Maptitude®
For Redistricting

Maptitude for Redistricting is the ultimate tool for effective redistricting
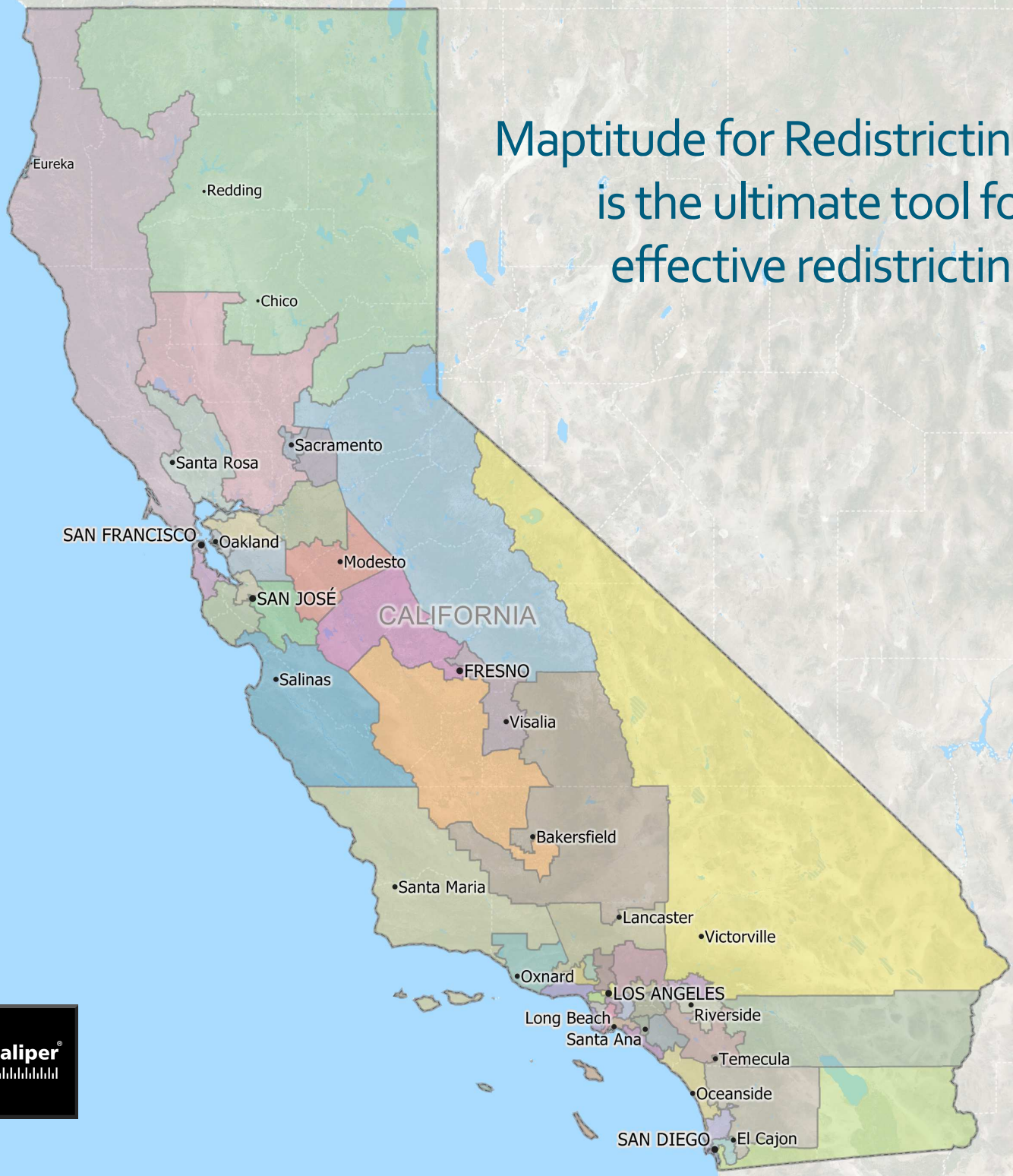
Caliper®

Maptitude for Redistricting Key Features:

