Redistricting California
Data and the Process of Map-Drawing

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Karin Mac Donald, Director

Jaime Clark, Redistricting Data & Access Coordinator

Statewide Database – Berkeley Law

karin@statewidedatabase.org; jaime@statewidedatabase.org

http://statewidedatabase.org

Introduction and Outline

- Statewide Database: Redistricting Database for the State of California – https://statewidedatabase.org

- Overview of this session:
  - Introduce Data used in Redistricting
  - Provide Context for data decisions the CRC will need to confront
  - Provide realistic examples of how these may be applied
  - Demo on moving lines and how districts are constructed

Where to start?

- California Constitution Article 21

- Sec 2. (d) The commission shall establish single-member districts for the <u>Senate, Assembly, Congress, and State Board of Equalization</u> pursuant to a mapping process using the following criteria as set forth <u>in the following order of priority</u>:

Criterion 1: Equal Population

- (1) Districts shall comply with the United States Constitution. Congressional districts shall achieve <u>population equality</u> as nearly as is practicable, and Senatorial, Assembly, and State Board of Equalization districts shall have reasonably <u>equal population</u> with other districts for the same office, except where deviation is required to comply with the federal Voting Rights Act or allowable by law.

Which data are used for the Equal Population Criterion?

- Decennial Census
- PL94-171 file
- Census block level dataset
- Reports total population and other variables
- Equal Population means assign <u>everyone</u> to a district
- <u>NOT</u> only Citizens, Voters, eligible voters, registered voters but rather EVERYONE (with a small caveat)

- ❖ Reapportionment vs. Redistricting

Criterion 2: Federal Voting Rights Act

- (2) Districts shall comply with the <u>Federal Voting Rights Act</u> (42 U.S.C. Sec. 1971 and following)

  - ❑ Please note that there may be some confusion regarding the California Voting Rights Act (CVRA) which does NOT in any way apply to statewide redistricting

Two parts to comply with the VRA

❑ Measuring/analyzing

- Expert conducts a Racially Polarized Voting Analysis

- Work with Expert(s) and Counsel to make decisions about Majority/Minority districts

- This work can begin BEFORE release of PL94-171

❑ Drawing a district

- Work with redistricting consultant to construct districts that comply with the FVRA

Data necessary to comply with the FVRA

- Census data
- American Community Survey
- Voter Registration
- Statement of Vote
  - Note that having political data available does not mean that they should or will be used for political purposes; these data are necessary for FVRA compliance
- Geography

Criterion 3: Contiguity & Data used

- (3) Districts shall be <u>geographically contiguous</u>

- Geographic Criterion

- Data used:
  - Census geography

Criterion 4: Local jurisdictions & Communities

- (4) The <u>geographic integrity of any city, county, city and county, local neighborhood, or local community of interest</u> 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 <u>community of interest is a contiguous population</u> which shares common social and economic interests that should be included within a single district for purposes of its effective and fair representation.

Data to meet Criterion 4

- **Cities, Counties, Cities and Counties?**
  - Census geography

- **Neighborhoods?**
  - Not readily available; Public testimony, Data/ Geography submitted by Public, Cities, etc.

- **Communities of Interest?**
  - Not readily available; Public testimony, Data/ Geography submitted by Public, local officials, etc.; sometimes supplemented with other data.

  - Note that these categories are <u>not ranked</u> within Criterion 4

  - Decide how to use new tools that were not available to the last Commission

Criterion 5: Compactness & Data used

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

- Geographic Criterion

- Data used:
  - Census Geography

Criterion 6: "Nesting" & Data used

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

- Data used:
  - Newly created districts

Redistricting Criteria and Data used:

- Equal Population – Decennial Census; PL94-171file
- Compliance with the Federal Voting Rights Act; PL94-171, Statement of Registration, Statement of Vote, Citizen Voting Age Population from American Community Survey (ACS)
- 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 created districts

Criterion 1 and The Decennial Census

- Conducted every 10 years since 1790
- Determines the number of people living in the US
- "Count people once, only once and in the right place"
- The only "count" of the population
- Provides a 'snapshot' of the US population
- Collects data from every household and more
- Previously known as the "short form"

- Census Day was April 1, 2020

California Self-Response Rates: census.ca.gov
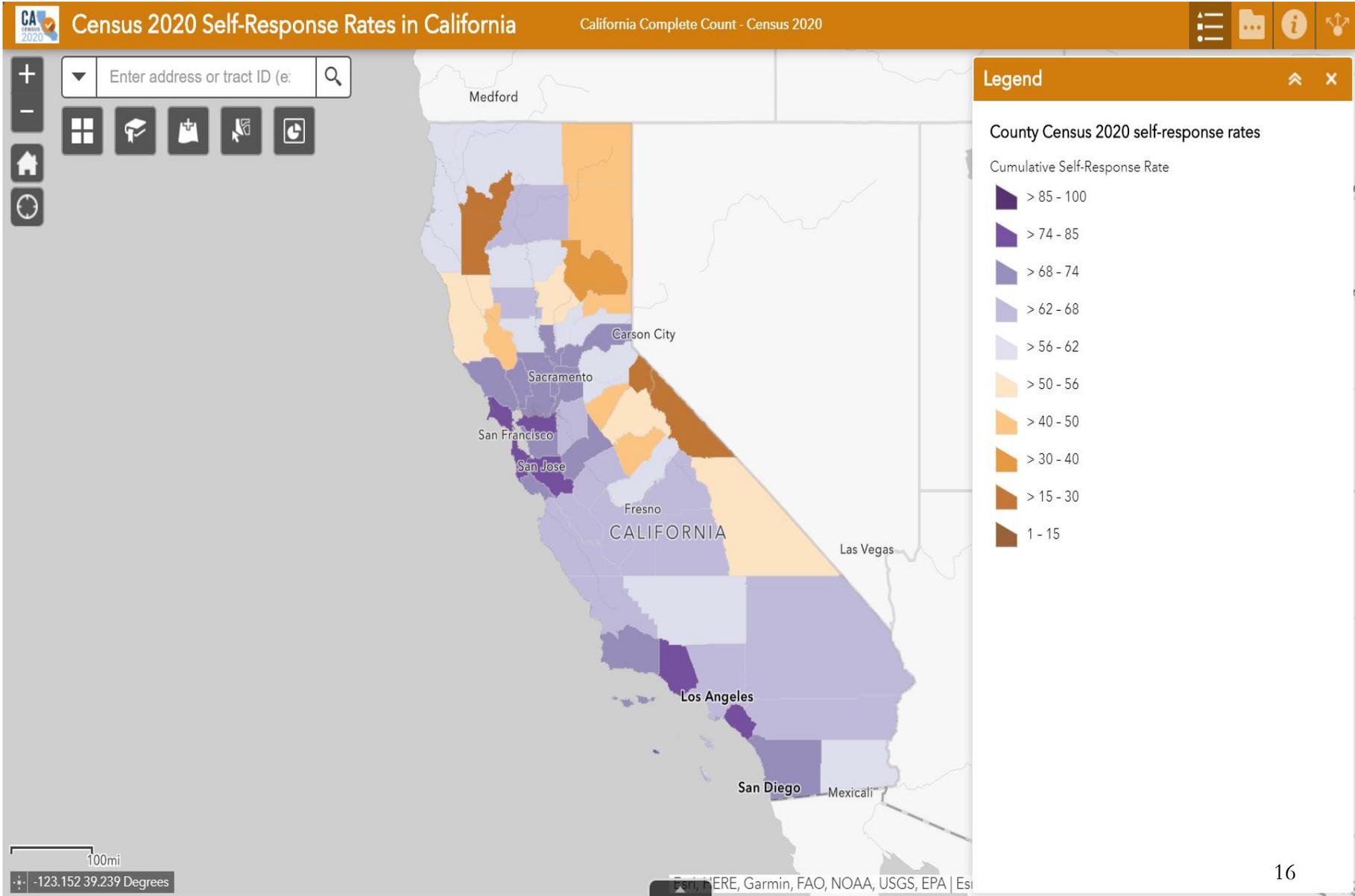
A closer look reveals differences

Census 2020 Self-Response Rates in California — California Complete Count - Census 2020

Legend: California census tract self-response rates — Cumulative Self-Response Rate

- > 85 – 100
- > 74 – 85
- > 68 – 74
- > 62 – 68
- > 56 – 62
- > 50 – 56
- > 40 – 50
- > 30 – 40
- > 15 – 30
- 0 – 15
- NA
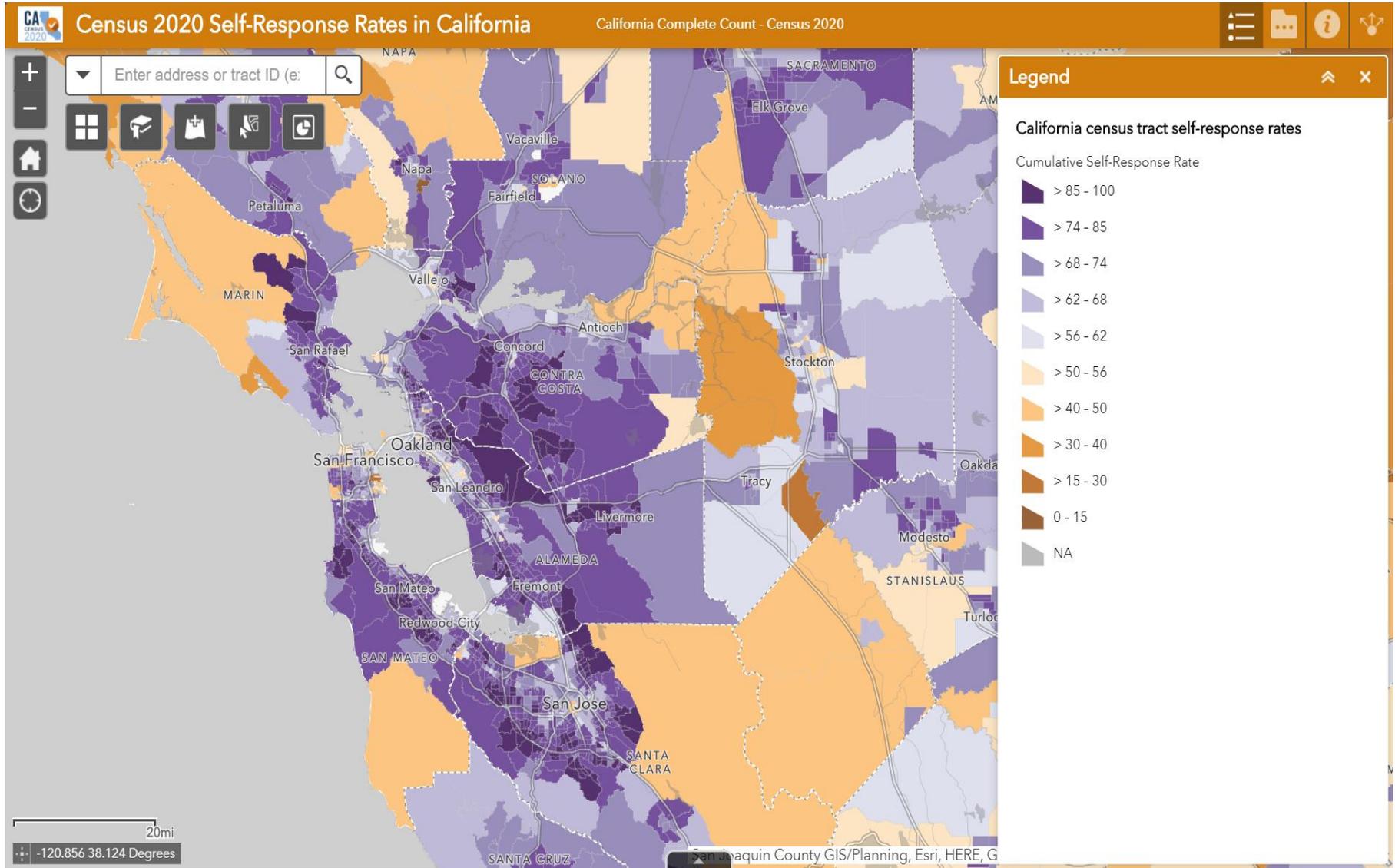
No self response = Non-response follow-up

