COASTSIDE FIRE PROTECTION DISTRICT

REDISTRICTING MANUAL

May 27, 2021

Contents

What is Redistricting?

At its most basic level, redistricting is the adjustment of election boundaries to create fairer representation, equalize voting strength, and create equitable distribution of political power. The task is conducted for any state, county, city, or other local government with districted elections. In the United States, this commonly occurs once a decade, after the release of new population numbers from the U.S. Census.

Redistricting is not just a quantitative exercise that can be solved by a computer, mathematical computation, or algorithm, although these are tools can be helpful in presenting options or creating or evaluating redistricting plans.

Within redistricting, there are laws, best practices and norms that drive the process. These are continually changing, with the last decade seeing some of the most dramatic retooling of our processes with a series of legal rulings, new state and local laws, and a shift in public attitudes.

The effect has been to put more power in the hands of the public – either through specific laws mandating more community engagement, the increased availability of mapping tools that a lay-person can utilize, a media that has become more adept at covering these issues, and the strong public belief that redistricting is not a task to be left to backrooms and political deal-making.

This manual goes through many of the elements of the redistricting process, with a focus on local redistricting. As the law and practice of redistricting change, some of the descriptions and definitions of terms may need updating.

Public Opinions on Local Redistricting

Over the past two decades the public has been increasingly pushing for redistricting reform and transparency. California's voters passed Propositions 11 and 20 in order to shift redistricting away from the Legislature to an independent bipartisan commission. This viewpoint that redistricting should no longer be controlled by politicians has only increased since the passage of these statewide ballot measures. In a recent poll conducted for Open California, 97% of California voters agree with the statement "local government should be required to have transparent, open redistricting."

Looking more closely, 96% of the public supports the new state requirement that all proposed redistricting maps for local governments be made publicly available before being voted on, 91% believe local governments should have five or more hearings, 90% believe lines should not be drawn for incumbent protection, and 97% believe lines should not be drawn to favor political parties.

Federal Voting Rights Act

One key criterion that must be followed in all redistricting is the Federal Voting Rights Act of 1965.

The Act was passed on the heels of the Civil Rights Act of 1964 and sought to remedy racial disenfranchisement in southern states – specifically Jim Crow laws such as literacy tests, poll taxes, and other restrictions that were unconstitutional, but hard for the Department of Justice to block without specific legislation.

The primary impacts on redistricting are found in **Section 2**, which requires majority-minority districts as a remedy for **vote dilution** when a state, county, city, or other agency has racially polarized voting and the sufficient concentration of that protected class to create a district where the minority population can effectively use their voting power to elect a candidate of choice, and **Section 5**, which requires covered states and local governments to receive **pre-clearance** on redistricting plans.[1]

Section 2

In 1982, Congress responded to a Supreme Court case[2] which held that Section 2 prohibited only "purposeful" discrimination by passing a ban on any voting practice that had a discriminatory effect, irrespective of whether the practice was enacted or operated for a discriminatory purpose. This amendment defined a method for determining violations of Section 2 utilizing the following factors:

- A history of official voting-related discrimination in the state or political subdivision;

- The extent to which voting in the elections of the state or political subdivision is racially polarized;

- The extent to which the state or political subdivision has used voting practices or procedures that tend to enhance the opportunity for discrimination against the minority group, such as unusually large election districts, majority-vote requirements, or prohibitions against **bullet voting**;

- The exclusion of members of the minority group from candidate slating processes;

- The extent to which minority group members bear the effects of discrimination in areas such as education, employment, and health, which hinder their ability to participate effectively in the political process;

- The use of overt or subtle racial appeals in political campaigns; and,

- The extent to which members of the minority group have been elected to public office in the jurisdiction.

Shortly after these amendments, a 1986 Supreme Court decision[3] further shaped how the VRA interacts with redistricting by establishing rules for when race and ethnicity can take a greater role in the process of drawing districts.

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[1] Preclearance was invalidated recently in Shelby v. Holder (2013)
[2] Mobile v. Bolden (1980)
[3] Thornburg v. Gingles (1986)

The eponymous "Gingles factors" are three preconditions that a minority group must meet to establish a violation of Section 2 of the Voting Rights Act. These preconditions are the following:

1) A minority group must be sufficiently large and geographically compact to comprise a majority of the district;

2) The minority group must be politically cohesive (it must demonstrate a pattern of voting for the same candidates, also known as "bloc voting"); and,

3) A majority of voters vote sufficiently as a bloc usually to defeat the minority group's preferred candidate.

This set of factors helps an agency that is undergoing redistricting know when Section 2 is operative regarding a protected class in their community, but there are significant additional factors that may be considered.

These factors could also be extended beyond race and applied to other protected classes, such as religious affiliation, gender and sexual orientation, and national origin in cases where that population is geographically defined and can be protected through the redistricting process.

Agencies under Section 2 requirements must still draw majority minority districts that are compact and contiguous, and they must be drawn in a way that is improving their ability to affect the outcome of an election. If a majority minority district is drawn at just 50%, that may not be deemed an **effective minority district** based on registration and voting patterns of the effected minority group.

Agencies may be required to look at options to increase the percentage of the minority population or even look at the election cycle in which that district would be coming up for election in order to place the election for that majority minority district within an election cycle in which that minority group shows historic higher turnout.

One outstanding question in the implementation of Section 2 is if it requires **coalition majority minority districts,** which can exist when two separate protected classes act as one politically cohesive, bloc vote and are subject to bloc voting against their interests. Courts have split on this question, although the majority of decisions have come down on the side of preferring coalition districts when they can be drawn, but not as a replacement for traditional majority minority districts.

Crossover districts in which the minority population can be drawn in a district with a similarly-minded majority group can have the impact of allowing that minority community to more effectively elect a candidate of choice, but this is not a requirement of Section 2 of the Voting Rights Act.