• Create districts using any level of geography

• Compute balance field totals and deviations

• Select any number of summary data fields and compute totals and percents

• Display the plan as district boundaries or a thematic map

• Display the plan statistics in a data window

• Compute measures of compactness

• Produce over 35 standard reports: add your own and customize ours

• Export the plan to an equivalency file in industry-standard file formats

• Import plans from other GIS software

• Merge sub-plans

• Verify completeness and district contiguity, and zoom to problem areas

• Update historic election results to new political boundaries

• Create single-district map layouts and map books

• Save plans in an Internet-compatible format

• Complete support for Google Maps and Google Earth

• Includes all TIGER geographic layers with P.L. 94-171 population and race data attached
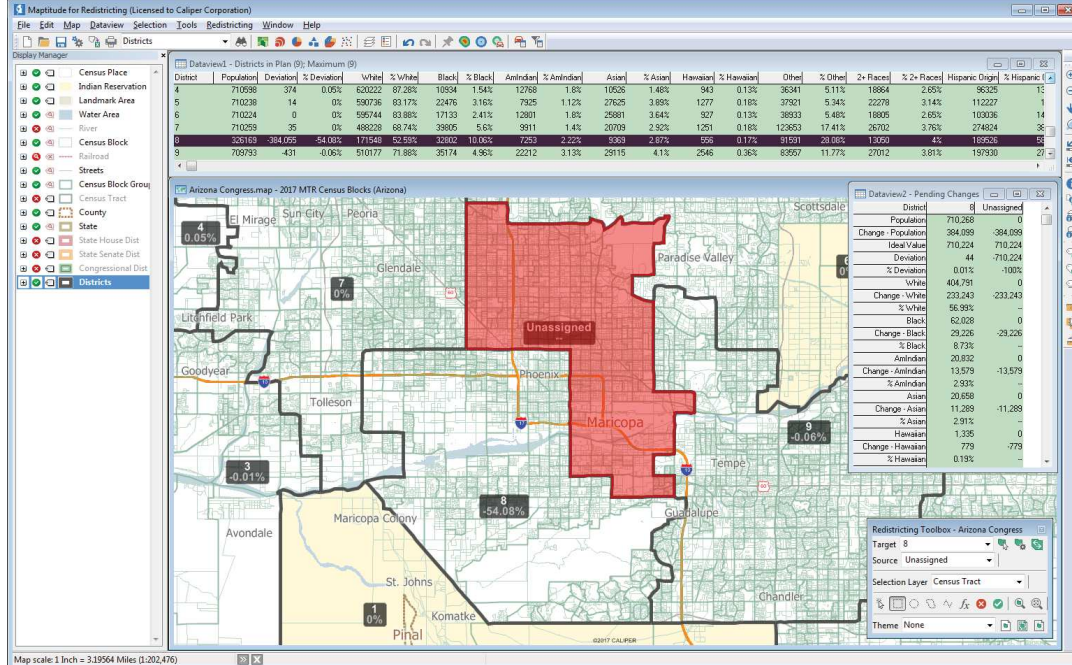
Maptitude for Redistricting™ is the professional tool for political redistricting. It is used by a super-majority of the state legislatures, both major political parties, and numerous public interest groups. Designed with the help of redistricting professionals, state legislators, and partisan politicians, Maptitude for Redistricting has all of the features redistricters want and need. It is also easy to learn and use.

Caliper Corporation is continuously improving Maptitude for Redistricting. The latest version represents a major leap forward with advanced metrics, automated solutions, the latest Census geography and data, one-button conversion of existing plans to the latest Census geography, new and enhanced reports, a state-of-the-art interface, open access to industry-standard file formats, interoperability with Google Maps and Google Earth, and more. Whether you are a current or former user or new to Maptitude for Redistricting, you will find Maptitude for Redistricting the most efficient and effective tool for the 2020 round of redistricting.

