

GIS and the Future of Voter Registration Systems

By:

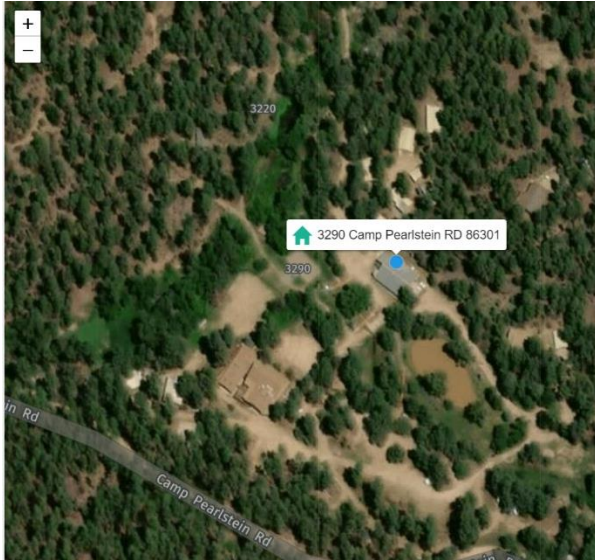
People under the age of 30 will likely never have the experience of stopping at a gas station to ask for directions. What used to be a customary practice has all but ceased, thanks to Global Positioning Systems (GPS) and Geographic Information System



(GIS) applications that provide end users with maps and turn-by-turn directions to almost any destination on the planet. The combination of these two technologies today helps prevent anyone with a connected device and a common mapping software, like Google Maps, from getting lost.

It wasn't always this easy. Even after GPS satellites were launched into space, the federal government tightly controlled the data they provided. It took nearly a quarter century for private software developers to have access to the GPS satellites that now power GIS software and provide virtually unlimited benefits to the everyday American. Now that the GPS floodgates have opened, GIS applications can make anything better - from buying a home (Zillow) to finding a restaurant (Yelp). By allowing these GIS-based applications to access your phone's location, you can quickly and easily find homes for sale or rent near you or read reviews of the best Italian food within one mile of your current location.