CUNY: censushardtocountmaps2020.us

Example: Hardest to count census tracts 2010
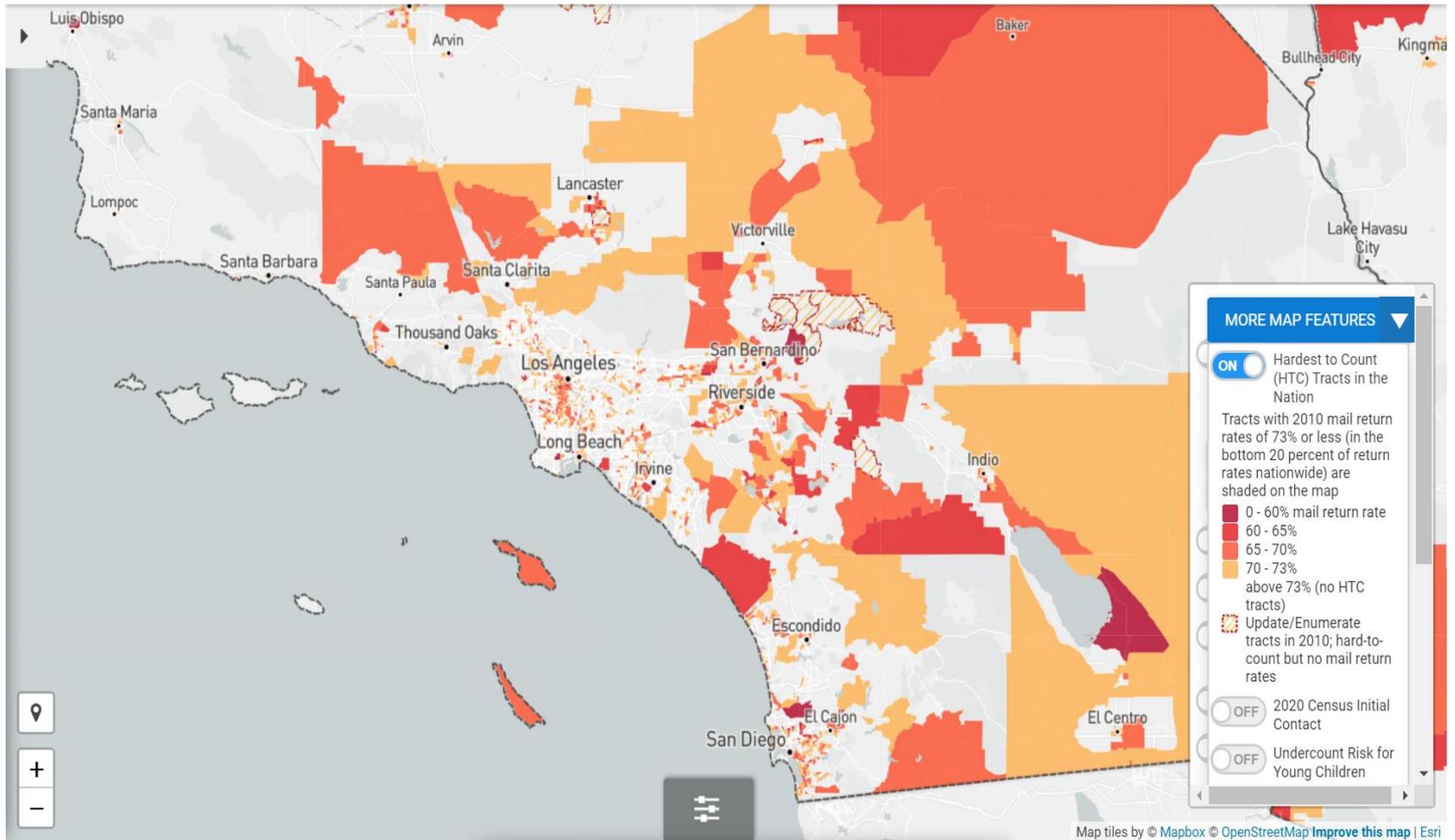
Self-response rates in these areas
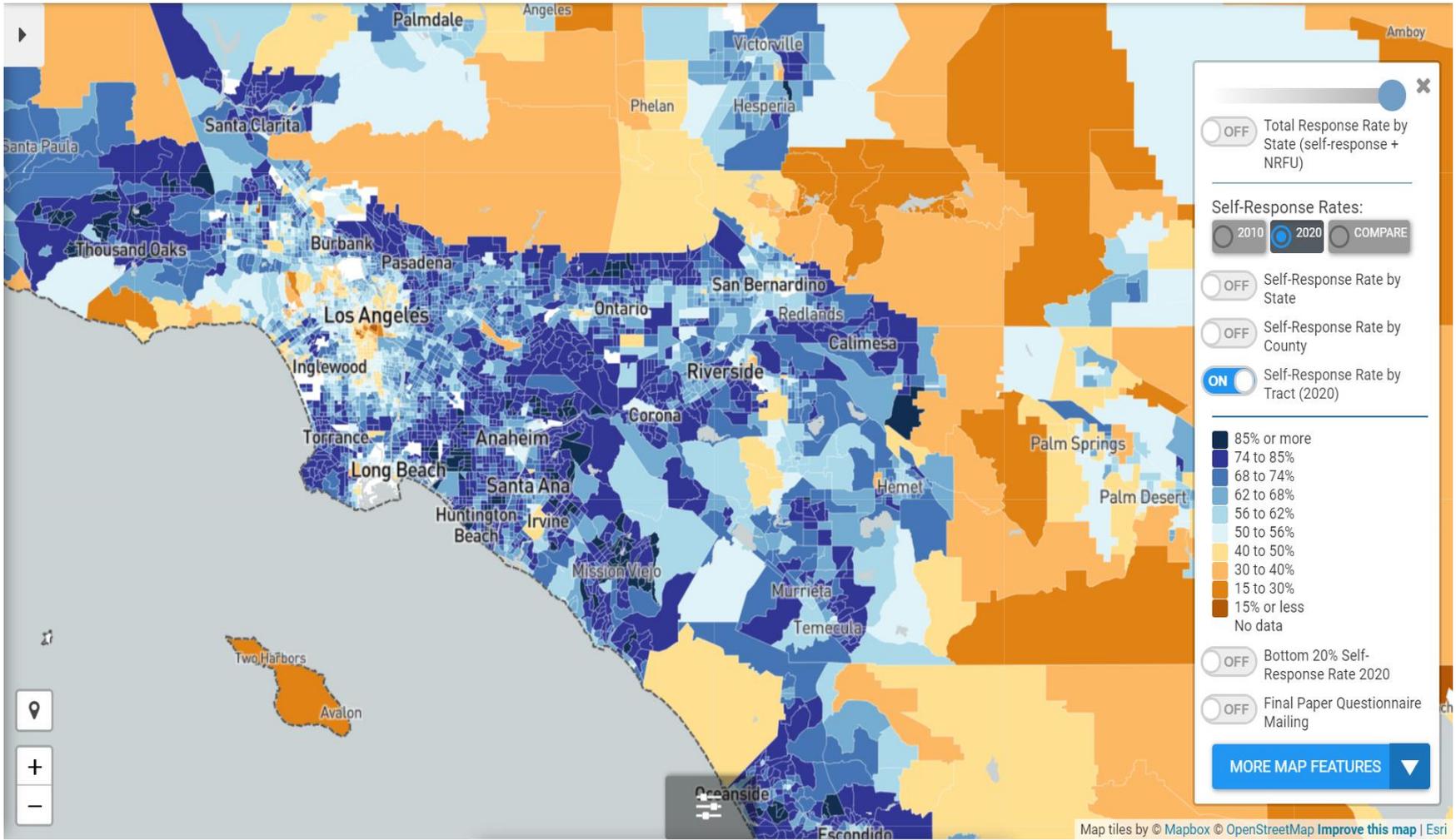
What does the Census ask everyone?

- Basic questions including:
  - Name
  - Age
  - Race
  - Hispanic/Latino/Spanish Origin
  - Sex
  - Relationship
  - Owner/Renter

  - Did <u>NOT</u> ask a Citizenship question

Census Data – P.L. 94-171

- **Mission:** Provide the officers or public bodies having initial responsibility for the legislative apportionment or districting of each State an opportunity to identify the geographic areas for which specific tabulations of population are desired and to deliver those tabulations in a timely manner.

- Identified "geographic areas desired":
  - Census Tabulation Blocks

- Requirements:
  - Conduct the program in a non-partisan manner
  - Ongoing questions about delivery date.

What is in the P.L. 94-171 datafile?

- Final 2018 Prototype P.L. 94-171 Redistricting Data File Design

- Table P1 – Race
- Table P2 – Race for the Population 18 Years and Over
- Table P3 – Hispanic or Latino, and not Hispanic or Latino by Race
- Table P4 – Hispanic or Latino, and not Hispanic or Latino by Race for the Population 18 and Over
- Table H1 – Occupancy Status (Housing)

- <u>New Table:</u>
- Table P5 – Group Quarters Population by Group Quarters Type*

*Group quarters table includes only total population

Equal Population in Practice

	~ 2011 Ideal Population	Total Deviation	% Total Deviation	Deviation Range	Average Deviation	% Average Deviation
Assembly	465,674	9,224	1.981%	-4,573 to 4,651	2,357	0.506%
Senate	931,349	18,489	1.985%	-9,226 to 9,263	4,185	0.449%
Congress	702,905	2	0.000%	-1 to 1	0.66	0.000%
BOE	9,313,489	168,718	1.812%	-93,132 to 75,586	58,709	0.630%

Protecting Privacy in Census data

- Concern about 'reverse engineering' of summary (block level) data to individual responses

- Long history of Laws and Court Action
    - 1952 - 72-year rule – no public release of data for 72 years
    - 1954 – Consolidation of Privacy Laws in Title 13 of US Code: No sharing of census results for non-statistical purposes
    - 1958 - No government access to census data for non-statistical purposes (US vs Bethlehem Steel Corp.)
    - 1976 – Census Director not allowed to grant disclosure exception
    - 1982 – Census address lists are protected confidential information (Baldridge vs Shapiro)

Disclosure Avoidance Methods

- **Previous censuses employed various methods to avoid disclosure of information**
  - Eyeball test: removing information or combining it (~1920)
  - Suppression of whole tables to protect people's privacy in small geographic areas (~1970)
  - Data swapping (~1990)
  - Rounding and different coding techniques (~2000)

- **The internet, big data and new threats**
  - Census results published online (2000)
  - Census evaluates additional ways to safeguard data
  - Combining publicly available data with census data may result in 'reconstruction' of individual data/loss of privacy

What is Differential Privacy?

- A new methodology to safeguard data privacy

- First implementation in Census 2020 PL94-171 dataset

- Will 'inject noise' into the data to prevent individual identification

- Uses mathematical formulas to balance privacy loss and accuracy

- Quantifies 'acceptable risk' (Epsilon at 0 = data completely scrambled)

- After Differential Privacy algorithms are applied, census data go through post-processing adjustments (partial/negative numbers etc.)

- Differential Privacy + Post Processing = 2020 Disclosure Avoidance Methodology

- Census released test datasets (DP for 2010 PL94-171) and asked user groups to provide feedback (National Academy of Science Committee on National Statistics, Workshop Dec 2019, etc.)

