Reply Report of Plaintiff’s Expert Regarding Tennessee State House Reapportionment

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December 2, 2022 (DRAFT)

I have prepared this reply report at the request of Plaintiffs’ Counsel regarding the Tennessee state House reapportionment plan enacted by the Tennessee General Assembly in February 2022.[[1]](#footnote-1) I have been asked to respond to the expert reports of Sean P. Trende (Ex.Trende) and Douglas Himes (Ex.Himes).

On October 10, 2022, I prepared a report (Cervas Report) for this Court regarding the Tennessee state House reapportionment plan. In that report, I demonstrated that the plan enacted by the Tennessee Legislature had far more county splits[[2]](#footnote-2) than what was necessary to achieve the goals of reapportioning the state while complying with federal and state constitutional and statutory law. I prepared five illustrative plans to demonstrate this point. Together, these plans presented the tradeoffs involved with prioritizing aspects of redistricting and show that none of these explain the excessive county splits found in the enacted plan. In each of my five plans, I was able to achieve far fewer county splits consistent with the Tennessee Constitution. I was able to achieve this reduction in county splits while *improving* on other criteria found in the Tennessee Constitution. In the following paragraphs, I will address the comments of Mr. Trende and Mr. Himes.

# Report of Mr. Trende:

I am pleased that Mr. Trende agrees that Map 13b “would pass muster under Tennessee Supreme Court precedent” (comparing to Map 13a, see Ex.Trende at 12). Likewise, he indicates that in Map 14a, “district 80 is maintained as a 50%+1 Black district where the Democrat would likely win” (*Id.* at 13), and therefore valid under the Voting Rights Act. Mr. Trende reports no other potential issues regarding the VRA.[[3]](#footnote-3)

Mr. Trende next considers whether I have properly accounted for “legitimate districting considerations” (*Id.* at 18). He acknowledges that my illustrative plans are compact (comparing to the enacted plan: “There’s little dispute that it is sufficiently compact, using Dr. Cervas’s maps as comparators.” *Id.* at 19). I would highlight for the Court that all my plans are more compact than the enacted plan. The only other considerations Mr. Trende suggests that I fail to consider at core retention and incumbency advantage. Counsel had not asked me to prepare maps with those considerations in mind. I have since been provided information on where incumbents reside, though my mapping program does not allow for that analysis.

When I’m tasked with creating plans for federal and state court, I first comply with the criteria enumerated in federal and state constitutional and statutory law. Only after that can subordinate criteria (like core retention) be considered (see Mr. Trende “It subordinates most other redistricting considerations in the service of redistricting county splits.”). My illustrative plans are consistently elevating constitutional criteria before considering secondary considerations.

Mr. Trende contends that “The remainder of the maps fail to contain a single district wholly within Madison County.” (*Id.* at 20; see also Ex.Himes at 19). Whether Madison County is required to a have “single district wholly” within its boundaries is a legal question beyond the scope of my report.[[4]](#footnote-4) However, Plaintiff’s counsel has asked me to prepare an alternative plan (which I call Map 13c) in which district 77 (i.e., Madison County) and district 80 are identical to those in the enacted plan. Therefore, there is no debate about the constitutionality of this proposed alternative. I am pleased to report that this plan has 24 TN County Splits, the same as maps 13.5b and 14a, and one fewer than 13b. This map continues to score better than the enacted map on county splits, compactness, average deviation, and increases the core retention to 73.7%.

# Report of Mr. Himes:

Mr. Himes shows that each of my illustrative maps have non-contiguous census blocks. I am grateful to Mr. Himes for showing this and am pleased to report that I was able to quickly fix those technical errors and append to this report (Appendix A) Maps 13b, 14a, 13.5a, and 13.5b.[[5]](#footnote-5) In all cases, the technical errors had no negative deficiencies to the plans. All the plans have the same number of county splits. Indeed, the only numeric effect was to *increase* the compactness in each of the plans.

Mr. Himes presents a table (Ex.Himes at 18) that proports to “illustrates the deficiencies” with my illustrative plans that “that make them poor candidates for consideration.” However, the table is misleading. All my illustrative plans are within the legal bounds of overall deviations (and all have lower average deviations than the enacted plan with the sole exception of 14a; see Appendix A, Table XX). As I show in my first report, properly apportioning Montgomery County (see Cervas Report footnote 4 at 10) by splitting it one time allows for a reduction of the overall deviation. So long as the districts are maintained as they are in the enacted plan, that guarantees a large overall deviation. In plan 13.5b, I do split Montgomery County, and, in that plan, the overall deviation is lower than the enacted plan. For this report, I have prepared an additional illustrative plan (Map 14d) which reduces the overall deviation to under 9% while continuing to split only 24 counties (see Appendix A).

Second, Mr. Himes claims that I have fewer majority-minority districts. As soon in Mr. Trende’s report, all my illustrative plans have as many Voting Rights Act compliant districts as the enacted plan. I have avoided drawing districts with race as a preponderant motive and attempting to increase the number of districts with a 50%+1 minority population would put me in a position of potentially violating the principles the U.S. Supreme Court annunciated in *Shaw v. Reno*. I was careful to maintain the same number of districts that are presumably protected in the VRA.

I have addressed the issue of preserving “preserving whole district” and of noncontiguous districts above.

