# *Chapter 18*

# *Making maps: A practitioner's perspective*

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CHAPTER SUMMARY

For all the algorithms in the world, it's still people who draw the maps. This chapter features first-hand accounts of the balancing act required when building districting plans in the real world. Three redistricting practitioners tell us how it looks to reconcile complex, sometimes vague, and sometimes conflicting priorities, while keeping communities in view.

## 1 INTRODUCTION

The actual construction of redistricting plans happens through many different processes. In most cases, the authority to draw state-level plans rests with the legislature. Sometimes state legislators from the dominant party do the map-drawing in-house, and sometimes they contract with consultants and iterate through carefully constructed plans in private meetings. A few states, like California and Arizona, have independent commissions and conduct state-level redistricting with full transparency and public exposure (currently, more states are following suit).

Sometimes courts despair of the politics of the process and appoint outside experts, or "special masters," (officials appointed by a judge) with specific mandates and short turnaround times to produce new maps. Other states, like Florida and Utah, have solicited citizen map submissions, thereby offering at least a gesture toward

greater transparency alongside educating voters on the redistricting process. Advocacy groups and other stakeholders try to lift their voices in the process, often by commissioning their own maps with the assistance of nonprofit civil rights organizations. Litigation shops (groups of lawyers, usually with a particular specialization) themselves are often called upon to propose remedial plans in case of successful court challenges.

Drawing fair districting plans that can withstand public scrutiny and constitutional challenges is an intricate issue. Practitioners must equalize population and follow a range of traditional redistricting principles, while keeping sight of relevant court decisions, state requirements, and interests of residents. This chapter focuses on the challenges for mapmakers in applying these many overlapping factors in redistricting, focusing for the most part on local maps.



## WHO WE ARE

**Megan Gall**
Megan started her career in voting rights working with the Lawyers' Committee for Civil Rights Under Law where she focused on quantitative analyses for Voting Rights Act (VRA) compliance and litigation including racially polarized voting statistics and redistricting. She also worked as the in-house researcher and lead scientist with the NAACP Legal Defense and Education Fund (LDF) and the Leadership Conference Education Fund. She recently launched Blockwell Consulting, LLC. In addition to creating new redistricting plans, she's often called on to evaluate potential VRA litigation by evaluating maps, creating alternative maps, and examining racially polarized voting patterns.

**Karin Mac Donald**
Karin is the director of California's Statewide Redistricting Database, housed at UC Berkeley. She ran the team that drew the maps for the California Redistricting Commission after the 2010 Census that were ultimately enacted for CA Congressional, Senate, and Assembly districts. She's been a leader on interpreting Communities of Interest districting criteria since 1998.

**Fred McBride**
Fred used to work for the nonpartisan advocacy group FairVote, and then worked at ACLU for 13 years, where he was often deployed in the field for grassroots work to create maps that reflected people's neighborhoods and communities. Since 2019 he has been serving as a Policy Specialist at the Lawyers' Committee for Civil Rights Under Law. He has worked all over the country, but has particularly deep community mapping experience in the south, along with racially polarized voting analysis.

Megan and Fred hold PhDs in political science and are skilled with GIS. Karin specializes in data access and implementation, and all three of us are professional data wranglers. We have certain values in common, including the importance of collaboration with civil rights groups to ensure access to data and public input. None of us uses algorithmic assistance to draw maps, nor do we consider partisan data when redistricting—except for VRA compliance, which we'll describe below.



## 2 THE RAW MATERIALS OF A MAP: TOOLS AND DATA

To even get started in map evaluation or creation, there's an entry barrier: assembling the relevant data. Chapter 13 has a more detailed look at the geospatial tools and data; here, we want to give a sense of how we use it.

### 2.1 CENSUS PRODUCTS

The most basic raw materials for a mapmaker are geographic units matched to official population counts. The principal data sources are various Census products. Most crucial is the decennial release called the Redistricting Data Summary File, or PL 94-171, which is designed to facilitate redistricting. Next, we frequently want to see the district lines from the previous cycle, which are also provided by the Census (at least for state-level redistricting). Some mapmaking makes use of block groups or voting tabulation districts (VTDs; the approximate precincts provided by the Census). We frequently employ a statistical step to take data from larger geographies like these and disaggregate them to the smallest units, *census blocks*, because blocks are the standard pieces from which districts are made.

Like most things in redistricting, there are always exceptions to the rule of census blocks. For example, Louisiana requires that larger units—precincts—be the building blocks of plans, and only allows the precincts to be changed or split under limited circumstances.[a]

[a] (LA Rev Stat §18:532.1 2011, §18:532 2013)

The Census gives you data on race down to the block level, and there's a delicate balance in how you use that information. On the one hand, race cannot predominate in the map-drawing, but the VRA means it has to be in the conversation.

How you use race data is complicated—even though districts typically balance total population, VRA case law requires using *voting age population* and *citizen voting age population*, which you'll have to merge into your database.

