



City of Palm Springs

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SUBJECT: California Voting Rights Act (CVRA) – Definition of Compactness

The CVRA Working Group requested that the City provide a definition of *compactness* as it relates to the districting process.

Defining Compactness

The City's Demographer, Douglas Johnson, of National Demographics Corporation, offers the following as an explanation of compactness:

“There is no legal or guiding definition of compactness in the California Voting Rights Act, the Federal Voting Rights Act, or any other law governing local districting and redistricting.

As a rule of thumb, the goal of compactness is to avoid bypassing one group of people to include another group of people, and compact districts are reasonable close to square or rectangular, within the limitations of equal population, of the Federal Voting Rights Act, of community and jurisdiction boundaries, of terrain, and of major roads and other logical district boundaries.

That said, the California Constitution does define compactness for the state's independent redistricting commission in Article XXI, Section 2(d)(5):

“districts shall be drawn to encourage geographical compactness such that nearby areas of population are not bypassed for more distant population.”

US Supreme Court Justice Sandra Day O'Connor, writing for the majority in [Shaw v Reno](#), referenced compactness as “the reapportionment scheme is so irrational on its face that it can be understood only as an effort to segregate voters into separate districts on the basis of race.” Essentially that ruling said that while an ugly-shaped district is not illegal, that ugly shape is a sign that there should be a check of why it is shaped that way to ensure that a community or other rational and legal reason, rather than illegal racial gerrymandering, explains it.

Mathematically, there are many definitions of compactness – all relatively equally flawed. Caliper, the maker of the redistricting software we use, has a useful summary of the mathematical definitions that are available in its software [here on this page](#). Polsby-Popper and the Perimeter test are the most commonly used, but that is because they are the fastest to run, not because they are the best measures.

The [Brennan Center](#), in [“A Media Guide to Redistricting,”](#) describes compactness thusly:

“Compactness. Most states also require districts to be reasonably “compact,” though few define the term. A district where constituents generally live near each other or with a regular geometric shape is usually more compact than one with long, extended tendrils. In practice, compactness tends to be in the eye of the beholder: people say they know it when they see it. Academics have proposed more than 30 numerical measures of compactness, focusing on: 1) how contorted the district’s boundaries are; 2) how spread out a district is from a central core; or 3) the location of the “center of gravity” of the district’s population. A district that is compact by one measure may be less compact by another.”

MALDEF, the NAACP, and the Asian-American Legal Center, in [“A Guide to Redistricting in Your Community,”](#) describe compactness this way:

“Measuring compactness is more complex because there is no one particular method for measuring compactness. In some cases, the appearance and function of a district may be the appropriate measure of compactness. If an appearance and function analysis is used, those drawing the lines will consider the overall shape of the district, looking to see how tightly drawn the lines are and how smooth the edges are. If the districts drawn are too irregular-looking, it may become a signal to the courts that the lines may have been motivated by a desire to engage in race-based redistricting, which may be held unlawful. In other cases, a mathematical formula may be the best way to measure compactness. There are various methods for calculating the compactness of a district including looking at how the population is distributed within the district, measuring the borders of the district, or evaluating the area of the district. . . . [But] Efforts to achieve perfect compactness and contiguity may lead to the creation of districts that fail to comply with the Voting Rights Act.”

NDC always recommends considering compactness as a goal, not a hard-and-fast example, and to avoid any mathematical formulas or ‘never more than x’ rules. Essentially compactness should be used to identify (via the “inter-ocular” test of simply which looks more reasonable/logical) to decide between two maps that otherwise are equal on all of the more important considerations (equal population, comply with the Voting Rights Act, respect communities of interest, follow easy-to-understand boundaries, and leaving the voters, not a demographer’s pen, in charge of re-election decisions).

Ultimately, we urge our clients to be careful with attempting to define compactness. Our ultimate example of why compactness definitions and absolute measures are to be avoided is [this map of Arizona’s 1st Congressional District from 2001 to 2010](#). It is the ultimate definition of non-compact, with a narrow neck extending up the Colorado River portion of the Grand Canyon to put the Hopi Reservation in NE Arizona in District 1. This was done for a very clear community of interest reason: the Hopi did not get along with the Navajo (whose reservation completely surrounds the Hopi, and who outnumber the Hopi 100,000 to 6,000 in Arizona), and the Hopi experience had been that the Navajo took more than their share of federal money intended to help tribal reservation residents. And when they were in the same Congressional District, the Representative obviously responded to the concerns of the 100,000 Navajo over the 6,000 Hopi. So the Hopi asked, and Arizona’s Independent Redistricting Commission agreed, for their reservation to be placed in a different Congressional District from the Navajo. It violated every compactness definition out there, but made solid policy sense from a community of interest and ‘protected class’ perspective. The Arizona Independent Redistricting Commission, consisting of two Republicans, two Democrats, and one Independent, adopted this map on a unanimous 5-0 vote.