



MEMORANDUM

TO: Majority Leader Devin LeMahieu
FROM: Legislative Reference Bureau
DATE: November 3, 2021
SUBJECT: 2021 LRB-5189

You requested information related to 2021 LRB-5189 on state legislative redistricting. Specifically, you asked for data on the bill’s population deviation, core retention, disenfranchised population, compactness, split geographies, incumbent pairings.

The data provided in this memorandum is derived from the Legislative Technology Services Bureau’s WISE-District Application, except for largest constituency core retention.

Population deviation

Ideal population represents the target population for each legislative district in a redistricting plan. This figure is calculated by dividing the total population of the state by the number of legislative districts. According to the 2020 U.S. Census, Wisconsin’s total population was 5,893,718. Because Wisconsin has 33 senate districts and 99 assembly districts, the ideal population for each senate district was 178,598 and the ideal population for each assembly district was 59,533.

The following table presents deviation scores for legislative districts. Courts will presume that a state legislative plan is constitutional if it has an overall range in deviation of 10 percent or less.¹

	Deviation from Ideal Population	Persons	Percent
Assembly	Mean Deviation	209	0.35
	Largest Positive Deviation	569	0.96
	Largest Negative Deviation	-542	-0.91
	Overall Range in Deviation	±1,111	± 1.87

¹ [Brown v. Thomson](#), 462 U.S. 835, 842–3 (1983).

Senate	Deviation from Ideal Population	Persons	Percent
	Mean Deviation	387	0.22
	Largest Positive Deviation	663	0.37
	Largest Negative Deviation	-1324	-0.74
	Overall Range in Deviation	±1,987	± 1.11

Largest constituency core retention

“Largest constituency core retention” is a measure of the proportion of a district that was previously together in one particular, previous district. Please note that this measure is different than “simple core constituency retention,” used in previous LRB memos on the topic of redistricting plans. The average largest constituency core retention rate for assembly districts in LRB-5189 is 57.99 percent and the average largest constituency core retention rate for senate districts is 59.67 percent.

Disenfranchisement

523,402 voters from odd-numbered senate districts were moved to even-numbered senate districts. These voters, had they not been moved, would have voted in the state senate election at the 2022 general election, but did not have the opportunity to vote in a state senate election until the 2024 general election. This movement from one district to another involved 15 senate districts.

Compactness

Compactness, in the redistricting context, refers to the “tightness” of a district’s geometric shape. Compactness is measured by comparing a district to the shape of a perfect circle, but no district is expected to be perfectly compact. The two most common mathematical models to measure compactness are the Reock Degree of Compactness Score and the Polsby–Popper Test. A perfectly compact district would have a compactness score of 1.0 under either model.

The Reock Degree of Compactness Score is calculated by dividing the area of the voting district by the area of the smallest circle that would completely enclose it.

The Polsby–Popper Test is calculated by dividing the area of a circle with the same perimeter as the district by the square of the perimeter of the district.

Assembly	Reock Degree of Compactness Score	Polsby–Popper Test
Mean	0.401	0.314
Maximum	0.702	0.567
Minimum	0.142	0.057

Senate	Reock Degree of Compactness Score	Polsby–Popper Test
Mean	0.403	0.28
Maximum	0.618	0.469
Minimum	0.135	0.091

Split geographies

The assembly map splits 48 counties and 125 municipalities, while the senate map splits 35 counties and 69 municipalities.

According to the Department of Administration’s Demographic Services Center, there currently are 57 municipalities that are split between two or more counties as of January 2021.² Therefore, the data on split geographies may reflect the overall number of municipal splits rather than being an indicator of a district not drawn according to traditional redistricting principles.

Incumbent pairings

There are 20 incumbent pairings in the assembly, 18 pairings of two incumbents, and two pairings of three.