For citizenship data, we look to another Census product, the American Community Survey, which is based on a far more detailed sample survey and so can provide richer data in its five-year releases. While the ACS data are fundamental, we use it with the understanding that it is less authoritative in legal settings because it is based on a sample rather than on a full enumeration.

Getting all your data matched to the same units is not a trivial task. A redistricting authority would hire a consultant to create a fused database with all of this information prepared. A civil rights organization or community group might have an in-house data wrangler, but the data preparation can be an obstacle to some of their important work. And even though Census data are free and publicly available, you'll need software that lets you interact with the geography and the data attributes to draw your map. Most people use commercial options, like the ones described in Chapter 13, but the costs create an obstacle to transparency. These days, public software options are proliferating.[1]

## 2.2 STATE AND LOCAL DATA

Census data are important but only part of the picture. To comply with the VRA, you may need to go beyond the Census to get data on the race, ethnicity, age, citizenship, and prior voting patterns of registered voters. For the last of these, it

[1] The Redistricting Data Hub is one option that makes matched data available (redistrictingdatahub.org), and MGGG-States is another (github.com/mggg-states).

is often necessary to turn to individual states to get election results, the election geography, and the voter registration data from prior years.

Voter registration data are mostly useful not necessarily for making maps but as a method to make projections of electoral outcomes. A question often arises as to the likelihood of remedial plans affording minority groups a realistic opportunity to elect candidates of choice.

The voter file can be an important source if you need to use actual turnout figures to make your projections. Some states, like Georgia and North Carolina, have a race field in the voter file (self-identified when residents register to vote), but this is rare. Often, experts will pull registered voters' names from the voter file and conduct a statistical surname analysis to estimate levels of registration or turnout in the Latinx or Asian communities as part of a VRA assessment. Use of these data varies across mapmakers.

Gathering election results themselves can be easy or hard depending on the circumstance. If you're lucky, election results will be maintained at the state level, but often you have to go to individual counties or even municipalities. This is complicated further in that the reporting format is uneven. For example, in 2010, Georgia passed a new law requiring that early and absentee votes be reported by precinct. Prior to that, early and absentee ballot votes could not be included in a racial polarization analysis of the kind discussed in Chapter 7. By contrast, in Alaska, early and absentee votes are still only reported at the Assembly district level and not by precinct.

And then there is geography. If you are *extremely* lucky, the state may have a complete precinct shapefile that is linked to the election results. For instance, the Texas Legislative Council and the Massachusetts Secretary of the Commonwealth offer this publicly.[2] In California, counties are required to report their precinct geography to the state's redistricting database at the time of each election. In Pennsylvania, on the other hand, legislative leaders filed a statement with the court stating that they had no way of discovering the current precinct boundaries in time to comply with a court order.[3]

Even though this is surprising coming from the state redistricting authorities, it's certainly true that learning current precinct geography is a very difficult task. It might require calling individual counties and even digitizing paper maps.

[2] California and North Carolina and now Virginia release election data officially disaggregated down to census blocks. See Statewide Database [1].

[3] See pubintlaw.org/wp-content/uploads/2017/06/2018-01-26-Order-in-Furtherance-of-this-Courts-January-22-2018-Order.pdf, where "a 2010 Census block equivalency and ESRI shape file" is requested in Order 4, and pubintlaw.org/wp-content/uploads/2017/06/2018-01-31-Turzais-No-Answer-Letter-re-ESRI-shape-files.pdf, in which Speaker of the Pennsylvania House of Representatives, Michael C. Turzai, states that he "has no data or documents responsive to [the Order]."

In California, Precincts frequently change with each election. This makes it more important to collect them in a timely fashion for each election to be able to analyze data over time. If they are not collected between elections, they are frequently overwritten by the Election Management Systems as the counties move to a new set of geography. This is a big part of the ongoing work that is done at the Statewide Database.

I was working on an investigation for a Native American community in a rural, cash-strapped county in South Dakota. County election officials were happy to help, but all they could offer by way of precinct geography was a photo of a wall map with precincts shaded with highlighters.

So, electoral geography (precinct shapefiles) and election results are often each hard to come by. Then once you have them, they need to be joined, which is a new puzzle.

Even once you have a precinct shapefile, you still have to hope for a good match in the precinct names, or do some extra work to find the "crosswalk" between the place names in the spreadsheets and the place names in the shapefiles. There are cases where I've spent weeks just trying to do this step in the data wrangling.

This is a small glimpse at some of the difficulty of spatializing vote data. Despite this difficulty, spatializing vote data is crucial: if you don't know where the votes are, it becomes prohibitively difficult to do a VRA analysis.

## 2.3 COMMUNITY DATA

There are times when you might find yourself scouring websites or interviewing locals to get the information you need. For example, incumbency rules vary greatly across states, but several states have rules that disfavor "double-bunking,"

or putting two incumbents in the same new district. But if you want to avoid pairing incumbents, you need to know where they live.

