## The Need for Population-Based ZIP Code Centers

Introduction:

When you use a locator to find the nearest store, you want it to be accurate. To be accurate, the locator will need to have the correct latitude / longitude for each ZIP Code. This is much easier said than done! Here's why:

> Some ZIP Codes (especially in rural areas) can occupy hundreds and even thousands of square miles. Others have large, unpopulated areas such as golf courses, industrial parks, business districts, airports, lakes, reservoirs, parks, etc. *If the ZIP Code center is located in the middle of one of those unpopulated areas, the locator won't give you accurate results*.

Other data companies use just the physical center point (centroid) of a ZIP Code. Here's a good example of when a physical centroid just doesn't work:
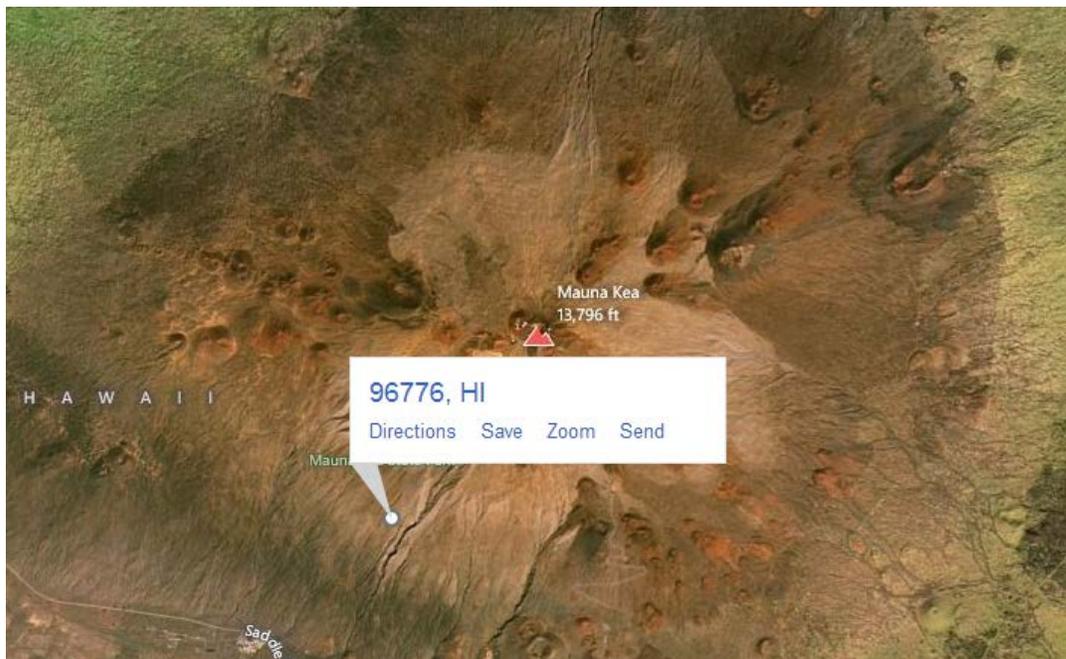
I rather doubt many people live on that volcano! Having the center over 20 miles from the populated areas just won't work.

For years, we've *manually* researched ZIP Codes and tried to place the center point where we could best determine the center of the populated areas within that ZIP, based on where the most roads appeared on maps. That was good, but with over 40,000 ZIPs, we needed a better way.

Recently, we've become more involved in spatial databases and have studied very complex formulas for trying to determine where the population center should be, based on population, not geography. *We have now created a method to do just that!* This allows us even more accuracy than we've been able to have in the past.

Over the coming months, we'll be rolling out latitude / longitude improvements based on this formula, along with manually verifying the data by cross-checking it with other information to ensure the most accurate data possible for our clients, many of which are Fortune 500 clients who rely on our data being the most accurate data available.

We were the first company on the Internet providing this type of data for the U.S., Canada and Mexico. We've have spent many thousands of hours *since 1992* ensuring that our data is the best we can make it. We go through *hundreds* of steps quarterly to accomplish this.

