

**SUPREME COURT OF NEW JERSEY**  
**Docket No. 089292**

JERSEY CITY UNITED AGAINST  
THE NEW WARD MAP,  
DOWNTOWN COALITION OF  
NEIGHBORHOOD ASSOCIATIONS,  
GREENVILLE NEIGHBORHOOD  
ALLIANCE, FRIENDS OF BERRY  
LANE PARK, RIVERVIEW  
NEIGHBORHOOD ASSOCIATION,  
PERSHING FIELD NEIGHBORHOOD  
ASSOCIATION, SGT. ANTHONY  
NEIGHBORHOOD ASSOCIATION,  
GARDNER AVENUE BLOCK  
ASSOCIATION, LINCOLN PARK  
NEIGHBORHOOD WATCH,  
MORRIS CANAL REDEVELOPMENT  
CDC, HARMON STREET BLOCK  
ASSOCIATION, CRESCENT  
AVENUE BLOCK ASSOCIATION,  
DEMOCRATIC POLITICAL  
ALLIANCE, and FRANK E.  
GILMORE, in his individual and official  
capacity as Ward F. Councilman,

Plaintiffs-Petitioners,

v.

JERSEY CITY WARD COMMISSION  
and JOHN MINELLA, in his official  
capacity as Chair of the Commission,

Defendants-Respondents,

Civil Action

On Petition for Certification from the  
Final Judgment of the Superior Court  
of New Jersey, Appellate Division

Docket Nos.: A-0356-22  
A-0560-22

Sat Below:

Hon. Robert Gilson, P.J.A.D.  
Hon. Patrick DeAlmeida, J.A.D.  
Hon. Avis Bishop-Thompson, J.A.D.

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JAMES CALDERON,

Plaintiff-Petitioner,

v.

CITY OF JERSEY CITY WARD  
COMMISSION, JOHN MINELLA,  
Chairman, SEAN J. GALLAGHER,  
Secretary, and Commissioners DANIEL  
E. BECKELMAN, PAUL CASTELLI,  
JANET LARWA, and DANIEL  
MIQUELI,

Defendants-Respondents.

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**BRIEF OF AMICUS CURIAE ELECTORAL INNOVATION LAB**

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**MANDELBAUM BARRETT PC**

Andrew Gimigliano  
3 Becker Farm Road, Suite 105  
Roseland, New Jersey 07068  
(973) 736-4600 (p)  
(973) 325-7467 (f)  
agimigliano@mblawfirm.com  
*Attorneys for Amicus Curiae,  
Electoral Innovation Lab*

On the Brief  
Andrew Gimigliano (016792012)  
Brian Block (110962014)

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## **PRELIMINARY STATEMENT**

The Electoral Innovation Lab (“EIL”) submits this brief to aid the Court with respect to the appropriate considerations of evaluating the compactness of voting districts drawn pursuant to the Municipal Ward Law (the “MW Law”). EIL does not take a position with respect to the ultimate issue of whether Jersey City’s wards, as drawn, comply with the MW Law.

As a threshold matter, EIL respectfully submits that the principles governing review of wards drawn pursuant to the MW Law should not vary from the principles that govern districts drawn pursuant to the New Jersey Constitution for congressional redistricting and legislative apportionment. On that front, both the MW Law and the Constitution require districts to adhere to three principles: (1) compactness, (2) contiguity, and (3) certain measures of population deviation. No legitimate basis justifies evaluating compactness differently under the MW Law than under the Constitution.

Furthermore, available standard quantitative measures of compactness provide objective criteria for evaluating whether district shapes may constitute gerrymandering. Two widely accepted metrics, the Reock score and the Polsby-Popper score, compare districts to a circle (the most compact possible shape) to generate numerical scores between 0 and 1, with higher scores indicating greater

compactness. Scores below certain thresholds—particularly Reock scores below 0.30, and especially below 0.20—warrant greater scrutiny for potential gerrymandering.

These measures of compactness are part of the standard toolkit of professional redistricting experts. Because of their broad acceptance in law and by practitioners, the Appellate Division erred in holding that Reock and Polsby-Popper scores should not be considered as part of the compactness analysis pursuant to the MW Law.