Section 5

The Voting Rights Act covers several elements of election protections for minority communities, but the most powerful tool in its arsenal is the preclearance requirements under Section 5. These requirements, imposed on jurisdictions based on past minority voting patterns, require the state or local jurisdiction to delay implementation of any election law, such as a redistricting, but also polling locations, ballot design, voter purges, voter ID and other laws, until cleared by the Federal Department of Justice.

There were five counties in California that operated under Section 5 during the 2011 redistricting: Kings, Kern, Monterey, Merced and Yuba. Following the last decennial redistricting, Merced earned a **bailout** from the Department of Justice in 2013 allowing them to be taken off the Section 5 list.

During the statewide redistricting in 2011, Section 5 served to freeze much of the existing legislative and congressional districts in place. A primary goal of the Citizens Redistricting Commission was to not cause **retrogression** in the minority populations of any district that touched these Section 5 counites. This resulted in fewer Latino seats in one area, in order to maintain the share of Latino population in districts that overlapped Section 5 counties.

A 2013 Supreme Court ruling[4] invalidated the VRA's Section 4, which included the provisions that created the coverage formulas for what states and counties would be required to comply with preclearance requirements in Section 5. These coverage formulas were designed more than 50 years ago and are largely based on voting patterns in the 1968, 1970 and 1972 elections – a fact that the court found resulted in a policy that did not have any relationship to modern-day voting rights concerns.

While Section 5 is now inoperative, there are legislative actions being taken to reestablish the coverage formula provisions of Section 4 and revive the full force of the act, potentially in time for the 2021 redistricting.

Legislative action to restore Section 5 is not without precedent. There has been a history of legal challenges to this section of the VRA and a number of course-corrections by the U.S. Congress to explicitly expand the law and reestablish the powers within that section. In 2006, Congress passed changes to respond to one legal decision[5] that interpreted Section 5 as only prohibiting retrogressive discriminatory purposes, rather than any discriminatory purpose, and another legal ruling[6] that found this section of the act only applied to redistricting outcomes where there was an inability for a minority group to elect their preferred candidate.

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[4] Shelby v. Holder (2013)
[5] Reno v. Bossier Parish School Board (2000)
[6] Georgia v. Ashcroft (2003)

The Traditional Criteria

No matter where redistricting is being done, there are a set of traditional criteria that are used. Each has its own legal basis, and states or agencies may use different definitions for achieving or measuring each, but they are key universal elements of the process in both state and local redistricting.

Equal Population

Districts are redrawn primarily to equalize population. There are two subparts to this idea of equality: representation and voting power.

> **Equal Representation** – In practical terms, this speaks to how effective any resident can be at advocating for themselves or being represented within a jurisdiction.

> Imagine a town with 150,000 residents, and just two districts. If one district has 10,000 residents and the other has 140,000, a complaint by the person in the smaller district would represent 1/10,000 of that representative's constituents. In the larger district, the same complaint would be only 1/140,000 of the representative's constituents. In the second district, it would take 14-times the residents to have the same voice as just one resident in the smaller district.

> **Equal Voting Power** – This is the "one-person-one-vote" principle, and effectively measures the equal ability to elect a candidate. In the fictional town above, there might be 100,000 voters. If there are 8,000 in one district and 92,000 in the other, then the voting power of the resident in the smaller district would be 11.5-times greater than that of a voter in the larger district.

These criteria can sometimes be in conflict because districts with equal populations do not always have equal numbers of voters, or equal turnout of their registered population. One district may have more residents under 18 or more non-citizens, thereby creating an imbalance in the eligible voting age populations.

This can be exacerbated when districts have differing rates of young people, renters, or other socioeconomic groups with lower registration or voting performance. There are many examples of districts that are equally sized, yet have massive differences in the number of voters. In California, all congressional districts are drawn nearly perfectly equal, however in the 2020 General Election, the 4th Congressional District had turnout of 455,000 voters, while the 21st Congressional District had only 175,000.

There has been movement to try to use voter registration, eligible voters, or other datasets for determining population because of this friction between the two concepts, but the latest Supreme Court decision on this issue[7] reinforced the use of total population from the decennial census. However, it did not absolutely close the door to the use of other datasets, making this something that will likely continue to be litigated.

Due to the delay in the 2020 Census release, there is some discussion on using the 2015-2019 American Community Survey's projected population to begin drawing district lines, with the 2020 Census data to balance the final district lines submitted to County Registrars. This, however, is unlikely to be allowed for

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[7] Evenwel v. Abbott, 136 S. Ct. 1120 (2016)

cities and counties doing redistricting under the Fair Maps Act as the law requires use of a final dataset provided by the state, after reallocation of the state prison population.

Even after agreeing on what dataset to use, and who to count, quantifying the equality of population is another element which can be done with different methodologies based on state law and best practices.

The **deviation** of a district is a measure of how equally sized it is to the ideal population of perfectly divided election districts. If a jurisdiction has 100,000 residents, the ideal population of each district is 20,000. If District A, in the example below, is at a population of 21,000, that district would have an **absolute deviation** of 1,000, and a **percentage deviation** of 1,000/20,000 or +5%.

District	Population	Deviation	Percentage Deviation
A	21,000	1,000	5%
B	20,200	200	1%
C	19,800	-200	-1%
D	19,250	-750	-4%
E	19,750	-250	-1%

Individual district deviations must be calculated to determine the total **plan deviation**, which can be done in one of three ways:

- *Overall Range:* The sum of all the deviations. In the five-district plan above the percentage deviations are 5%/1%/-1%/-4%/-1%, the sum of the absolute values of all those percentage deviations is 5+1+1+4+1=12, which would be the overall range.

- *Mean Deviation*: The Overall Range, divided by the number of districts. In the scenario above where there are five seats and an overall range of 12, the mean deviation would be 12/5 or 2.4%.

- *Deviation Range*: The sum of the absolute values of the largest and smallest district. In the scenario above the smallest district is -4%, the largest is +5%, so the range is |-4%| + |5%| for a deviation range of 9%.

