The CACEO Redistricting Crash Course

03/16/2011 – Part I

Criteria

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Who Draws the Lines?

- Citizens Redistricting Committee draws statewide district lines.
  - State Assembly & Senate Districts
  - State Board of Equalization
  - US House of Representatives
- Local jurisdiction lines drawn by local bodies.
  - Usually the body itself, but sometimes local commissions.
Who Is the Commission?

- 14 person committee.
  - 5 Republican, 5 Democrat, 4 other/decline to state
  - Carefully vetted for conflict of interest and compliance with Prop 11 requirements
What will Commission do?

- Apply the redistricting criteria set forth in Props 11 & 20, now in CA Constitution, to draw lines.
- Hold public hearings to gather information for use in redistricting.
- Consider public input when deciding where to draw lines.
- Adopt 4 statewide plans (one for each level of districts)
How will the Commission decide where to draw lines?

- CA Law (Props 11 & 20) determine what criteria the Commission must use to decide where to draw lines.
- The only things the Commission should consider are those criteria.
- Note: these criteria only govern statewide districting. Criteria for local jurisdictions is usually found in local laws or codes.
Redistricting Criteria:

- Traditional Redistricting Criteria
  - or
  - Traditional districting principles*
  - or
  - Traditional “Race-neutral” districting principles

Versus

Additional Criteria or Principles: less widely used, often local

*Shaw v Reno, 1993
Judicially recognized traditional districting principles:

- Compactness
- Contiguity
- Preservation of Cities and Counties

- Respect for Communities of Interest
  - (“actual shared interests” Miller v Johnson, 1995)
- Incumbent protection
- Preservation of district cores
- Compliance with VRA Section 2
Criteria example:

CALIFORNIA CONSTITUTION ARTICLE 21
REDISTRICTING OF SENATE, ASSEMBLY, CONGRESSIONAL AND BOARD OF EQUALIZATION DISTRICTS
SEC. 1. …the Citizens Redistricting Commission as described in Section 2 shall adjust the boundary lines of the congressional, State Senatorial, Assembly, and Board of Equalization districts (also known as "redistricting") in conformance with the standards and process set forth in Section 2.
SEC. 2.
(d) The commission shall establish single-member districts pursuant to a mapping process using the following criteria as set forth in the following order of priority:
(1) Districts shall comply with the United States Constitution. Congressional districts shall achieve population equality as nearly as practicable, and Senatorial, Assembly, and State Board of Equalization districts shall have reasonably equal population with other districts for the same office, except where deviation is required to comply with the federal Voting Rights Act or allowable by law.
more criteria:

(2) Districts shall comply with the federal Voting Rights Act (42U.S.C. Sec. 1971 and following).

(3) Districts shall be geographically contiguous.

(4) The 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. 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 election process. Communities of interest shall not include relationships with political parties, incumbents, or political candidates.
more criteria:

(5) To the extent practicable, and where this does not conflict with the criteria above, districts shall be drawn to encourage geographical compactness such that nearby areas of population are not bypassed for more distant population.

(6) To the extent practicable, and where this does not conflict with the criteria above, each Senate district shall be comprised of two whole, complete, and adjacent Assembly districts, and each Board of Equalization district shall be comprised of 10 whole, complete, and adjacent Senate districts.

(e) The place of residence of any incumbent or political candidate shall not be considered in the creation of a map. Districts shall not be drawn for the purpose of favoring or discriminating against an incumbent, political candidate, or political party.
CA ELECTIONS CODE SECTION 21500-21506

- In establishing the boundaries of the districts the board may give consideration to the following factors: (a) topography, (b) geography, (c) cohesiveness, contiguity, integrity, and compactness of territory, and (d) community of interests of the districts.
Redistricting Criteria and **Data used:**

Equal Population – **PL94-171**
Compliance with Federal Law (VRA) – **PL94-171, SOR, SOV**

Contiguity – **Census Geography**
Respect for City and County boundaries – **Census Geography**
Respect for Neighborhoods – **Public Testimony, Data/Geography submitted by Public, Cities/Counties, etc.**
Respect for Communities of Interest – **Public Testimony, Data/Geography submitted by Public**
Compactness – **Census Geography**

