



## HUD USPS ZIP CODE CROSSWALK FILES

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HUD's Office of Policy Development and Research (PD&R) is pleased to announce that HUD-USPS ZIP Code Crosswalk data are now available via an application programming interface (API). With this API, developers can easily access and customize crosswalk data for use in existing applications or to create new applications. To create an account and get an access token, please visit the API page here: <https://www.huduser.gov/portal/dataset/uspszip-api.html>.

August 2022 Update: The HUD-USPS ZIP Code Crosswalk API now supports a new feature to get crosswalk data for a specific state or for all states for a specific quarter.

**Note: ZIP to Congressional District and Congressional District to ZIP Crosswalk Files are now available**

**USPS ZIP Code Crosswalk files are now available for 2010 Census geographies level beginning with the first quarter of 2012. HUD is not supplying USPS ZIP Code Crosswalks for 2000 Census geographies beyond the fourth quarter of 2011.**

One of the many challenges that social science researchers and practitioners face is the difficulty of relating United States Postal Service (USPS) ZIP codes to Census Bureau geographies. There are valuable data available only at the ZIP code level that, when combined with demographic data tabulated at various Census geography levels, could open up new avenues of exploration.

While some acceptable methods of combining ZIP codes and Census geography exist, they have limitations. To provide additional avenues for merging these data, PD&R has released the HUD-USPS Crosswalk Files. These unique files are derived from data in the quarterly USPS Vacancy Data. They originate directly from the USPS; are updated quarterly, making them highly responsive to changes in ZIP code configurations; and reflect the locations of both business and residential addresses. The latter feature is of particular interest to housing researchers because many of the phenomena that they study are based on housing unit or address. By using an allocation method based on residential addresses rather than by area or by population, analysts can take into account not only the spatial distribution of population, but also the spatial distribution of residences. This enables a slightly more nuanced

approach to allocating data between disparate geographies. Please note that the USPS Vacancy Data is constructed from ZIP+4 data that contains records of addresses, it does not contain ZIP+4 data that are associated with ZIP codes that exclusively serve Postal Office Boxes (PO Boxes). As a result, ZIP codes that only serve PO Boxes will not appear in the files.

## Understanding ZIP Code Crosswalk Files

Though often used for mapping, spatial analysis, and data aggregation careful attention is required when interpreting ZIP Code data relative to other administrative geographies. The following article demonstrates how to more effectively use the U.S. Department of Housing and Urban Development (HUD) United States Postal Service ZIP Code Crosswalk Files when working with disparate geographies.

Wilson, Ron and Din, Alexander, 2018. "Understanding and Enhancing the U.S. Department of Housing and Urban Development's ZIP Code Crosswalk Files," *Cityscape: A Journal of Policy Development and Research*, Volume 20 Number 2, 277 – 294.

<https://www.huduser.gov/portal/periodicals/cityscpe/vol20num2/ch16.pdf>

## Using a GIS to Geoprocess ZIP Code Crosswalk Files

This article demonstrates how to use a GIS to process ZIP Code Crosswalk Files. In this article, calls for service from New York City's Open Data Portal are estimated at the county-level and census tract-level. This article also includes an accuracy analysis.

Din, Alexander and Wilson, Ron, 2020. "Crosswalking ZIP Codes to Census Geographies: Geoprocessing the U.S. Department of Housing & Urban Development's ZIP Code Crosswalk Files," *Cityscape: A Journal of Policy Development and Research*, Volume 22, Number 1,

<https://www.huduser.gov/portal/periodicals/cityscpe/vol22num1/ch12.pdf>

Data

**Documentation**

FAQs

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### Allocating ZIP Codes to Census tracts, Counties, or CBSA

The address ratios in 3 files listed below can be used to allocate data from the ZIP code to Census tracts, counties, or Core Based Statistical Areas (CBSA). In these files the denominators used to calculate the address ratios are the ZIP code totals. All three files share an identical structure with the exception of the geographic codes in the second column, which differs between the three crosswalk files – tract, county, and CBSA – respectively.

- ZIP - Tract
- ZIP - County
- ZIP - CBSA

When a ZIP is split by any of the other geographies, that ZIP code is duplicated in the crosswalk file. In the example below, ZIP code 03870 is split by two different Census tracts, 33015066000 and 33015071000, which appear in the tract column. The ratio of residential addresses in the first ZIP-Tract record to the total number of residential addresses in the ZIP code is .0042 (.42%). The remaining residential addresses in that ZIP (99.58%) fall into the second ZIP-Tract record. So, for example, if one wanted to allocate data from ZIP code 03870 to each Census tract located in that ZIP code, one would multiply the number of observations in the ZIP code by the residential ratio for each tract associated with that ZIP code. Note that the sum of each ratio column for each distinct ZIP code may not always equal 1.00 (or 100%) due to rounding issues.

