azavea

Appendix Two: District Builder Overview

| Specification	Azavea Response
1. Map-based interface for modifying district boundaries with real time changes in reporting results as boundaries are moved by user	District Builder users create and edit district plans in an easy-to-use map interface using map editing tools that were designed to be easy to learn and familiar to users who have experience with widely-used, web-based mapping interfaces like Google Maps or Bing Maps.
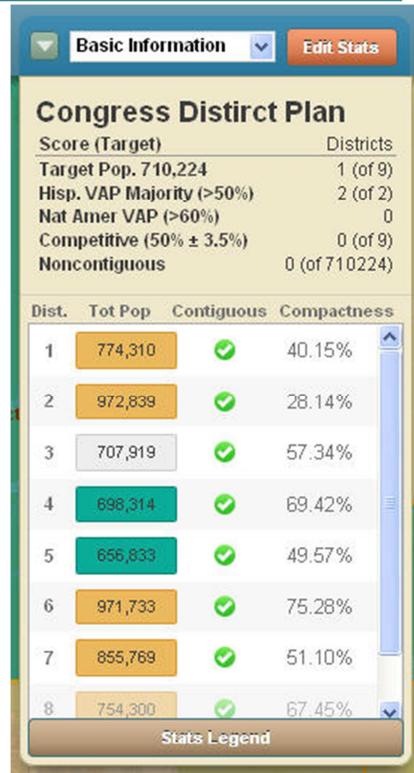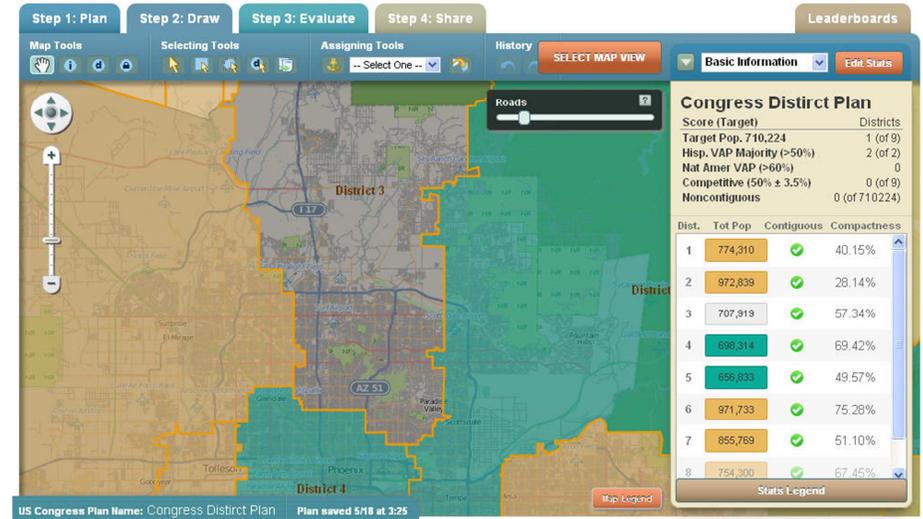
The plan statistics panel illustrates both plan summary and individual district statistics in a simple tabular format. As a user edits their plan the statistics panel updates in real time, illustrating to the user how their most recent edits have affected the underlying demographic and election data associated with each district.

Administrators can define default statistics sets of three grouped statistics, available to users. These sets are typically divided into geography-related statistics (contiguity, compactness, etc.) and demographics (total population, % Census-defined racial group population, %voting population type, etc.).
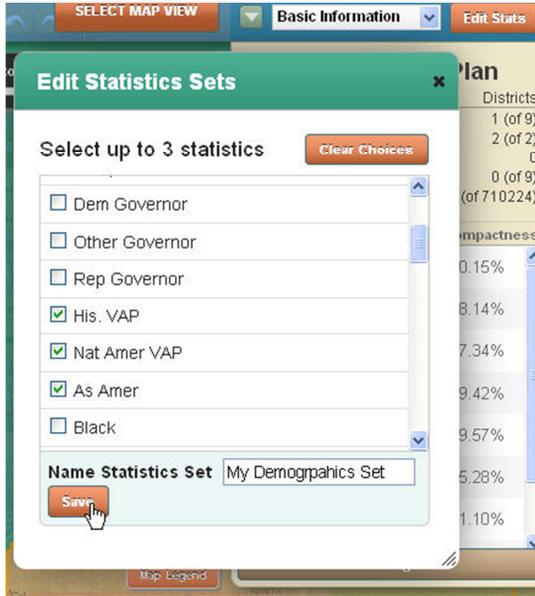
Additionally, users can define and save up to three of their own sets of statistics based on their own goals for creating a district plan. A user selects from a list of available statistics (attributes that were included in the initial data load) and saves the three statistics to a set which is then made available for selection from a statistics set dropdown menu.

2. Online redistricting software accessible both to AIRC staff and members of the public.	The District Builder application has been designed from the ground up as an internet-based solution that can be simultaneously used by many people, each of whom may have their own plans, share those plans with users (based on each user's choice) and operates on the basis of the census block level. The software has been designed to be configured to comply with a municipality's specific set of legal requirements for creating and verifying a legal redistricting plan, allowing both AIRC and members of the public to create, edit and store valid district plans. It has a user friendly, browser-based interface that does not require GIS knowledge or particular skills to navigate. Its map editing and viewing tools were designed to enable someone familiar with web-based mapping software such as Google Maps or Bing to begin creating district plans immediately. The District Builder supports Firefox, Chrome and Internet Explorer, but operates best with Firefox and Chrome.
3. Ability to produce maps in formats suitable for printed and computer display	Currently, District Builder users are able to use the standard screen print function to capture portions or the entirety of their map and paste the map into the software of their choice (Microsoft Word, PowerPoint, etc.).

4. Flexibility to choose and enable/disable reporting measures for use by AIRC staff and members of the public	There are currently three District Builder user types: 1. *Anonymous Users* who do not sign up for a user account can view shared maps within the software but do not have access to editing tools. 2. *Registered Users* who sign up for an account have full access to all mapping tools, available statistic (demographic and geographic) data, and reporting capabilities. 3. Users who have been designated as *Administrators* can sign in to a separate administrative user interface that allows the admin user to edit and delete user accounts and plans. We have designed the user interface to be equally as simple and useful for experienced redistricting administrators and public users of the software. We do not expose all available statistics in a single, overwhelming view. Instead, we have divided the display of statistics into 'statistics sets' editable by the individual user. This allows for easy access to the sets of statistics each user finds the most useful for their particular district mapping goals.
5. Online hosting solution – No need to purchase new hardware or software.	Azavea has hosted several instances of the District Builder software at both the state and local level, including one for the Arizona Competitive Districts Coalition. The application will be hosted on at least three servers, each with up to 8GB of RAM and multiple processor cores. The servers will be separated into separate functional units, include a mapping server, a report generation server and an application server in order to maximize the scalability of the system. Optionally, a fourth, dedicated database server may also be deployed. Azavea implements an application health program (Pingdom or similar service) to monitor the application. Additionally Azavea will establish a daily backup of the PostgreSQL database. The resulting backup file will removed to a location external to the data center in order to support a recovery scenario. This will be scheduled to run late at night in order to minimize any impact for end users.