Here's a good, *inner-city* example of the need for a population-based centroid. This ZIP Code, 10023, is in New York City and includes all of Central Park. The physical centroid would be located in the park, but that's not where the people are.
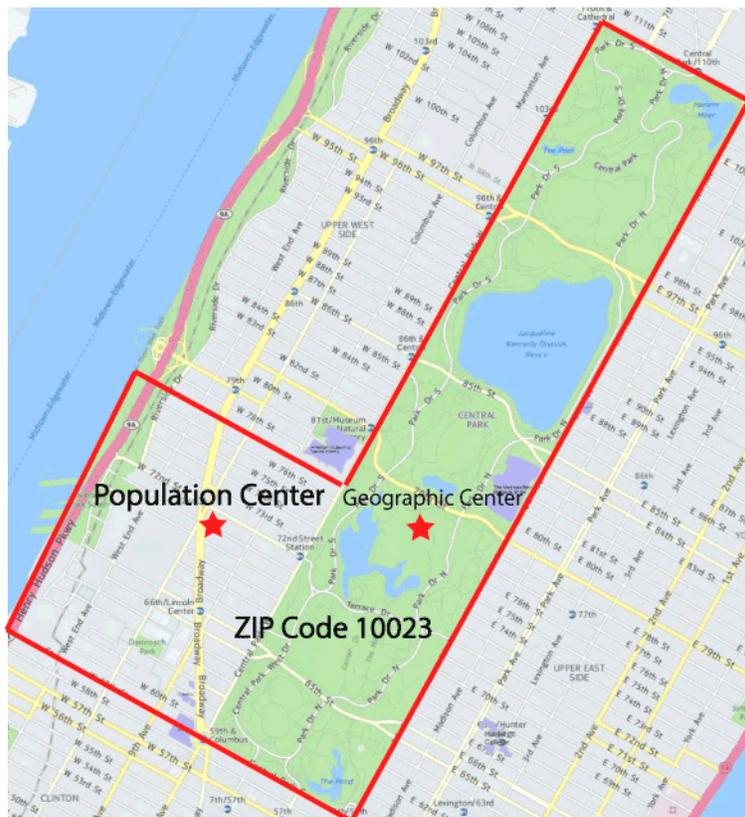
To make things even more complicated, the center of the non-Central Park section of the ZIP still wouldn't be accurate because there's a large section, the Lincoln Center area, where there are commercial businesses without any population, so that shifts the population center to the north (about where the pushpin is above).

These ZIP Codes are not just rare examples, but actually it's commonplace for vendors to have inaccurate data. We looked at a main competitor's free sample data which was in the congested Northeastern U.S. and found **56%** of the data in their sample had locations over 3 miles off from where they should have been. *35% were over 10 miles off and some were over 20 miles off!*

We invite you to do a **thorough analysis** and ask us and our competitors to send you a sample of the data in *your* area. You can use the free **ArcGIS Explorer** to do this (you can

download the ZIP Code boundaries by choosing: Add Content, ArcGIS Online, and entering in 'zip code boundaries' in the search box). We had a leading Fortune 500 company do this a while back. They were very detailed and asked all of the right questions. After over a month of analysis, we were very pleased when they chose us above all others! **Unfortunately, most just buy what's cheapest**.

