EXHIBIT Q

STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
Case No. 18 CVS 014001

COMMON CAUSE, *et al.*

Plaintiffs,

v.

DAVID R. LEWIS, *et al.*

Defendants.

Expert Supplemental Report of Douglas Johnson, Ph.D.

Pursuant to the North Carolina Rules of Civil Procedure and the Case Management Orders of the Court in the above-captioned matter, I, Douglas Johnson, provide the following written report:

LEGISLATIVE DEFENDANTS TX289-1

Legislative Defendants Trial

Ex.289

1. I am over 18 years of age and I have personal knowledge of the facts stated herein. My qualifications are stated in my original report.

Task Description

2. For this supplemental report, I was asked to review and comment how plaintiffs' alternative maps selectively employ allegedly non-partisan criteria to achieve partisan goals; and
3. The unusual nature of North Carolina's treatment of Voting District (VTDs) in redistricting.

Opinions and Analysis

Mecklenburg County Analysis

4. As noted in my original report, North Carolina has a strict-criteria system for mapping legislative districts, as the state has both the strict federal equal-population requirement and a strict mathematically-calculated "county groupings" requirement. Down to the County level, the "county groupings" requirement is a strict limitation on the legislature's line-drawing discretion. In 2017, the legislature also adopted a set of criteria for their mapping decisions within "county groupings" where there are more than one district in the group: equal population; contiguity; compactness; avoiding split precincts; consider municipal boundaries; incumbency protection; election data; and no racial data.

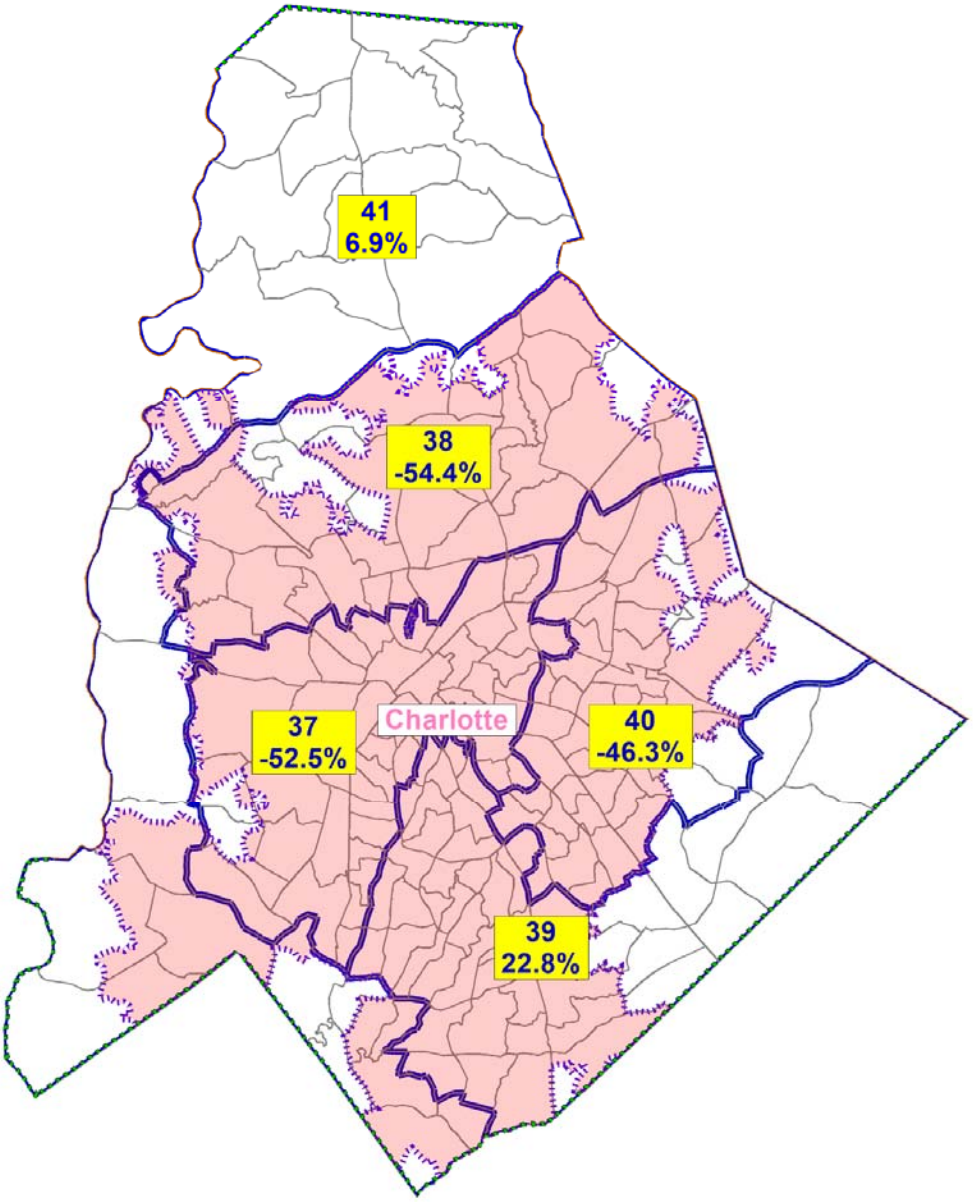
5. The Senate districts in Mecklenburg County provide an insightful illustration of how the state and the plaintiffs applied these criteria in differing ways, with each side's decisions having elements that raise questions and have highly predictable partisan benefits for one party or the other. Similar choices were made in multi-district county groupings elsewhere in the state, but I focus on Mecklenburg because the impacts of these choices are much clearer to see at the local level than when looking at an entire statewide map all at once.