Maptitude for Redistricting includes all of the features in Caliper's Maptitude Geographic Information System (GIS) software. Maptitude is full-featured mapping and GIS software that has established new standards for performance and value. It provides a complete set of mapping and spatial analysis functions, sophisticated geocoding, tools for complex data manipulation, and a large collection of nationwide geographic data – all at no additional cost to the user.
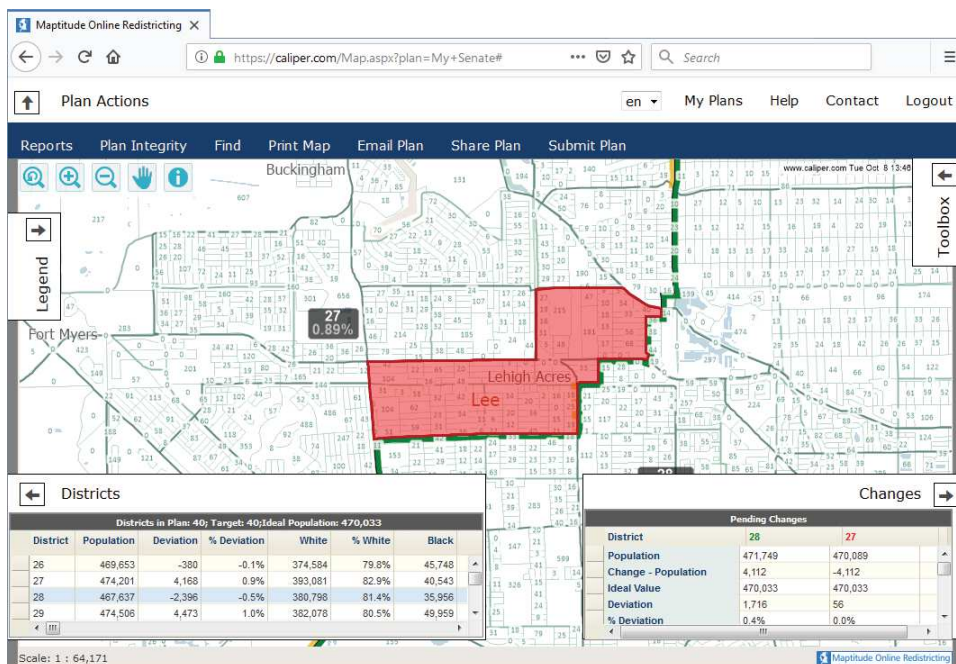
The Maptitude for Redistricting Plan Manager serves as a redistricting control center. Use it to organize plans, create unlimited plan types (e.g., congressional, state house, senate, school district), and save them as Plan Templates. Creating plans is as simple as choosing a template or an existing plan and entering a new name. Organize plans in libraries by plan type, user, security access, etc. Locate, copy, change settings, and pass-word-protect plans. Group similar plans into plan sets and define report sets for batch printing.
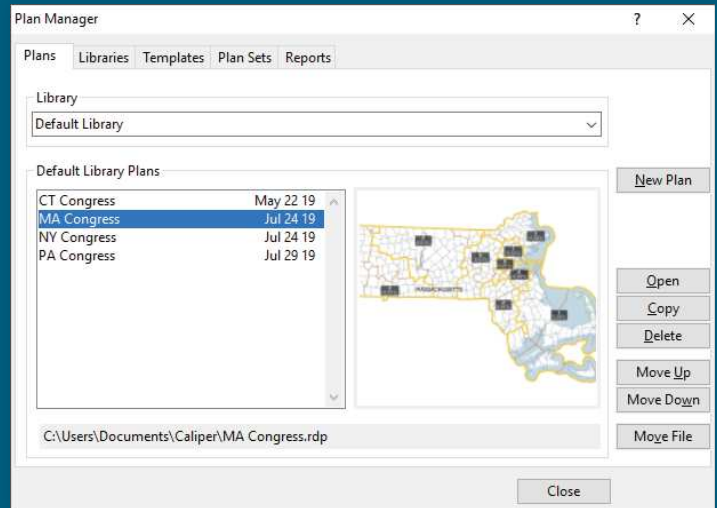
Maptitude Online Redistricting

Maptitude Online Redistricting is 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 desktop and online versions share common file formats, plans developed online can be electronically submitted to the central redistricting office, opened in the desktop-based software, and analyzed to the full extent as if they had been created using the desktop-based software.

The Maptitude Online Redistricting screen contains the plan map, a table listing the existing districts and their statistics, and a table of pending changes based upon the user's current actions. The redistricting toolbox is similar to the toolbox in the desktop version, and the user can zoom, pan, and query the map using the mapping tools.

Create Plans

- **Create a new plan** from a map, a template, or an existing plan. Use automated solutions as a starting point for alternative plans.

- **Import plans created** by Maptitude for Redistricting or other redistricting software. Automatically convert a plan based on a previous version of Census geography to a plan using the latest version of Census geography in a single step.

- **Designate the balancing field, number of districts**, ideal value, and summary fields, and set other plan properties including plan type, creation date, password protection, and backup strategy.

- **Include any number of data fields in the same plan** and toggle between groups of fields to display only the data of interest at any time.
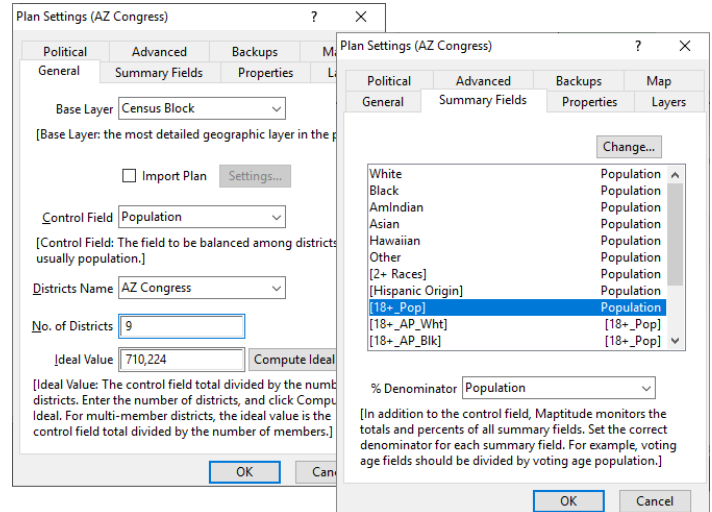
Incorporate Election Data