The Appellate Division also erred by not recognizing additional criteria, including respect for political boundaries, geographic features, population distribution, and preservation of communities of interest, as appropriate considerations for analyzing compactness. It should be noted that these factors may sometimes justify departure from maximum compactness when necessary to achieve fair representation.

For all of these reasons, and as set forth more fully below, EIL urges the Court to reverse the decision of the Appellate Division. EIL respectfully submits that this Court should reject the rational basis test articulated by the Appellate Division and hold that the full range of principles that apply to congressional redistricting and legislative apportionment also apply to the MW Law and that, in

considering compactness under the MW Law, courts may consider Reock and Polsby-Popper scores as well as other well-recognized redistricting principles such as communities of interest.

### **LEGAL ARGUMENT**

The Appellate Division recognized that the MW Law enumerates “three requirements for ward districts.” (Pa15). Wards must be (1) compact, (2) contiguous, and (3) shall be of equal population with a deviation of no more than ten percent “of the mean population of the wards.” (Pa15). The third requirement is the MW Law’s equivalent of the one-person, one-vote mandate originally articulated in Baker v. Carr, 369 U.S. 186 (1962). (Pa15-16).

With respect to compactness, the panel noted that courts should “look to cases evaluating challenges to State legislative reapportionments and congressional redistricting in New Jersey.” (Pa17). The panel, however, added that State legislative and congressional districts differ from municipal wards because the former are “created and defined in the New Jersey Constitution,” and the latter are defined by the MW Law. (Pa17-18). The panel also declined to consider cases from other jurisdictions because because it was interpreting a New Jersey statute. (Pa17).



The panel concluded that ward maps can only be challenged based on the three requirements in the MW Law: compactness, contiguity, and population deviation. (Pa19). The panel held that ward maps cannot be challenged based on principles such as preservation of “communities of interest” or “historic neighborhoods” because “the Legislature did not include those considerations in the MW Law.” (Pa19).

The panel also concluded that, to meet the requirements of the MW Law, a ward “need only have a rational basis for its shape, considered within the context of the shape of the overall municipality, the other wards, and the population deviation between the most populous and least populous wards.” (Pa19-20). The panel did not identify what factors should be considered to determine if a rational basis exists for the shape of a ward.

The panel remanded the case for limited fact finding on “whether there was a rational basis for the Commission’s configuration of the wards.” (Pa20). The panel granted the trial court discretion to hear testimony and “to allow focused cross-examination of one or more Commissioners, provided that examination is limited to the rational basis for the compactness of the wards.” The panel again did not state what factors the Commissioners could rely on to justify the rational-basis standard articulated by the panel. On the other hand, the panel stated that Plaintiffs

cannot challenge the wards “by arguing that the wards do not comply with other models of compactness,” including the Reock standard, the Polsby-Popper standard, or the breaking up of communities of interest.” (Pa20-21).

EIL respectfully submits that the Appellate Division erred in two respects. One, the decision overlooked that the MW Law and the New Jersey Constitution contain the same substantive redistricting requirements. Two, the decision did not recognize the objective value of the Reock and Polsby-Popper tests in evaluating the physical measure of a ward and other widely accepted redistricting principles that may aid the compactness analysis.

**I. The MW Law and the New Jersey Constitution Contain the Same Redistricting Requirements and Should Be Subject to the Same Standards and Analysis**

The MW Law lists three requirements for wards: compactness, contiguity, and population deviation. N.J.S.A. 40:44-14. EIL agrees that, in considering compactness, courts should draw from cases involving legislative apportionment and congressional redistricting. EIL, however, respectfully disagrees that compactness, as it applies to the MW Law, should be treated any differently than compactness as it applies to apportionment or redistricting.

Although apportionment and redistricting are guided by the New Jersey Constitution, whereas the MW Law is a State statute, the constitutional requirements are the same as those contained in the MW Law. Like the MW Law,

the New Jersey Constitution requires districts to be compact, contiguous, and meet a specified level of population deviation. N.J. Const. art. IV, § II, ¶ 3.

With that in mind, EIL respectfully submits that wards drawn pursuant to the MW Law should not be treated differently than districts drawn during congressional redistricting or legislative apportionment. Both the Constitution and the MW Law contain the same requirements when drawing districts, and there is no reason to treat the statutory requirements differently than the constitutional requirements. Simply put, the Appellate Division decision creates a distinction where there is no difference. The Court, therefore, should reject the Appellate Division's conclusion that the redistricting principle of compactness should be considered differently under the MW Law than under the New Jersey Constitution.