I will attempt to get the addresses of incumbents—that's honestly not easy! I might have to dig through candidate bios and campaign material, and I pay it less attention when the information seems less reliable and not useful, like if I can only find office addresses and P.O. Boxes.

Information for drawing a map can also come from a community directly. Communities and advocacy groups can give you a great deal of (valuable) anecdotal information that you can't get from a spreadsheet alone.

Sometimes residents of one area tell me that they don't identify with or want to be grouped with another area nearby, and this may come with a story that speaks to different representational interests. For example, where there's a history of violence, there may be well-known but unwritten lines that delineate "no go" zones, or you may learn about blatant racial appeals in campaign material.

In addition to providing information for a map, community input can also build support for it.

In California's 2011 redistricting, "Unity maps" helped the commission to draw better informed districts. These maps were composed by a collaborative of Voting Rights and Advocacy organizations and ensured that groups' interests were not traded off against each other. The commission was open to accepting input from everyone who wanted to participate and specific knowledge and feedback were appreciated.

## 18.1 A NEW YORK "UNITY MAP"

The New York Unity Map provides a meaningful example of community input in redistricting. During the 2010 redistricting cycle, mappers, activists, and lawyers—from the Asian American Legal Defense & Education Fund, the Center for Law & Social Justice at Medgar Evers College, LatinoJustice PRLDEF, and the National Institute for Latino Policy—collaborated to present a Unity Map. It was the culmination of months of mapping scenarios, community meetings, legal discussions, and consultation with minority elected officials. The Unity Map was used to demonstrate the combined voting strength of Black, Asian, and Latino populations in three of the city's boroughs.[a]

According to Esmeralda Simmons, Executive Director of the Center for Law and Social Justice at Medgar Evers College, "The creators of the Unity Map understand that, during the redistricting processes, many would like to pit one community of color against another, rather than give all protected groups their fair share of representation. Thus, we have created these redistricting maps to prove by example that, by exercising mutual respect for community ties and population shifts, fair redistricting in compliance with the Voting Rights Act can be achieved."


Figure 1: The New York Unity Map

This combined group presented their unity plan to the New York State task force responsible for redrawing the state's legislative districts.

Unity mapping, in which minority groups (racial, ethnic, language, or otherwise) combine efforts to propose redistricting plans, is not entirely new. However, it is rapidly spreading throughout the country as collectives propose redistricting plans to their respective redistricting commissions and legislative bodies.

[a] See `https://perma.cc/5ARY-7WJ2` and `https://www.aaldef.org/press-release/civil-rights-groups-present-revised-unity-map-redistricting/`, retrieved 18 August, 2019.

# 3 DRAWING THE MAPS

## 3.1 LOCAL MAPS MATTER

Most of this book is focused on the largest and highest-profile cases: state congressional and legislative districts, which are done at the state level. But the country is huge and complicated, and we also want to turn some attention to the local texture of redistricting. As of 2017, there were 90,126 federal, state, and local gov-

ernments in the U.S. [4]. Many kinds of elected bodies are responsible for a piece of the civic puzzle: city councils, county commissions, school boards, railroad commissions, and an array of others. These bodies sometimes elect at-large, but they often use districts or some combination of both systems. Accordingly, there are many thousands of local districts in the nation that are prone to some of the same complications as congressional and legislative districts.

Districts in local jurisdictions often elude public scrutiny, but they have an enormous impact on our daily lives. They can control schools and regulations, local policing issues, local parks and recreation facilities, and utilities like water and trash removal. Even more than for larger jurisdictions, detailed data and information on local redistricting can be difficult to locate in smaller and rural areas. One reason for this is that many budget-strapped and volunteer-staffed local election offices don't have the resources or know-how needed for GIS, or even for good electronic record-keeping. Smaller jurisdictions might also try to fly under the radar when they redistrict; sometimes, they don't even realize they *need* to redistrict regularly (after every decennial Census). However, community demand for transparency and fairness in local redistricting efforts is growing rapidly, and local redistricting is increasingly attracting attention.

Thus, in the following discussion on drawing maps, we want to note that we are drawing on experience pertaining to local districts as well as to state level ones.



## 3.2 GOALS AND STARTING POINTS

Plans might be made fresh for enactment, or might be part of a remedial court process to replace an invalidated map. Sometimes these are presented in court as a "map that could have been," so that a jurisdiction has more pressure to explain questionable features in its adopted plan.

In 2010, a plan on behalf of the Georgia Black Legislative Caucus and the Southern Coalition for Social Justice was introduced in the House—it was never seriously considered by the majority party and certainly never made it out of subcommittee, but it helped to set the terms for the redistricting conversation that year.

The choices that face you as a mapmaker can feel infinite, so you need to know where to start, and there are several different strategies for this. One possibility (sometimes even preferred officially in the rules) is to try to make the least change from the last map.

I often focus on making the least change from the previous map. For remedial maps that are designed to replace invalidated plans, they are typically required to narrowly fix the problems, not start from scratch.

Another possibility if you're starting with a blank slate is to split up a redistricting problem into zones or pieces.