Here's a real-world example of one of the changes that we made in 2014. This ZIP is in a military reservation and our previous lat/long was in the middle of the reservation, but after applying our population based mapping logic, it shows it right in the center of the populated area at the southern point of the reservation:
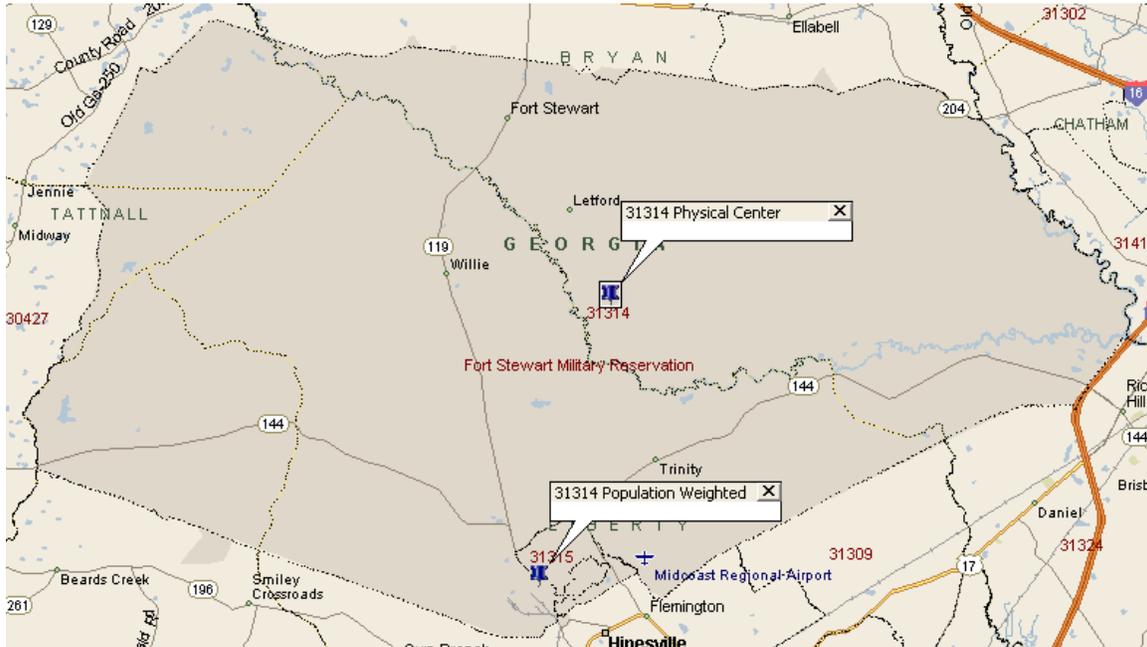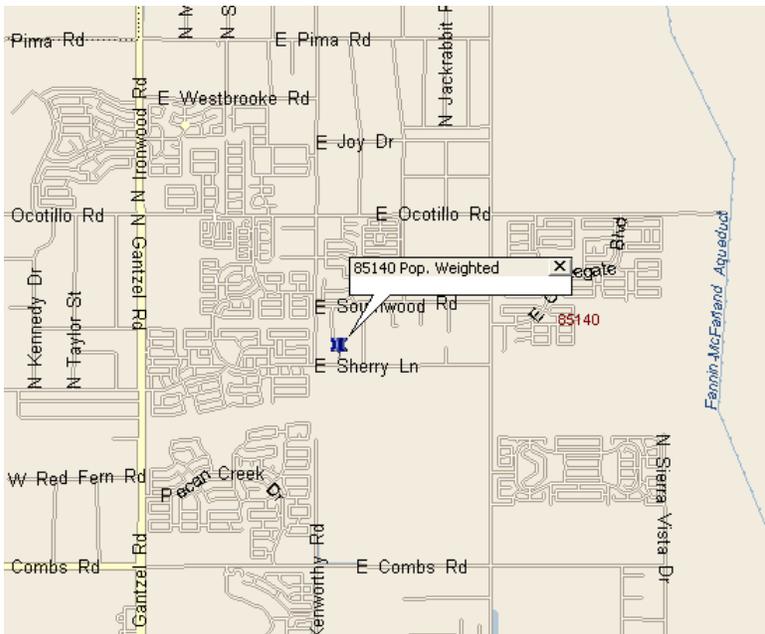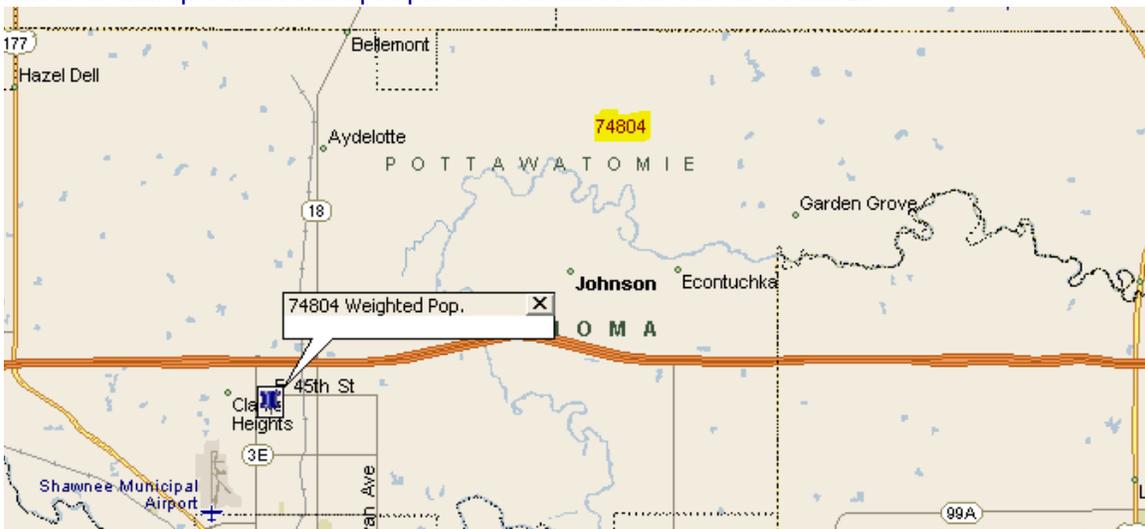