- Methodology still being refined based on feedback and internal testing

Large area effects likely minimal
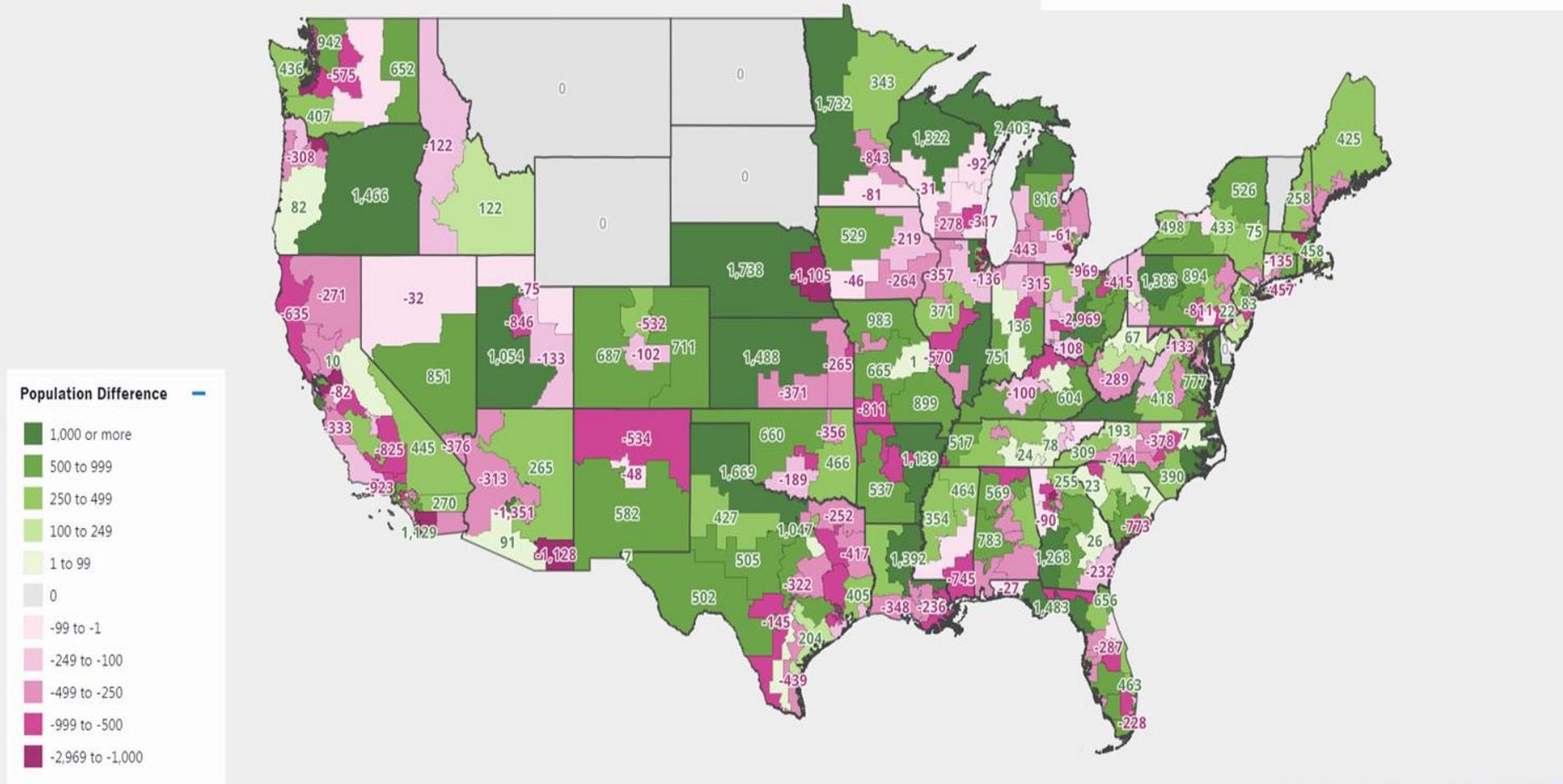
Algorithm introduces a small area bias
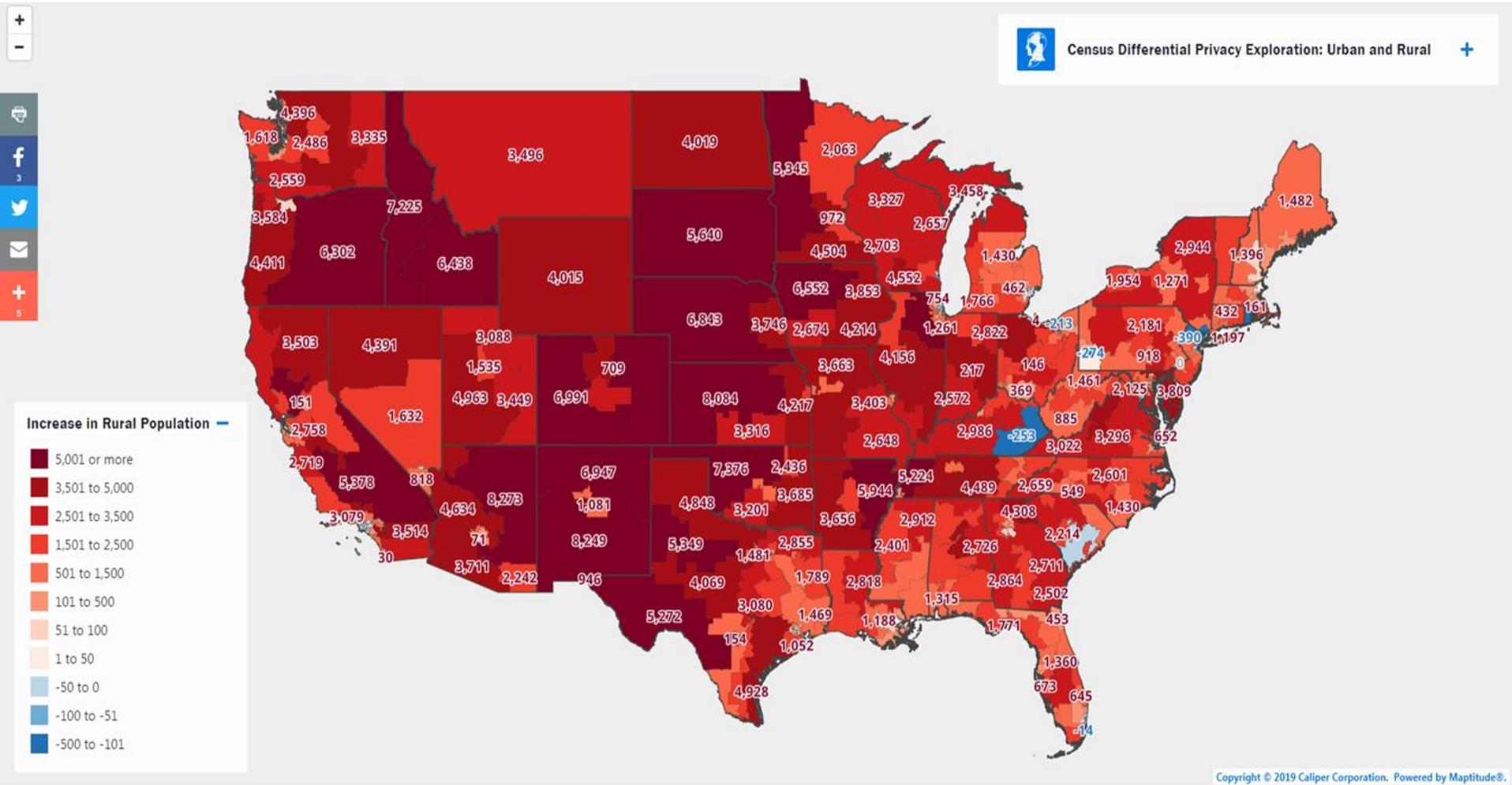
Criterion 2 and The American Community Survey

- Aka ACS
- Replaced the "long form" starting in 2005
- 2010 was the first "short form only" census
- ACS is conducted monthly
- Is released yearly
- Collected data include: educational attainment, income, housing costs, disability status, employment and more
- Collects data on Citizenship
- Releases Citizen Voting Age Population (CVAP)

Back to Friday's CVAP Presentation

- The Census has published a 'special tabulation' for Citizen Voting Age Population since 2011

- This dataset is based on the 5-year data collection of the American Community Survey (ACS)

- This dataset has been used for Voting Rights Assessments and Compliance since 2011

- Following are 2 slides that show how California's Citizen Voting Age Population has changed over time

Citizen Voting Age Population Trends

	05-'09	06-'10	07-'11	08-'12	09-'13	10-'14	11-'15	12-'16	13-'17	14-'18	15-'19
Black	7.5%	7.4%	7.4%	7.3%	7.3%	7.2%	7.2%	7.2%	7.1%	7.1%	
API	12.3%	13.1%	13.3%	13.5%	13.7%	14.0%	14.2%	14.4%	14.7%	14.8%	
Latino	23.3%	24.2%	24.9%	25.6%	26.3%	26.9%	27.5%	28.0%	28.7%	29.2%	
White	55.4%	53.8%	52.9%	52.1%	51.2%	50.4%	49.6%	48.9%	48.0%	47.3%	

Available Feb '21

White ■ Latino ■ API ■ Black ■ Other
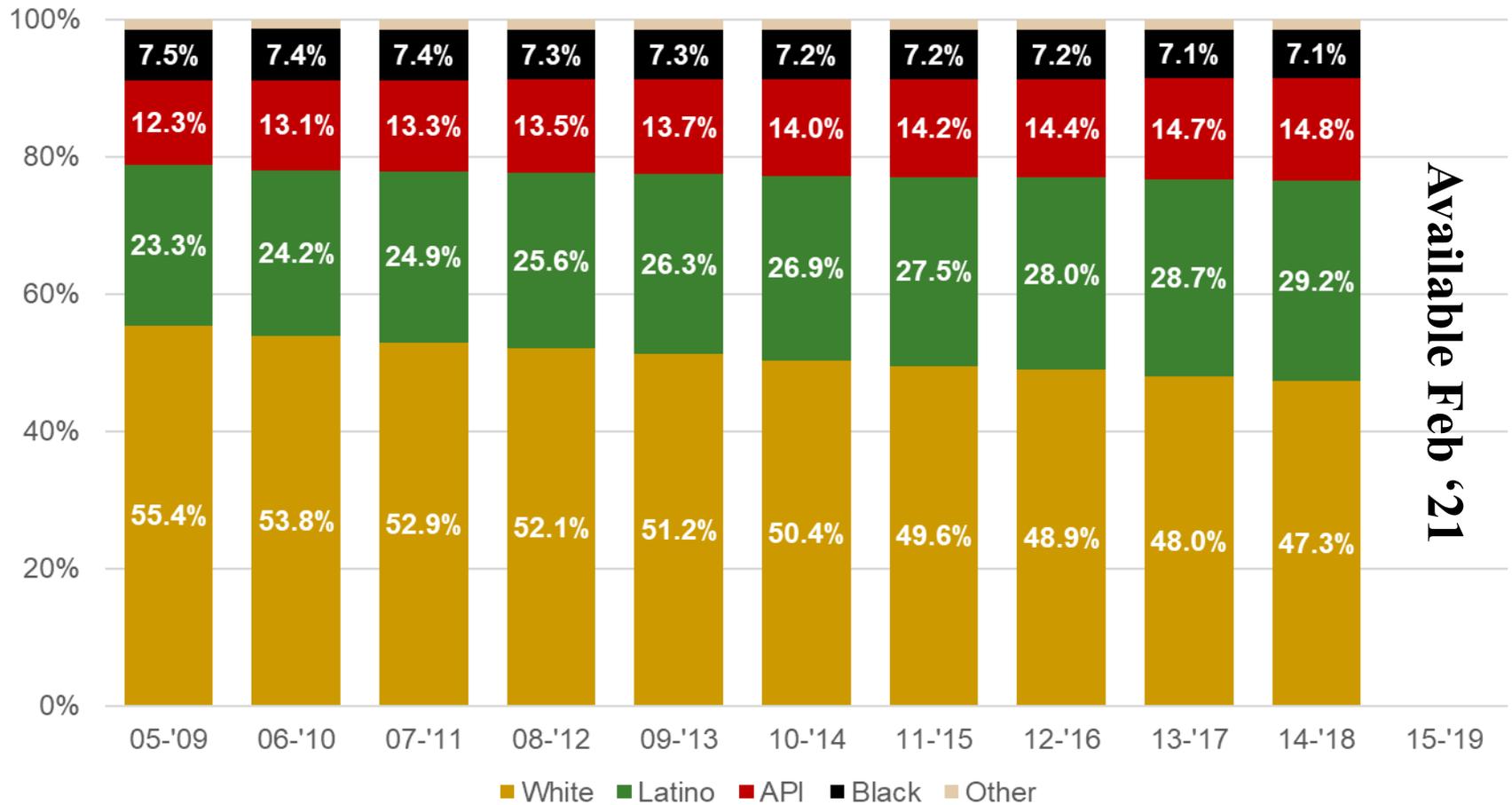
Latino Majority CVAP

