ZIP+4 Latitude / Longitude Documentation

ZIP+4
Latitude
Longitude

Introduction:

A ZIP+4 is used by the U.S. Postal Service to provide them with more accurate routing of the mail. It usually is a segment of one side of a street and may include many addresses.

For many years we have been wanting to develop a data product that would have ZIP+4 level accuracy, but weren't able to develop it. We subscribe to the USPS ZIP+4 data, but it doesn't include latitude and longitude.

The Census Bureau has street info with latitude and longitude, but matching street names can be very difficult. We encountered streets that in one file would have 'Highway 130' and another would have 'County Hwy 130'. Also, one may have 'St. James Av.' and another 'Saint James Av.' We also encountered one file using the street number and the other using the common name for the same street such as '138th St' and 'Elm St' so they didn't match.

Over the years we've made many attempts at compiling this data and documented the steps that it would take to create this product. Starting in 2015 we decided to put it all together and this document describes our **ZIP+4 Latitude & Longitude** product.

File Info:

The source file that we start out with is the latest USPS ZIP+4 info which has **over 46 million records**. One ZIP+4 covers about 3.5 addresses, so it's very precise. Internally, we match each ZIP+4 to the best latitude and longitude that we have. In about 5% of the cases, for various reasons, we were not able to match up the record at the ZIP+4 level, so we include a latitude & longitude for the center of the ZIP Code.

In order to keep the file size to a minimum (currently it would be **over 100MB**) we've combined ZIP+4 ranges that have the same latitude and longitude. This has enabled us to reduce the number of records to about **14 million** records.

We do not include the City, State and Primary County for this data (it would probably more than double the size of the file). We don't see many of our clients needing this, but if so, you can purchase our regular ZIP Code data which has this and other info.

The file is called **zip4ll-full.csv** (the demo version is zip4ll-demo.csv).

Data Usage and Accuracy:

This file is designed to provide companies with a more refined latitude and longitude for an address, but **should not be used if you need an exact location for an address.** Our data is mapped to the ZIP+4 which can have many addresses associated with it. Internally we have the starting and ending points of a ZIP+4 segment and we derive the center of that segment. On a curved street, that location may be off to the side of the street.

Our testing of the data in suburban areas showed that the location could be about 100 to 200 yards off, especially if the street is curved. This is far more accurate than relying on a ZIP Code centerpoint, but because it is a range of addresses, it wouldn't be good for locating a specific house or business.

Planned Improvements:

We are planning to make many improvements to our data to increase the percentage of records that have a unique latitude and longitude by using advanced mapping techniques. This will take time, but all subscribers will get free updates to the data during the term of their subscription.

File Layout:

The **ZIP+4 Lat/Long file** has a header record followed by detail records. This is the layout:

1. A 5-digit **Zip Code** is the first field.

2. A 4-digit **Beginning +4 Number**. This is the starting range for the ZIP+4 code.

3. A 4-digit **Ending +4 Number**. This is the ending range for the ZIP+4 code.

4. The **Latitude** is 2 digits, followed by up to 6 decimal positions.

5. The **Longitude** begins with a negative sign (-) followed by 2 or 3 digits and has up to 6 decimal positions. The negative sign indicates we are in the Western hemisphere.

Sample table format:

ZIPCode	Beginning ZIP+4	Ending ZIP+4	Latitude	Longitude
12345	0001	0999	24.123456	-89.456789
12345	1001	1500	24.123455	-89.456777
12345	1501	2500	24.123458	-89.456788
12345	2501	4500	24.123456	-89.456789
12345	4502	8800	24.123456	-89.456789

The way that you would use this file would be, for example, if you had an address with 12345-0800 for the ZIP+4, you would match it to the first record above because 0800 is within the range of 0001-0999.

About GreatData.com:

We have been developing ZIP Code products since the early 1990's. We were the first company on the Internet offering these products for the U.S., Canada and Mexico. Lately we've been working more with spatial databases and GIS applications to improve the accuracy of our products.

Over the years we have sold to most of the Fortune 500 companies and have many large clients that rely on our data being the most current and accurate product available.