



Office of Senator Robert B. Clark III

NC Senate District 21

COMPACTNESS MEASURES

2017 House and Senate Plans Proposed Criteria Submitted by Rep. David Lewis and Sen. Ralph Hise

Compactness. The Committees shall make reasonable efforts to draw legislative districts in the 2017 House and Senate plans that improve the compactness of the current districts. In doing so, the Committees may use as a guide the minimum Reock ("dispersion") and Polsby-Popper ("perimeter") scores identified by Richard H. Pildes and Richard G. Neimi in *Expressive Harms, "Bizarre Districts," and Voting Rights: Evaluating Election-District Appearances After Shaw v. Reno*, 92 Mich. L. Rev. 483 (1993).

Reock

2

The Reock measure is the ratio of the area of the district to the area of the minimum bounding circle that encloses the district's geometry.



Source: <https://www.azavea.com/blog/2016/07/11/measuring-district-compactness-postgis/>



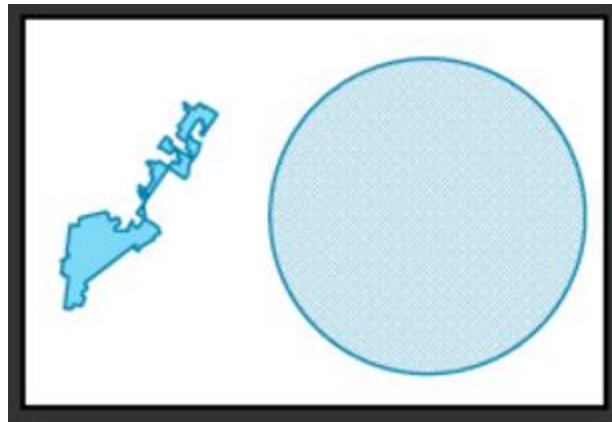
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Polsby-Popper

3

The Polsby-Popper measure is the ratio of the area of the district to the area of a circle whose circumference is equal to the perimeter of the district.



Source: <https://www.azavea.com/blog/2016/07/11/measuring-district-compactness-postgis/>



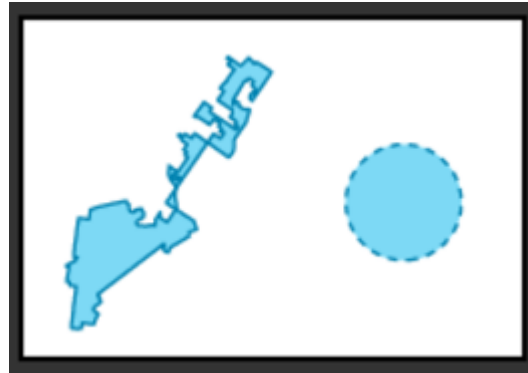
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Schwartzberg

4

The Schwartzberg measure is the ratio of the perimeter of the district to the circumference of a circle whose area is equal to the area of the district.



Source: <https://www.azavea.com/blog/2016/07/11/measuring-district-compactness-postgis/>



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Minimum Convex Polygon

5

The Minimum Convex Polygon measure is the ratio of the district area to area of the minimum convex polygon which completely contains the district.



Source: <https://www.azavea.com/blog/2016/07/11/measuring-district-compactness-postgis/>



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Compactness Reference Links

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1	<u>Measuring Compactness: A Fair Redistricting Process</u>
2	<u>Compactness in the Redistricting Process: Thomas Hofeller</u>
3	<u>Congressional Redistricting and Gerrymandering</u>
4	<u>Measuring District Compactness in PostGIS</u>