AD	When Drawn	'14-'18 ACS	Change
30	44.0%	51.0%	+7.0%
31	50.8%	58.0%	+7.2%
32	46.3%	57.9%	+11.6%
39	52.0%	57.1%	+5.1%
47	52.3%	63.1%	+10.8%
48	51.4%	57.3%	+5.9%
51	59.5%	58.7%	-0.9%
52	50.6%	59.3%	+8.7%
53	50.6%	51.2%	+0.6%
56	50.4%	62.5%	+12.1%
57	57.0%	62.2%	+5.2%
58	56.1%	62.0%	+5.9%
59	50.0%	60.7%	+10.7%
63	57.8%	65.4%	+7.6%
64	39.9%	51.0%	+11.1%
69	52.6%	59.3%	+6.7%
80	50.8%	58.5%	+7.7%

SD	When Drawn	'14-'18 ACS	Change
12	42.9%	52.4%	+9.5%
14	50.5%	60.5%	+10.0%
20	51.4%	61.2%	+9.8%
24	51.6%	52.3%	+0.7%
32	50.3%	56.0%	+5.7%
33	50.6%	57.9%	+7.4%
40	45.9%	54.5%	+8.6%

CD	When Drawn	'14-'18 ACS	Change
21	49.3%	60.7%	+11.4%
29	50.7%	56.4%	+5.7%
32	50.2%	55.1%	+4.9%
34	50.3%	50.3%	0.0%
35	51.9%	61.9%	+10.0%
38	51.5%	56.2%	+4.7%
40	73.5%	79.9%	+6.4%
44	49.1%	58.4%	+9.4%
51	51.0%	60.5%	+9.5%

FVRA and Mapping Data

2011 Assembly Districts
Latino CVAP +50%
Asian CVAP +50%
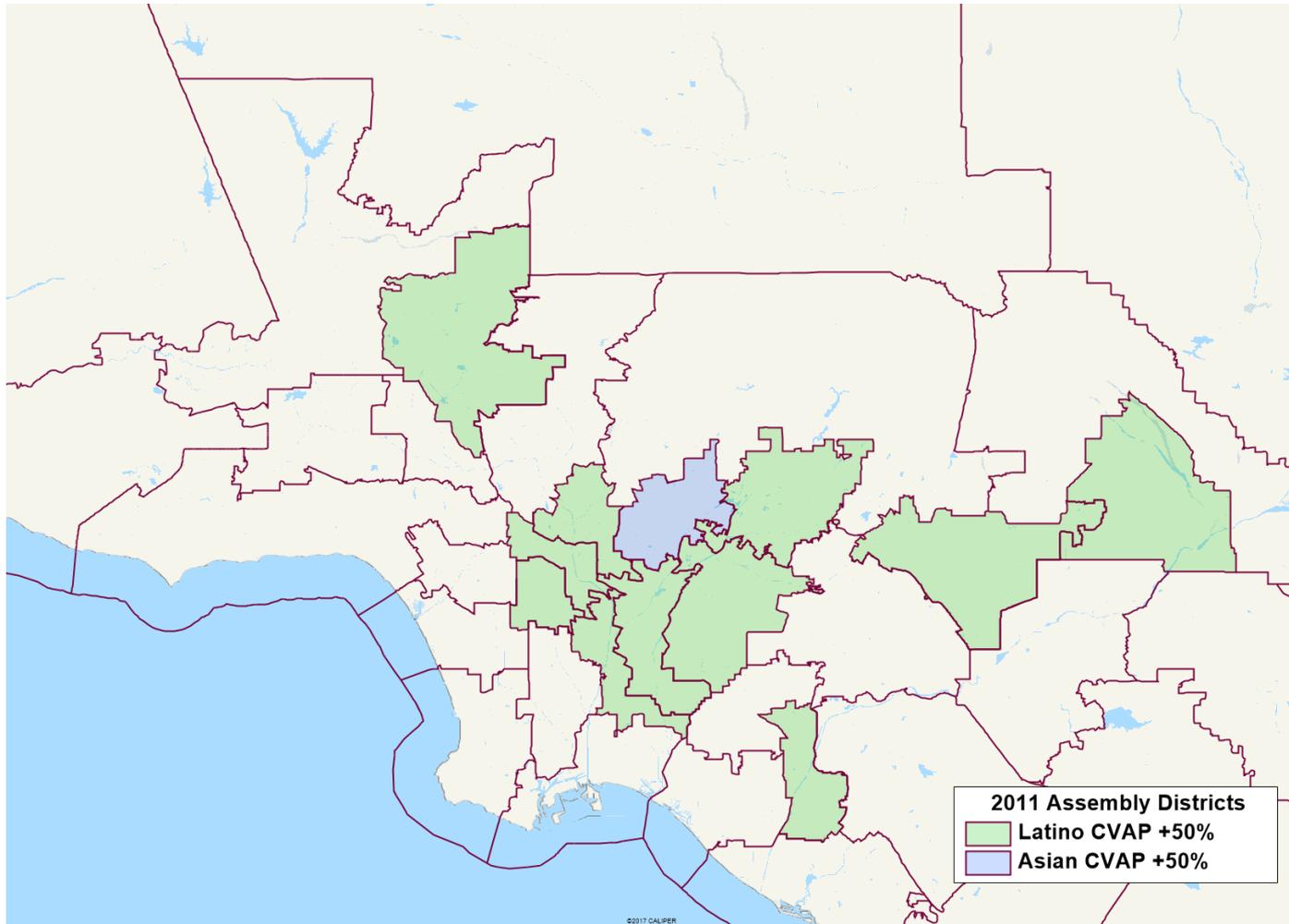
Using ACS CVAP Data to get started

Assembly, Senate, or Congressional District with
Lat or API CVAP +45% ('14-'18)

ACS CVAP versus Post 2020 CVAP

- Post 2020 CVAP is "expecting" to use and evaluating data from federal administrative record sources including

  - Social Security Administration
  - Internal Revenue Service
  - Centers for Medicare and Medicaid Services
  - Department of Housing and Urban Development
  - Department of Homeland Security
  - Department of State
  - Indian Health Services
  - Department of Justice, and Bureau of Justice Statistics

  In addition to state and local records <u>when available</u> including

  - Temporary Assistance for Needy Families
  - Low-Income Home Energy Assistance Program
 - State Driver's Licenses

More about the ACS

- The ACS is not a "count" of the population
- It produces estimates that are comparable for geographies recognized by the Census bureau
- Also described as a "portrait" of the population
- 5-year ACS estimates are released yearly for small geographies
- 3-year estimates are released for larger geographies
- ACS data are NOT released on the census block level

Census Geography

Nation

States

ZCTAs™
CDs
UGAs
School Districts
VTDs
Counties
County Subdivisions
Subbarrios
TAZs
Census Tracts
Places
ANRCs
SLDs
UAs
CBSAs
AIANNHs
AITSs
BGs
Blocks
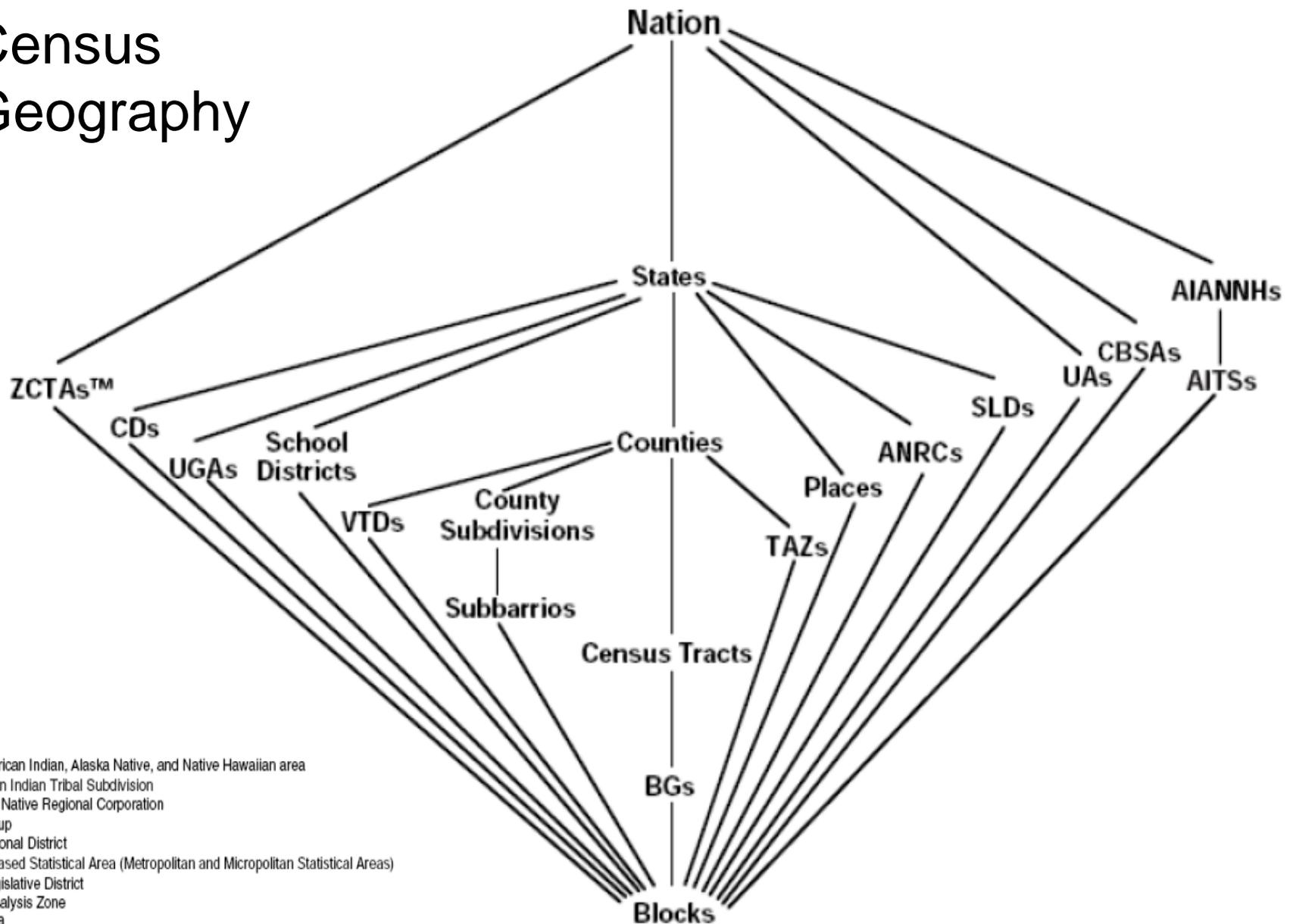
AIANNH: American Indian, Alaska Native, and Native Hawaiian area
AITS: American Indian Tribal Subdivision
ANRC: Alaska Native Regional Corporation
BG: Block Group
CD: Congressional District
CBSA: Core Based Statistical Area (Metropolitan and Micropolitan Statistical Areas)
SLD: State Legislative District
TAZ: Traffic Analysis Zone
UA: Urban Area
UGA: Urban Growth Area
VTD: Voting District
ZCTA™: ZIP Code Tabulation Area