California is huge and complex, so in 2011, we began by splitting it into four areas, each with a different lead mapper to become an 'expert' on.

There are other documented examples of "modularizing" a big problem into smaller ones. For instance, when Bernard Grofman served as the special master in the recent Virginia redistricting, his report for the court began with a description of dividing the state four ways. He then gave options for redistricting each zone, so that they could be assembled to a full plan.[4]

Another well known example comes from North Carolina, where the state constitution has extremely specific guidance about which counties must be clustered in a legislative plan (See Carter et al. [5] for a complete analysis of optimal clusterings).

We're all conscious that the final product may depend heavily on a decision of where to start. But in the end, if a map is made with the right principles, it's going to inspire confidence. The following sections discuss the principles and practices mapmakers consider when drawing districts.

## 3.3 THE BASICS: POPULATION, CONTIGUITY, COMPACTNESS

Population balance, contiguity, and compactness are among the most common requirements when drawing districts. Population balance is a straightforward constraint for mapmakers, but only if you know which population count you are trying to equalize, and how much deviation is allowed in order to meet your other goals. For now, the total population count in the decennial Census is still the

[4] "The illustrative maps I present to the Court are what I refer to as "modularized" maps. To facilitate Court review, and to provide the Court with options for alternative ways to provide a narrowly tailored constitutional redrawing, I partitioned the unconstitutional districts into four geographic regions..." [3]

standard for which population is to be equalized, but there are clear moves in some parts of the country to change the basis for population count (see Chapter 23).

A population adjustment made in some states concerns the location of incarcerated people. (This issue, known as *prison malapportionment* or *prison gerrymandering*, is discussed in more legal detail in the previous chapter.) In January 2020, New Jersey became one of a growing number of states to pass a law requiring that its population database be made with an attempt to use the last residence for incarcerated people.

In California, for the first time in 2021, we will use administrative records to adjust the census block population by reallocating incarcerated persons back to their last known residential address.

Contiguity is usually straightforward as well, although it can be complicated by water. You can try not to have to make any decisions about water and just to rely on Census geography to guide you about what's "next to" what. Sometimes, this means familiarizing oneself with the local ferry routes that may connect the mainland to an island from a point that is not the closest in proximity. You'll probably still have to make some calls about islands and such, but in our experience this rarely feels like a high-stakes enterprise.

There are recent cases of maps under consideration by courts being challenged for water contiguity, such as in the case that no physical bridge is present. But in reality there's very seldom a clear-cut state rule about what counts as adjacent across water, so mapmakers get reasonable flexibility. Some state guidelines caution against point contiguity (where a district could be disconnected by removing a single point).

I've worked on maps in South Carolina and Florida with lots of water, and I'll ask groups what makes sense when the bridges and ferries don't tell an obvious story of what is "next to" what.

Mathematical-looking compactness scores are often taken most seriously by mapmakers working from afar, with nothing but commercial software as a tool. As you build districts, you can get live-updated scores of your Polsby-Popper, Reock, Schwartzberg scores, and so on. Even if you're trying not to take these scores too seriously, the software can make it easy to use compactness to break a tie. If a city

has to be split, say, you may be able to be score-conscious about how you do so. This isn't always the case, though: some jurisdictions specify what compactness means and that definition may not align with the compactness measures that are usually included in redistricting software packages.

The idea of being ruled by these kinds of scores makes those of us who work closely with community groups shudder. There are many more features that matter to mapmaking than compactness. Often, an eyeball test suffices. In public meetings, Karin often poses the question whether it's more important to have a 'good' map or a map that scores highly on an arbitrary compactness standard.

I will work to get a better score if I can, but it's not a deal-breaker because there's never a threshold or limit, or even a definitive choice of measure.

## 3.4 COMMUNITIES OF INTEREST

This concept is sometimes more loosely defined than other redistricting principles— it tells us to try to keep geographically recognizable communities with "shared interests" together. Shared interests can range widely, including trade, environmental hazards, resource needs, and so on. A community might be made up of, for instance, a significant number of farmers, coal miners, or people living in a historic neighborhood, aggregated in some semblance of shared space.

Courts have made quite clear that race alone cannot justify a community of interest, and race is handled in other ways in redistricting law. To get a flavor of the rules for Communities of Interest (COIs), consider the Vermont state statute. It states that the preservation of COIs is the "recognition and maintenance of patterns of geography, social interaction, trade, political ties, and common interests" (17 V.S.A. §1903. 2012). This is quite broad. The Supreme Court has ruled that race and voting blocs are not COIs in themselves, but other than that there is little guidance in case law.

Informally organized communities, including those that are not officially recognized in government designations (like a city or even a census designated place is recognized), have traditionally not been significant players in redistricting. When communities would find themselves split by a district boundary, they had little to no recourse, because challenging district maps is an expensive endeavor.