2021 LRB-5189	Elected District	Name	Party
Assembly District 1	Assembly District 1	Rep. Joel Kitchens	Republican
	Assembly District 2	Rep. Shae Sortwell	Republican
Assembly District 8	Assembly District 7	Rep. Daniel Reimer	Democrat
	Assembly District 8	Rep. Sylvia Ortiz-Velez	Democrat
Assembly District 11	Assembly District 11	Rep. Dora Drake	Democrat
	Assembly District 12	Rep. LaKeshia Myers	Democrat
Assembly District 14	Assembly District 22	Rep. Janet Brandtjen	Republican
	Assembly District 13	Rep. Sara Rodriguez	Democrat
Assembly District 16	Assembly District 16	Rep. Kalan Haywood	Democrat
	Assembly District 19	Rep. Jonathan Brostoff	Democrat
Assembly District 17	Assembly District 14	Rep. Robyn Vining	Democrat
	Assembly District 17	Rep. Supreme Moore-Omokunde	Democrat
Assembly District 32	Assembly District 61	Rep. Samantha Kerkman	Republican
	Assembly District 63	Rep. Robin Vos	Republican
Assembly District 34	Assembly District 34	Rep. Rob Swearingen	Republican
	Assembly District 35	Rep. Calvin Callahan	Republican
Assembly District 38	Assembly District 24	Rep. Daniel Knodl	Republican
	Assembly District 58	Rep. Rick Gundrum	Republican
Assembly District 42	Assembly District 6	Rep. Gary Tauchen	Republican
	Assembly District 89	Rep. Elijah Behnke	Republican
Assembly District 45	Assembly District 31	Rep. Amy Laudenbeck	Republican
	Assembly District 45	Rep. Mark Spreitzer	Democrat
Assembly District 59	Assembly District 26	Rep. Terry Katsma	Republican
	Assembly District 27	Rep. Timothy Ramthun	Republican
	Assembly District 59	Rep. Tyler Vorpagel	Republican

² “[Population and Housing Unit Estimates – Minor Civil Division Final Population Estimates](https://doa.wi.gov/pages/home.aspx),” Department of Administration, Demographic Services Center, accessed October 19, 2021, <https://doa.wi.gov/pages/home.aspx>. We assume that the number of split geographies reported by DOA in 2021 is substantially similar to 2011.

Assembly District 69	Assembly District 68	Rep. Jesse James	Republican
	Assembly District 93	Rep. Warren Petryk	Republican
Assembly District 78	Assembly District 48	Rep. Samba Baldeh	Democrat
	Assembly District 76	Rep. Francesca Hong	Democrat
Assembly District 79	Assembly District 37	Rep. William Penterman	Republican
	Assembly District 42	Rep. Jon Plumer	Republican
	Assembly District 81	Rep. Dave Considine	Democrat
Assembly District 83	Assembly District 82	Rep. Ken Skowronski	Republican
	Assembly District 83	Rep. Chuck Wichgers	Republican
Assembly District 84	Assembly District 15	Rep. Joe Sanfelippo	Republican
	Assembly District 84	Mike Kuglitsch	Republican
Assembly District 86	Assembly District 69	Rep. Donna Rozar	Republican
	Assembly District 86	Rep John Spiros	Republican
Assembly District 91	Assembly District 29	Rep. Clint Moses	Republican
	Assembly District 67	Rep. Rob Summerfield	Republican
Assembly District 98	Assembly District 98	Rep. Adam Neylon	Republican
	Assembly District 99	Rep. Cindi Duchow	Republican

There are six incumbent pairings in the senate, five pairings of two incumbents, and one pairing of three incumbents.

2021 LRB-5189	Elected District	Name	Party
Senate District 2	Senate District 1	Sen. André Jacques	Republican
	Senate District 2	Sen. Robert Cowles	Republican
	Senate District 30	Sen. Eric Wimberger	Republican
Senate District 3	Senate District 3	Sen. Tim Carpenter	Democrat
	Senate District 7	Sen. Chris Larson	Democrat
Senate District 8	Senate District 8	Sen. Alberta Darling	Republican
	Senate District 20	Sen. Duey Stroebel	Republican
Senate District 20	Senate District 9	Sen. Devin LeMahieu	Republican
	Senate District 18	Sen. Dan Feyen	Republican
Senate District 23	Senate District 23	Sen. Kathleen Bernier	Republican
	Senate District 31	Sen. Jeff Smith	Democrat
Senate District 27	Senate District 17	Sen. Howard Marklein	Republican
	Senate District 27	Sen. Jon Erpenbach	Democrat

We hope you find this information useful. Please let us know if you have any questions or if we can provide any additional assistance.