In California, we utilize the **deviation range** to quantify the equal population of a districting plan.

The acceptable total plan deviation range can vary based on federal case law, state laws, local regulation, or a decision by a board or commission conducting the redistricting. The most common standards are:

- One Person – congressional plans are generally drawn to a one-person standard. This can appear to be an arbitrary standard as line-drawers hunt-and-peck around a redistricting plan to reach that nearly perfect calculation in each district.

- 10% - a relatively wide deviation standard set for local and state government redistricting. This is the default if there is no narrower state or local requirement.

- Other ranges from 2.5% to 1% are commonly used as acceptable ranges in a redistricting plan, pointing to precedents set by judicial redistricting or utilizing statutes, ordinances, or a decision by the entity conducting the redistricting.

One fallacy in redistricting is that a narrower deviation is always better. This is an easy trap to get caught in because a single numeric value is something that can be easily understood by the public. However, a decision to have a specific deviation requirement before drawing lines could inadvertently harm other parts of a plan by prioritizing an arbitrary numeric goal ahead of other more important criteria.

As an example, imagine a plan that has a 1.05% deviation, and in order to move under 1% you had to split a neighborhood – clearly, the utility in keeping voters in that block with their neighbors would be higher than the utility of an agency being able to say their plan was under 1% deviation.

Like many criteria, total plan deviation is one which should be considered among a family of other sometimes competing criteria.

Compactness

Compactness is the principle that a district should be drawn in a way that minimizes the distortions of a district, making it more circular or square, with fewer strange shapes, protrusions, indentations or other oddities.

One of the most popular mathematical calculations of compactness is Polsby-Popper, which is a measurement of the ratio of the length of the perimeter of the shape of the district, compared to a perfect circle of the same size.

There are dozens of different metrics for compactness. It is a bit of a niche piece of redistricting academia. However, one failing of compactness scores is that they are not absolute – they are relative to other options for districts drawn in the same area. Scores can be heavily impacted by the shape of the agency itself, or other competing criteria, such as the need to draw districts that meet federal Voting Rights Act requirements, maintain other governmental boundaries, or follow contours of existing natural structures like mountains and rivers.

in Polsby-Popper the length of all the lines, including twists and bends of the district, is compared to the size of a circle with the same length circumfurence.

Another approach to compactness is to move away from criticizing the roughness and spikes of external boundaries, but instead looking for the dispersion of population within a district. How does a district, as an example, bridge together nearby populations versus one that stretches around a geography to connect two less-connected populations. An election district boundary could, under this metric, be considered mathematically compact because of its smooth edges, but upon inspection be found to be non-compact because it is twisting in on itself, being distorted like an amoeba around some nearby populations to capture something else further away.

In California, there is a history of moving away from the pure mathematical demonstrations of compactness. The Report and Recommendations of Special Masters on Reapportionment in 1992 described it this way:

"A district would not be sufficiently compact if it was so spread out that there was no sense of community, that is, if its members and its representatives could not effectively and efficiently stay in touch with each other; or if it was so convoluted that there was no sense of community, that is, if its members and its representative could not easily tell who actually lived in the district."

In recent legislation, the state has officially eschewed the mathematical calculations for compactness, instead going with a qualitative measure which states that districts "shall be drawn to encourage geographical compactness in a manner that nearby areas of population are not bypassed in favor of more distant populations."

Contiguity

This can appear to be the simplest criteria. Districts should encompass an area that is comprised of contiguous geographic areas – without any unconnected pieces. Anyone can see from a map if an area is one contiguous unit, or it has portions that are not touching.

This criterion seems less clear when one realizes that many cities and other local governments are non-contiguous. Many cities have annexed property that are separated by areas of unincorporated county. Agencies such as water districts often have dozens of areas which are not contiguous to their primary boundaries but are within their district because they provide services to them. In some cases, this can be one or two city streets, miles from the core of the agency.

Other states or agencies have islands that are physically disconnected and are joined only by miles of ocean, or geographic barriers where two populations are connected as seen from a satellite photo, but divided by an impassable barrier, such as a mountain range or major waterway.

This is something we at Redistricting Partners have come to describe as **functional contiguity**, a term that encapsulates two concepts to describe how a geographic area is used in order to determine its ability to be considered one unit for the purposes of redistricting.

Another term for one aspect of functional contiguity is **travel contiguous**, which means that you can travel from one side of the district to the other without having to leave the district. At least one redistricting program has a measure of travel contiguity that can be utilized as a plan metric.

Redistricting sometimes attempts to push the bounds of what is contiguous, and one example is treating two areas that are catty-corner from each other as a contiguous unit. The result is a map where the district has two points that touch and create a boundary that is **point**

FUNCTIONAL CONTIGUITY

Catalina Island
Los Angeles County has an island with around 4,000 residents that is 20 miles off the coast. It is not contiguous and does not have a bridge connecting it to the mainland.

It is functionally contiguous to four ports in Dana Point, Newport, Long Beach, and San Pedro.

In redistricting, Catalina Island has always been drawn as contiguous with Long Beach.

South Davis
In Davis, California, the city is bisected by the Union Pacific Railroad tracks that connect commuters from the State Capitol to the Bay Area. Throughout the 2.5-mile span, there are only three ways to cross, one road at each end, and one footbridge at the mid-point.

For purposes of redistricting, it was considered functionally contiguous only on the eastern and western ends where one could drive from one side of the city to the other.

contiguous. State law does not allow this for cities or counties, stating "areas that meet only at the points of adjoining corners are not contiguous."

One final contiguity term that has been utilized in some questionable plans is **string contiguous**, where two parts of a district are joined by unpopulated census blocks or split census blocks taking a connector like a freeway or a river to force a connection between two otherwise separate areas. This would not be justifiable unless the agency itself had this as a geographic feature or there was a necessity under the Voting Rights Act.