Locating communities of interest can therefore be difficult. If the community happens to be a classification defined by the Census, then good data exist. For example, when working in Indian Country, spatial data on the location of reservations and tabular data with race and languages spoken can be particularly valuable. However, when dealing with populations like local farmers or residents organizing

around a historic area, quality data from government sources will be sparse if not non-existent. Boundaries will often only exist in qualitative or narrative form, or they might be anchored by landmarks like community centers or RV parks. And that's if you know in advance what kinds of communities you are looking for and which issues people organize around.

These challenges illustrate why it can be essential for mapmakers to have on-the-ground knowledge of the jurisdictions they draw, and why a solid outreach program to solicit input can result in better maps. Local knowledge and context are qualitative data points that can be critical to drawing a plan that all parties find acceptable.

I talked to so many people in Georgia that I got a sense of what constituencies want a voice. After enough conversations, you understand not to mix up the peanut farmers with the downtown community groups!

Let's turn again to California, where districting criteria mandate that: "[t]he geographic integrity of any city, county, city and county, local neighborhood, or local community of interest shall be respected in a manner that minimizes their division to the extent possible without violating the requirements of any of the preceding subdivisions. A community of interest is a contiguous population which shares common social and economic interests that should be included within a single district for purposes of its effective and fair representation" (California Constitution Article XXI Sec 2 (d) (4)). California takes this really seriously and has held dozens of live-streamed public hearings to solicit testimony that names and locates relevant communities.

In recent redistrictings on the state and local levels in California, communities took advantage of their newfound access to make their interests and electoral needs known in public hearings. Those ranged from neighborhood to historic preservation groups, communities that shared watersheds or a propensity for wildfires, environmental concerns, and access to government services.

There was also an increase in advocacy from people who had never been a part of redistricting in previous cycles. These included advocates for linguistically isolated populations, those fighting for better air quality and against offshore drilling, along with those advocating for land rights, restrictions on certain kinds of development, and the interests of institutionalized persons.

But what if you do not have the time and resources to identify communities well through large, state-sponsored sessions? Then you might reach out to local officials and organizers to help set up small or informal meetings and use those to solicit input about what matters in residents' lives that calls for coherent representation. In this cycle, many thousands of community maps will be collected using free online mapping programs that offer people the ability to map and describe their communities, thereby connecting narrative information with geography to make it easier to synthesize COIs into usable data for legislatures and commissions.[5]

I have run easily over a hundred community mapping meetings over the years, with anywhere from five to thirty people, or more. It's a combination of taking in information about their communities and teaching them "nuts and bolts" about the redistricting rules and issues near them. I like to pull up a current plan and ask the community members themselves how they would change it. "No, not that way—include this other neighborhood instead." This leads to really useful conversations about shared interests—it's an iterative process.

## 3.5 SPLITTING AND NESTING

As we heard above, plans can be made of tiny pieces—census blocks. Some states have requirements or strong preferences that larger pieces be preserved, such as whole precincts in Louisiana and whole counties in Iowa and North Carolina. But most states have language requiring that the preservation of subdivisions should be maintained only "to the extent practicable." This creates wiggle room.

Trying to preserve counties, cities, and other localities is not always clear-cut for a mapmaker. For instance, the mapmaker may be left to decide if it is more expedient to split fewer jurisdictions more times or to split more jurisdictions fewer times.

[5] Districtr, Representable, and the Draw My CA Community COI tool in California are several of the options that will be most widely used.

I was drawing a demonstration plan for Texas and Harris County that far exceeded the ideal district size. So while most of the map grouped districts by entire counties, I had to decide how to handle Harris County, which had two and a half times the ideal population. I could split Harris multiple ways and avoid splitting other counties or I could split Harris fewer times but split additional counties. I drew multiple maps to land on the best option.

If I have to split a county, I'll split it just once if possible, and try to keep city cores intact. Remember that scale matters. You wouldn't want to split Atlanta more than 2–3 ways in a Congressional plan, if possible. But for a state legislative plan, for example, Atlanta has to be split so much anyway due to the smaller district sizes that all bets are off.

If I have to split a jurisdiction then I ask the community for input on where it might best be split. Sometimes the decision is to try and split it in half, other times a different solution makes more sense, considering the areas surrounding the jurisdictions' boundaries.

"Nesting" refers to the process of incorporating smaller districts (like for the state House) seamlessly together to make up a larger district (like for the state Senate). As you can learn in the Introduction, eight states have 2-to-1 nesting rules in their laws, and an additional two states have 3-to-1 nesting.

As with all districting criteria, the rule is motivated by some conceptions of good governance practices. Let's unpack that in the case of nesting. A lot of good theoretical arguments can be made for why nesting is a worthy goal for mapmakers, including:

1. Voters might have an easier time figuring out which districts they reside in if there are fewer boundaries to consider;

2. Nesting could provide extra geographic constraints on gerrymandering (and more redistricting efficiency) by limiting mapmakers' ability to fine-tune districts for candidates or for political parties;
3. Nesting two lower house seats in one upper house seat might increase the collaboration between the representatives;
4. Election administrators might prefer fewer ballot groups, which is a possible effect of nesting.

