

# Testimony of Roy A. Minet

## PA House State Government Committee Hearing 10/13/21

Please, I beg you to keep an open mind for the next ten minutes. Everyone is stuck in a deep rut. That rut is channeling us toward a poor solution to the redistricting problem. You have to rise up out of that rut to see that a much superior solution is possible.

The rut is caused by a strong belief in a myth. The myth, that everyone accepts without thought or question, is that it is a horrible thing for district boundaries to divide political entities (e.g. a county). That is simply *not true* and actually is misguided. I realize that you will choke on accepting that, but it is correct. Again, I implore you to keep an open mind.

Not dividing political entities stems from a desire to not divide so-called “communities of interest” or “COI” which are presumed to coincide with political entities. There are two fundamental and *fatal* problems with the notion that communities of interest should be kept together: one is practical and the other is principle-based.

The fatal practical problem is that COI is a very nebulous and hard-to-define concept. Different people will have radically different definitions. COIs could be based on religious beliefs, political philosophies, single “hot-button” issues and countless other criteria. COIs as defined by different people can and will differ and overlap. Whose definition is to be honored? Not dividing COIs is a poorly-defined and completely insoluble problem of impossible complexity. It’s an exercise in futility that obviously cannot be solved by mere mortals, whether they are state legislators or citizens on a commission.

The fatal problem of principle is that the only possible valid reason why anyone would want to keep a COI together is so that a representative who “truly represents their interests” can be reliably elected. The only way that can happen is if the members of that COI can outvote a smaller number of those in their district who do not share their same interests. That is the very definition of gerrymandering, which presumably we are trying to prevent!

Please note that we have lived for decades with districts which slice and dice counties all manner of arcane ways. We have suffered *zero* harm that was caused by the division of political entities. However, we *have* suffered harm. *All* of that harm was caused by contriving districts to keep communities of interest together, where the communities of interest are those who share the philosophy of a specific political party!

In order to accurately achieve equal population districts, the splitting of many political entities is unavoidable. If splitting some is OK, why is it any problem to split others? One might well argue that, if some must be split, it would be fairer to split all.

The only correct conclusion must be that redistricting should be *impartially* done in a way that does not *systematically* confer any advantage or disadvantage to any specific faction or COI. It also is desirable to have compact districts.

It really doesn't matter whether or not political entities are divided, *except* for the smallest ones which are voting precincts. Dividing voting precincts would be unnecessarily disruptive as it would force counties to redraw them and that is not a trivial burden. Since voting precincts consist of very small populations, it is easily feasible to preserve their integrity and still achieve equal district populations very accurately.

Suppose we could write down a simple procedure to draw electoral districts. That procedure could be followed by anyone or a computer and the same impartially-drawn districts would be the result. And suppose that same straightforward procedure could be used to quickly and impartially draw equal-population districts very accurately for any number of districts and for any state. The procedure could be enshrined in the Constitution and there would be no need to re-invent the "redistricting wheel" every ten years. Redistricting could be done quickly, at very low cost and without all the strife. Anyone could verify that districts have been correctly drawn.

Exactly such a procedure is shown on page 3 of this testimony. It has just 5 steps. It will never divide voting precincts and always produces equal-population districts which are maximally compact.

I do not have the time to read through the procedure; unless you wish to allocate additional time to do so. In any case, those not mathematically inclined will prefer to look at a visual illustration of how the procedure works. I will use the remaining time to do that.

If PA had just one representative, there would obviously be nothing to do and the entire state would be the one required district.

Page 4 shows PA with two districts. The procedure draws them simply by finding the shortest possible line that divides the state into two sections, each having  $\frac{1}{2}$  the population. Nothing could be simpler or more impartial. If that line splits any voting precincts, a simple rule determines on which side of the line each split precinct is to be placed.

Page 5 shows PA with three districts. The procedure tells us to first draw the shortest possible line that divides the state into two sections, one having  $\frac{1}{3}$  of the population and the other having  $\frac{2}{3}$  of the population. Finally, the shortest possible line is drawn which divides the larger section into two districts, each having  $\frac{1}{3}$  of the population. After each line is drawn, any voting precincts that would have been split are placed on one side of the line or the other as determined by simple rule.

Page 6 shows PA with four districts. First, draw the shortest possible line that splits the state into two sections, each having  $\frac{1}{2}$  the population. Next, draw the shortest possible lines that split each of those sections into two districts, each having  $\frac{1}{4}$  of the population.

For *any* number of districts, just follow the procedure until the required number of equal-population districts has been impartially drawn.

Page 7 shows PA with 17 districts.

Please, let's fix the redistricting process simply, elegantly, permanently and correctly by using a guaranteed-to-be-impartial procedure that cannot be corrupted by people.

