

Exhibit 2

November 21, 2025 Report of Michael Barber, PhD

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I have been asked by counsel for the Legislative Defendants to review the Corrected Report and Errata to the Supplemental Expert Rebuttal Report of Dr. Jonathan Rodden, dated November 20, 2025.

Dr. Rodden corrects the geographic boundary files and runs a new set of simulations that are contained entirely within District 1 and 3 in the eastern third of the state. These simulations, when properly compared to the 2025 Districts 1 and 3 show that the 2025 Map's districts are not unusual in their racial composition, nor do they present as outliers.

Dr. Rodden makes two comparisons. The first is to compare the BVAP of the entire set of 5,000 simulations to the 2025 Map. The second is to compare the BVAP of the smaller subset of simulations where both districts are "Republican leaning" to the BVAP of the 2025 Map's districts. Dr. Rodden defines a "Republican leaning" district in the simulations as any district that has a Republican partisan index of greater than 50%. In previous reports, I have criticized this choice of 50% as a threshold since "There is an enormous difference between a

district that is 50.01% Republican-leaning versus a district that is 55% Republican-leaning. When constructing a district that is safe for one party over the other, mapdrawers often build in some additional cushion to account for the fact that there will be elections in which a party might not perform as well overall (for example, in a midterm election when their party controls the presidency) and mapmakers will want to avoid creating a “dummymander” that leads to their candidates losing” (Barber Supplemental Report, March 17, 2025, pg 9-10).

Districts 1 and 3 in the 2025 Map are no different. They are not 50%+1 Republican-leaning. Instead, I estimate them both to have a Republican partisan index of approximately 54% (Barber November 14, 2025 Report, pg. 17). This would suggest that we should compare these two districts to only those simulations that contain equally Republican-leaning districts. However, upon inspection of the simulations, there are no simulations that are this Republican friendly, and thus this comparison cannot be made. If we reduce this threshold to a more conservative 52%, there are 471 simulations that create two districts in this region of the state that are both at least 52% Republican leaning. The table below shows the BVAP statistics for these different sets of simulations and where the 2025 Districts 1 and 3 fall in these distributions (reported as percentiles).¹

There are two important points to note from these results. First, as the partisanship of the simulations are restricted to look more and more like the 2025 Map (two Republican-leaning districts), the range of BVAPs in the simulations decreases dramatically. In the unrestricted simulations the BVAP of the highest BVAP district ranges from .309 to .432, a more than 10 point spread. However, in the simulations that contain two 52%+ Republican-leaning districts, the BVAP ranges from only .309 to .334.

The second key point is that as this range is reduced, the 2025 Map looks more and more typical vis-a-vis the simulations. While compared to the unrestricted simulations the

¹The numbers presented below are not exactly the same as what Dr. Rodden produces. This is because I was only provided with the underlying data and code and not the output of the simulations. I re-ran the simulations using the data and code produced by Dr. Rodden, but because simulation algorithms have an inherent degree of randomness, the output of my simulations will differ slightly from Dr. Rodden’s. However, the difference will be statistically negligible.

2025 Map is towards the edges of the distribution (6.4 percentile for District 1 and 93.3 percentile for District 3), when the simulations are constrained to resemble the 2025 Map's partisan composition, the 2025 Map falls near the center of the distribution. Among the simulations that most closely resemble the 2025 Map (two 52% Republican-leaning districts), District 1 falls near the median (59.6 percentile) and District 3 falls at the 38.6th percentile. By no definition would these be considered outliers.

Table 1: BVAP Characteristics of the Highest and Second Highest BVAP Districts Across Simulations

Simulation set	Number of maps	BVAP			District Percentile
		Min	Median	Max	
Highest BVAP district (District 1)					
All simulations	5,000	0.309	0.379	0.432	6.4
>50% Republican leaning	1,073	0.309	0.329	0.367	29.7
>52% Republican leaning	471	0.309	0.319	0.334	59.7
Second highest BVAP district (District 3)					
All simulations	5,000	0.186	0.240	0.309	93.3
>50% Republican leaning	1,073	0.248	0.289	0.309	69.0
>52% Republican leaning	471	0.283	0.299	0.309	38.6

I, Dr. Michael Barber, acting in accordance with 28 U.S.C. 1746, Federal Rule of Civil Procedure 26(a)(2)(B), and Federal Rules of Evidence 702 and 703, hereby declare that the foregoing is true and accurate to the best of my knowledge.