Small area Census geography

Legend:
- Census Block
- Census Block Group
- Census Tract

0 .15 .3
Miles
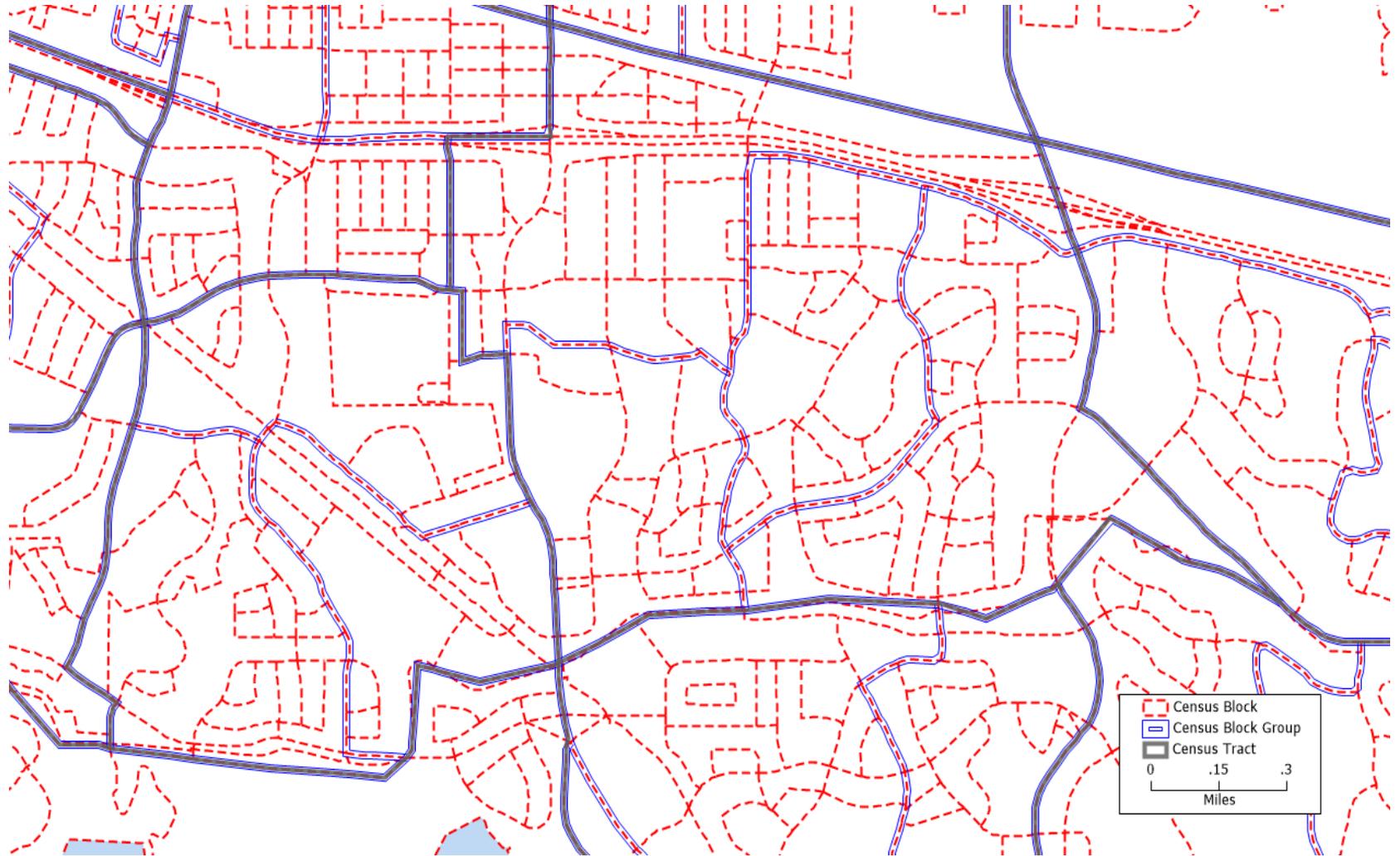
Census Geography by the numbers:

- In California's 58 counties, the Census of 2010 delineated:

  - 8,057 census tracts,
 - 23,212 census block groups
  - 710,144 census blocks

Criterion 2 and Election Data

- Necessary for FVRA assessment and compliance
- Used along with P.L.94-171 data and ACS
- Consist of two datasets:
  - SOR: Statement of Registration
  - SOV: Statement of Vote
- Collected by Registrars of Voters and Secretary of State
- SOR: Individual level dataset
- SOV: Precinct level dataset

A note about geographies

- The datasets we have discussed are released on different geographies:
  - Census blocks (smallest)
  - Census block groups and tracts
  - Election precincts
- Census geography:
  - Maintained by Census bureau
  - Stays constant for 10 years
- Precinct geography:
  - Maintained by 58 Registrars of Voters
  - Organizing units to conduct elections and release results
  - Change frequently - often with each election

Election Precincts versus Census Blocks

Census Block boundary

Precinct boundary
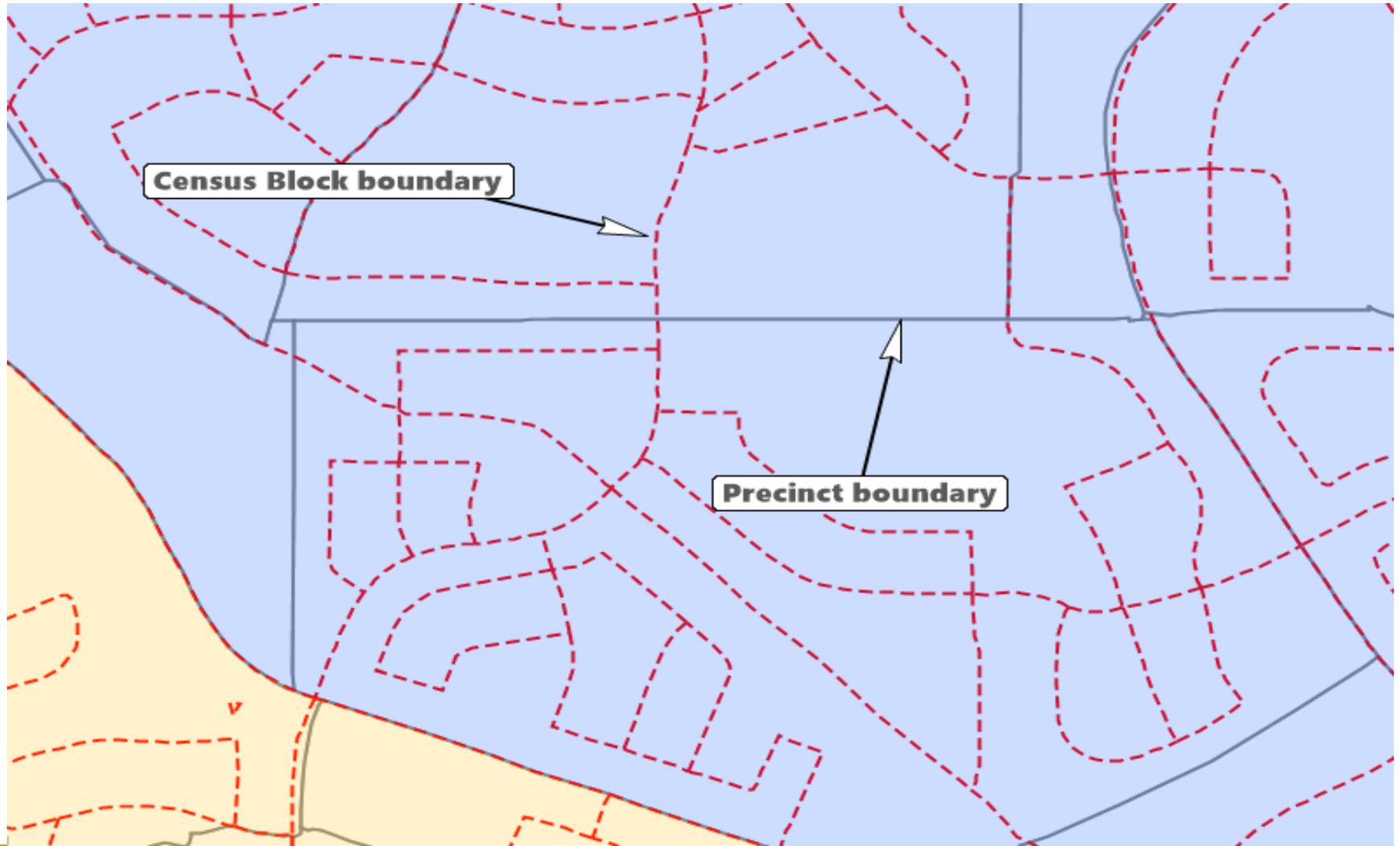
Census Blocks versus Election Precincts

Census Block Split Among Three Precincts
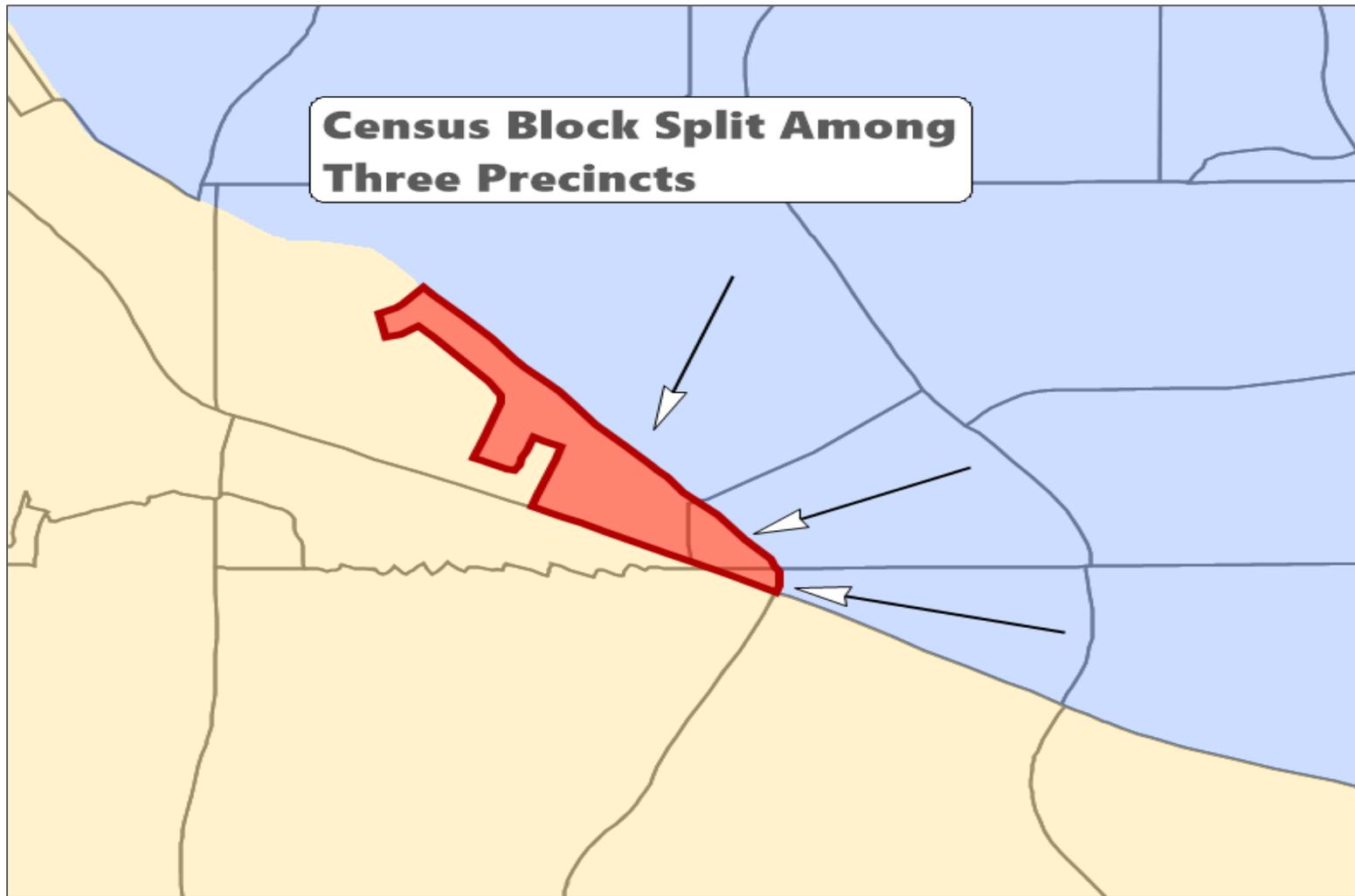
What is a Redistricting Database?