In practice, though, it is clear that nesting can be a difficult criterion to fulfill. The usual qualifier that accompanies it, "as practicable," is necessary to avoid significant problems with the implementation of other, mostly higher ranked, criteria. The following section turns to the issue of balancing these different criteria.

## 3.6 TRADEOFFS AND "SHARING THE PAIN"

All of these considerations must be balanced, and the balancing act is different for every jurisdiction because every jurisdiction has a special amalgam of priorities and demands. Splitting counties and political subdivisions is often unavoidable in redistricting. Likewise, tolerating lower compactness measures (for those who use them) and compromising on other geography-based redistricting principles is often deemed necessary. The state of California's 2011 redistricting commission called the process of balancing these tradeoffs "Sharing the Pain."

To see tradeoffs in action, let's go back to nesting. Above, we outlined four reasons why nesting rules might be popular or attractive. At the end of the day, nesting not only constrains the room to gerrymander, but also constrains the ability to fully comply with other redistricting criteria.

Nesting is a great example of a rule that sounds good, but creates constraints that make it difficult to impossible to meet other, higher ranked, criteria. We've studied criteria trade-offs in California. We found that nesting, if prioritized, constrains the ability to draw majority-minority districts and leads to unnecessary city and county splits.[a]

[a] See *The Implications of Nesting in California Redistricting* by Cain et al. [2]

The California Citizen Redistricting Commission (CRC) conducted perhaps the most significant "replication" of the Mac Donald–Cain study[2] on the effect of nesting on other criteria when it conducted its 2011 redistricting. The CRC tried to combine Assembly seats into Senate seats and found that very few districts could be nested without violating higher-ranked criteria.

Moreover, nesting can have consequences outside of the scope of traditional redistricting criteria. It can lead to a lack of collaboration as each representative tries to distinguish themselves and set themselves up for election to the higher seat. It can also have negative consequences on party politics when two members from the same party run for the same seat.

Remember too that tradeoffs may not only be present among the written rules, but also might look like horse-trading between elected officials and other powerful stakeholders. Sitting representatives often have strong ideas about what it will take to keep them happy. In one recent example, a sitting Atlanta City Council member wanted to add a certain neighborhood to her own district, and she initially got a majority of the Council to back her plan. However, the cost was steep—the proposed plan would have resulted in a drop of more than five percentage points in the Black population of another district. Since this was in the preclearance era, worries about VRA compliance ultimately persuaded the Council to drop the "retrogressing" plan.[6]

At the end of the day, you've got to sacrifice some criteria for others. In order to prioritize community, I might have to allow additional county or municipality splits, and I might have to pair incumbents. I have to sometimes tell a group that I don't see a problem with the adopted plan. Sometimes I will argue that there's a pretty good opportunity here, given all the obstacles in our way.

## 4 TRANSPARENCY AND SECRECY

A final theme to consider in understanding redistricting in practice is the openness of the process. Transparency and public access in redistricting can be viewed on a spectrum. The least transparent processes tend to be overseen by legislative bodies and the courts. The most transparent and accessible processes are often those implemented by Independent Redistricting Commissions (IRCs).

[6] (Atlanta City Council Action Minutes, 5 December, 2011 `http://citycouncil.atlantaga.gov/legislation/city-council-meeting-minutes` retrieved 24 August, 2019)

## 18.2 CALIFORNIA'S COMPLICATED COMMISSION SELECTION PROCESS

In 2008, Californians voted to turn their legislative, congressional, and Board of Equalization redistricting over to the Independent Citizen Redistricting Commission (CRC). They voted on a process that establishes a qualified, bi-partisan board. The selection process is implemented by the California State Auditor (CSA), an agency independent of the California Legislature. It is part of the executive branch of government but not subject to its oversight. The CSA initiated the application process for the 2021 CRC in July of 2019 by accepting initial applications via a web portal. The initial application is designed to select those that meet the minimum requirements while weeding out those with obvious conflicts of interest.

Applicants:

- must have been continuously registered to vote with the same registration status (i.e., the same political party or no party affiliation) since July 1 of 2015
- must have voted in at least 2 of the last 3 statewide elections
- cannot be and can have no immediate family members that have been appointed, elected, or that have been a candidate for a California legislative or congressional seat
- cannot be a lobbyist, or have served as a paid consultant, employee or officer of a political party, or the campaign committee of any candidate for legislative or congressional office in California.
- complete a supplemental application that assesses analytical skills, impartiality, and an appreciation of California's diverse demographics and geography
- must provide detailed information about themselves and their family members
- must submit three letters of reference
- must authorize the posting of their application publicly

A trio of state auditors, one from each of the two major parties and one who is not a member of those parties, were selected to oversee the application process and evaluate all applicants. The Applicant Review Panel (ARP) selects the 40 most qualified applicants for three subpools (Democrat, Republican, neither), and interviews these 120 Applicants. This process is webcast. From the pool of 120, the ARP identifies 20 from each subpool to advance to the next stage of the selection process.