Nesting – newly drawn Districts
Equal Population

- That’s why we do it!
- Constitutional requirement
- One person, One vote
- 14th Amendment: Equal protection clause

- How equal is equal???
Terminology:

- **Ideal population** = $\text{Tot Pop} / \# \text{ of districts}$
  - (for single member districts)
- **Ideal population** = $\text{Tot pop} / \# \text{ of representative}$
  - (for multi-member districts)

- Deviation: how much districts are above/below (over/under) the ideal population
California Ideal Populations for 2011

CA total Population in 2010 Census: 37,253,956

- Ideal populations for each district type:
  - State Assembly: 465,674.4
  - State Senate: 931,348.8
  - State Board of Equalization: 9,313,488.7
  - US Congressional: 702,904.8
Basic Deviation Measures: (‘absolute’&’relative’)

- Ideal population: 10,000
- District A pop: 12,000
- Deviation = +2000 people (absolute)
- In percent = +20% (relative)
- District B pop: 9,000
- Deviation = -1000 people (absolute)
- In percent = -10% (relative)
**Total Overall Range/ Total Deviation**

- Range from largest positive (over) to largest negative (under)
- District A = + 20% (2000 over)
- District B = - 10% (1000 under)
- Total Overall Range = 30% (3000 people)
- Range = - 10% to + 20%

- Other terms used to describe same stats: variation, overall pop deviation, maximum deviation, pop difference, etc.
How equal is equal? Part I: Congress

- Strict population equality in CDs
- No Deviation is too small to worry about
  - (if it could have been avoided)
- Translation: 28 States’ CDs had total deviation of less than 10 people after 2000 round of redistricting!
How equal is equal? Part II – Legislative Districts

- Total deviation within 10% may not constitute a ‘prima facie equal protection violation under the 14th Amendment’
  - Gaffney v Cummings 1973

- Above 10%: be ready to justify with “substantial and legitimate state interest’
  - Example: preservation of county boundaries

- Larios v Cox, 2004: Legislature believed that w/in +/-5% is ‘safe harbor’ – not necessarily!
VRA – Sections 2 & 5

Section 2 – Majority Minority Districts
-> Minority group must be large enough to constitute a majority in the district (50%+)
-> Minority group must be geographically compact
-> There must be evidence of polarized voting against the minority group
HOWEVER: Sec 2 does NOT prohibit the drawing of “influence seats” nor considering racial/ethnic Communities of Interest

Section 5 – Preclearance and Retrogression
-> Kings, Merced, Monterey, Yuba
Contiguity:

- Definition: A district in which all parts are connected to each other
  in other words:

- A district in which one may travel from any location to any other location without crossing the district boundary
Land Contiguity

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Point Contiguity

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Water Contiguity
New York 60th Senate District

Source: Regional Institute: University of Buffalo: The State University of New York
Non-contiguous Assembly District

Source: LTSB GIS Applications: 17 South Fairchild Street, Suite 400 Madison, WI 53703-3219, (608) 266-6640 Ext. 1
Non-contiguous & Non-compact
Detail of Non-Contiguous Areas

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Compactness:

- Addresses the geography of the district
- Many different measures developed
- "eyeball approach" "appearances do matter"
  - (Shaw v Reno)
- Assumed to "guard against all types of gerrymandering" "drastic departures from compactness are a signal that something may be amiss"
  - (Karcher v. Daggett)
Reock Measure

Assumes that a Circle is the Most Compact Shape Possible

Score ranges from 0, least compact to 1, most compact
Ehrenburg Measure

Compares the Area of the Inner Circle with the Area of the District

Score between 0 and 1, 1 is most compact score
Schwartzberg Measure

Perimeter-based measure that compares a simplified version of each district to a circle

A score closer to 1 is more compact than a score further away from 1
Perimeter Measure

Sums the perimeters of all the districts

Smaller total perimeter is most compact score
Polsby-Popper Measure

Compares the area of a district to the area of a circle with the same perimeter

Score between 0 and 1, 1 is most compact score
Population Polygon Measure

Compares the District’s Population to the Population of the Enclosing Convex Hull

\[
\frac{423,000}{450,000} = 0.94
\]

Score between 0 and 1, 1 is most compact score

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Population Circle Measure

Compares the District’s Population to the Population of the Smallest Enclosing Circle