- A Redistricting Database solves the problem of conflicting, frequently changing geographies

- It contains various datasets, merges them and releases them on the census block level

- It typically contains:

- Census Data

- American Community Survey Data (CVAP)

- Statement of Vote Data

- Statement of Registration Data

Redistricting Data for California

- Government Code Section 8253:

➤ (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

➤ That function is provided by the Statewide Database

The Statewide Database

- The Redistricting Database for the State of California

- Part of Berkeley Law on the UC Berkeley campus

- Longitudinal dataset (back to 1992)

- Public, non-partisan, free-of-charge

- Available in different formats

- Provides data and geography for the entire State of California

https://statewidedatabase.org - Our Data:

- Census – Pl94-171

- Statement of Vote from statewide elections

- Statement of Registration from statewide elections

- American Community Survey: Citizen Voting Age Population (CVAP)

- Precinct data and geography

- Each year ending with 1: A redistricting dataset containing new census data and multiple elections on the census block level

Reallocation of Inmate Data for Census 2020

- **AB420(Davis) and AB2172(Weber)**
- ➢ Require the California Department of Corrections and Rehabilitation (CDCR) to provide a dataset to the Citizen Redistricting Commission (CRC) and the Legislature between April 1, 2020, and July 1, 2020 regarding the last known place of residence of each inmate in a facility under the control of the CDCR on April 1, 2020.
- ➢ Requires CDCR to provide information about the ethnicity, as identified by the inmate, and any information about the race of the inmate to the extent such information is maintained by CDCR.

Reallocation Data project cont.

➢ Requires the Legislature, in coordination with the CRC, to ensure that the information provided by CDCR is included in the computerized database that is used for redistricting.

➢ Requests the CRC to deem each incarcerated person as residing at his or her most recent residential address, rather than at the institution of his or her incarceration

CA Election Code Sec 21003 – detail

- If inmate's last known place of residence is outside California or cannot be determined, or inmate is in federal custody in a facility within CA then deem to reside at an unknown geographical location in the state and exclude the inmate from the population count for any district, ward, or precinct.

- Adjust race and ethnicity data in districts, wards, precincts that contain prisons to reflect reductions in the local population and, to the extent practicable, those deemed to reside at an unknown geographic location.

- If address not specific enough to assign to census block, then allocate to a randomly determined census block located within the smallest geographical area that can be identified

What does this mean?

- **1. California will be adjusting the data it receives from the Census**
  - i.e. the PL94-171 Total Population, Race and Ethnicity Counts will be adjusted such that Inmates under the control of the CDRC on Census Day (in group quarters) are reallocated to their last known residential address

- **2. The Citizen Redistricting Commission must consider whether to use the adjusted dataset for redistricting**

- **3. Explain to the public why the redistricting data for California may be slightly different from the PL94-171 data as released by the census.**

- **4. Made more complicated by the application of differential privacy methods**

Data and Timeline

20X0 ——————————————— 20X1 ———————

| Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |

2011 Commission

CRC Formed 12/15 · PL94 Released 3/8 · SWDB Released 4/13 · Map Deadline 8/15
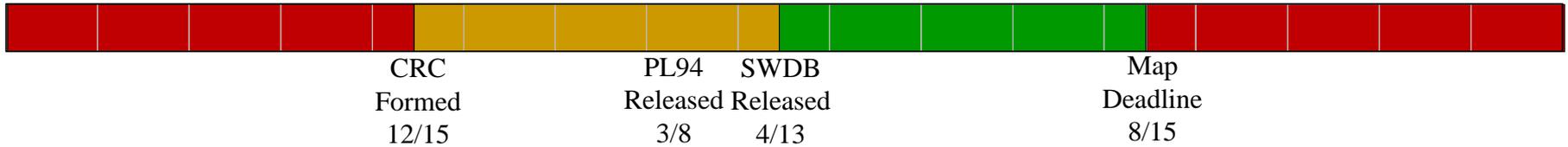
2021 Commission (Original)

CRC Formed 8/7 · PL94 Deadline 4/1 · SWDB Estimate 5/1 · Map Deadline 8/15
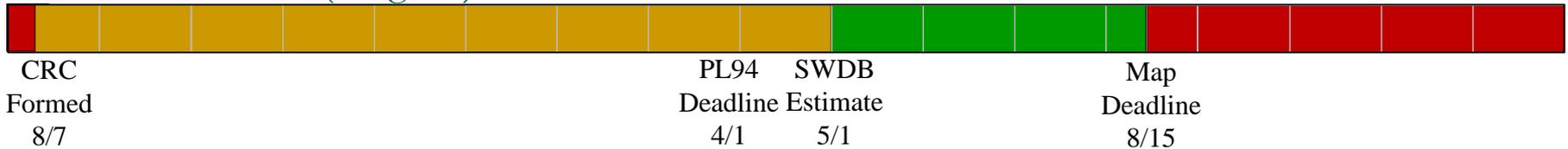
2021 Commission (Extended Census + Court)

CRC Formed 8/7 · PL94 Deadline 7/31 · SWDB Estimate 8/30 · Map Deadline 12/15
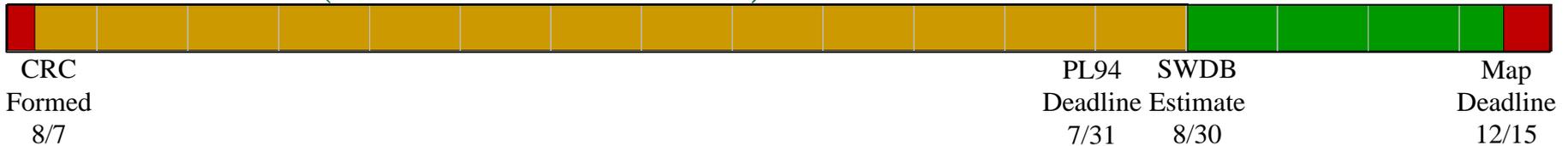
2021 Commission (Shortened Census + Court)

CRC Formed 8/7 · PL94 Deadline 4/1 · SWDB Estimate 5/1 · *If PL94 before 7/31 CRC, "should make every effort to expedite its process"* · Map Deadline 12/15
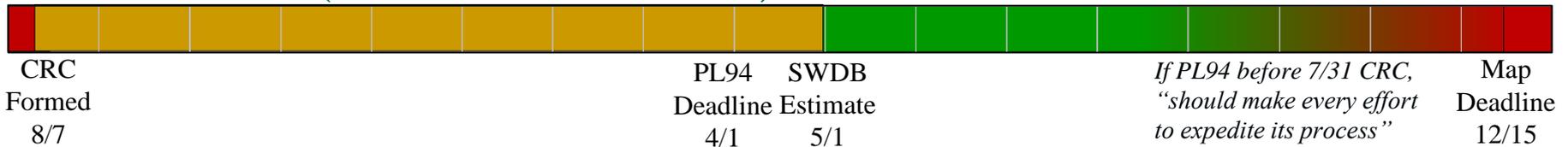
Criterion 3: Contiguity

- (3) Districts shall be geographically contiguous.

- 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

- Census geography is used to meet this criterion

Criterion 3: Contiguity (Islands)
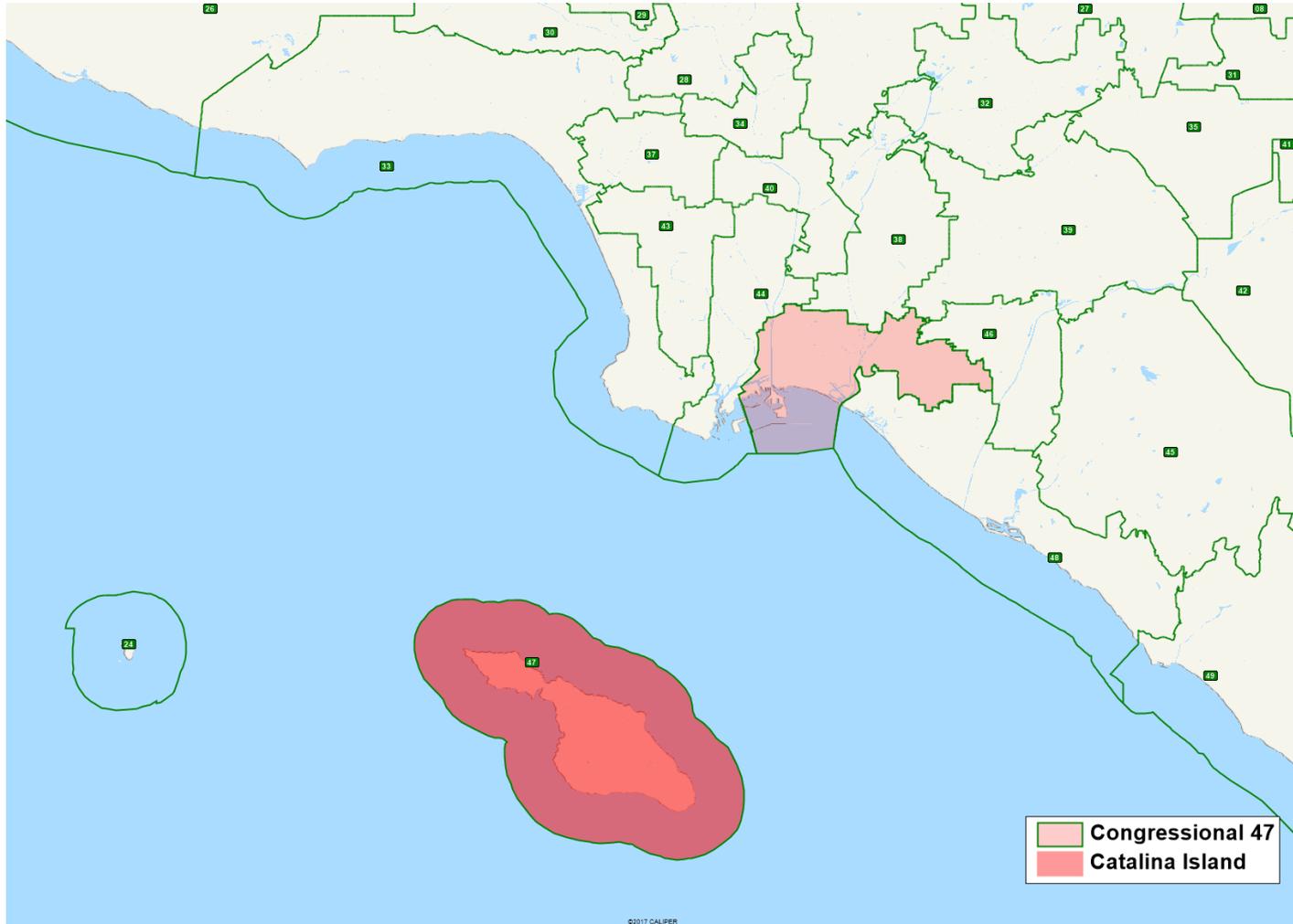
Criterion 3: Contiguity (Bridge)