- **Add political data and election results** (usually reported at the precinct or voting district level of geography) and use the Disaggregation/Aggregation Wizard to quickly disaggregate the data down to Census Block geography and aggregate it up to all higher levels of geography. You can join in tables of data or overlay area layers (e.g., historic precincts) that contain the data.
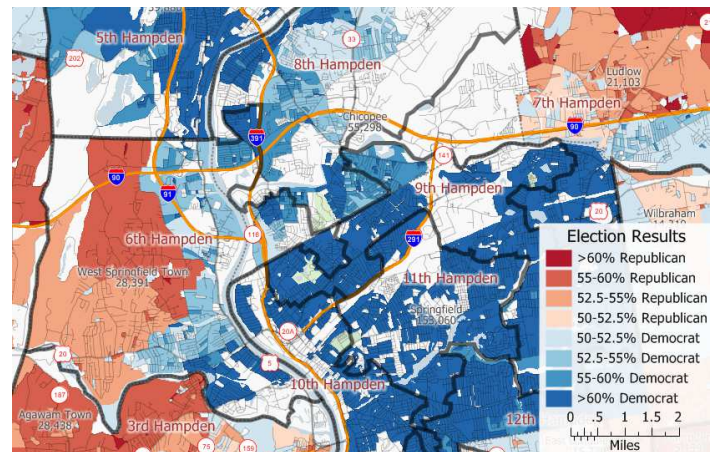
Create Districts

- **Add areas to a target district** using feature selection tools. Select by pointing, by circle, by shape, by lasso, by line, or by attribute values. Select features in any geographic layer, such as Census block, voting district, county, town, or school district. Limit the selection to unassigned areas, one district, or the entire jurisdiction. Maptitude for Redistricting redraws the district boundaries as you add areas to a district and updates the control and summary fields to reflect changes to the current plan.
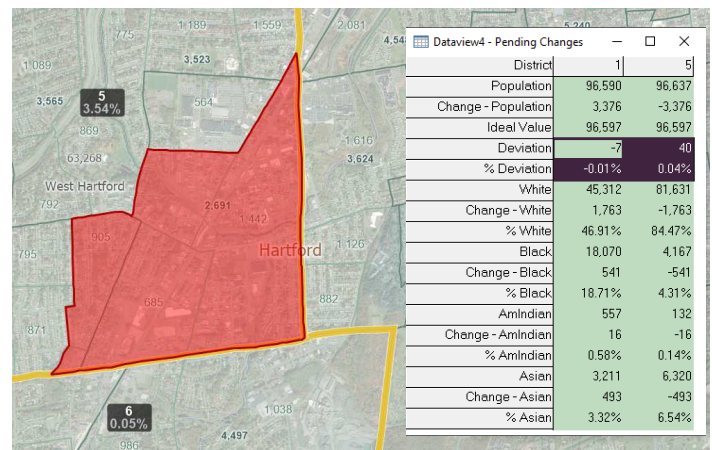
Dataview1 - Districts in Plan (19); Maximum (35)

District	Population	Deviation	% Deviation	AP_Wht	% AP_Wht	AP_Blk	% AP_Blk	AP_Ind	% AP_Ind	AP_Asn	% AP_Asn	AP_Hwn	% AP_Hwn	AP_Oth	% AP_Oth	Hispanic Origin	% Hispanic Origin	Not Hispanic	% Not Hispanic	18+_Pop	% 18+_Pop
6	142959	-732	-0.51%	115999	81.14%	4991	3.49%	4993	3.49%	1882	1.32%	337	0.24%	20461	14.31%	60801	42.53%	82158	57.47%	108607	75.97%
7	144054	363	0.25%	133399	92.6%	5000	3.47%	3271	2.27%	2778	1.93%	579	0.4%	3603	2.5%	13228	9.18%	130826	90.82%	114583	79.54%
8	143787	96	0.07%	104275	72.52%	20366	14.16%	4571	3.18%	6130	4.26%	1381	0.96%	17691	12.3%	38000	26.43%	105787	73.57%	107979	75.1%
9	143682	-9	-0.01%	119742	83.34%	13656	9.5%	3602	2.51%	6526	4.54%	1368	0.95%	8312	5.78%	21770	15.15%	121912	84.85%	100914	70.23%
10	143678	-13	-0.01%	126493	88.04%	8184	5.7%	2976	2.07%	6114	4.26%	727	0.51%	6353	4.42%	17712	12.33%	125966	87.67%	110188	76.69%
11	143622	-69	-0.05%	131955	91.88%	4597	3.2%	2148	1.5%	6744	4.7%	562	0.39%	3280	2.28%	10808	7.53%	132814	92.47%	102837	71.6%