Score between 0 and 1, 1 is most compact score

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## Compactness Scores Report

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<th>Reock</th>
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California 13th Assembly District

Karin Mac Donald; swdb.berkeley.edu;
March 16, 2011
California 13th Assembly District
Criteria for which data are not easily available:

Communities of Interest:
What is a Community of Interest? It depends…
Group of people with specific common interest
(“actual shared interests” Miller v Johnson, 1995)
Can be defined geographically

What are they NOT?
In CA: Communities of interest shall not include relationships with political parties, incumbents, or political candidates

Neighborhoods:
Vary in size
Are sometimes defined by cities (often poorly), and/or communities
No data sources available that show neighborhoods statewide
Need to be documented and submitted
CA’s new definition of ‘community of interest’

‘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. 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 election process.’
Community of Interest definitions may include:

- Organizing around schools, school districts
- Transportation hubs
- Community Centers
- Dog parks

If race/ethnicity are raised, it may summarize:
- Shared experiences
- Access (or lack of) to education
- Higher number of kids per household
- Younger overall population
Communities of Interest continued:

- Defining them top-down versus bottom-up
- Big difference here! (variables etc.)
  - Race/Ethnicity (SCOTUS cases: stereotyping)
- Defining Cols may be especially important within the API group: multi/pan-ethnic populations
Data to document a Community of Interest or Neighborhood: an example

Create a map of the boundaries (use Google maps if no GIS available)

Outline what defines the Community of Interest:
  What is your mission or your commonality
  Show that your members live within the boundaries
  Explain what is different outside of the boundaries of your Community of Interest
  Explain why it is important to be kept whole, and how it would be a disadvantage to be split by an electoral boundary line

To participate in the process, testify, submit written testimony, send supporting information to the redistricting authority.
Community of Interest and Neighborhood:
Other Redistricting Criteria

- **Legislative:**
  - Convenience (Minnesota)
  - Understandibility to the Voter (Hawaii)
  - Competitive Districts (Arizona)
  - Nesting (California)

- **Local:**
  - Preservation of business districts
  - Cultural areas
  - Extremely strict population deviations
Competition: The Criterion!
Measuring Potential Competitiveness

Three ways

- Party registration difference (% registered Dem - % registered Rep)
- 2000 Presidential Vote (Gore vs Bush)
- ‘Normal Vote’ (averaged 6 statewide offices from Lt Governor to Insurance Commissioner, 1998 & 2002)
## Competition: Results of different measures - ADs

<table>
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<tr>
<th>Party Registration (3pt Rep, 10pt Dem)</th>
<th>Normal Vote (6 Statewide offices) (3pt Rep, 10pt Dem)</th>
<th>2000 Presidential (Gore vs Bush) (within 3pt margin)</th>
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<td>Max Competitive</td>
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<td>18</td>
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<tr>
<td>Fully Balanced</td>
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Karin Mac Donald; swdb.berkeley.edu;  
March 16, 2011
# Competition: Results of different measures - CDs

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<tr>
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</tbody>
</table>
Some Conclusions

- ‘Competitiveness’ is a vague concept
- Party registration tends to overstate extent of competitiveness
- Potential versus Actual competitiveness (incumbents, national political climate, candidate quality, campaign spending etc.)
- Short term gain (competitiveness may wear off due to partisan realignment, migration patterns, etc)
- Democrats will have more safe seats than Republicans (CA political geography)
Fun Facts about Criteria Trade-offs

- Potential competitiveness = Majority Minority seats
- Majority Minority seats = Compactness
- Sec 5 seats preserved = potential competitiveness
- City/County boundaries preserved = potential competitiveness
More Trade-offs

- City/County Boundaries preserved = Compactness ↓
- Nesting: City/County Splits ↑
  MORE DIFFICULT TO CREATE M/M DISTRICTS
- Respecting Communities of Interest:
  (most likely) potential competitiveness ↓
  (also likely) compactness ↓
YOU FOLKS HERE FOR THE REDISTRICTING HEARINGS TO EASE SCHOOL OVERCROWDING?
Redistricting Data
CACEO Crash Course – Part II

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DATA:

- Which data are used to draw lines?
- Which data are used for which criterion?
- Which data are easily accessible?
- Which ones are not?
- Which data sources are available but difficult (or impossible?) to use?
Redistricting Criteria and **Data used:**

Equal Population – **PL94-171**
Compliance with Federal Law (VRA) – **PL94-171, SOR, SOV**

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Respect for City and County boundaries – **Census Geography**
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Respect for Communities of Interest – **Public Testimony, Data/Geography submitted by Public**
Compactness – **Census Geography**

Nesting – newly drawn Districts
Census 2000 used 2 forms:

1. The “short” form – asked for basic demographic and housing information, i.e. age, sex, race, ethnicity, # of people in housing unit, renter/owner

   EVERY HOUSEHOLD RECEIVED THIS FORM

2. The “long” form – collected the same information as the short form plus income, education, citizenship, language spoken at home, etc.

   ONE IN SIX HOUSEHOLDS RECEIVED THIS FORM

Long form data aka “sample data.”

Short form data aka “100 percent data” (or 100% sample)
2010 Decennial Census and American Community Survey (ACS)

What’s New?

2010 Census used only the “short” form.

The sample data are now collected by the ACS instead of the “long” form.

What’s Old?

Short form data must be released by the Census bureau before April 1, 2011, one year following Census day.
2010 Decennial Census PL94-171 Data

- Basic Information/ Data that jurisdictions are required by law to use for Redistricting

-Census 2010 Redistricting Data (Public Law 94-171, or "PL94") contains the count of the U.S. population

- Is a BLOCK-LEVEL dataset

- Includes data on people's race and ethnicity, for both the total and the voting age population

- Information is based on answers to the questions in the Census 2010 Short-Form questionnaire.

- There are 5 detailed tables available in the PL94-171 data product.
## 2010 Decennial Census PL94 Data Summary Tables

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<td>Total population</td>
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<td>Hispanic or Latino, and Not Hispanic or Latino by Race</td>
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### 2010 PL94 Data Summary Table Subject Layout

**P1. Race**  
Universe: Total population  
Total:

Populations of one race:
- White alone
- Black or African American alone
- American Indian and Alaska Native alone
- Asian alone
- Native Hawaiian and Other Pacific Islander alone
- Some other race alone

Repeats for the Population of two or more races…..

**P2. Hispanic or Latino, and Not Hispanic or Latino by Race**  
Universe: Total population  
Total:

Hispanic or Latino  
Not Hispanic or Latino:

Populations of one race:
- White alone
- Black or African American alone
- American Indian and Alaska Native alone
- Asian alone
- Native Hawaiian and Other Pacific Islander alone
- Some other race alone

Repeats for the Population of two or more races…..
2010 PL94 Data Summary Table Subject Layout

P3. Race For The Population 18 Years and Over
P1 variables are repeated for the Population 18 Years and Over

P4. Hispanic or Latino, and Not Hispanic or Latino By Race For The Population 18 Years And Over
P2 variables are repeated for the Population 18 Years and Over

H1. Occupancy Status
Universe: Housing units
Total:
  Occupied
  Vacant
2010 Census and American Community Survey (ACS)

- nationwide survey that replaces the long-form
- collects same information on people and housing as the long-form questionnaire used in Census 2000.
- is an on-going survey versus data released on PL94-171, which are collected on “census day” (April 1, 2010)
- is released in “multi-year estimates” on census block-group level

The ACS does NOT release data on the census block level!

Detailed demographic, social, economic, and housing data are no longer collected as part of the decennial census.

ACS data can be grouped into four main types of characteristics – social, economic, housing, and demographic
American Community Survey
Demographic Characteristics

- Sex
- Age
- Race
- Ethnicity
American Community Survey
Social Characteristics

- Education
- Marital Status
- Fertility
- Grandparent Caregivers
- Citizenship
- Veteran Status
- Disability Status
American Community Survey
Economic Characteristics

- Income
- Benefits
- Employment Status
- Occupation
- Industry
- Commuting to Work
- Place of Work
American Community Survey
Housing Characteristics

- Tenure
- Occupancy & Structure
- Housing Value
- Taxes & Insurance
- Utilities
- Mortgage/Monthly Rent

