



MEMORANDUM

TO: Majority Leader Devin LeMahieu and Speaker Robin Vos
FROM: Legislative Reference Bureau
DATE: October 20, 2021
SUBJECT: LRB-5064/1 and LRB-5072/1 Congressional Data

You requested information related to LRB-5064/1 and LRB-5072/1 on congressional redistricting. Specifically, you asked for data on the bill's population deviation, compactness, and split geographies.

The data provided in this memo is derived from the Legislative Technology Services Bureau's WISE-District Application unless otherwise stated.

Population deviation

Ideal population represents the target population for each district in a redistricting plan. This figure is calculated by dividing the total population of the state by the number of congressional districts. According to the 2020 U.S. Census, Wisconsin's total population is 5,893,718. Because Wisconsin has 8 congressional districts, the ideal population for each district is 736,715.

The following table presents deviation scores for congressional districts. Congressional districts must be as quantitatively equal in population as possible. The Supreme Court of the United States has held that congressional districts must be "as nearly [equal in population] as is practicable," with the lowest possible deviation from ideal population.¹

	Deviation	Persons	Percent
Congressional	Mean Deviation	0	0.00
	Largest Positive Deviation	0	0.00
	Largest Negative Deviation	-1	0.00
	Overall Range in Deviation	±1	± 0.00

¹ [Wesberry v. Sanders](#), 376 U.S. 1, 7—8 (1964).

Core retention

The average core retention rate for congressional districts is 93.48 percent.

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.

Congressional Districts	Reock Degree of Compactness Score	Polsby–Popper Test
Mean	0.35	0.239
Maximum	0.549	0.473
Minimum	0	0

Split geographies

The congressional map splits 10 counties and 24 municipalities.

According to the Department of Administration’s Demographic Services Center, there are 57 municipalities that are split between two or more counties.² Therefore, the data on split geographies may reflect the overall number of municipal splits rather than an indicator of a district not drawn according to traditional redistricting principles.

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

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>.