Colorado Senate.map - Block-Block Group-Tract-County
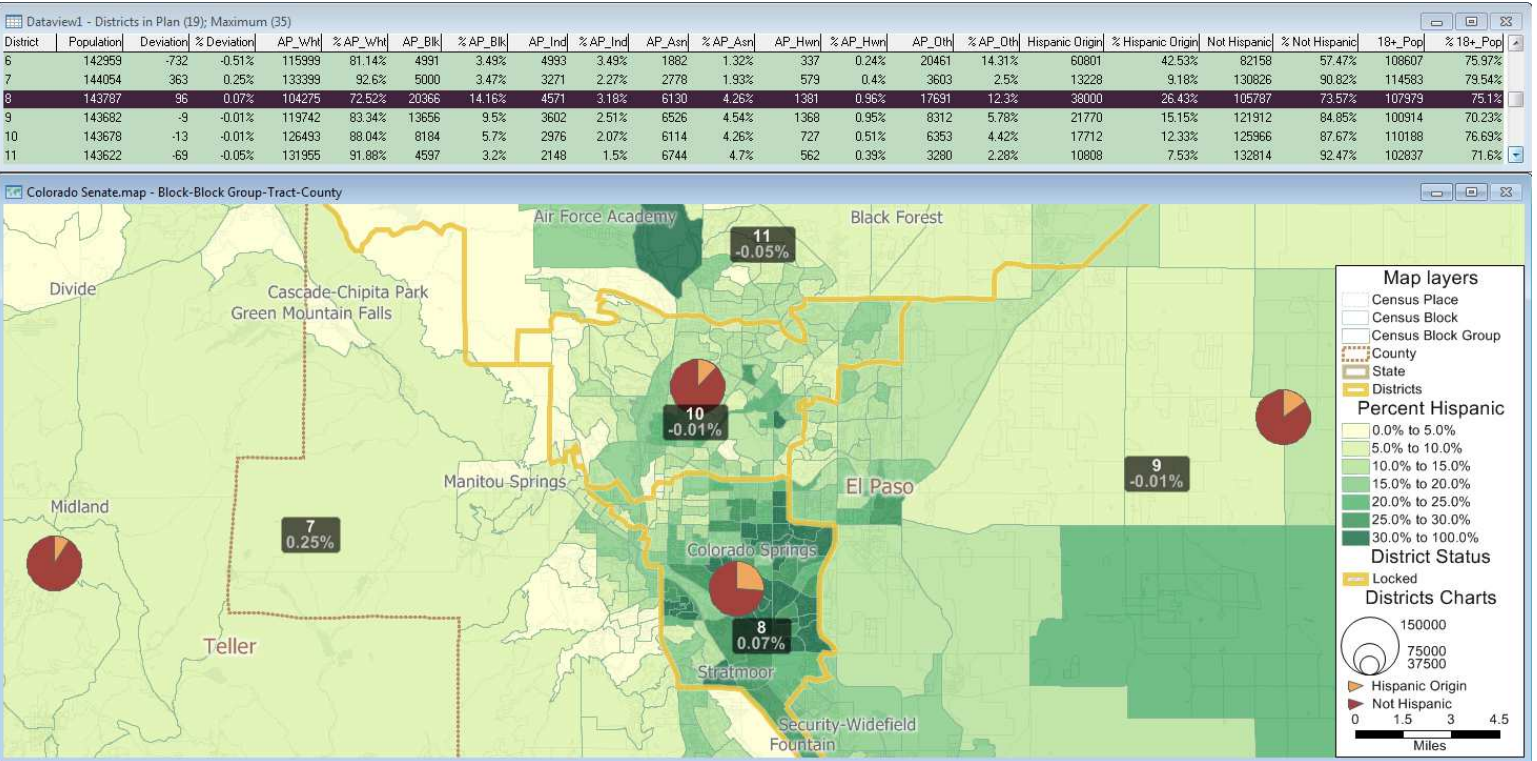
Manage Districts

- **Easily manage districts**: rename districts, handle multi-member districts, assign both short and long names to districts, lock districts, and mark them completed.

- **Capture the current status of a plan as a snapshot**. Each plan can have one or more snapshots organized by date and time under the same plan name. Return to any snapshot and use it as a departure point in the evolution of the plan or as the starting point for a new plan.

- **Display attributes for any layer** using labels or color, symbol, dot-density, size, or chart themes. Display summary information in a table that contains the district identifier, balance field totals, deviation from the ideal value, and the totals and percentages for summary fields.

- **Identify and maintain communities of interest**, geographically cohesive areas such as cities, neighborhoods, or racial or ethnic enclaves that tend to have similar interests and vote as a bloc. Keep them intact within the same district and lock them so that you cannot inadvertently reassign them to different districts. Alternatively, for communities that you do split into multiple districts, run the Communities of Interest reports to calculate the total and percent population of the community in each district.

Verify Plan Integrity

- **Easily find unassigned areas** and assign them to the correct district. Automatically assign unassigned areas that are completely surrounded by the same district.

- **List all noncontiguous portions of a district**, zoom to each one, and easily assign them to the correct district.
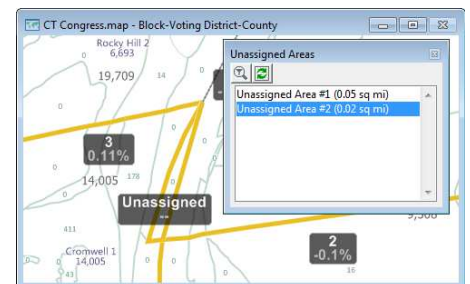
Maptitude
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Run Reports

Maptitude for Redistricting includes all of the metrics used and cited by experts and courts.