Senate 39
Coronado
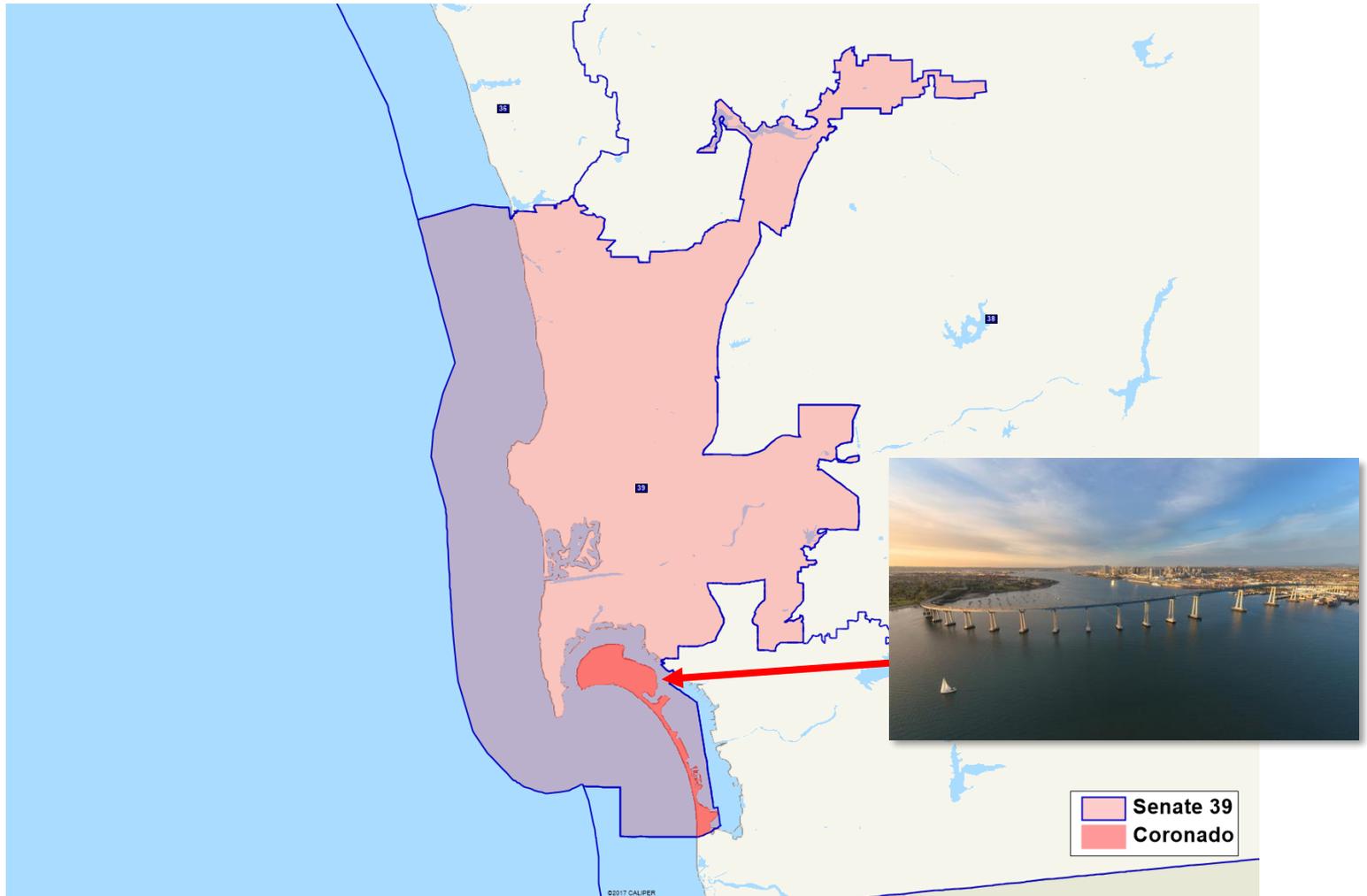
Criterion 3: Contiguity (Island and Bridge)
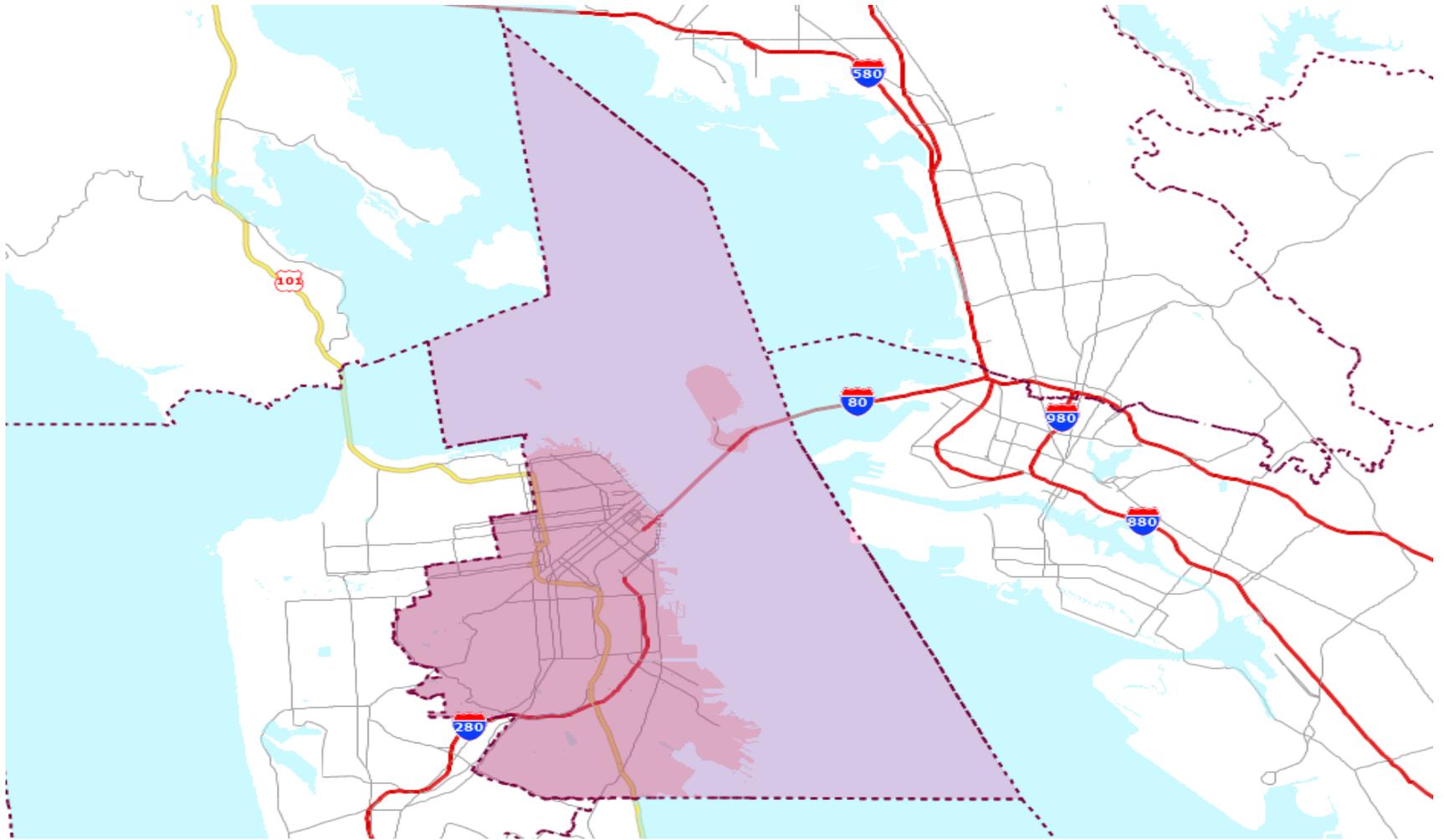
Criterion 4: Local jurisdictions & Communities

- Data on County and City boundaries <u>are</u> part of the SWDB but data on communities of interest <u>are not</u>.

- Neighborhood Data and Boundaries?
  - ➢ Not readily available and need to be collected
  - ➢ Will rely on Public testimony, Data/ Geography submitted by Public, Cities, etc.

- Communities of Interest?
  - ➢ Not readily available and need to be collected
  - ➢ Public testimony, Data/ Geography submitted by Public, local officials; data sources.

Neighborhoods, Communities and Public Input

- Government Code Section 8253:

➢ The commission shall establish and implement an open hearing process for public input and deliberation that shall be subject to public notice and promoted through a thorough outreach program to solicit broad public participation in the redistricting public review process

Communities of Interest: what are they?

- California Constitution Article 21 provides definitions and some examples:

➢ 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.

How to define Communities of Interest

- Through a public input process that solicits information from those that live or work in the community

- Request oral or written testimony about the community

- Ask the public for input on:
  - What bonds the community/what is the commonality?
  - Where is the community located? What are its borders
  - Why should it stay together?

A note about Communities of Interest

- They may or may not be supported by quantitative data, such as Census or American Community Survey (ACS) data (and don't need to be)

- There may be conflicting information about a Community of Interest

- They can vary in size and range from small to large

- They can have a 'current' interest or a 'goal' to binds them

- Neighborhoods and Communities of Interest are part of the same Criterion (4) and are <u>not ranked</u> within the Criterion; i.e. they hold the same weight as Cities and Counties.

- The law does not limit the kinds of interests that bind a community (exception: no political parties, candidates or incumbents, please!)

Communities of Interest: Examples

- Economic interests:
  - Current situation -- common employment or economic opportunities (or lack thereof).
  - Goals -- expanding opportunities, development, bringing in businesses and jobs, etc.
- Social interests:
  - Current -- schools, culture, transportation, parks
  - Goals -- improving recreation opportunities or public safety, etc.

Community of Interest Examples cont.

- Foothill counties sharing the same watershed
- Communities organizing around a historic neighborhood
- Cities with a shared transportation corridor
- Cities with a commonality of economic interests
- Areas with a high non-English speaking cultural community
- Organized neighborhoods with an active group
- Communities organizing around economic development
- Coastal communities working to fight off-shore drilling

Where is L.A.'s Koreatown?