## **II. The Reock and Polsby-Popper Tests Provide an Objective Analysis of Compactness and Should Be Considered on Remand**

The Appellate Division expressly held that the Reock and Polsby-Popper measures should not be considered as part of the compactness analysis pursuant to the MW Law. Those measures, however, have been used for decades by courts around the country in evaluating congressional and legislative districts, and, as discussed above, compactness under the MW Law should not be treated differently than it is in congressional or legislative redistricting.

EIL respectfully submits that Reock and Polsby-Popper are highly effective indicators of compactness with respect to the physical measure of a district, but the Appellate Division errantly refused to consider Reock and Polsby-Popper scores as a measure of compactness under the MW Law. Similarly, the Appellate Division erred in disallowing other traditional redistricting principles to be considered in connection with compactness. In short, despite the availability of a variety of measures of compactness, the Appellate Division concluded that courts should not be allowed to consider any of those measures.

Compactness, which plays a crucial role in assessing the shapes of electoral districts, is a descriptor concerning the shape of a district and is a standard concept for professional redistricting experts. See generally Richard G. Niemi et al., Measuring Compactness and the Role of a Compactness Standard in a Test for Partisan and Racial Gerrymandering, 52 J. Pol. 1155 (1990). Quantitative measures of compactness provide objective criteria for evaluating district shapes, which is essential in the context of the redistricting process and potential gerrymandering challenges.

In redistricting, the term “compactness” generally refers to the physical shape of a district. A perfect circle is the most physically compact possible shape. Although circular districts are generally not achievable in practice, such an ideal is

a useful benchmark against which to compare district shapes. An excessively irregular shape is one of several indicia of a political gerrymander. Karcher v. Daggett, 462 U.S. 725, 744 (1983) (Stevens, J., concurring).

Other standards include political neutrality and respect for existing political boundaries like counties and municipalities.<sup>1</sup> These criteria are considered to be separate from compactness. A further criterion relied on in redistricting is the preservation of communities of interest. Sandra J. Chen, Samuel S.-H. Wang et al., Turning Communities of Interest into a Rigorous Standard for Fair Districting, 18 Stanford J. Civ. Rights & Civ. Liberties 101 (2022); Nicholas O. Stephanopoulos, Redistricting and the Territorial Community, 160 U. Pa. L. Rev. 1379 (2012). Compactness therefore is one of multiple criteria for good districting and stands as an objective and clearly-defined standard that should be considered alongside other factors.

When evaluating the shape of a district, redistricting commissions and courts often turn to two widely accepted metrics: the Reock score and the Polsby-Popper score. These measures are calculated automatically by publicly and commercially

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<sup>1</sup> Respect for municipal boundaries arises in legislative reapportionment, which by New Jersey law must be composed of whole municipalities. N.J. Const. art. IV, § II, ¶ 3. Consistent with this requirement, compactness is subordinated to maintaining districts “on the basis of existing political subdivisions.” McNeil v. Legislative Apportionment Comm’n of State, 177 N.J. 364, 381 (2003); Jackman v. Bodine, 49 N.J. 406, 419 (1967); Scrimminger v. Sherwin, 60 N.J. 483 (1972).

available software packages for redistricting, including Maptitude for Redistricting, ESRI Redistricting, and Dave's Redistricting App. The Reock and Polsby-Popper scores both relate to an intuitive understanding of compactness by using the circle as an ideal reference shape. The circle is the most compact two-dimensional shape, maximizing area while minimizing perimeter. By comparing district shapes to circles, these metrics provide a standardized way to quantify how much a district deviates from this ideal compact form.

The Reock score, developed by Rutgers University professor Ernest C. Reock in 1961, is a measure of geographical compactness. Ernest Reock, [A Note: Measuring Compactness as a Requirement of Legislative Apportionment](#), 5 Midwest J. Political Science 70 (1961). It compares the area of a district to the area of the smallest circle that can completely enclose the district. The score is calculated by dividing the district's area by the area of this minimum bounding circle. Reock scores range from 0 to 1, with 1 representing a perfectly compact district (a circle).