ZIP	TRACT	RES_RATIO	BUS_RATIO	OTH_RATIO	TOT_RATIO
03870	33015066000	.0042	0.0000	0.0000	0.0039
03870	33015071000	.9958	1.0000	1.0000	0.9961

<b>ZIP</b>	5 digit USPS ZIP code
<b>TRACT</b>	11 digit unique 2000 or 2010 Census tract GEOID consisting of state FIPS + county FIPS + tract code. The decimal is implied and leading and trailing zeros have been preserved.
<b>COUNTY</b>	5 digit unique 2000 or 2010 Census county GEOID consisting of state FIPS + county FIPS.
<b>CBSA</b>	5 digit CBSA code for Micropolitan and Metropolitan Areas as defined by OMB in February of 2013. ZIP codes with a CBSA code of '99999' are not located within a CBSA. In Metropolitan Areas that are broken out into Divisions, the code reported is the CBSA Metropolitan Division code.
<b>CD</b>	The 5 digit code for Congressional District is a combination of the 2 digit state FIPS code and the Congressional District number.
<b>RES_RATIO</b>	The ratio of residential addresses in the ZIP – Tract, County, or CBSA part to the total number of residential addresses in the entire ZIP.
<b>BUS_RATIO</b>	The ratio of business addresses in the ZIP – Tract, County, or CBSA part to the total number of business addresses in the entire ZIP.
<b>OTH_RATIO</b>	The ratio of other addresses in the ZIP – Tract, County, or CBSA part to the total number of other addresses in the entire ZIP.
<b>TOTAL_RATIO</b>	The ratio of all addresses in the ZIP – Tract, County, or CBSA part to the total number of all types of addresses in the entire ZIP.
<b>USPS_ZIP_PREF_CITY</b>	USPS preferred city name. <u>Note: ZIP code preferred names frequently do not align with administrative/political names. Furthermore, ZIP code boundaries frequently do not align with administrative/political boundaries.</u> For more information, please see USPS City Versus Census Geography.
<b>USPS_ZIP_PREF_STATE</b>	USPS preferred state address state.

### Allocating Census tracts, Counties or CBSA to ZIP Codes

The address ratios in 3 files listed below can be used to allocate data from Census tracts, counties, or Core Based Statistical Areas (CBSA) to ZIP codes. In these files the denominators used to calculate the address ratios are the totals of each type of address in the tract, county or CBSA. All three files share an identical structure with the exception of the geographic codes in the first column, which differs between the three crosswalk files – CBSA, County, and Tract – respectively.

- Tract - ZIP
- County - ZIP
- CBSA - ZIP

When a Census tract, county or CBSA is split by a ZIP code, that tract, county or CBSA code is duplicated in the crosswalk file. In the example below tract 01001020200 is split by two different ZIP codes, 36008 and 36067, which appear in the ZIP column. The ratio of residential addresses in the first tract-ZIP record to the total number of residential addresses in the tract is .0272 (2.72%). The remaining residential addresses in that tract (97.28%) fall into the second tract-ZIP record. So, for example, if one wanted to allocate data from Census tract 01001020200 to the ZIP code level, one would multiply the number of observations in the Census tract by the residential ratio for each ZIP code associated with that Census tract. Note that the sum of each ratio column for each distinct ZIP code may not always equal 1.00 (or 100%) due to rounding issues.

TRACT	ZIP	RES_RATIO	BUS_RATIO	OTH_RATIO	TOT_RATIO
01001020200	36008	0.0272	0.0034	0.0278	0.0217
01001020200	36067	0.9728	0.9966	0.9722	0.9783

<b>TRACT</b>	11 digit unique 2000 or 2010 Census tract GEOID consisting of state FIPS + county FIPS + tract code. The decimal is implied and leading and trailing zeros have been preserved.
<b>COUNTY</b>	5 digit unique 2000 or 2010 Census county GEOID consisting of state FIPS + county FIPS.
<b>CBSA</b>	5 digit CBSA code for Micropolitan and Metropolitan Areas as defined by OMB in February of 2013. ZIP codes with a CBSA code of '99999' are not located within a CBSA. In Metropolitan Areas that are broken out into Divisions, the code reported is the CBSA Metropolitan Division code.
<b>ZIP</b>	5 digit USPS ZIP code
<b>RES_RATIO</b>	The ratio of residential addresses in the Tract, County, or CBSA-ZIP part to the total number of residential addresses in the entire Tract, County, or CBSA.
<b>BUS_RATIO</b>	The ratio of business addresses in the Tract, County, or CBSA-ZIP part to the total number of business addresses in the entire Tract, County, or CBSA.
<b>OTH_RATIO</b>	The ratio of other addresses in the Tract, County, or CBSA-ZIP part to the total number of other addresses in the entire Tract, County, or CBSA.

**TOTAL\_RATIO**

The ratio of all addresses in the Tract, County, or CBSA-ZIP part to the total number of all types of addresses in the entire Tract, County, or CBSA.

**A Note about Geocoding**

HUD is unable to geocode a small number of records that we receive from the USPS. As a result, there may be some 5-digit USPS ZIP codes that will not be included in these crosswalk files. Less than 1% of the total number of active 5-digit ZIP codes in the country are excluded from the current version of the crosswalk files. Since the HUD geocoding base map is updated regularly, an effort is made to re-geocode these records with every new quarter of data. As a result, these crosswalk files will be generated on a quarterly basis and may differ slightly from quarter to quarter.

Questions regarding these crosswalk files can be directed to Alex Din with the subject line HUD-Crosswalks.

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