- And our personal favourite: PLUMBING!
American Community Survey
Data Products Release Schedule

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<tr>
<td>5-Year Estimates for Data Collected in:</td>
<td>All Areas*</td>
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* Five-year estimates will be available for areas as small as census tracts and block groups.
Source: US Census Bureau
District Building Blocks: U.S. Census Geography

- **Blocks**: smallest ‘unit of analysis’ on which data are reported”
  - Block groups
  - Tracts
  - Places (cities)
  - Counties
  - State
California’s 58 Counties
PL94 Data are Tabulated and Reported for All Geographic Entities
U.S. Census Bureau TIGER/Line
Topologically Integrated Geographic Encoding and Referencing system

1990 TIGER/Line
- 58 Counties
- 471 Census Places/ Cities
- 5,874 Census Tracts
- 21,554 Census Block Groups
- 400,414 Census Blocks

2000 TIGER/Line
- 58 Counties
- 1,018 Census Places/ Cities
- 7,049 Census Tracts
- 22,133 Census Block Groups
- 533,163 Census Blocks

2010 TIGER/Line
- 58 Counties
- 1,523 Census Places/ Cities
- 8,057 Census Tracts
- 23,212 Census Block Groups
- 710,145 Census Blocks
Election Data! Why are those needed???

Voting Rights Act: Sections 2 & 5

Section 2 – Majority Minority Districts
-> Minority group must be large enough to constitute a majority in the district (50%+)
-> Minority group must be geographically compact
-> Minority group votes cohesively
-> There must be evidence of polarized voting against the minority group

NOTE: Sec 2 does NOT prohibit the drawing of “influence seats” nor considering racial/ethnic Communities of Interest

Section 5 – Preclearance and Retrogression
-> Kings, Merced, Monterey, Yuba
Electoral Geography

Precincts
- Smallest unit of analysis for reporting of electoral data.
- Many precincts change with each election

Electoral geography that must be redistricted:
- Assembly, Senate, and Congressional districts
- City Council and County Board of Supervisor districts
- Board of Equalization districts
- County Hospital Board of Trustees districts, Community College districts, Water districts, Transportation districts, Mosquito Abatement districts, etc.
Alameda County, California

2008G Precincts that are contained or partially contained in 2000 Census Tract 435101
Data and reporting geography

- PI94-171
  - Census block (constant for 10 years)
- Statements of Vote (SoV)
  - Voting precinct (frequent changes)
- Statements of Registration (SoR)
  - Registration files: individual level data
SoV & SoR

- **SoV variables:**
  - Total Vote
  - Votes for Races and Propositions

- **SoR variables:**
  - Total Registration
  - Party ID
  - Sex/Gender
  - Age
  - Cycles Registered
  - Race/Ethnicity – surname matched
Data Complexities:

- Task: build dataset comparable on same unit of analysis over time ... available for redistricting (2011)
- Why is this difficult?
  - Election results reporting geography changes frequently (precincts)
- What’s the solution?
  - Answer: census blocks
The Statewide Database

The State of California's Redistricting Database

History

Data Collection:
- Census
- Registrars of Voters/County Clerks
Why are we talking about the Statewide Database?

(b) The Legislature shall take all steps necessary to ensure that a complete and accurate computerized database is available for redistricting, and that procedures are in place to provide the public ready access to redistricting data and computer software for drawing maps. Upon the commission's formation and until its dissolution, the Legislature shall coordinate these efforts with the commission.
A Quick Overview of the Statewide Database (SWDB)

The Database includes:
I. Census & Electoral Data
II. Census & Electoral Geography
III. Conversion files

IV. Data Reports & Maps
V. Redistricting & Census News and Court case archive
VI. Redistricting Research

http://swdb.berkeley.edu
Redistricting Criteria and Data used:

Equal Population – PL94-171
Compliance with Federal Law (VRA) – PL94-171, SOR, SOV

Contiguity – Census Geography
Respect for City and County boundaries – Census Geography
Respect for Neighborhoods – Public Testimony, Data/Geography submitted by Public, Cities/Counties, etc.
Respect for Communities of Interest – Public Testimony, Data/Geography submitted by Public
Compactness – Census Geography

Nesting – newly drawn Districts
We’re Done!

Questions?