- **Compute measures of compactness** to assess or defend the districts in a plan. Maptitude for Redistricting computes all of the recognized measures of geographic compactness including the Reock, Schwartzberg, Perimeter, Polsby-Popper, Length-Width, Population Polygon, Area/Convex Hull, Population Circle, Ehrenburg, Fracking, and Cut Edges metrics.

- **Generate and print over 35 reports** including population summary, error check, political subdivision splits, incumbents, plan statistics, plan components, plan comparison, communities of interest, partisan competitiveness, and more. Create custom reports and add them to the report menu.

- **Group reports together into report sets** and save considerable time by producing a set of reports with the click of a button. Report sets also include the report settings thus eliminating potential errors. The same report can appear in multiple report sets with different settings, and you can create as many report sets as necessary.

Share Your Results

- **Create a map book** containing layouts for some or all of the districts. Display either a single district or the district and all adjoining districts, labeled with the district name, plan name, plan type, administrator, date created, and date last modified.

- **Export a plan to standard equivalency file** formats that can be read by the Department of Justice. This is the best way to transfer a plan because every Census block is assigned to a district and there is no possibility for a mis-assignment.

- **Integrate your plans with Google Maps and Google Earth**. Save your plans in the Google format (.KML or .KMZ) and add them to Google Maps or Google Earth. Use the built-in imagery tools to display satellite and terrain imagery in Maptitude for Redistricting as part of your plan.

- **Print a complete plan** using page layouts that combine maps and data tables.

Measures of Compactness Report

Wednesday, July 24, 2019   4:28 PM

Measures of Compactness Report   MA Congress

	Reock	Schwartzberg	Alternate Schwartzberg	Polsby-Popper	Population Polygon	Area/Convex Hull	Population Circle	Ehrenburg	Perimeter	Length-Width
Sum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,740.93	N/A
Min	0.31	1.54	1.59	0.23	0.65	0.64	0.27	0.29	N/A	1.64
Max	0.55	2.04	2.10	0.40	0.94	0.84	0.84	0.50	N/A	28.94
Mean	0.44	1.69	1.80	0.32	0.78	0.77	0.48	0.40	N/A	12.76
Std. Dev.	0.07	0.16	0.17	0.05	0.10	0.06	0.19	0.08	N/A	8.40

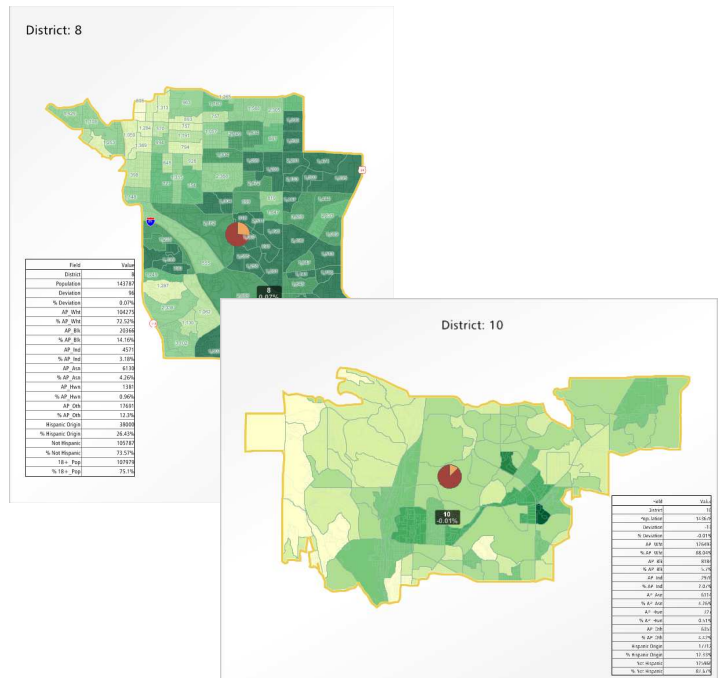| District	Reock	Schwartzberg	Alternate Schwartzberg	Polsby-Popper	Population Polygon	Area/Convex Hull	Population Circle	Ehrenburg	Perimeter	Length-Width
1	0.49	1.60	1.98	0.26	0.82	0.78	0.49	0.38	405.78	15.89
2	0.43	1.76	1.85	0.29	0.84	0.76	0.61	0.32	174.27	9.86
3	0.41	1.55								
4	0.43	1.54								
5	0.43	1.63								
6	0.46	1.63								
7	0.55	1.63								
8	0.31	2.04								
9	0.48	1.80								