Here's another example southeast of Phoenix:

The physical center is in the middle of a desert. It initially looks like there's no population at our point, but when you zoom in, you see it's where the population is:
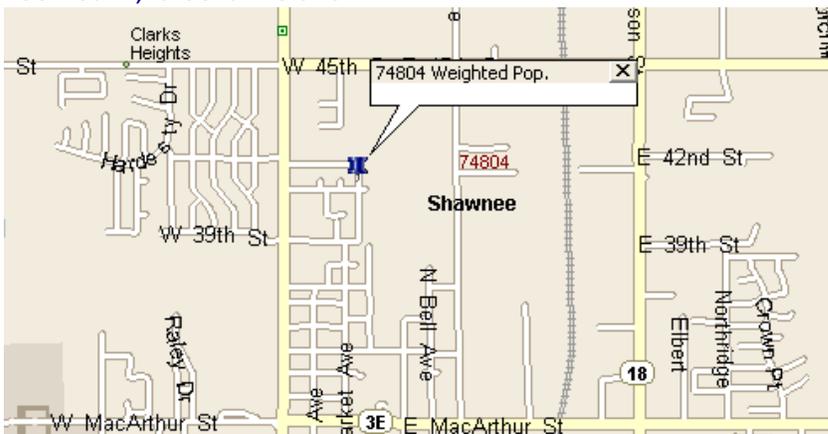
Another example where the people are located in the corner of the ZIP:
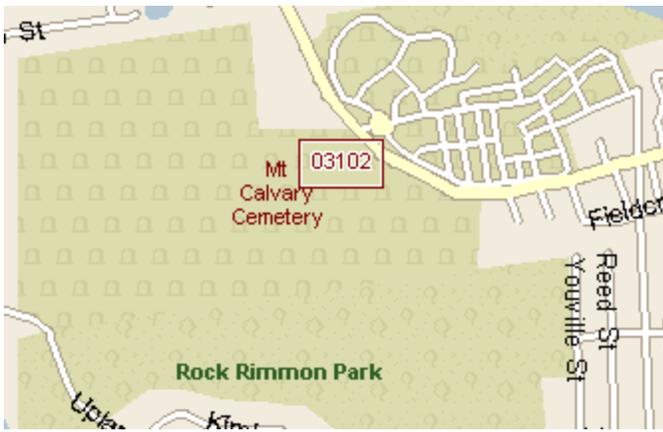

Zoomed in, it looks like this:

We would like to leave you with one more example. This is where a popular map program located the center of a ZIP Code in New Hampshire:

Obviously, they aren't using population-based calculations to determine their centerpoint!

If you used similar data in your locator application, what would be the results?

In summary, this new technology is a true game-changer!

When accuracy matters, only Great Data will do!