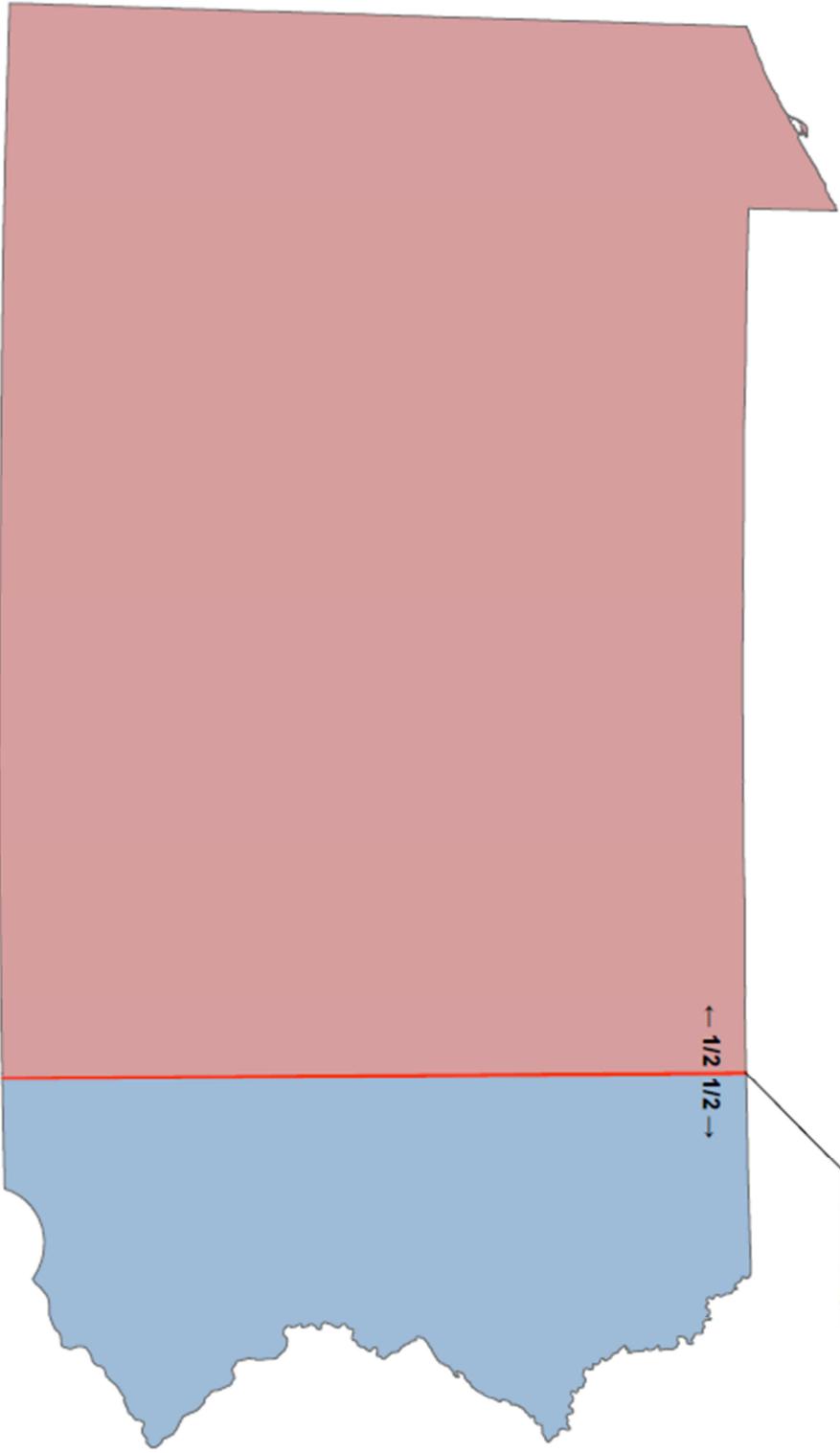
## **Precinct-Preserving Splitline Procedure**

### **For Defining Electoral Districts**

In all cases where a political entity (e.g., a state) is entitled to elect multiple representatives, the procedure defined here must be used to determine the electoral districts for such representatives. Voting precincts will never be divided. The geographic boundaries of political entities (States, Counties, Municipalities and Precincts) and the total populations for each precinct are the only data to be utilized.

If the population of the political entity is  $p$  and the number of districts to be drawn is  $n$ , the following (sometimes iterative) procedure is to be used.