This measure aligns with the intuitive notion that a compact district should not sprawl across a large area relative to its core. Districts with higher Reock scores are generally considered more compact and less likely to have been drawn for political purposes. Based on his examination of a variety of districts, Professor

Reock suggested that any district with a score of 0.30 or less warrants skeptical examination for possible gerrymandering, and that a score of 0.20 or less should be regarded as a presumptive gerrymander unless shown otherwise. Reock, A Note: Measuring Compactness as a Requirement of Legislative Apportionment, at 74 (“Districts having a degree of compactness below 20% should be considered suspect until proven valid”.)

The Polsby-Popper score, introduced by Daniel D. Polsby and Robert D. Popper in 1991, focuses on the perimeter of a district in relation to its area. Daniel D. Polsby & Robert D. Popper, The Third Criterion: Compactness as a Procedural Safeguard Against Partisan Gerrymandering, 9 Yale L. & Pol’y Rev. 301 (1991). This measure is calculated by comparing the area of the district to the area of a circle with the same perimeter as the district. The formula is  $4\pi(\text{Area}) / (\text{Perimeter}^2)$ . Like Reock scores, Polsby-Popper scores range from 0 to 1, with 1 indicating a perfect circle. This metric is particularly sensitive to the irregularity of district boundaries. Districts with smoother, less convoluted borders will score higher, aligning with the intuition that compact districts should have simpler shapes without unnecessary protrusions or indentations.

Both the Reock test and Polsby-Popper test can contribute to an inquiry into whether the wards of Jersey City may have been improperly drawn.<sup>2</sup> To set a baseline expectation for compactness, the Jersey City ward map for 2010 had an average Reock score of 0.502, and Ward F had a Reock score of 0.500. (Pa83).

With growth, however, population patterns change decade-to-decade. Despite any shifts in population, as a demonstration of the degree of compactness that is possible to draw now, Plaintiffs' map has an average Reock score of 0.428, with a Ward F Reock score of 0.429, which is very close to the overall average of the map. (Pa83).

The Commission's current plan for Jersey City's six wards has an average Reock score of 0.345. The smallest score for any ward was Ward F, which received a score of 0.160. (Pa83). That score, 0.160, is well below Professor Reock's suggested threshold of 0.20 for a presumptive gerrymander and suggests the possibility that Ward F received special attention in its drafting. Indeed, both the average and Ward F-specific Reock scores show that the Commission's plan was less compact than both the previous plan and a possible alternative (Plaintiffs' map).

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<sup>2</sup> EIL relies on the Reock and Polsby-Popper scores submitted by Plaintiffs and has not independently verified Plaintiffs' work.



A similar picture emerges for the Polsby-Popper score. The Jersey City ward map for 2010 has an average Polsby-Popper score of 0.537, and Ward F has a Polsby-Popper score of 0.485. (Pa83). Plaintiffs' map had an average Polsby-Popper score of 0.512, and a Ward F score of 0.468. (Pa83). In the current plan drawn by the Commission, the average Polsby-Popper score across the six wards is 0.401. The minimum score for any ward is, again, Ward F, with a score of 0.209. (Pa83).

Although the Reock and Polsby-Popper scores for Ward F are low enough to identify it as far from compact, this should not end the inquiry. The value of compactness as a criterion in redistricting builds on the fact that people who live near one another are apt to have shared interests that warrant representation. (Pa66-81). Communities, however, are defined not just by location, but also by shared interests, which may be based on language, cultural, economic, environmental, or other interests. And the importance of communities in redistricting has precedent in New Jersey law. Gonzalez v. State Apportionment Comm'n, 428 N.J. Super. 333, 342-43 (App. Div. 2012); Brady v. N.J. Redistricting Comm'n, 131 N.J. 594, 620-21 (1992); Jackman, 43 N.J. at 462-63.

While compactness measures, like the Reock test and the Polsby-Popper test, are valuable tools in assessing a district, a deeper examination would expand

this concept to include consideration of communities of interest. Geographical features, population distribution, and communities of interest can all influence district shapes in ways that may, or may not, reduce compactness scores without necessarily indicating improper districting.