Legend:
- Wilshire Center-Koreatown Neighborhood Council boundaries
- Los Angeles Time *Mapping LA* Project boundaries
- City of Los Angeles & Google Maps boundaries
- Los Angeles Wilshire Community Plan boundaries
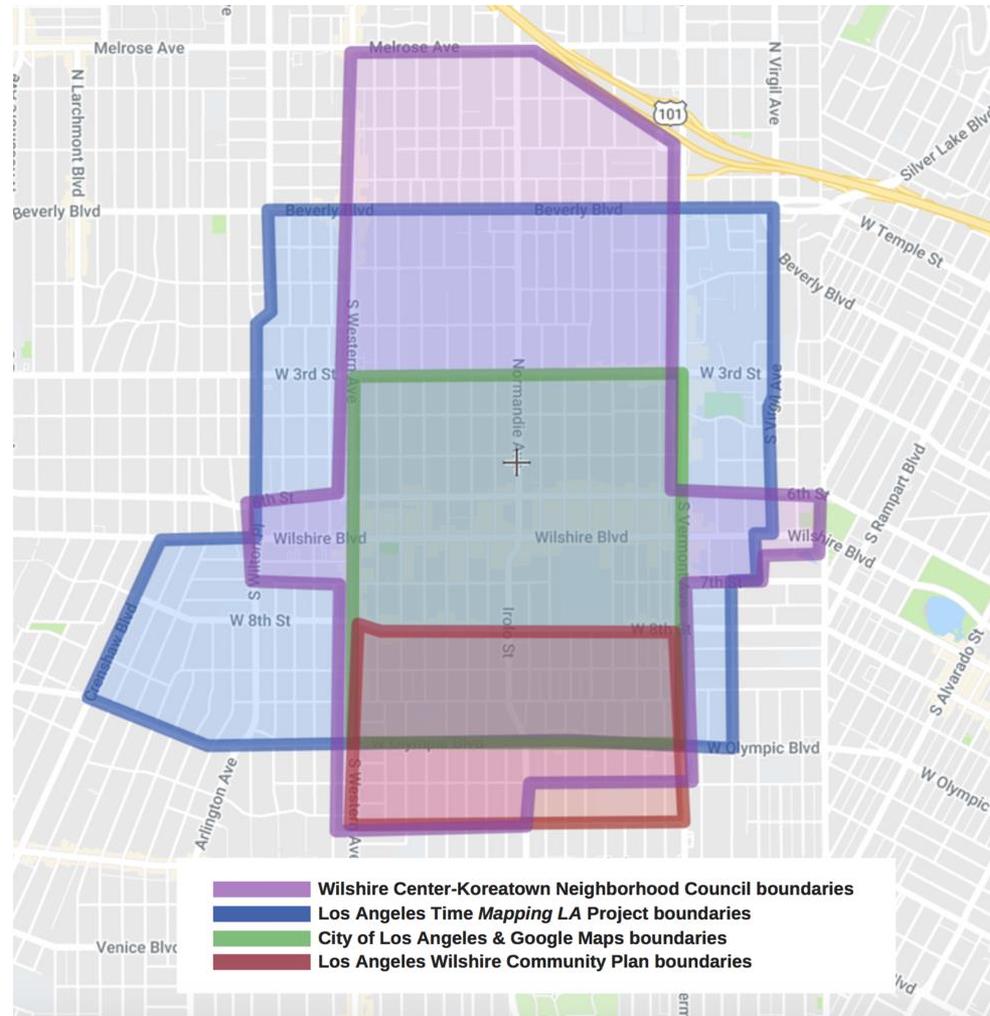
https://commons.wikimedia.org/wiki/File:Visual_depiction_of_Koreatown_boundaries_according_to_different_sources.png

Criterion 5: Compactness

- (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.

- Census Geography and Population are used to measure this criterion

Criterion 5: Compactness

- Addresses the geography of the district

- Assumed to "guard against all types of gerrymandering" "drastic departures from compactness are a signal that something may be amiss"

- There are hundreds of measures that have been developed to measure compactness; note: CA has a definition

- Courts have used the "eyeball approach" and said that "appearances do matter"

Criterion 5: Compactness

- It can be difficult to create a compact district
- There may be trade-offs with other criteria, i.e. Cities may not be compact but are part of a higher ranked criterion
- It can be difficult to ascertain whether a district is non compact without having more information
- Nesting two compact Assembly districts may result in a non-compact Senate district

Is this compact?
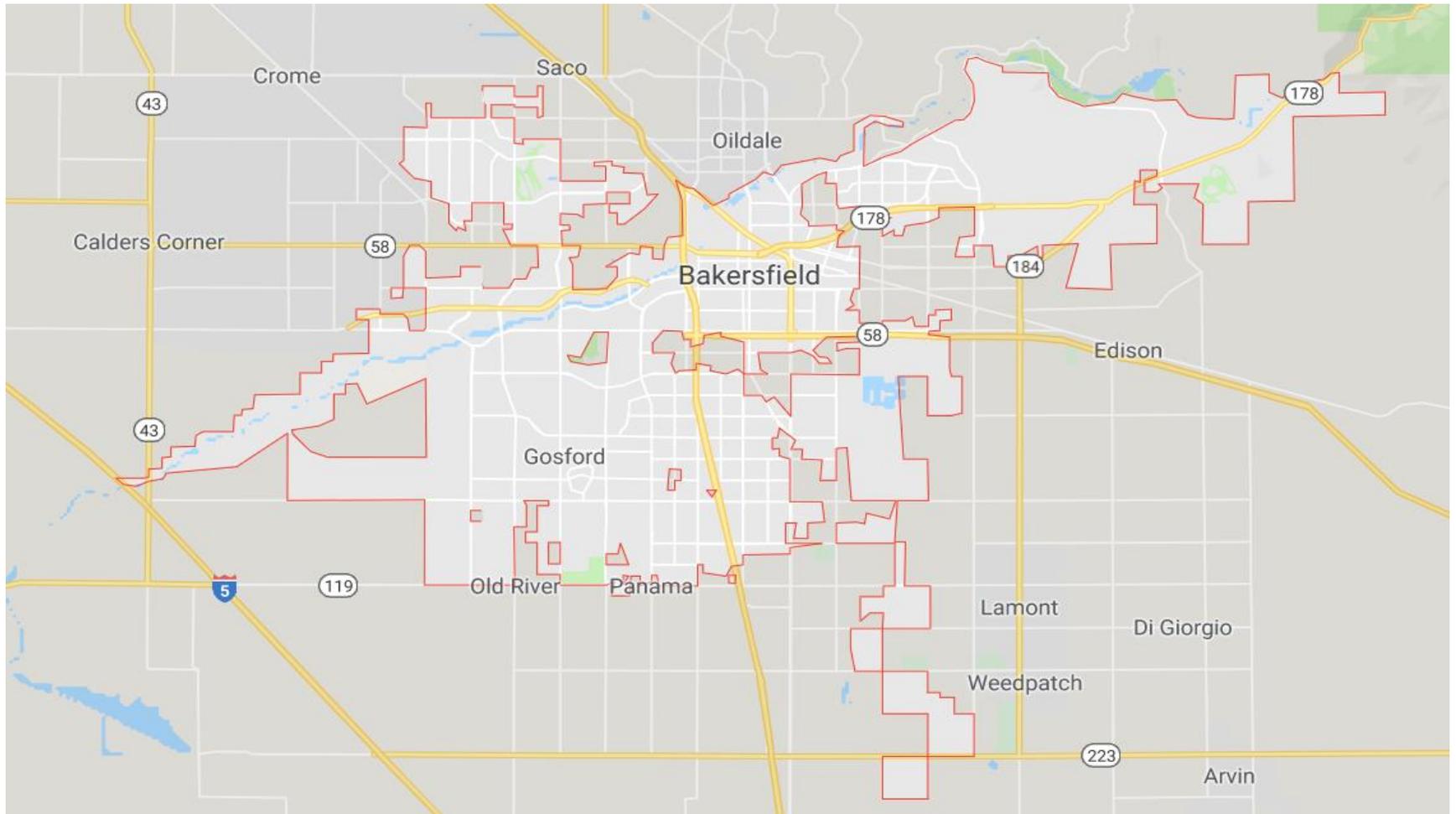
Compactness and the resolution of complex problems

Lessons learned from research:

Criteria Interaction effects on Compactness

- Majority/Minority Seats
- Preserving City and County Boundaries
- Respecting Communities of Interest

Criterion 6: Nesting

- (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.

- The newly created districts are used for this criterion

- It is the lowest ranked criterion

Nesting in Research

- Trade-offs with other criteria

- Constrains line drawing process

- May 'double a wrong' if Assembly Districts did not meet the needs of a community

  - City Splits

  - Community of Interest Splits

- Compactness

Nesting in Practice

2011 Senate Districts
Not Nested
Nested
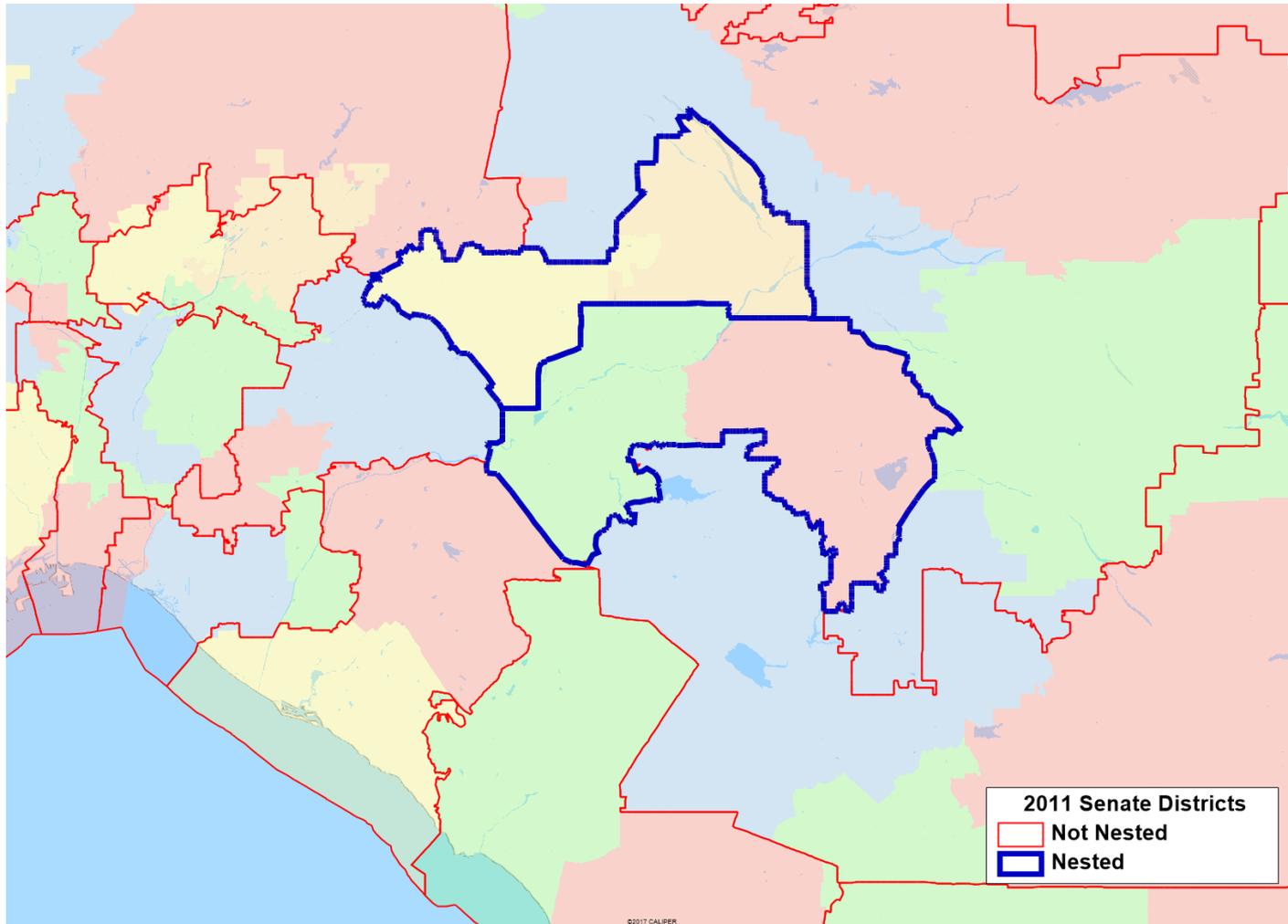
What's next?

- Line drawing and illustration of criteria implementation

THANK YOU!