When is a Redistricting Plan a Gerrymander?

Gerrymandering is the act of manipulating the redistricting process to achieve political gain, at the expense of other groups or individuals.

The process was named after Governor Elbridge Gerry, a signor of the Declaration of independence, produced a map for state senate districts in Massachusetts that would reward his political allies. This map was parodied in a political cartoon as looking like a salamander, thus the "Gerry-mander."

The Original Gerrymander – March 1812

Historically, the gerrymandering process has been seen as a binary war between Democrats and Republicans. The original gerrymander was an attempt to maximize Republican districts, but Democrats have also taken advantage when they hold the power to draw lines.

Recent Supreme Court decisions[8] have removed the legal process from being able to adjudicate this kind of gerrymandering, finding that such partisan claims are nonjusticiable. At the same time, states have increased policymaking on restrictions to partisan manipulation, either through rules imposed on lawmakers that have the power to draw their own lines, or by removing that power and transferring it to judges or independent bodies and commissions that conduct the redistricting. Current legislation in the House of Representatives would create a national mandate for nonpartisan redistricting commissions in all 50 states.[9]
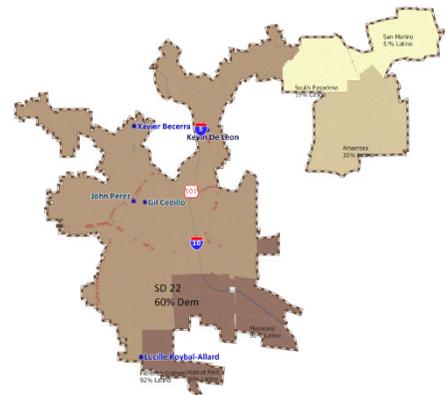
Even though the Gerrymander is seen as a relic of more than 200 years ago, the formation of the 20th Senate District in the 2001 redistricting plan bore a striking resemblance to the original Gerrymander, just 10 years before the first Citizens Redistricting Commission was charged with drawing California's legislative boundaries. However, in the heart of heavily Democratic Los Angeles County this was not necessary to gain partisan advantage, but likely a result of other political intent.

California Senate District 20 (2001-2011)

Tools of Gerrymandering

The purpose of redistricting is to bring communities together, and allow them to be able to elect a candidate of their choice. But when drawing these lines, experts can manipulate the outcome of elections utilizing some tools that empower some communities at the expense of others, causing a gerrymander.

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[8] Common Cause v. Rucho (2019) and Gil v. Whitford (2018)
[9] House Resolution 1 - https://www.congress.gov/116/bills/hr1/BILLS-116hr1pcs.pdf

The primary tools in this are cracking and packing, essentially two sides of the gerrymandering coin. But there are additional methods of using the manipulation of districts to achieve political means.

Cracking – when a defined population is split into several districts to dilute their political power and deny them the opportunity to elect a candidate of their choice in any of the districts.

Packing – when a cracking cannot be used because a population is too large, it can instead be drawn in a way that gives the community one seat, but with as many members of that group as can be put into one district, and diluting any possibility that the remaining population can elect their preferred candidates in the remaining seats.

Stacking – taking a minority population and pushing them into one district with a concentration of majority population voters in a way to dilute their voting power.

Hijacking – drawing districts in a way to purposefully place two incumbents in the same district in order to deny one of them from being able to be reelected.

Kidnapping – drawing a member into a neighboring district or purposefully removing their political base.

The work of packing and cracking, and other manipulations of redistricting, have become easier as computing power has increased, and data on partisan performance, ethnicity, and other factors has become more detailed and readily available. At the same time, it has also become easier to identify gerrymandering by utilizing these same tools. For more on these methods of identifying these tools in action, see the section titled "Measuring a Gerrymander."

Types of Gerrymanders

While gerrymandering was borne with one intention, the tools have been applied to many other purposes, spawning a number of different terms for different kinds of manipulations

Partisan Gerrymander – the most commonly thought of gerrymandering is one in which the line drawing process is used to bolster the prospects of one political party and dilute the voting strength of another. While this is the type of gerrymandering that policymakers and good government groups have made the most strides in abating, the courts have given this kind of gerrymandering a pass.[10]

Racial Gerrymander –gerrymandering by race, ethnicity and national origin is unconstitutional. This is where courts show the most willingness to intervene.

Many of the laws regarding redistricting have come out of post-reconstruction history in the South, where redistricting, among other election structures, were used to weaken the political power of Black voters. As one court decision would disallow a manipulation of lines to weaken the minority voting strength, a new scheme would come up, and that would have to be addressed by the courts. Through a series of "whack-a-mole" lawsuits, remedies to racial gerrymandering in the South essentially formed most of current redistricting legal doctrine.

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[10] Rucho v. Common Cause. "We conclude that partisan gerrymandering claims present political questions beyond the reach of the federal courts" - Chief Justice John Roberts, for the Majority.

Despite the growth in redistricting laws and large number of court rulings, racial gerrymandering has not stopped. We have seen districts that deny Black, Latino and Asian voters effective voting power in California's local and statewide redistricting, with court interventions as recent as last year.

Incumbent Gerrymander – it is very common in states and local governments for there to be more pressure to preserve stability than make partisan gains. This has happened several times in California history, the most recent being the 2000 redistricting in which Democratic leaders traded votes from Republicans on key policy issues for agreements on those members being able to keep their seats intact.

