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- History of the Census and PL94-171
 - Public Law 171 of the 94th Congress, 1975
 - Required the Census Bureau to provide census results for the geography that the states wanted.
 - Election precincts; county subdivisions; census blocks
 - Due to the short time before the 1980 Census only a handful of states saw full implementation
 - But, this did start the Bureau on the road to preparing for the modern census in 1990

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- PL94 DATASETS: A BRIEF HISTORY

- 1980: Population only (no Voting Age) for five races: White, Black, Am. Indian, Asian & Pacific Islander, Other, and Spanish Origin
- 1990: Same five race breaks, but with Hispanic Origin and cross group breakouts, similar to today's P1-P4 tables, including by Voting Age
- 2000: Six race breaks (Pacific Islander separated); ability to check multiple race categories new; this increased the variables to about 70 in each of the four tables; long form questions migrated to the ACS for which first data was released mid 2000s

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- 2010: Occupancy status for housing units new; otherwise, same as 2000
- 2020: Group quarters population new; otherwise, same as 2010 data structure; differential privacy replaced former privacy methods such as swapping, topcoding, or rounding
- 2030: Possibly seven race breaks with Middle Eastern/North African (MENA); possible combined Race/Hispanic Origin question

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- PHASES/RESOURCES OF REDISTRICTING:

- *TIGER Line files:*

- the standard for geographic encoding since the 1990 Census; these are available during the decade

- *BBSP; Block Boundary Suggestion Project:*

- an ongoing phase whereby states develop the geography used for the delivery of the PL94 data, especially blocks

- *VTDs; Voting Districts, aka election precincts:*

- built, by you, from census blocks;
- frozen for pre-census elections (2028-2030)

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- *PL94 Data; Two formats/timeframe for delivery:*
 - Legacy format, i.e., does require some basic database development which is not an issue for most data developers or GIS software engineers; available first
 - Public format, i.e., a user-friendly way of reviewing select data; available a bit later?
 - Users should consider what data variables, from the hundreds of breakouts available, will be used in your state
 - The complete datasets can be quite large for states with several hundred thousand

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census blocks even before they are merged with whatever data you have already

- Several options for which race numbers may be used, from lowest to highest:
 - Black Alone: single race
 - DOJ Black: Non-Hispanic Black + Non-Hispanic White/Black (avoids double counting and adds to 100%)
 - Black Combined: Black Alone plus All Black Multi responses (Any Part Black)

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- *Election Results: Assuming you can use these for some purposes; what should you include?*
 - Which election years
 - Which offices: statewide, congressional, legislative; local
 - Which types; primary, general, runoff, special
- *Precinct geography: needed to account for changes in precincts so that census data can match election results over time*
 - Who makes these precinct changes?
 - Is there a central repository?
 - Can you get access during the decade?

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- *Population Estimates Program; Census Bureau releases annual estimates of total population throughout the decade*
 - Generally, for county equivalents for all states; for county subdivisions in about half of the states; for selected places in most states
- *Other geographic layers; other ways to look at the census data*
 - includes overlays of data arrayed geographically such as aerial photos, or layers showing terrain, land use, or tax parcels.

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○ *Other demographic layers: ACS and CVAP*

- The American Community Survey and the “Citizen Voting Age Population by Race and Ethnicity - A Special Tabulation from the ACS 5-Year Estimates” both provide additional demographics that could be useful data but both are time lagged as they are ACS data
- Both are available from the Bureau but late and not by census block; estimates might be made by census block

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- *Incumbent residence addresses; if you are allowed to use such information;*
 - these can be tricky to collect, and to keep current; be sure it is the incumbent's home and not the campaign office
 - if privacy considerations exist, an alternative is to place the address by hand in some block in the middle of the VTD in which they reside; but flag it if this is the case to check if that VTD is split by a district line

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- *GIS software: a critical choice to ponder sometime before the 2030 Census*
 - this allows someone to become familiar with it using the 2020 data and then adding other data (pop estimates) as the decade continues
- *Computer Support: not much of an issue today*
 - while most GIS software can run on a mid-level computer, it is best to have at least one workstation-level machine which can be the main source of your redistricting system
 - consider RAID disk systems for redundancy

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- have at least one large format printer, or have a service locally for presentation size maps
- *Office/Staff*: best model to be prepared for the actual line drawing is to have at least a minimal number of staffers for each chamber or caucus to monitor the process and issues over the decade;
 - Census preparation is a decade long process for the Bureau; states should prepare as well
 - Such staff can work on the various phases of the PL94 program which will help minimize errors, especially geographic ones, once the data are released.