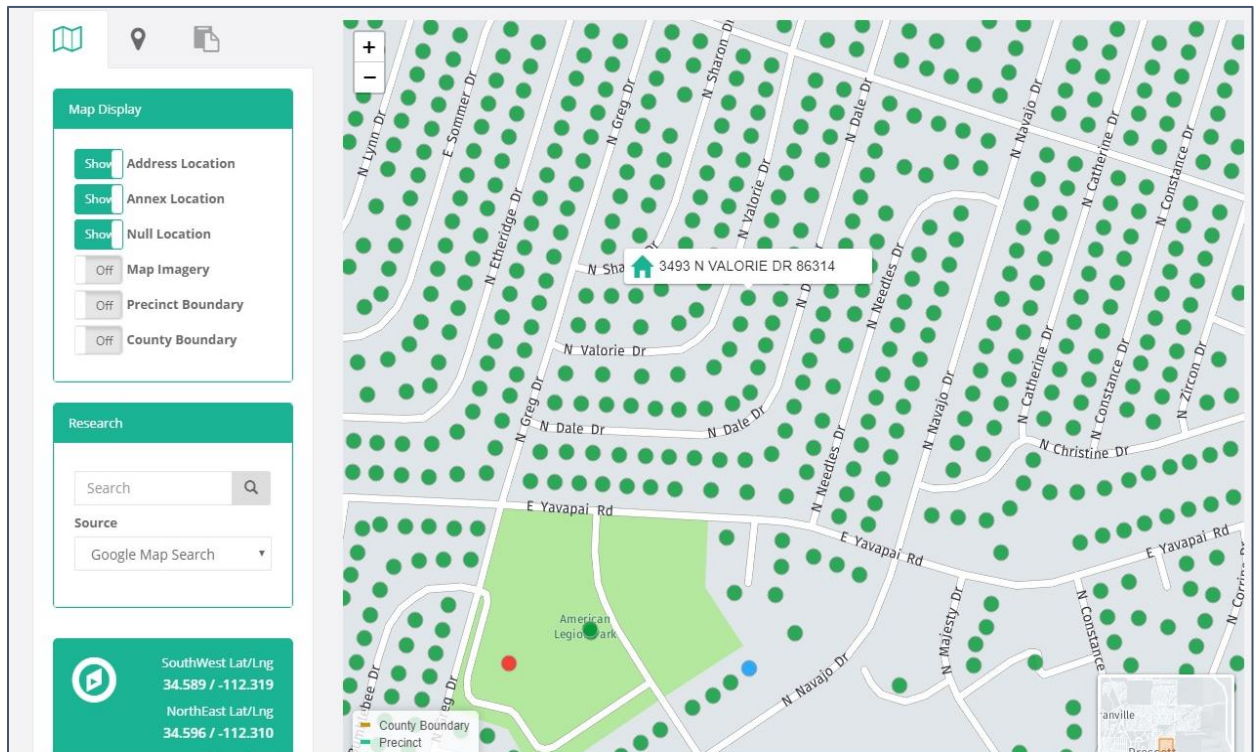
GIS data is also a powerful tool for election officials to use when registering voters and managing voting district boundaries. Traditional voter registration systems rely on a tabular "street index file" to manage voter registration addresses, define precinct boundaries and ultimately determine the correct ballot (with applicable races and contests) for each voter. However, these antiquated systems do not allow for any of the numerous abnormalities in addresses that occur across the United States. These systems simply assume that if you live at 123 Main Street, you must live somewhere between 100 Main Street and 199 Main Street. While this is often the case in major metropolitan areas, it is usually not the case in rural parts of our country. Many houses do not sit right on the road where the voter is registered, and in some cases, an election boundary line exists in the space between the road and the voter's residence. In such a situation, a voter's mailbox may sit in the precinct the voter is assigned to, but the voter's residence may be in a completely different precinct.



Mapping a Rural Address Using a GIS-based System

This exact scenario nearly happened to former Washington Secretary of State and NASS Emeritus Member Ralph Munro. After the 1990 Census, several draft plans for redistricting placed Secretary Munro’s Christmas Tree Farm in Olympia, WA, within two Congressional districts and two Washington State Senate and House of Representative districts. At the time, GIS applications were a pipe dream and Washington state used a voter registration system that relied on the street index file. These draft plans would have registered Secretary Munro in three incorrect

districts, based on the location of his mailbox and not his home. Secretary Munro’s residence was a half mile from his mailbox and the proposed district boundaries ran right through that half mile of property. While these draft plans were not ultimately adopted, the flaws in the State's voter registration street index file were evident over 25 years ago. States are now starting to implement Voter Registration and Election Management systems that use GIS data to accurately place voters in the correct districts.



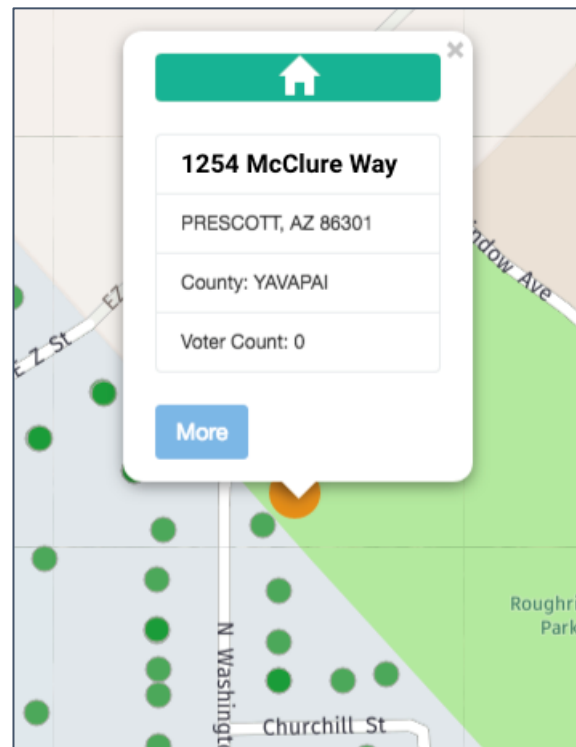
Full Screen View of the GIS-based Address Management Tool in Arizona's New Voter Registration System