Incumbent gerrymanders have been very common in local government, with an example coming out of the City of Martinez in a redistricting that the courts[11] called a self-parody of the original gerrymander and the League of Women Voters stated "the map which was adopted reflects the City Councilmembers' primary consideration…to protect their own seats."
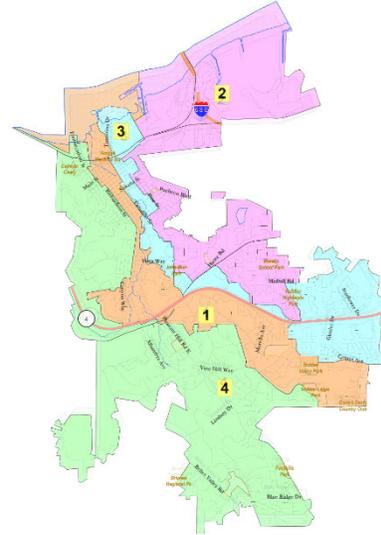
City of Martinez – 2018 Districting

Another example of Incumbent Gerrymandering comes from Kern High School District, where the plan neatly divided three incumbents to remain in their seats. Those three trustees lived within three miles of one another in California's geographically largest high school district. And the gerrymander wasn't without consequence – it caused a division on the other end of the district, splitting up the voting power of Latinos.

This kind of manipulation is also called **Sweetheart Gerrymandering** and **Handshake Gerrymandering**.

Dummymander – when a partisan gerrymandering fails, it is sometimes called a Dummymander. Often this is a result of a redistricting which is seeking to maximize the number of partisan seats by achieving the largest number of districts that can be won by a political party. But if that strategy is overstretched, the elastic can snap and the gerrymandering fails, with the opposite party gaining in seats that they were not supposed to be able to win.

While gerrymandering is generally focused on partisan or ethnic manipulation of the districting process, the local government reality is that it is more often about more trivial matters such as drawing a district to capture more affluent voters who are key to fundraising, drawing districts to split a college student population to deny them representation on a local council or board, or drawing districts in a way to weaken the power of a community that has not been favored by the elected body.

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[11] Sanchez v. City of Martinez

Community Engagement

The process of obtaining public engagement in redistricting allows for new election boundaries to have a rational basis that is built upon local communities, not factors such as partisanship, incumbency, or other disallowed factors. These are important to maintaining public confidence in the redistricting process, and they are the best protection against potential litigation.

Communities of Interest (COI)

Redistricting should build up electoral boundaries from the underlying communities – using the process to empower groups that have similar backgrounds, experiences, and viewpoints in order to allow them to unify and elect candidates of their choice.

Developing communities of interest for a redistricting process is the most important part of public outreach. Listening to residents allows us to develop knowledge about what communities exist, and how they interact with the agency.

Communities of interest are not just those which can be found by objective means, from a census file or other dataset. It is important to allow community members themselves define their communities, how they are geographically based, and what makes them cohesive.

The California Citizens Redistricting Commission was provided this definition to guide their understanding of communities of interest:

> "A contiguous population which shares common social and economic interests that should be included within a single district for the purposes of its effective and fair representation. Examples of such shared interests are those common to an urban area, a rural area, an industrial area, or an agricultural area, and those common to areas in which the people share similar living standards, use the same transportation facilities, have similar work opportunities, or have access to the same media of communication relevant to the electoral process."

These communities can be bound by immutable characteristics, values, or circumstances. Examples of these include:

Immutable characteristics: unchangeable attributes in the population, such as race, age, disability, and national origin.

Shared Values: like an area that values urban diversity, education opportunities, transportation needs, specific governmental policies, land use, outdoor recreation, access to specific services, etc…

COMMUNITIES OF INTEREST VARY BY AGENCY

Communities of interest can vary based on the agency conducting the districting.

Almond/Walnut Growers
During statewide drought conditions, Solano County's farmers have benefited from the availability of water for their crops.

In this process, two groups of high water usage farmers became a recognized community of interest: Almond and Walnut growers.

Horse People
In Los Angeles city and county redistricting, the "horse people" live in northern San Fernando Valley communities with desires for large lots, low traffic, and more horse paths than sidewalks.

Fishermen
In the San Mateo County Harbor District, the agency was building communities of interest. It became clear that a key community of interest was the populations that use the two harbors in the county: Fishermen, and the commercial businesses that rely on access to the facilities.

Circumstances: these are factors that are consistent across a region, but often not by choice, such as a low-income community, high rates of pollution and asthma, traffic congestion, homelessness or crime rates.

These characteristics are not mutually exclusive – many areas are defined by two or three of these elements which make them cohesive and a defined community of interest.

It is also important to note that communities of interest will vary by agency. A school board should have more focus on education-related communities of interest, a city will receive more community of interest testimony from residents who rely on city services, and a water district may be looking at things such as variation in water rates, or types of consumers.

Communities of interest can also be defined by underlying political geographies. One example of this is the requirement in California state and local redistricting that the geographic integrity of cities, counties and neighborhoods be protected in redistricting along with other communities of interest.

These political geographies are useful as communities of interest because they are a result of individuals defining themselves. Individuals can share some of their circumstances if, as an example, they live in an incorporated city or an unincorporated county, and their boundaries, for the most part, are easily identifiable. The community of interest in political geographies can be compounded when there are distinct and sometimes very large differences in the governance based on living within or outside of a specific political geography. One example would be the difference in tax rates paid by city residents versus those who live outside of an incorporated city while, at the same time, those in a city might receive greater services and amenities that are denied to unincorporated county residents. It is very common in California to find a road that goes in and out of the incorporated city, showing very clearly the variation in services afforded to residents on each side of that boundary.

Neighborhoods can be more fluid, with most agencies having different neighborhood boundaries based on what source is used. But neighborhoods also can benefit from their self-selection. While many residents may have little say over what city or county they are going to live in, the selection of a neighborhood as expressive of their values and desire for specific attributes is a real factor in decisions about where someone will rent an apartment or buy a home. It is no surprise that the greatest use of neighborhoods is on Realtor and property-related websites.

Other physical geography can define communities of interest. The saying "other side of the tracks" can have a real meaning in some communities where a physical location of a railway line, freeway, river or other element can serve as a demarcation point between two sides of a community.

In other cases, the physical location of an airport, golf course, hillside, or valley can define a community. This can be caused by the physical element – like the negative externalities of living near a railroad track, freeway, or dairy farms, or the positive benefits of living near the ocean, on a golf course, or up in the hillsides away from crime and urban congestion.