6. Adopted 2017 Senate District 41 is, by a large margin, the least compact of the adopted districts in Mecklenburg County, with a Reock score of 0.19 and a Polsby-Popper score of 0.13. As discussed in my original report, bringing District 41 south along the western border makes it a more-Republican district than keeping it more isolated in the northern part of the County. But, as also discussed in my original report, following the criterion of avoiding VTD (precinct)

divisions significantly limits the Republican gain and a version of District 41 that splits VTDs and is less compact could have generated more than a 10 percent gain

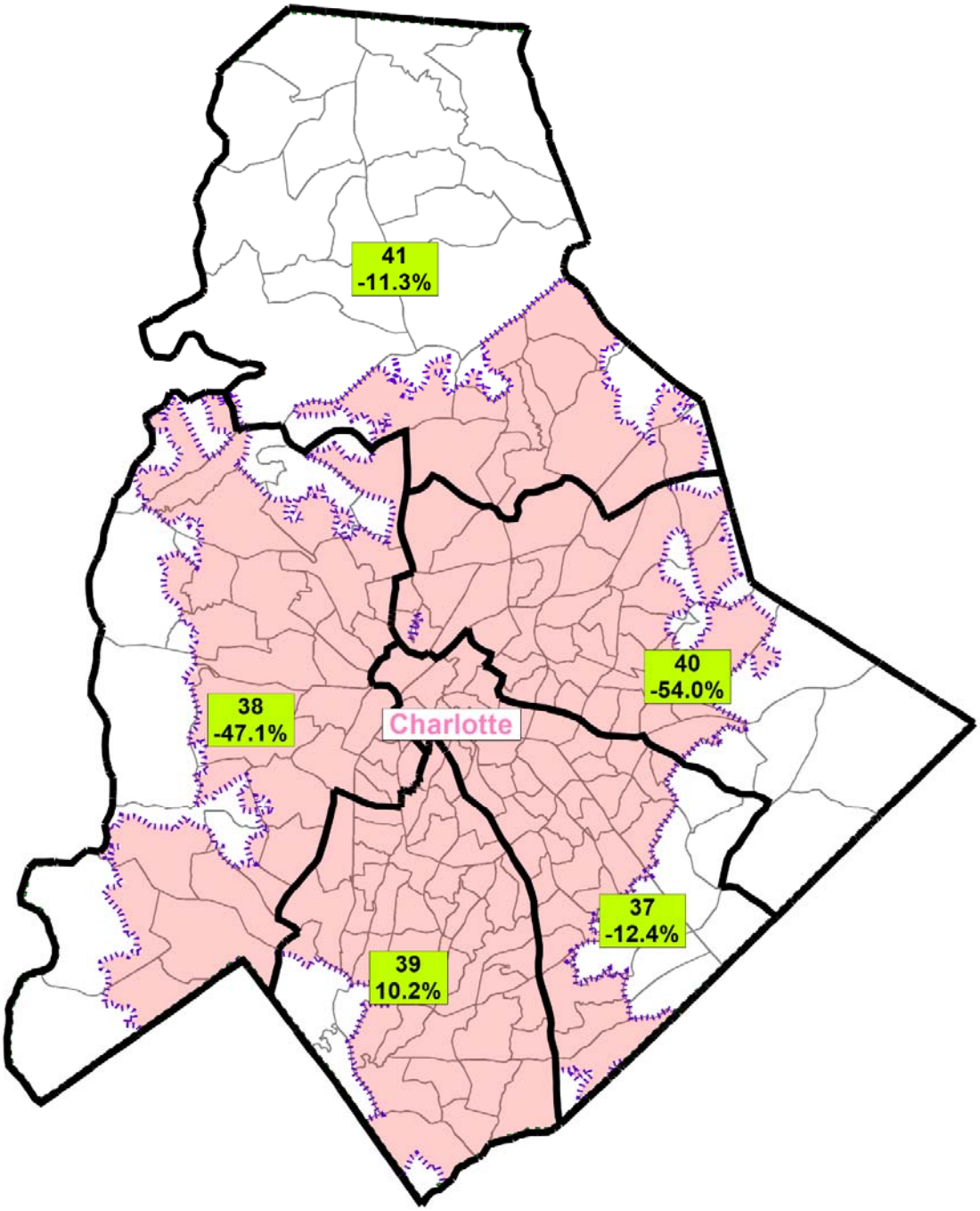
7. But bringing Senate District 41 south along the western edge of the District achieves another goal: creating a suburban district and keeping Charlotte united as much as possible while using whole VTDs (except for one VTD split to avoid pairing incumbent Senators). In figures 1 and 2, the area shown in red is the city of Charlotte, and the labels indicate the district number and the "Republican Advantage" score for the district (detailed in my original report):

Supplemental Figure 1



8. Where the 2017 map creates a District 41 that stays out of Charlotte as much as possible, and a District 39 unites the southern suburbs, Senator Jackson's alternative[1] fails to "consider municipal boundaries," instead slicing up the city in a "pinwheel" configuration:

Supplemental Figure 2

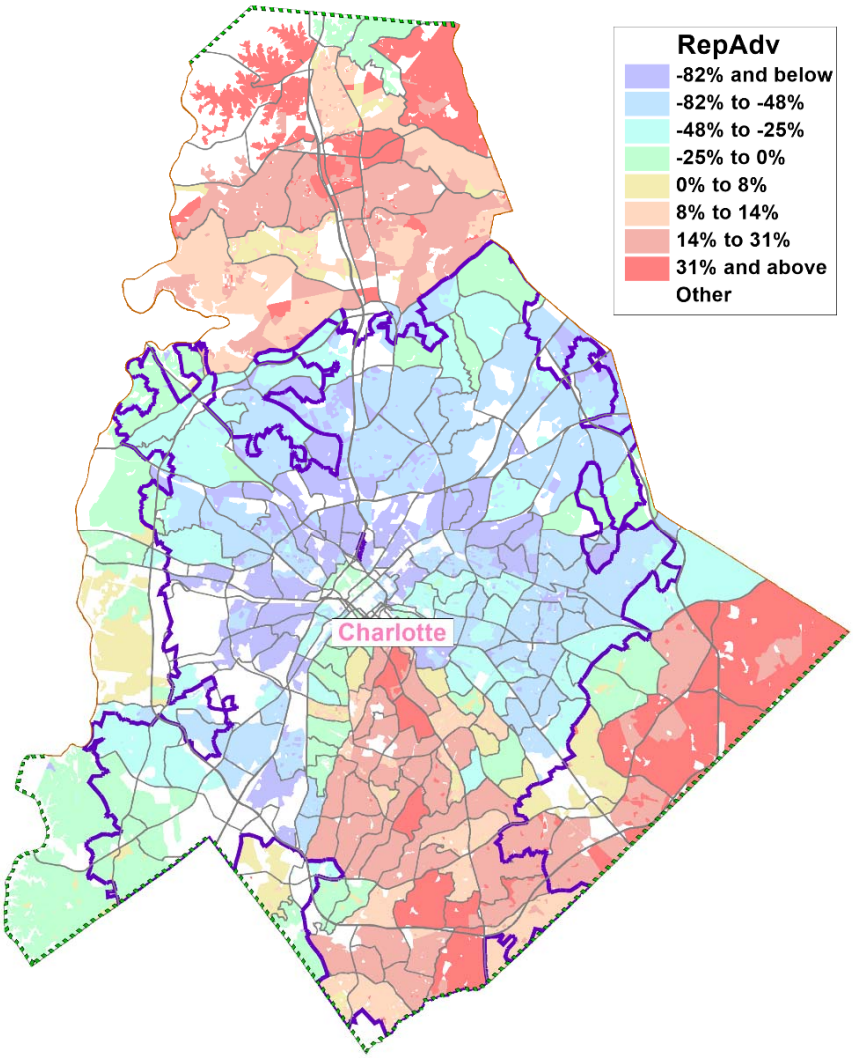


[1] Senator Jeff Jackson's Amendment 4 to SB691, available online here: https://www.ncleg.gov/Legislation/SupplementalDocs/2017/S691maps/S691maps and accessed May 4, 2019.

9. This "pinwheel" maps scores relatively well on compactness measurements, but provides no consideration to either the City border or the neighborhoods in the city: the northern tip of District 37 reaches in and takes Central Charlotte, the area in and immediately around the 77 / 277 Freeway loop,[2] while Districts 38, 39 and 40 slice up neighborhoods surrounding the Center City.

10. At this point, the stark partisan preference differences between Charlotte and its suburbs are well known to everyone involved in this process, and clearly shown in the following map, with strongly Republican areas in red and strongly Democratic areas in blue:

Supplemental Figure 1



[2] A map of Charlotte's "Center City" neighborhood is online at https://www.charlottecentercity.org/wp-content/uploads/2012/01/Center-City-MASTER-Map-August-2017.pdf, accessed May 5, 2019.

11. The decision by advocates of Senator Jackson's map to ignore the city border and the clear community of interest differences between the city and the suburbs had an entirely predictable result, which the table below summarizes from the labels on Supplemental Figures 1 and 2 above:

Supplemental Table 1

District	Republican Advantage measure in 2017 Adopted Map	Republican Advantage measure in Senator Jackson's Map
37	-52.5%	-12.4%
38	-54.5%	-47.1%
39	+22.8%	10.2%
40	-46.3%	-54.0%
41	+6.9%	-11.3%

North Carolina's Use of VTDs in Redistricting

12. North Carolina's emphasis on preserving VTDs when redistricting is unusual, and may be unique. Voting Districts, or VTDs, are often mistakenly described as precincts, but that is incorrect. In most, but not all, states, each precinct has just one ballot type in a given election, so every voter who comes into that precinct receives the same ballot. This greatly simplifies precinct worker training and avoids the possibility that a voter either casts a vote in an election contest the voter is not allowed to vote in, or is unable to vote in an election contest the voter should be allowed to vote in. For example, a VTD that contains territory that is in and out of a city would have to either divide into sub-precincts (one containing the residents who are in the city and using ballots including city council elections, and one containing the residents who are not in the city and using ballots not including the city council elections). And city council is but one possible level of overlapping election contests: every state has a variety of local offices that are elected at the sub-county level, such as school boards, water districts, and so on. North Carolina is unusual in how few local officials are elected, as my understanding is the state has only county-wide and city officials and no school board or other sub-county jurisdiction elections. But even in North Carolina, many cities (including Charlotte) are divided up into City Council election districts, and those city council election districts represent another level of election geography that divides VTDs and generates new ballot types (a voter in District 1 would get a ballot with the District 1 election on it, and so on).