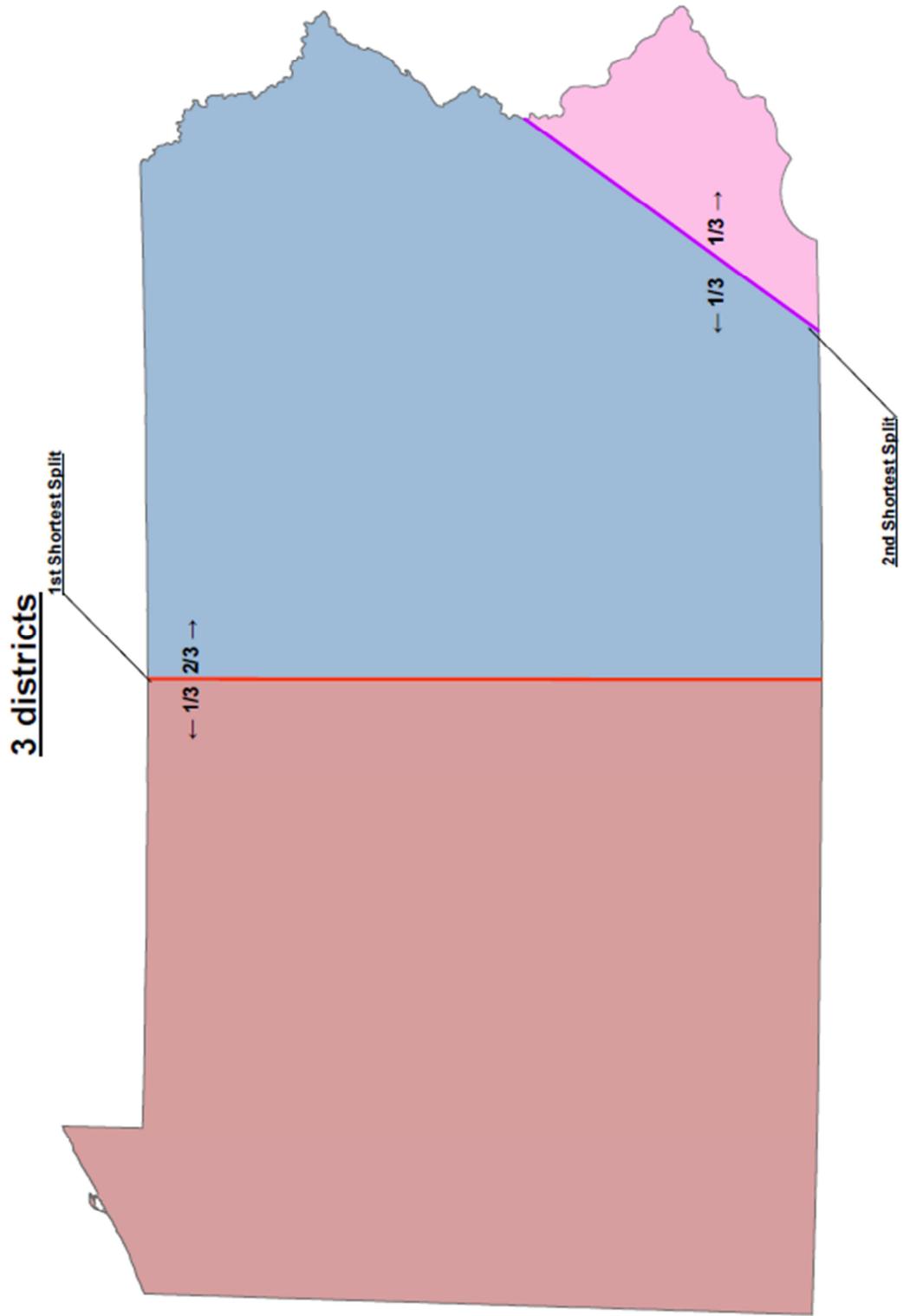
1. If  $n$  is 1, no subdivision is necessary and this is a final district. If  $n > 1$ , then define two new numbers  $i = n/2$  rounded up and  $j = n/2$  rounded down. (Note that  $i + j$  always equals  $n$ , and if  $n$  is even,  $i$  obviously will equal  $j$ .)
2. Draw the shortest possible (great circle) line dividing the area into two sections so that one section has a population equal to  $p$  multiplied by  $i/n$ , while the population of the other section has a population equal to  $p$  multiplied by  $j/n$ . If there is more than one equally short line, use the line closest to a north-south orientation and if there is still a tie, use the westernmost line. For irregularly shaped entities, it is possible that a line could exit and then re-enter the entity; the length of the line is defined to be the total distance between the two most distant points of intersection which lie on the boundary of the area being subdivided.
3. Make a list of just the voting precincts which have parts of their area on both sides of the great circle line. If 80% or more of any precinct's area lies on one side of the line, assign the precinct to that same side of the line. Sort the remaining list in the order of the largest population precinct to the smallest population precinct.
4. If there are any precincts on the list, assign the first (largest) to the side of the line which needs the most people to hit its population target. Repeat this step until all precincts have been assigned.
5. The division of the original large area into two sections has now been completely defined. For each of the resulting two sections separately, go back to step 1 using the section's population for  $p$  and either  $i$  or  $j$  (whichever was associated with the section) as  $n$ .