While communities of interest can be constructed by a seemingly unending number of attributes, state law does prohibit the state, cities and counties from considering partisanship or the residences of candidates and incumbents as communities of interest.

There are two general phases of community engagement, and they can somewhat overlap.

Phase 1 – Community of Interest (COI) Testimony

This is the initial phase of building public input and testimony to develop the basis upon which eventual districts will be constructed. This testimony can come from organizations or individuals, through online mapping, paper/online forms, or verbal/video testimony.

Importantly, this testimony should identify:

- What is the community of interest that is being described through the testimony?
- What is the geographic area of that community of interest?
- What data can be utilized to help identify that community of interest?
- How does that community of interest relate to the city, county, or agency?

It is important to note that some communities of interest may be very important in one districting effort, but not in another, even within the same geography. For example, a city may have a strong set of neighborhoods that form key communities of interest, but for a K-12 redistricting, the campuses may be more important.

Phase 2 – Plan Development and Feedback

Once census data is available local governments can begin the mapping process. Initial maps for cities and counties, per the FAIR MAPS Act, may have a required waiting period before releasing draft maps, but local mapping tools should be updated for the community immediately.

Outreach at this point should focus on how the public can submit draft plans and feedback on any plans created by the staff, consultants, or the body in charge of the local redistricting process.

To inform this process, the public should receive information on the current districts with their new deviations under the 2020 Census data so the public can understand how much current maps would need to be adjusted if they are used as the basis for a new redistricting plan, and there should be an update of any online mapping software to include the new population data.

During this time the body conducting the redistricting should not forget the importance of communities of interest as a building block of new plans. The Phase 1 COI testimony should continue as it will help inform any changes to the plans and provide ways for the new districting plan to be justified by these elements rather than disallowed criteria.

Census Data

The census is a snapshot of the population once every decade based on where each resident resides on April 1st. The count is mandated by the Constitution and conducted by the U.S. Census Bureau, a non-partisan government agency. In 2020, each home in the United States received an invitation to respond to a short questionnaire online, by phone, or by mail.

Even before a determination of the quality of the 2020 Census enumeration, we already know the process was marred by significant structural and political problems. Including:

1. The introduction of the online census survey, which the Census Bureau failed to sufficiently test and that was launched before the conclusion of the department's full evaluation plan.

2. The census was caught in a political fight over the inclusion of a citizenship question, inserted into the census through a process that was intended on using the data to disenfranchise minority communities. This effort was ultimately rejected by the Supreme Court.

3. The COVID-19 pandemic caused a massive disruption in the traditional door-to-door process of enumeration, causing delays and considerable challenges with the self-reporting phase of the census data collection.

4. Additional political moves to remove non-citizen population from the statewide counts used for reapportionment and attempts to use other statewide data to identify non-citizens in the decennial redistricting file continued to cause disruptions and delays in the processing of data.

There are many products of the census, two of which are critical for conducting redistricting. Those two data sets are the PL 94-171 File and the American Community Survey.

Public Law 94-171 File

Public Law 94-171 directs the Census Bureau to make special preparations to provide redistricting data needed by the 50 states.

Required by law, the Redistricting Data Program provides population and demographic data in small geographic areas called census blocks which can then be used as the basis for redrawing election district boundaries.

The PL file is required to be released within a year of the April 1 decennial census and has traditionally been delivered in six waves leading up to March 31 of years ending in 1. In this redistricting cycle, the data is expected to be six months late, significantly curtailing the time available in the 2021-2022 redistricting cycle. The impact of this late census is still unknown, but several states and municipalities are already considering conducting their upcoming 2022 elections using their existing lines.

American Community Survey (ACS)

The American Community Survey, previously known as the Long Form Census, is sent to a small subset of the population and used to create a wider picture of individual and household characteristics.[12] The survey asks questions about housing, income, education and other factors, including citizenship and it is

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[12] https://www2.census.gov/programs-surveys/acs/methodology/questionnaires/2020/quest20.pdf

used by researchers, the federal government, commercial enterprise, and demographers conducting redistricting for jurisdictions.

Data is released at different geographies, based on different methodologies.

- ACS 1-year estimates are data that have been collected over a 12-month period and available for geographic areas with at least 65,000 people.

- The Census Bureau combines 5 consecutive years of ACS data to produce multiyear estimates for geographic areas with fewer than 65,000 residents.

- The smallest release is 5-year estimates at the census block group level produced for the Department of Justice to allow for the analysis of voting age citizens and their ethnic breakdown. These are known as **Citizen Voting Age Population** or CVAP counts. This data is further disaggregated down to the block level in order for it to be used in the redistricting process.

CVAP is an important and required part of the census data when conducting redistricting as it acts as the "eligible voter" population when determining VRA compliance.

For the 2014-2018 CVAP Special Tabulations the following categories are included:

- Total
- Not Hispanic or Latino
- American Indian or Alaska Native Alone
- Asian Alone
- Black or African American Alone
- White Alone
- American Indian or Alaska Native and White
- Asian and White
- Black or African American and White
- Asian and White
- Black or African American and White
- American Indian or Alaska Native and Black or African American
- Remainder of Two or More Race Responses
- Hispanic or Latino

Within California, it is most common to utilize the Hispanic/Latino, Asian and African American total CVAP population groups, without combining the mixed ethnicity populations for Section 2 Voter Rights Act analysis. In other states, we find it more common to combine groups, particularly African American and each of the Black and Other categories.

When a district is determined to be at 50% of a protected class, and a majority minority district under Section 2 of the Federal Voting Rights Act, that calculation is made from the CVAP data.

Census Geographies

The census data is generally thought of as the counts of population, but it also includes the geographies in which the data is provided. These begin with small geographic units which have population, then are built up in a hierarchical fashion. The architecture of these geographic datasets is called Topologically Integrated Geographic Encoding and Referencing, or TIGER files.