13. A VTD does not represent a level of geography that means anything to residents, and thus does not represent any "community of interest" as defined in traditional redistricting principles: precinct lines are drawn solely for election administration purposes, not as representations of neighborhoods or other communities. And VTDs represent a collection of one or more of those purely-administrative election precincts. VTDs are an administrative tool used for the matching of decennial Census population data with state historical election data. Some states do not even bother forming official precinct-based VTDs, drawing what the Census Bureau labels "pseudo-Voting Districts" instead.[3]

14. Even if state legislative district boundaries were absolutely required to follow VTD borders (which they are not by any state law or legislative criterion), the VTDs would still be required to be subdivided in every decennial redistricting by the redistricting of congressional, county and city by-district election borders. While it is technically possible to use the allowed population deviation to follow VTD borders, congressional districts do not have that range of allowed population deviation, and many county supervisor districts and city council districts will be too small to fit the deviation required to avoid splitting VTDs within their allowable population ranges.

15. In North Carolina, as noted in the Forsyth County Elections website, "Precinct lines are re-drawn, if necessary, after every census."[4] Even if legislative redistricting is artificially restricted to avoid dividing VTDs, congressional and local redistricting almost always is forced by equal population requirements to divide VTDs. County elections officials also redraw precincts as new construction occurs or other factors change the number of voters in a given area. North Carolina is unusual, and possibly unique, in requiring the new precincts to be tabulated back up to the historical VTD level of geography. Most, and possibly all, other states simply accept re-precincting as a normal part of the election administration process.[5]

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[3] US Census Bureau, Census Bureau Geography, Chapter 14, "Voting Districts," pages 14-1 through 14-8. https://www2.census.gov/geo/pdfs/reference/GARM/Ch14GARM.pdf, accessed May 6, 2019.

[4] http://www.forsyth.cc/Elections/precincts.aspx, accessed May 6, 2019.

[5] As one example, California collects and posts new precinct geography every two years, and some precincts change between the primary and general elections in the same year: https://statewidedatabase.org/election.html, accessed May 6, 2019.

16. Because VTDs are the smallest level of geography at which election results are typically matched to decennial Census data, those drawing redistricting lines do not know which voters in a given VTD voted strongly for one party or the other – only the VTD-level results are typically available to the line-drawer, not lower-level data such as at the Census Block.

17. As a result, dividing a VTD is unlikely to provide a reliable partisan gain, except in one unusual situation: where (for example) a pro-Republican district is being drawn and a narrow geographic 'neck' is being drawn to connect one pro-Republican area with another pro-Republican area and the line-drawer wants to minimize the number of voters from the pro-Democratic VTD in the connecting 'neck' (or vice versa from the partisan perspective). And, as shown by the 2017 Adopted Senate map and my earlier "Maximum Republican Test" map, the Legislature avoiding making 'bridging' VTD splits in its adopted map, even where doing so would have provided significant partisan advantage to the Republicans.

18. In the parts of the statewide map I have reviewed (New Hanover and its surrounding counties; in Mecklenburg County; and in Wake County), it appears that every VTD split was to either avoid pairing incumbents, or to ensure each incumbent stayed in a district that leaned toward the incumbent's party, not to increase or decrease the partisan leanings of any district.

Conclusion

19. Just as the unusual Legislative criterion to minimize VTD splits reduced the partisan gain in the adopted map, consideration for the Charlotte city border should have limited the partisan gain (on the other side of the partisan scale) in Senator Jackson's map. But Senator Jackson's map intentionally sliced up Charlotte among all of the districts in the County, intentionally submerging all of the suburban communities in districts dominated by Charlotte city voters with a partisan and pro-Democratic result that can be a surprise to no one with any experience drawing election districts in North Carolina. While this analysis focuses on the Senate Districts in Mecklenburg County as a detailed illustration of the impact of the proposed map changes, similar impacts and decisions can be found in the alternative House maps and in other regions of the alternative Senate maps. Few, if any, VTD splits resulted in partisan gain. Most, and possibly all, were to avoid pairing incumbents and to avoid removing incumbents from their 'home' districts.

CERTIFICATION

I certify that the statements and opinions provided in this report are true and accurate to the best of my knowledge, information, and belief.

Douglas Mark Johnson, Ph.D.

May 6, 2019
Date

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