

Summary of Conclusions of Joint Submission Plan
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February 13, 2018

I was asked to use best practices from mathematics and statistics to assess whether the proposed Joint Submission Plan is or is not an *extreme outlier* along partisan lines. I concluded that the proposed Joint Submission Plan is indeed an extreme outlier, exhibiting a decidedly partisan skew that cannot be explained by Pennsylvania's political geography or the application of traditional districting principles.

I examined the proposed Joint Submission Plan using a mathematical method that took into account only the factors set forth in the Pennsylvania Supreme Court order: respect for political boundaries, compactness, and population parity. My goal was to assess the partisan performance of the proposed Joint Submission Plan in the context of the universe of Pennsylvania plans that could have been created within the Court's constraints. My approach fully controls for "political geography" – that is, how voters are distributed across the state, by holding that constant when a comparison is made.

We ran algorithms to generate many millions of alternative districting plans that scored better than the proposed Joint Submission Plan on the Supreme Court's factors (respect for political boundaries, compactness, and population parity), but were substantially less weighted toward Republican candidates than the proposed Joint Submission Plan.

I concluded that the proposed Joint Submission Plan's bias in favor of Republicans is extremely unlikely to have come about by chance.

There is no more than a 0.1% chance that a plan drafted to comply with the Court's factors would have been as favorable to Republicans as is the proposed Joint Submission Plan.

When measured by tracking its partisan bias, the proposed Joint Submission Plan failed emphatically. Only the 2011 plan that is currently in effect started from a more severe partisan skew and stood out more in this test.

The proposed Joint Submission Plan is extremely, and unnecessarily, partisan.