

**Compactness:** Having the minimum distance between all the parts of a constituency (a circle is the most compact district). There are various methods of measuring compactness.

**Contiguity:** All parts of a district being connected at some point with the rest of the district and not divided into two or more discrete pieces.

**Deviation:** The degree by which a single district's population varies from the "ideal" may be stated in terms of "absolute deviation" or "relative deviation". Absolute deviation is equal to the difference between a district's actual population and its ideal population, expressed as a plus (+) or minus (-) number indicating that the district's population exceeds or falls short of that ideal. Relative deviation is the more commonly used measure and is attained by dividing the district's absolute deviation by the ideal population.

**Digital Map Layer:** A set of polygons representing geographic units. For redistricting, the primary map layers used include the following:

- Minor Civil Divisions (MCD):** Includes cities, towns and villages;
- Voting Tabulation Districts (VTD):** The census geographic equivalent of an election precinct, created for the purpose of relating election data to census data; and
- Census Blocks (CNS):** The smallest unit of census geography, normally bounded on all sides by visible features such as city or county limits and property lines or by imaginary extensions of roads.

**Floterial District:** A legislative district whose geographic boundaries overlap those of another legislative district in the same house. The consequence is that the voters living in the overlapping territory are entitled to vote twice, once in each district.

**Fracturing/Fragmentation:** The splitting of an area where a minority group lives so that it cannot form an effective majority in a district, for the purpose of minimizing the group's voting strength.

**Gerrymander:** To draw districts in a way that gives one group or party an advantage over another.

**Geographic Information System (GIS):** A computer-based method for the automation, storage, manipulation, integration, analysis, display and dissemination of spatial data and related attribute data in the form of maps.

**Homogenous District:** A voting district in which at least 90 percent of the population share a common ethnic background.

**Ideal District Population:** A population measure equal to the total state population divided by the total number of districts.

**Majority-Minority Districts:** A term used by the courts for seats where an ethnic minority constitutes a majority of the population.

**Metes & Bounds:** A detailed description of district boundaries using specific geographic features.

**Method of Equal Proportions:** A mathematical formula provided by federal statute to reapportion congressional seats after each decennial census.

**Multi-Member District:** A district that elects two or more members to a legislative body.

**Natural Boundaries (Visible Boundaries):** District boundaries that are natural geographic features.

**One Person, One Vote:** The constitutional standard established by the Supreme Court mandating or directing that all legislative districts should be approximately equal in population.

**Overall Range or Overall Deviation:** For a redistricting plan, the difference in population between the smallest and largest district, normally expressed as a percentage.

**Packing:** A term used when one group is consolidated into a small number of districts in a districting plan. Drawing a minority-controlled district with an excessively high percentage of a minority population "wastes" the additional people who could increase the minority population of another district.

**Phase I and Phase II:** The programs run by the Census Bureau to collect boundary information from state and local governments. Phase I allows states to suggest boundaries for census blocks. Phase II lets states group blocks into precincts so the official census data will contain precinct population totals.

**PL 94-171:** The law passed in 1975 by Congress that requires the Census Bureau to furnish state governments data by April 1 of the year after the census for use in redistricting. The law requires that the bureau allow states to define the boundaries of the areas in which population data is collected.

**Plurality:** A winning total in an election involving more than two candidates, where the winner received less than a majority of the votes cast.

**Population Projection:** An approximation of the population of a geographic unit at a point in the future based on specific assumptions regarding future demographic trends.

**Reapportionment:** The allocation of seats in a legislative body (such as Congress) among established districts (such as states) where the district boundaries do not change but the number of members per district does.

**Redistricting (Districting):** The drawing of new political district boundaries.

**Retrogression:** The drawing of a redistricting plan that reduces the chances for minority groups to elect representatives of their choice.

**Sampling:** A statistical technique used to estimate the whole population based on a sample. Proposed as a remedy for the undercount.

**Single-Member District:** A district that elects only one representative.

**Standard Deviation:** A statistical formula measuring variance from a norm.

**Tabulation:** The totaling and reporting of the census data.

**Topologically Integrated Geographic Encoding and Referencing (TIGER):** The TIGER/Line files are a digital database of geographic features, such as roads, railroads, rivers, lakes, political boundaries, census statistical boundaries, etc., covering the entire United States. The database contains information about these features, such as their location in latitude and longitude, the name, type of feature, address ranges for most streets, geographic relationship to other features and other related information. TIGER was developed by the Census Bureau to support the mapping and related geographic activities required by the decennial census and sample survey programs.

**Undercount:** The estimated number of people who are not counted by the census.

**Voting Age Population (VAP):** The number of people over the age of 18.

**Voting Rights Act of 1965:** The federal law prohibiting discrimination in voting practices on the basis of race or language group.

**Voting Tabulation District (VTD):** The census geographic equivalent of an election precinct created for the purpose of relating elections data to census data.

# **PLAINTIFFS' EXHIBIT 10**

## **GUIDELINES FOR THE DEVELOPMENT OF STATE AND CONGRESSIONAL REDISTRICTING PLANS**

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WHEREAS, such guidelines are necessary to assist the appropriate legislative committees involved in redistricting in the development and evaluation of redistricting plans following the 2010 decennial census; and

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3. The legislature shall use 2010 federal decennial census data generated by the United States bureau of the census.
4. Since the precinct is the basic building block of a voting district in New Mexico, proposed redistricting plans to be considered by the legislature shall not be comprised of districts that split precincts.
5. Plans must comport with the provisions of the Voting Rights Act of 1965, as amended, and federal constitutional standards. Plans that dilute a protected minority's voting strength are unacceptable. Race may be considered in developing redistricting plans but shall not be the predominant consideration. Traditional race-neutral districting principles (as reflected in paragraph seven) must not be subordinated to racial considerations.
6. All redistricting plans shall use only single-member districts.
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Adopted by the New Mexico legislative council  
January 17, 2011