It should be noted that a savvy mapmaker can achieve political advantage even while drawing districts that score well on compactness measures. Simple, aesthetically pleasing shapes can mask sophisticated electoral engineering that fragments or concentrates certain communities to achieve desired political outcomes. Seemingly “clean” district boundaries can still result in significant partisan skew or minority vote dilution. For this reason, full examination of a map requires holistic analysis of not only shape, but political geography, demographic patterns, voting behavior, and community boundaries.

That said, the value of objective physical measures of district shapes is invaluable in providing a baseline understanding of how the physical shape of past district or competing proposed districts measure both on their own and in comparison with one another. Compactness measures thus serve as useful diagnostic tools in the evaluation of a ward or district map.

### **III. The Rational Basis Test as Articulated by the Appellate Division Is an Unsuitable Standard for Further Compactness Analysis**

An additional principle arising in redistricting and apportionment is the concept of communities of interest. In the most recent round of congressional redistricting, the Chair of the Redistricting Commission cited communities of interest as a key principle. In re Congressional Districts by N.J. Redistricting Commission, 249 N.J. 561, 572-73 (2022) (enumerating factors to be considered in determining constitutionality of redistricting map). Similarly, communities of interest were part of the consideration by the New Jersey Apportionment Commission in 2022. Statement of Standards of Philip S. Carchman, 11th Member of the New Jersey Legislative Apportionment Commission, New Jersey Legislative Apportionment Commission (Jan. 7, 2022) [hereinafter “Statement of Standards”] (noting factors including communities of interest, competitiveness, continuity of representation, and partisan fairness were “not constitutionally mandated” but “have been recognized as integral to the drafting and evaluation of a viable map”).<sup>3</sup>

Communities of interest are arguably more important at the ward level. Communities of interest are understood to include “neighborhoods, communities, or groups of people who share common values, goals, and concerns – such as

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<sup>3</sup> The Statement of Standards is available online at: <https://www.apportionmentcommission.org/Documents/2021/Statement%20of%20Standards%20of%20Philip%20S.%20Carchman,%2011th%20Member%20of%20the%20New%20Jersey%20Legislative%20Apportionment%20Commission.pdf>.

cultural, ethnic, linguistic, economic, or religious interests, or shared infrastructure concerns, shared environmental concerns, or shared industry.” Statement of Standards at 4. These concerns may be acute at the ward level, where a community may comprise a substantial fraction of a ward. Furthermore, a community, when split, may be left with little influence in municipal government. Thus, communities of interest may provide a basis for further examination to justify the shape of a ward—or to challenge proposed ward boundaries.

The Court, therefore, should reject the Appellate Division’s conclusion that courts should apply a rational basis test to ward maps without consideration of these redistricting principles. The panel left open what a municipality can rely on to establish a rational basis but expressly held that plaintiffs could not challenge a ward based on communities of interest. That holding could allow a municipality to justify proposed wards based on principles that are not available to a challenger of a map. EIL respectfully submits that the Court should not allow proposed wards to be defended on uncontestable grounds.

EIL therefore maintains that the Court should conclude that, like congressional redistricting and legislative apportionment, analysis of compliance with the MW Law may include factors such as communities of interest. In conjunction with core compliance with the fundamental requirements of the MW

Law, communities of interest and other widely accepted redistricting principles can be used to evaluate whether a redistricting plan can serve fair representation.

### **CONCLUSION**

For the foregoing reasons, EIL respectfully submits that the Court should reverse the decision of the Appellate Division. The Court should clarify that the principles that have long applied to congressional redistricting and legislative apportionment apply equally to wards drawn pursuant to the MW Law. Further, the Court should clarify that an evaluation of compactness should include objective measures, such as the Reock test and Polsby-Popper test, as well as traditional concepts, including, but not limited to, communities of interest. On remand, the parties should be ordered to adduce sufficient proofs to meet these standards and to ensure the trial court has an appropriate record to consider the sufficiency of Jersey City's ward map and its compliance with the law.

Respectfully submitted,  
**MANDELBAUM BARRETT PC**

By: /s/ Andrew Gimigliano  
Andrew Gimigliano  
3 Becker Farm Road, Suite 105  
Roseland, NJ 07068  
(973) 736-4600 (p)  
(973) 325-7467 (f)  
agimigliano@mblawfirm.com  
*Attorney for Amicus Curiae*  
*Electoral Innovation Lab*

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