Building up from the smallest unit, the shapes start with census blocks, then those are combined to make block groups, which are combined to make Tracts.

> **Census blocks** are the basic building blocks of all geographic boundaries. They are the smallest level of geography where census data is available, including total population, age, sex and race. They are often the size of a city block, but in an unpopulated are they can encompass many square miles. In California there were over 700,000 blocks, but for 2021 many of the blocks with no population were consolidated, with the final 2021 file having just over 500,000 blocks.
>
> **Census block groups** are the next level above census blocks in the geographic hierarchy. A block group consists multiple blocks and can average around 1,500 residents. The block group is the smallest geographic area where ACS data is made available.
>
> **Census tracts** are the next level above bock groups. Census tracts have an average population of around 4,000 people. Some census data comes in the Tract level, such as household demographics.

Block   Block Group   Census Tract
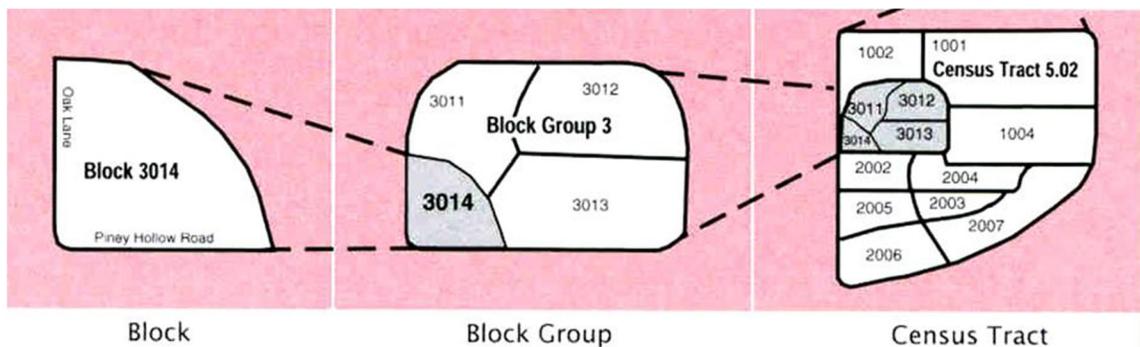
Redistricting Software

Redistricting Partners has used multiple GIS programs in both desktop and online platforms in different redistricting jurisdictions. We are not endorsing a specific program but instead leave that up to the jurisdictions to evaluate their budget, targeted users, and needs.

In the time of COVID and inability to host in-person paper-based mapping workshops, online meetings and web-based mapping platforms are a way for the public to be engaged in a more meaningful way.

Desktop Programs

These are programs used by professionals and academics in order to draw or evaluate redistricting maps. They are built out of the same software used by other professionals to manage everything from traffic patterns for civil engineering projects to student attendance for school sites.

The three primary desktop programs are ESRI, Maptitude and QGIS.

> **ESRI** - Started as the Environmental Systems Research Institute, ESRI is a private mapping company with more than a billion dollars in revenue from private industry, academia and state and local governments. Their primary application is ArcGIS and it is used in multiple fields, with redistricting being but a small share of its business.
>
> Within redistricting ESRI shapefiles are a standardized format that can be read by any legitimate redistricting software.
>
> **Maptitude** - Caliper Corporation created Maptitude as a program mostly for traffic and municipal analysis, but it quickly specialized into its popular Maptitude for Redistricting software. This software has been credited as the primary new tool in the advancement of redistricting and GIS in 2000 and 2010, helping shape lines in more states and localities than any other software.
>
> **QGIS** – The QGIS system is a free open-source desktop GIS software that supports viewing, editing, and analysis of mapping data. There have been multiple programs built by redistricting enthusiasts and academics to run in the QGIS platform. These are not consumer products but will appear in redistricting discussions, generally by outside organizations that cannot afford expensive GIS programs.

Online Programs

There are multiple online programs designed to allow the public to interact with the redistricting process. Some of these are commercial programs often purchased by states and local governments to allow for public engagement in an environment where those maps and data are submitted to the agency doing the redistricting. In these commercial platforms there are controls over what data is presented.

There are also online programs created by nonprofits which they can control, and are being used to help outside groups organize and interact with the redistricting process.

The first set of online programs are those which can be commercially obtained by a state or agency and run on their own servers, or connected to their redistricting in a way that all public comment is funneled

to their staff and the management of data layers and information is directed by the staff or consultants. These include:

- **Maptitude Redistricting Online Edition** – a web-based redistricting software designed for governments or organizations that want to provide their members or the general public with a means to draw and report redistricting plans. Because the Windows and online versions share common file formats, plans developed online can be electronically submitted to the central redistricting office, opened in the Windows-based software, and analyzed to the full extent as if they had been created using the Windows-based software.

- **Esri Redistricting** – a web-based version of the Esri Redistricting software that enables governments, advocates, and citizens to complete and share redistricting plans. It is based on Esri's ArcGIS software and dataset components and describes itself as having "comprehensive tools for plan creation, management, visualization, editing, and collaboration."

- **DistrictR** – a public online program but has commercially available custom modules for local government. This is a lightweight program which allows users to draw draft maps and submit them with an email link or downloaded GIS files.

The other set of tools are the public online programs, mostly created by nonprofits and funded by foundations. These are not controlled by the local agency, but instead setup and managed by outside groups.

- **Dave's Redistricting App** – the original high-use free online public redistricting tool. This software allows users to develop and analyze statewide redistricting plans. It is primarily used by redistricting enthusiasts, students, and political organizations.

- **Draw My California Community** – a community of interest and mapping tool created by the UC Berkeley Statewide Database for the California Citizen Redistricting Commission. It is being used as a public tool for the community to conduct mapping and send it as testimony to the state commission.

- **DistrictR** – this tool, also available as a commercial product, has been launched in several states and cities based on where organizations and foundations have asked for it to be created.