The applications of the remaining 60 applicants are then sent to the 4 Legislative leaders who can each remove up to 2 applicants from each subpool. This is the only point of legislative involvement in the redistricting process.

Once the legislature has exercised its option to reduce the pool, the remaining names are returned to the CSA for a random drawing of the first 8 commissioners. In 2010, this process involved a bingo draw machine and it was broadcast live over the internet. The first 8 commissioners are then seated and will select an additional 6 to round out the Commission. The first 8 referred to themselves as the 'lucky ones' and the additional 6 were known as the 'chosen ones' in 2010. The final commission consists of 14 members, 5 each registered with one of the two major parties and 4 that are not and could either be nonpartisan or registered with a minor party.

On the state level, legislative redistricting is mostly shielded from public view, not widely promoted, and consequently doesn't attract a lot of participation. These processes are mostly done behind closed doors. In some states, the majority party drawing the map does so without the consultation of the minority party, whereas in some states the minority party is invited to construct a bi-partisan deal. When parties do this work in isolation, the public, good-government groups, and voting rights and advocacy groups are often unheard. States in which legislators are in charge of redistricting have been shown to produce political gerrymanders.

Legislatures generally must hold hearings on redistricting to give the public an opportunity to comment. At these hearings, depending on the stage in the process at which they happen, maps may be presented or public input may be gathered. However, among the public, there are few who know how to participate in a process even when an opportunity arises. Without maps or concrete questions that members of the public may be able to respond to, such as "where is my Community of Interest?" input is often very general. Often, public comment at this stage focuses on the district the commenter is familiar with, and likely resides or works in, and not on the overall plan. In these settings, legislators can mitigate negative comments and highlight positive comments as public support.

Additionally, it often takes legal action to unearth information about how the maps were drawn and by whom. At hearings where maps are presented, discussion focuses on the local jurisdictions contained in the respective districts and where the boundaries are. Thus, public input in legislatively managed processes frequently only provides comments on the plans already developed by the parties. And plans that were rejected by the legislatures do not have the benefit of public evaluation.

Sometimes a court will invalidate a legislative map and appoint special masters to create new ones. When this happens, transparency is not always part of the equation. Courts, used to operating with a maximum of privacy, have largely extended that right to their appointed mapmakers, leaving the public ignorant as to how their final maps were constructed.

In special master proceedings, for various reasons (e.g., time constraints due to impending elections), quite frequently only the legislative record is consulted to construct the new districts. These records often lack the specific public comments necessary to inform mapmakers of not just 'lawful,' but perhaps 'better' districts. This lack of public access can effectively foreclose the possibility of improved representation.

Examples of relatively less transparent, but not completely closed, processes include local-level districts in California as of 2011. At that time, the relatively few jurisdictions (e.g., some special districts, school districts, and county boards of supervisors) that elect by-district and not at-large had made marginal efforts at transparency. (This has begun to change thanks to the California VRA and the FAIR MAPS Act which is modeled on the California Voter's First Act and mandates a certain number of hearings, ranked criteria and transparency in the process). Overall, though, the processes mimic those of partisan legislatures. Litigation and advocacy groups used the Department of Justice list of proposed electoral changes to understand where and how jurisdictions were changing rules. It is important

to note that jurisdictions previously required to preclear electoral changes under Section 5 of the VRA would have hearings to demonstrate their proposed plan(s) and allow public comment.

Advocacy organizations have pushed for more transparency. Groups including the League of Women Voters and Common Cause have pushed for redistricting processes to be moved from legislatures to IRCs for many years. The rationale is that not only do IRCs eliminate the conflict of interest that legislators have when drawing their own districts, but they also are a way to insert transparency into how lines are drawn. Since the early 2000s, the push for increased transparency has gone hand-in-hand with options for increased public participation. Both have begun to gain traction throughout the United States.

For instance, Arizona passed Proposition 106, which established a bi-partisan IRC in 2000. This IRC opened the process to the public by holding hearings throughout the state, accepting public input on districts and suggested maps, and deliberating in public.

Subsequently, the State of California moved to an IRC. This took place because of a narrow victory on Proposition 11, the Voters First Act, which amended the State's Constitution in 2008. The initiative's language required transparency and public access in every part of the redistricting process. Later regulations promulgated by the California State Auditor (the implementing agency) further enshrined the intent of the initiative to create a transparent, accessible, and inclusive process. The initiative further confirmed that redistricting data must remain public and that access to tools to use these data must be made available to the public. The first California Commission also accepted a wide range of public comments, including maps. This commission constructed every district in public and streamed every meeting live over the internet. They then posted meeting transcripts, including all public comments, on their website.

Despite 'sunshine' laws that govern governmental processes on all levels, the highest levels of transparency are generally found when redistricting is performed by independent commissions—even in local jurisdictions. The independent redistricting commission for the city of San Diego in 2001 was honored with a Significant Achievement Award from the Public Technology Institute for its successful implementation of a highly transparent and accessible process. The 2011 California Citizen Redistricting Commission received Harvard's Innovation in Government Award for the same reasons.