Population Summary

Wednesday, July 24, 2019   4:30 PM

Population Summary   MA Congress

District	Population	Deviation	% Devn.	Deviation [% Deviation]		[18+_Pop]
1	728,171	657	0.09	657	0.09%	574,114
2	727,586	72	0.01	72	0.01%	555,200
3	727,187	-327	-0.04	-327		556,428
4	727,461	-53	-0.01	-53		571,170
5	727,588	74	0.01	74	0.01%	562,063
6	727,317	-197	-0.03	-197		545,372
7	727,331	-183	-0.03	-183		567,808
8	727,367	-147	-0.02	-147		568,481
9	727,621	107	0.01	107	0.01%	628,070

Total Population: 6,547,629
Ideal District Population: 727,514

Summary Statistics:

Population Range:	727,187 to 728,171
Ratio Range:	0.00
Absolute Range:	-327 to 657
Absolute Overall Range:	984
Relative Range:	0.00% to 0.09%
Relative Overall Range:	0.14%
Absolute Mean Deviation:	201.89
Relative Mean Deviation:	0.03%
Standard Deviation:	270.27

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District: 8

Field	Value
District	8
Population	143787
Deviation	56
% Deviation	0.07%
AP_Wht	104275
% AP_Wht	72.52%
AP_Blk	20344
% AP_Blk	14.16%
AP_Ind	4571
% AP_Ind	3.18%
AP_Asn	6130
% AP_Asn	4.26%
AP_Haw	1382
% AP_Haw	0.96%
AP_Oth	17691
% AP_Oth	12.3%
Hispanic Origin	38000
% Hispanic Origin	26.43%
Not Hispanic	105787
% Not Hispanic	73.57%
18+_Pop	107079
% 18+_Pop	75.1%

District: 10

Maptitude for Redistricting

Our Clients*

National Organizations:
Democratic National Committee
Department of Justice, Civil Rights Division
Nat'l Committee for an Effective Congress
Nat'l Republican Congressional Committee
Republican National Committee

State Organizations:
Alabama Democratic Party
Alabama House Majority
Alaska Division of Elections
Arizona House of Representatives
Arizona Independent Electoral Commission
Arizona Redistricting Commission
California Assembly Rules Committee
California Governor's Office
California Legislative Data Center
California Senate Minority Reapportionment
California Senate Office of Research
California State Assembly
Colorado Department of State
Colorado Governor's Office
Colorado House of Representatives
Colorado Legislative Council
Colorado Reapportionment Commission
Delaware Commissioner of Elections
Delaware Legislature
District of Columbia Republican Party
Georgia General Assembly
Georgia Office of Planning and Budget
Georgia Redistricting Services
Idaho Legislative Services
Illinois House Republican Caucus
Illinois Senate Republican Caucus
Kansas Legislative Research Department
Kentucky Legislative Research Commission
Louisiana House of Representatives
Louisiana Senate
Maine Democratic Party
Maine Judicial Center
Maine Legislature
Maryland Dept. of Legislative Services
Maryland General Assembly
Maryland Office of Planning
Massachusetts House of Representatives
Massachusetts Republican Redistricting Taskforce
Massachusetts Senate
Michigan Democratic Party
Minnesota DFL
Minnesota Governor's Office
Minnesota Leg. Coordinating Commission
Minnesota Office of Planning
Minnesota Secretary of State
Minnesota Senate
Minnesota Supreme Court
Mississippi Community Policy Research
Mississippi Joint Reapportionment Cmte.
Missouri House of Representatives
Missouri Office of Administration
Missouri Office of Mgmt, Budget, & Planning
Missouri Senate
Nevada Republican Party
New Hampshire GCIS
New Jersey Office of Legislative Services
New Mexico Republican Party
New York Empire State Development
New York Assembly Democratic Majority
New York Assembly Republican Caucus
New York Governor's Office

New York Office of Technology
New York Senate Majority
New York Senate Minority
New York State LATFOR
North Carolina General Assembly
North Dakota Legislative Council
Ohio Secretary of State
Oklahoma Governor's Office
Oklahoma Senate
Pennsylvania House Democrats
Pennsylvania Senate Democrats
Puerto Rico Supreme Court
South Carolina House of Representatives
South Carolina Senate
Tennessee Attorney General
Tennessee General Assembly
Tennessee Office of Legal Services
Texas Comptroller of Public Accounts
Texas General Land Office
Texas Legislative Council
Utah Republican Party
Vermont Legislative Council
Virginia Democratic Caucus
West Virginia Legislature
Wyoming Legislature

County & Regional Organizations:
Acadiana LA Regional Development District
Alabama Assoc. of County Commissioners
Alameda County CA Comm. Development
Alamosa County CO, County Clerk
Anne Arundel County MD
Anoka County MN
Barton County KS
Blount County AL, County Commission
Boone County WV Commission
Brooke County WV, County Commission
Butte County CA
Calvert County MD
Capitol Region LA Planning Commission
Cerro Gordo County IA
Chaffee County CO
Champaign County IL County Clerk
Clark County NV Manager's Office
Cobb County GA Elections
Comal County TX
Contra Costa CA Water District
Coweta County GA
Cumberland County ME
Elbert County CO
Forsyth County GA
Glenn County CA, Elections Department
Grand County CO
Hardee County FL
Hardin County KY
Harris County TX Tax Office
Hennepin County MN
Hood County TX
Jackson County MO Election Board
Jefferson County CO Clerk and Recorder
Johnson County KS
Kanawha County WV
Kent County DE
Kent County MI
Lincoln County MT
Los Angeles CA Superior Court
McCracken County KY
Miami-Dade County FL County Comms.
Mobile County AL Engineer's Office