Dated: November 21, 2025

Michael Barber

Signed: _____

A handwritten signature in black ink, appearing to read "Michael Barber", written over a horizontal line.

Appendix A: Code to produce results in this report.

```

vtds.sims <- read_sf("export4.shp")

nsims <- 5000
ndists <- 2
compactness <- 1
target_pop <- 745671

ggplot(vtds.sims) + geom_sf(aes(fill = County))

# smc simulation map setup.
map_smc <- redist_map(vtds.sims,
                      total_pop = T_20_CENS_,
                      pop_tol = .05,
                      ndists = ndists)

# run simulations
sims_smc <- redist_smc(map_smc,
                      nsims = nsims / 10,
                      verbose = TRUE,
                      runs = 10,
                      counties = County,
                      pop_temper = .03,
                      compactness = compactness
)
summary(sims_smc)

print("Sims done")

sims_smc_summary <- sims_smc %>%
  mutate(pop_dev = total_pop - target_pop,
         pct_rep = 1 - part_dvs(plans = ., shp = map_smc, rvote = rep_votes, dvote =
dem_votes),
         pct_bvap = group_frac(map = map_smc, group_pop = V_20_VAP_B, total_pop =
V_20_VAP_T)) %>%
  number_by(pct_bvap) %>%
  group_by(draw) %>%
  mutate(rank.gop = rank(pct_rep),
         rank.bvap = rank(pct_bvap),
         least_gop = min(pct_rep),
         least_bvap = min(pct_bvap)) %>%
  ungroup()

#percentiles
sims_smc_summary %>% group_by(rank.bvap) %>% summarize(min = min(pct_bvap),

```

```
median = quantile(pct_bvap, .5),  
max = max(pct_bvap))
```

```
dim(sims_smc_summary %>% as_tibble() %>% filter(rank.bvap == 2, pct_bvap <=  
.323))  
319/5000  
dim(sims_smc_summary %>% as_tibble() %>% filter(rank.bvap == 1, pct_bvap <=  
.294))  
4667/5000
```

```
#50% threshold for republican-leaning  
sims_smc_summary %>% group_by(rank.bvap) %>%  
  filter(least_gop > .5) %>%  
  summarize(min = min(pct_bvap),  
            median = quantile(pct_bvap, .5),  
            max = max(pct_bvap))
```

```
dim(sims_smc_summary %>% as_tibble() %>% filter(rank.bvap == 2, least_gop > .5))  
#1073  
dim(sims_smc_summary %>% as_tibble() %>% filter(rank.bvap == 2, least_gop > .5,  
pct_bvap <= .323))  
319/1073  
dim(sims_smc_summary %>% as_tibble() %>% filter(rank.bvap == 1, least_gop > .5,  
pct_bvap <= .294))  
740/1073
```

```
#52% threshold for republican-leaning  
sims_smc_summary %>% group_by(rank.bvap) %>%  
  filter(least_gop > .52) %>%  
  summarize(min = min(pct_bvap),  
            median = quantile(pct_bvap, .5),  
            max = max(pct_bvap))
```

```
dim(sims_smc_summary %>% as_tibble() %>% filter(rank.bvap == 2, least_gop > .52))  
#471  
dim(sims_smc_summary %>% as_tibble() %>% filter(rank.bvap == 2, least_gop > .52,  
pct_bvap <= .323))  
281/471  
dim(sims_smc_summary %>% as_tibble() %>% filter(rank.bvap == 1, least_gop > .52,  
pct_bvap <= .294))  
182/471
```