## 5 RECOMMENDATIONS

Below, we provide recommendations that commissions, legislatures, and communities can implement. These recommendations will both create more buy-in to the redistricting process and result in a better understanding and appreciation by the public of the difficulty of creating statewide plans.

1. Redistricting Databases should be maintained over time and not constructed at the last minute. Rushing to build redistricting databases with election data

that are collected and merged at the last minute is more error prone and limits opportunities for data quality and robustness checks.

2. Redistricting Databases are paid for with tax dollars and should be public. This would more appropriately focus attention on the lines, not the data. Making data available increases the userbase and enables the public to debug it: it is much better to find a data error earlier in the process than later. It is also a critical step to create buy-in to the redistricting process.

3. Officials can encourage public input and consider it! Quite frequently, members of the public have information about an area that is not known to mapmakers, and ideas about how a district can be constructed that meets everyone's needs. Public input can be a type of crowdsourcing to elicit information that is otherwise difficult to obtain. Officials should accept public input in every way it arrives: via mail, email, fax, phone, and/or testimony at a hearing.

4. Jurisdictions can accept all map proposals as part of public input, irrespective of whether these consist of partial districts or single whole districts. Most lay participants will be experts on their immediate surroundings but know nothing about areas farther away.

5. Map-making tools should be freely available to the public. Even tools with minimal functionality are useful, and they are sometimes better than overly complicated software with too many bells and whistles. Ensure that tools are easy to use, quick to learn, and available not just for people who have their own computers and internet. Libraries are a great place to set up public workstations that can be used by people who do not have access to digital technology.

6. Groups can create easily understandable materials that allow the public to participate in the process. Redistricting is complicated, but it can be simplified to equalize the playing field. As part of creating understanding, groups should translate and disseminate their materials into, minimally, the languages for which their jurisdiction is covered under Section 203 of the Federal Voting Rights Act.

7. Officials can provide translations and interpreters at public hearings.

8. Officials can hold hearings in multiple locations throughout the jurisdiction; ensuring that hearing locations are accessible to differently-abled persons. Hearings should be near public transportation and have parking. Programs like Zoom and other internet viewing options, as well as call-in options, not only aid accessibility, but increase opportunity for public input.

9. Mapmakers should visit the jurisdictions they are planning to redistrict. When travel isn't possible, they should use the internet and other research tools to learn about the area and the people who live there. Talking to communities on the ground will always result in better maps.

10. Community members can utilize the resources available from advocacy groups working on fair districts, and can attend workshops, town halls, trainings, and information sessions on redistricting.

11. The COVID-19 crisis makes it blazingly clear that public participation in the process may be difficult, with unequal barriers to participation. But most district boundaries remain in place for ten years, so it is fundamentally important that we design and advocate for new methods to facilitate public input, while investing in outreach to be sure we reach the communities who have the most to lose when their voices are excluded from the process.

## 6 CONCLUSION: DEMOCRACY TAKES WORK!

In *Rucho v. Common Cause*, Chief Justice Roberts went out of his way to (approvingly) cite reform measures. Although the verdict of the case opposed intervention by the federal courts in partisan gerrymandering, this comment signified broad support of independent redistricting commissions, additional state redistricting criteria for mappers, and prohibitions against partisan favoritism. Even so, these discussions of redistricting must not miss the point: the question is not simply who draws, but how.

Redistricting is constantly evolving. Quantitative measures, involving assessing a district's performance, are available, along with qualitative measures, such as researching communities. Mapping technology, statistics, and the availability of election data have created enormous opportunities for evaluating plans based on past elections. A number of mapmakers and expert witnesses in voting rights cases are now suggesting how candidates would've performed in previous elections under various "proposed plans." This information and these methods have the potential to produce redistricting plans worthy of robust discussion, input, edits, and reconsideration in the democratic process.

The laws and jurisprudence around redistricting are complex, intertwined, and often have competing goals. Stakeholders, including politicians, citizens, and advisory boards, create a complex tapestry of demands. This forces mapmakers to exercise a remarkable amount of discretion, even amid the federal, state, and local rules that constrain us. This balancing act is one reason why human judgment is still needed for map drawing, even in the age of algorithms. Redistricting requires prioritization and thoughtfulness. Many of the mapping criteria demand that we know the qualitative, contextual picture on the ground. To create effective plans, mapmakers must balance principles and rules alongside the choir of voices.

Democracy takes work! How districts are drawn is ultimately as important as who runs for office in determining the quality of representation. The rules of the game should ensure equal voting power, proper racial and ethnic consideration, and a lot of basic common sense when amassing groups of people into areas to elect people to represent their interests. Electing officials to serve the people is the fundamental mechanism of representative democracy. Drawing the districts they are to serve is a crucial and delicate part of the process.

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