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- *Line Drawing*: keeping track of dozens, if not hundreds, of plans can be tricky enough but a standard naming convention will help during the process and after the fact, especially if there is litigation or your public records requirements are stringent;
 - best to keep names clean and simple, perhaps by the proposer or drafter and the date; or,
 - assign a unique code or number
 - use your GIS software utilities to check for unassigned areas; be consistent with water blocks

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- double check the range of deviations; a district may have slipped beyond your acceptable range by minor or inadvertent changes
- as you get into the process stop and review all the criteria at some point to refresh your recollection
- keep track of a few metrics for various plans to monitor progress on which plans best meet the goals of the criteria
- backup basic data in a systematic fashion

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- *Final Website*: remember to collect all final maps and reports on a page that will survive the decade; some states now have a permanent site that includes information (though not necessarily data) about several previous rounds of redistricting
 - This includes an additional designation other than the working title through the process; e.g., with an operative keyword such as ENACTED, ADOPTED, or APPROVED, that reflects the status of the map as the one to be used in, at least, the upcoming election

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- Special care needs to be taken when a court is the final decider as the official version and “report” will likely be on the court site and they may simply choose one map from several discussed in the process, e.g., Smith Illustrative 1, or Master 3; have a handy link on the state site to the court site indicating the appropriate documents
- If your state is a reallocation (RA) state, be sure to include a summary of the development process and the data adjusted for redistricting;

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these would facilitate review or use by others and are part of the permanent record

- This varies by state; best practice is to have one record per census block with, at least, the adjusted data; other layers, e.g., county, VTD, would facilitate use of the data in a GIS system

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○ *Final maps; should include:*

- at least one statewide overview that need not be very detailed aside from the district number, possibly with the county lines in the background, and possibly with some inset pages for metro areas
 - **these should be PDF files which can be easily downloaded and printed on most printers**
 - other maps, poster-sized or district map books are fine but not fundamental
- a summary of population and deviation

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- *Plan Geography*: to allow users to easily and accurately view or create a copy of each plan in their own software there are two basic options:
 - an ESRI-compatible Shape File (SHP) is a handy means for others to easily see the boundaries without specialized GIS software
 - but, be sure of exactly what non-geographic data you export with a SHP file; total population is a good basic item but you should be sure of what other items are included by default; ID is not always the district number

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- a Block Equivalency File, (BEQ) aka a Block Assignment File (BAF); these have a record for each census block with only the block GEOID and the DISTRICT to which it is assigned; these should be a text file with a comma separating the two fields
- for either of these types of geography file
 - if your state uses a district identifier other than numeric, include a table that matches the DISTRICT in the BAF to the full name
 - if your state has discordant district magnitudes, i.e., not all districts elect the

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same number of members, include a table that details this

- alternatively, such information can be included in the export file with a little extra work but best to have it separate
- however, avoid burdening the essential data with some items, i.e., do not include polygon coordinates which will balloon the size of the file beyond emailable size

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- BEQs/BAFs are preferred over SHP files for their increased accuracy
 - numerous slivers, land, water, or roads, are sometimes misassigned in the spatial transformation undertaken by GIS software to recreate a plan from a SHP file
 - in addition, BAFs can be used for census analysis in database programs without any GIS system
 - moreover, BAFs indicate the actual geography assigned without regard to the source of the geographic precision

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○ *Reallocation States, the 2020 experience:*

- There were fourteen states that adjusted the federal census data for implementation of their state policy initiatives; thirteen of these did so for incarcerated inmates; one (Hawaii) did so by removing non-permanent military and students. Some did this for both congressional and legislative plans, some for only one.
- The states differed in the means by which they accomplished this; for inmate states the weak link was not the location of the facility, nor the

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number of persons reported in the census; it was the state department of corrections

- There was, of course, no consistency to the records kept by the corrections departments as to
 - the detail of the last known address, or,
 - the type of race or Hispanic Origin information for all inmates
- Likewise, each state could choose how to address the adjustment, given the limitations of the information available and what their state law requires

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- Locating these datasets from the official source is not the easiest task, even in 2023; some were included on the state's redistricting site or on another state site; some aggregator sites also have links for them, e.g., Redistricting Data Hub; though there may be requirements as to use of such datasets on unofficial sites.
- fortunately, most of these datasets were simple tables that did not need specialized GIS software, though the naming convention for the multiple fields varied

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- some used the P0010001 format used in the PL94 datasets; others used alpha-based abbreviations
- alpha field names should be unique for the first 10 characters for maximum accessibility, e.g., ASNPOPADJ and not ADJUSTED_POPULATION_ASIAN
- most states included some report about the data allocation process
- some included a summary of changes between the census numbers and the adjusted at several levels of geography

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- several states managed to adjust for nearly complete datasets of the basic PL94 tables, though without multi-race categories; some adjusted for POP and VAP, some for only one of these breaks
- treatment of inmates without a last known in-state residential address varied by state
- See the NCSL site for info on inmate states and articles by Ben Williams
 - <https://www.ncsl.org/redistricting-and-census/reallocating-inmate-data-for-redistricting>
 - <https://www.ncsl.org/redistricting-and-census/inmate-data-reallocation-in-the-2020-redistricting-cycle>
 - <https://www.ncsl.org/state-legislatures-news/details/reallocating-inmate-data-for-redistricting-its-not-a-yes-or-no-question>