Recently, Hawaii, Arizona and Washington have all selected voter registration systems that use a GIS-based address management tool to replace their archaic street index file-based system and more accurately register voters in the districts and precincts where they actually reside. When a voter's residence is not located where the traditional street index file assumes it would be located, election officials can use the GIS-based address application to move the voter's residence to the point on the map where the voter's house is actually located. When an existing point is moved, or a new address point is added, the system marks the point using latitude and longitude and automatically adds the precinct part (or split) for that address point, based on its location. This user-friendly system requires only basic computer skills and allows any election worker to quickly apply the power of GIS data.

While these systems are beneficial to election officials in rural jurisdictions, GIS data is also assisting election officials in more populated jurisdictions with another voting population that has traditionally been challenging. Using the traditional street index file poses a challenge in registering eligible voters who are homeless. While these eligible voters do not have a permanent residence, they have the same right to vote as any other American. In the traditional street file index system, homeless voters were forced to choose an arbitrary location as their registered address. Homeless voters would often use a local soup kitchen or Salvation Army as their residential address, but the address was often not their permanent residence.

Using the GIS tool in their voter registration system,

election official in Honolulu, HI can now register homeless voters where they actually live (on a park bench, under an overpass, etc.) and the system registers them with an address point on the map that accurately defines their place of residence. The system helps ensure every registered voter is accurately registered in the correct precinct and allows homeless voters to register to vote without the shame that can come with not having a home of their own.



Registering a Homeless Voter in a Park

The logo includes the word "Hawaii" in a green script font above "Tribune Herald" in a large, bold, black serif font. A small green map of the Hawaiian Islands is positioned between "Tribune" and "Herald". Below the main title is a green horizontal bar with the text "Proudly serving Hilo and the Big Island since 1923" in white.

Lava prompts election officials to mail absentee voting applications

In addition to maintaining more accurate precinct boundaries and voter registration rolls, GIS data has been beneficial to election officials responding to unforeseen emergency situations. In times of crisis, elections go on, but voters affected by the crisis can get swept up in dealing with the situation and inadvertently miss voting.

In response to the mandatory evacuations caused by the Kilauea Volcano, the State of Hawaii's Elections Division is identifying voters displaced by the lava using the state's voter registration application that features a GIS-based address management software. Hawaii election officials are using the system to identify these voters and send absentee ballots to voters that live in precincts affected by the lava. By proactively reaching out to voters who have been forced out of their homes, the state is hoping to ensure all voters affected by the volcano can receive an absentee ballot before the state's Primary election deadline.

Perhaps the biggest time saver these voter registration systems that incorporate GIS data can provide will come after the 2020 census, when state officials will redraw boundaries for state- and federally-elected positions. Street index file-based voter registration systems have traditionally made redistricting an arduous task, with election officials manually configuring their street index file to meet the newly drawn boundaries street by street. States that have incorporated voter registration systems with GIS-based address management before the next redistricting cycle will eliminate this painstaking work. With every voter's residence represented by a point address on the map in the GIS-based system, election officials will simply have to upload the new district boundary maps (such as new Shapefiles) into their address management system. This will automatically update voter records with the newly-drawn districts and make redistricting a much simpler process for state and local election officials.

GIS data and the applications that utilize this data are making many parts of our everyday lives better. We find better restaurants, we live in better homes and we can get between the two without getting lost. This exact same data can now make registering voters a better, more accurate process. Voter registration systems equipped with a GIS-based address management tool can help election officials register voters with the highest degree of accuracy, better serve voters and ultimately help improve the voting experience for everyone.