Mr. Himes also says all five of my illustrative plans are “poor candidates for consideration” because they diminish prior cores and increase incumbent pairings. My illustrative maps focus exclusively on complying with federal and state constitutional and statutory law. For this report, for the Court’s benefit, I create an additional illustrative plan starting from Map 13c which simultaneously increases core retention and decreases the number of paired incumbents (See Appendix A, Map 13e).

# Conclusions

I continue to believe that my illustrative plans comply with federal and state constitutional and statutory law of Tennessee. I am grateful for Mr. Himes noticing some technical mistakes in my illustrative maps, which I have corrected. Further, Mr. Trende’s report demonstrates that maps 13b, 13.5a, 13.5b, and 14a all treat district 80 in a way that is consistent with the Voting Rights Act. All the maps I have prepared for this Court have considerably fewer county splits than the enacted plan. None of the claims in the reports of Mr. Trende or Mr. Himes challenge the finding that it is possible to comply with federal and state constitutional and statutory law while reducing the number of county splits below the 30 found in the enacted plan. Indeed, taken to the extreme, one could claim that “other legitimate and rational state policies” (see Ex.Himes at 6 quoting *Reynolds v. Sims*, 377 U.S. at 577-81) LETS WORK ON THIS…

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|  | Enacted | 13b\_err[[6]](#footnote-6) | 14a\_err[[7]](#footnote-7) | 13.5a\_err[[8]](#footnote-8) | 13.5b\_err[[9]](#footnote-9) | 13c[[10]](#footnote-10) | 13d[[11]](#footnote-11) | 13e[[12]](#footnote-12) |
| TN County Splits | 30 | 25 | 24 | 22 | 24 | 24 | 24 | 24 |
| Overall Deviation | 9.90% | 9.96% | 9.98% | 9.98% | 9.82% | 9.96% | 9.73% | 9.90% |
| Average Deviation | 3.28% | 3.19% | 3.63% | 3.24% | 2.94% | 3.07% | 2.43% | 3.16% |
| Reock | 0.3431 | 0.3581 | 0.3667 | 0.3646 | 0.3755 | 0.3565 | 0.3670 | 0.3495 |
| Polsby-Popper | 0.2326 | 0.2567 | 0.2696 | 0.2674 | 0.2652 | 0.2543 | 0.2672 | 0.2467 |
| Core Retention[[13]](#footnote-13) | 80.1% | 71.5% | 69.2% | 70.6% | 67.9% | 73.7% | 70.5% | 80.1% |
| Paired Incumbents[[14]](#footnote-14) | 6 | 16 | 24 | 20 | 21 | 15 | 16 | 6 |
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Appendix A

In this Appendix, I provide the data for new illustrative maps 13c, 13d, and 13e.

1. My qualifications and CV can be found in Appendix B. [↑](#footnote-ref-1)
2. I defined three different ways of counting the number of county splits. I focus on “TN County Splits,” which is the traditional way the state has counted. [↑](#footnote-ref-2)
3. Mr. Trende writes “Dr. Cervas does not claim it fails to comply with the Voting Rights Act” (Ex.Trende at 19). Counsel has not asked to opine on whether the enacted plan complies with the Voting Rights Act, and I do not offer an opinion here on that issue. [↑](#footnote-ref-3)
4. District 80 in the enacted plan contains parts of three counties, and none of them remain whole. The result of this is another forced split of Tipton County, which itself forces Lauderdale County to be split. In comparison, Map 13b only splits Haywood and Madison County. And it accomplishes this while still complying with the Voting Rights Act (see Ex.Trende at 12). [↑](#footnote-ref-4)
5. The technical errors all involved zero population census blocks. [↑](#footnote-ref-5)
6. 13b\_erratum: <https://davesredistricting.org/join/89ad33c8-2e87-492b-ba8b-e2ade60734b4> [↑](#footnote-ref-6)
7. 14a\_erratum: <https://davesredistricting.org/join/388b6a2e-df40-4799-a85b-370a0e331b6b> [↑](#footnote-ref-7)
8. 13.5a\_erratum: <https://davesredistricting.org/join/8ba9a5dd-904c-4290-a87d-0da3a677c3f7> [↑](#footnote-ref-8)
9. 13.5b\_erratum: <https://davesredistricting.org/join/5a350341-6ccc-4fd0-a3a4-ca822f11f826> [↑](#footnote-ref-9)
10. 13c: <https://davesredistricting.org/join/059d4470-683a-41b1-8e5e-34f1d0223cda> [↑](#footnote-ref-10)
11. 13d: <https://davesredistricting.org/join/db53bd36-cba8-4ecf-b29a-904d6c698a09> [↑](#footnote-ref-11)
12. 13e: <https://davesredistricting.org/join/2f8e2348-4f76-4db0-8b07-abbe779d777a> [↑](#footnote-ref-12)
13. Calculated in DRA. Notice trivial differences from what Mr. Trende reports (see Ex.Trende at 19), but that the two numbers give largely the same answer. The conclusions are not altered. [↑](#footnote-ref-13)
14. Plaintiff’s counsel provided me with a confidential file containing incumbent addresses on November 18, 2022. I used the U.S. Census Bureau’s Geocoder to create a geo-point file. In QGIS, I used the “Count Points in Polygons” function to count the number of paired incumbents. [↑](#footnote-ref-14)