Nassau County NY
Navajo Nation AZ
New Castle County DE
Nowata County OK, Clerk
Pasco County FL Supervisor of Elections
Pierce County WA, Elections
Polk County FL Supervisor of Elections
Putnam County FL Supervisor of Elections
Ramsey County MN
Saint Louis County MN
Saint Lucie County FL Supv. of Elections
San Benito County CA
San Diego County Data Processing
Sanford/Lee County NC, Cnty Commission
Santa Barbara County CA
Santa Cruz County CA, ISD Dept.
Stillwater County MT GIS
Summit County NJ Board of Elections
Sumter County FL Supervisor of Elections
Tate County MS
Trinity County CA
Trinity County TX
Vigo County IN
Westchester County NY

City Governments:
Albany NY, Common Council
Baltimore MD, City Council
Baltimore MD, Mayor's Office
Bloomington MN
Buffalo NY, City Clerk
Cambridge MD Commissioners
Champlain MN
Columbia MO
Dallas TX
Denver CO, Election Comm.
Jefferson MO
Lake Charles LA
Los Angeles CA Council
Minneapolis MN Metropolitan Council
New York NY City Council
New York NY Redistricting Comm.
Pasadena CA
Pensacola FL, Planning & Development
Phoenix AZ
San Francisco CA, Department of Elections
San Leandro CA
Temple TX
Villages FL
Westport CT

Educational Institutions:
Alabama State U. Ctr. for Leadership & Pub. Policy
Benedict College
Claremont McKenna College Rose Institute
Cronkite School of Journalism
CUNY Graduate Center
CUNY, Medgar Evers College
George Mason University
Georgia Institute of Technology
Georgia State University
Mississippi State University Stennis Institute
Princeton Univ. Woodrow Wilson School
Queens College
Rice University
UCLA, Dept. of Urban Planning
University of Florida
University of Georgia, Redistricting Services
University of Pennsylvania Law School

* Partial list

www.redistricting.com

Maptitude® For Redistricting

Adjustments to P.L. 94-171 Data and TIGER Block Geography

Some states require adjustments to Census Public Law 94-171 population data to account for prison population, college students, military personnel, or other factors. For example, Kansas requires that the population figures reflect college students and military personnel at their places of permanent residence. Maryland adjusts their population counts based on prison population. Pennsylvania splits census blocks. Please contact us if your state is planning such an adjustment and you would like assistance.

Website Development

Caliper has extensive experience creating sophisticated websites for a number of large government organizations including the U.S. Census Bureau, the U.S. Department of Transportation, the Small Business Administration, and several state legislatures. Caliper can create custom web applications for your organization, such as "Who are your elected officials?" where a user enters an address and the map zooms to that location and lists the elected officials with links to their websites.

Works with Other GIS and Mapping Software

Maptitude supports over 50 file types and more than 100 GIS and CAD file formats. You can map ESRI Shapefiles, Geodatabases, MapInfo TAB files, MapPoint PTM files, and Oracle Spatial or Microsoft SQL Server tables directly, or use the built-in translators to import geographic data from a variety of other software packages and public sources. This extensive library of importers and exporters is one of the largest in the industry and comes at no additional charge. This makes Maptitude for Redistricting the perfect choice because you can work with your existing installation or easily migrate your data from your current GIS software. You can export plans (geography and data) to these other formats if your GIS department uses one of these other products.

You can use raster images such as satellite or aerial photographs directly in your maps. Maptitude includes toolboxes for quickly accessing on-line images from OpenGIS Web Map Services and Google Earth. These images can be used as a means of reference or in conjunction with the redistricting tools to draw your districts.

Easy to Learn and Use

Maptitude for Redistricting includes a detailed help system packed with step-by-step instructions and tutorials. The Plan Manager leads you through the process of creating your first plan and speeds the creation of all additional plans. Other wizards help you create maps, display data using meaningful themes, and locate (geocode) data based on street address. In addition, Caliper offers training at your site or at our headquarters in Newton, MA.

System Requirements

Maptitude for Redistricting runs on Microsoft Windows 10, 8.1, 8, or 7. We do not recommend using netbooks. A DVD-ROM drive or an Internet connection is required for download. We recommend a DVD drive for users with slow internet speeds or download/security issues. 8GB or more of RAM provides optimal performance. Disk space requirements vary by jurisdiction (7GB–10GB).

Ordering & Information

For more information, please visit our website at WWW.REDISTRICTING.COM or contact caliper sales at 617-527-4700 or SALES@CALIPER.COM.