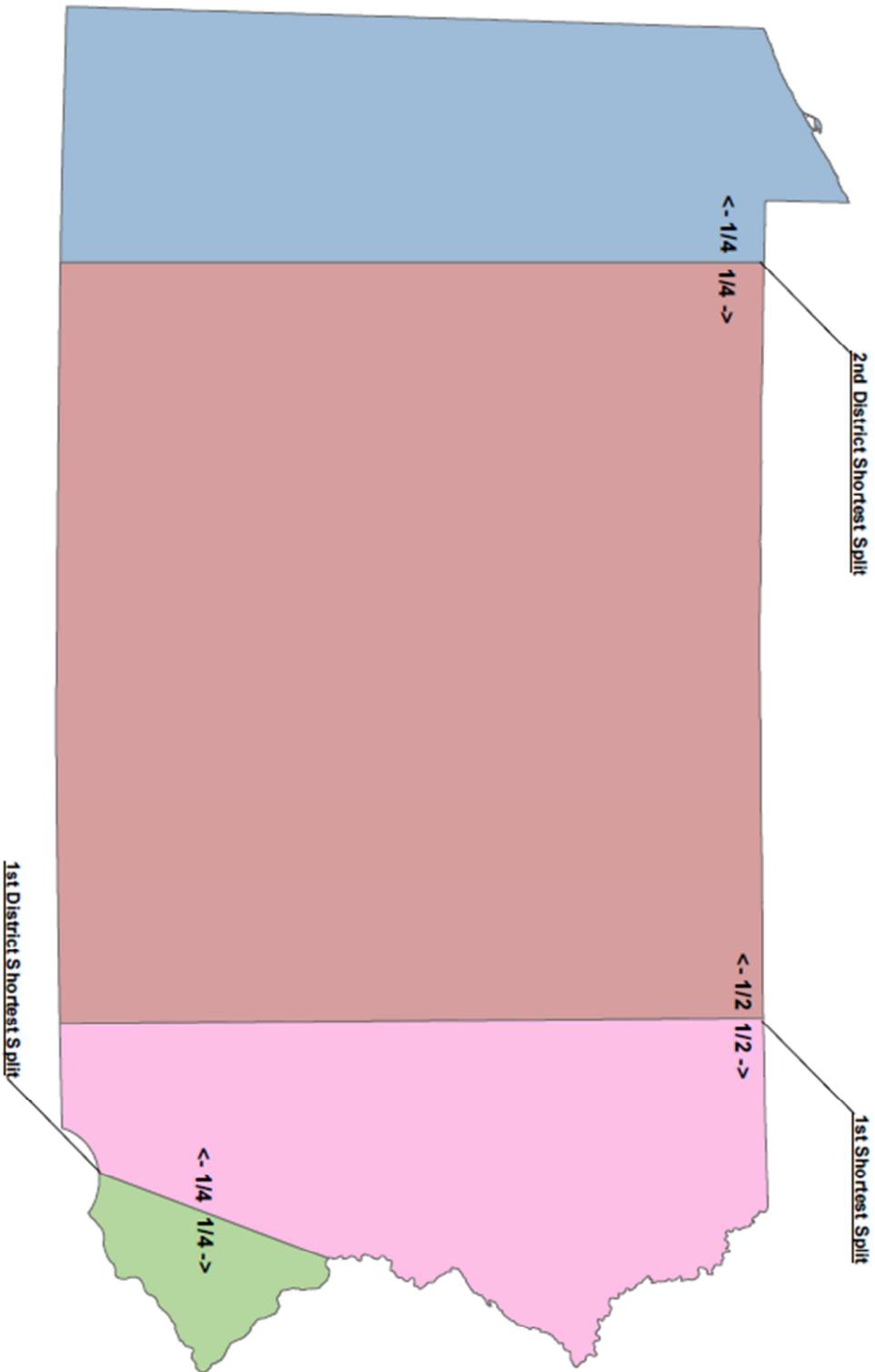
2 districts

1st Shortest Split

← 1/2 1/2 →



# 4 districts



# 17 districts

SplitLine Order

- 1
- 2
- 3
- 4
- 5