- **Representable –** a free open-source tool for building community of interest testimony created by the Princeton Gerrymandering Project.

Advanced District Analysis

Districts are regularly analyzed in terms of their traditional criteria. This includes basic analysis of a district's total deviation, determination of compactness and contiguity, and other basic factors. But there are also more advanced tools that are used in the redistricting field, some of which have become extremely common in California, particularly when it comes to the implementation of the California Voting Rights Act. And many of these tools will likely become a part of litigation around the Fair Maps Act.

Measuring Racial Polarization

There are several tools that can be used in determining differences in voting patterns. These range from methods that can add to a simple understanding of overall voting behavior to the true statistical identification of racially polarized voting for the purposes of the California or Federal Voting Rights Act.

Visual Analysis - The simplest method for estimating voting behavior by race/ethnicity is to overlay a map of election results with a similar map of ethnic densities. This is a non-statistical technique that can provide a user-friendly understanding of the relationship between ethnic groups and election results. When the pattern of elections and ethnic groups looks similar, there is a strong rationale for further analysis.

Homogeneous Precinct Analysis – The first level of data analysis is of voting patterns in homogenous census blocks – small areas that are composed of a single racial group. The voting patterns of minorities in these blocks are analyzed and compared to similar areas with very few minority voters.

In the absence of exit polls and direct access to individual ballots, this common measure of racially polarized voting provides a high-confidence way to see voting patterns. Since census blocks are usually not exclusively one race, blocks with greater than 80% or more individuals of a single race are considered homogeneous. In order to have statistical validity, there should be a large number of homogenous precincts. In some parts of the state, aggregation of many census blocks will provide a final analysis of several thousand individual vote results in a cluster that is 90% or more of one single race.

Regression / Trend Line Analysis – A trend line analysis is done using all the census block level election results from a candidate race or ballot measure. The results for each census block are placed in a formula with a variable to be studied, such as ethnicity of that census block. The data points are each individually plotted with a simple regression to overlay a trend line. This trend line will show how the vote for or against a candidate or ballot measure increases or decreases as the variable changes.

Multivariate regression analysis - a more advanced method that can identify the impact of ethnic subgroup polarization as compared to other factors such as income, age, gender, or educational level.

Ecological Inference (EI) – builds upon regression analysis by looking at the variance of the vote total in each precinct along with its variance in the population of the correlated racial group. Armed with the known ethnic composition of the voting population and the results of the

regression analysis, the method determines the probability of a district's support for a given candidate.

Given that Section 2 of the Federal Voting Rights Act can require certain conditions to be met in order to use race as a primary factor in the drawing of district lines, this kind of analysis, or community testimony to support it, can be necessary before an agency can deem any district to be a Section 2 majority-minority seat.

Measuring a Gerrymander

A gerrymandering cannot be judged solely on a "you know it when you see it" standard. In order for gerrymandering to be fought, there needs to be measurements that can discern between a funny-shaped map that has justifiable intent, and those that are clear manipulations. And gerrymanders can also exist in plain sight as a sophisticated gerrymandering can manipulate the maps without having to resort to the odd shapes that draw criticism.

Traditionally, a gerrymander was measured by answering the following questions:

1. Are the district populations imbalanced?
2. Is there an unnatural shape to the district that cannot be easily justified?
3. Does the districting plan unevenly distribute members of a political party?
4. Does the outcome of elections match the makeup of the state or agency as a whole?

These general questions have resulted in dozens of redistricting plans being challenged in court, and many cases of redistricting being invalidated because of unequal population, odd shapes, and clear manipulations to dilute the voting power of minority communities as a result of cracking and packing.

In addition, gerrymandering can be proven by identifying intent. Several gerrymandering attempts have been undone by elected officials or individuals documenting how a redistricting was being done to promote some illegal intent. But proving more advanced gerrymandering without a smoking gun can be challenging.

In order to measure the impact of a redistricting, and determine if it has signs of a gerrymandering, researchers have developed a number of more advanced tools. This area of redistricting research has been growing and developing over the past decade and will likely make even more advances in this redistricting cycle.

Partisan Symmetry - this is based on the simple fact that in an individual voting district, whoever gets a plurality of the votes wins the seat, which can be extended to an entire state. If a state is 35% Democratic, it should win roughly 35% of district elections. Of course, other factors, like the need to draw majority minority districts, or the self-segregation of likeminded voters into certain communities can disrupt partisan symmetry. The 2012 Congress could be considered an example of partisan asymmetry as Republicans had 234 seats to the Democrats' 201, despite earning 1.4 million fewer votes nationally.

Efficiency Gap – this is a measure goes a step further than simple measures of symmetry and looks at the underlying imbalance of voting power in individual districts. It finds that that in packed districts there are more votes than necessary to elect a partisan candidate, resulting in

"wasted votes." The wasted votes are summed up across each district in a plan to present a metric which can be compared among alternative mapping scenarios.

Ensemble Analysis – this method uses algorithmic redistricting tools to create thousands or millions of maps and then uses statistical analysis to determine what the median mapping outcome would be along certain metrics such as ethnicity, partisan advantage, or incumbent protection – and then compares a proposed or enacted plan to those many computer-generated alternative. This can show if the outcomes of a redistricting fall within the range of expected outcomes using only neutral criteria or if it is an outlier, pointing to a potential gerrymandering.

California-Specific Laws

Over the past 15 years, California has undergone a transformation of its redistricting process. This includes drawing of statewide and congressional lines, the rules for county and city redistricting, and the conversion of formerly at-large elections to districted systems.

Statewide Redistricting Reform

California voters in 2008 passed Proposition 11 which took the responsibility for redistricting state legislative districts out of the hands of the legislature and governor and gave it to a public commission comprised of five Democrats, five Republicans, and four registered non-partisan or other minor parties. In 2010, voters passed Proposition 20 to extend the commission's role to redraw congressional districts too.