

Tufts University GIS Tip Sheet

US Department of Housing and Urban Development – Using HUD User Data in ArcGIS 9.2

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This tip sheet discusses how to access three of the data sets available from the US Department of Housing and Urban Development. There are many more data sets available from HUD.

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Low Income Housing Tax Credit Data

About the data:

The Low Income Housing Tax Credit program gives states and local agencies the budget authority to issue Federal tax credits for the acquisition, rehabilitation, or new construction of rental housing targeted to lower-income households. The program is an important source of funding for the creation of affordable housing in the US. General information about the LIHTC program can be found on the HUD web site:

<http://www.hud.gov/offices/fheo/lihtcmou.cfm>

HUD makes available data from the program, including a database of properties receiving the tax credit. The information includes property address, owner, number of total units, and number of low income units in addition to other information. The data includes latitude and longitude coordinates that make it possible to bring it into a GIS program as point data.

To download the data tables:

Go to the HUD USER web site (<http://www.huduser.org/>) – click on Data Sets (left side), and then on Low Income Housing Tax Credit (right side).

Make sure you read about the LIHTC database to understand what you are downloading. When you are ready, there is a link to Access LIHTC Data. Although you can use a query site to download selected data, I find it easier to simply download the entire LIHTCPUB.DBF file which contains the full records for the entire US. Unzip the database when you have downloaded it.

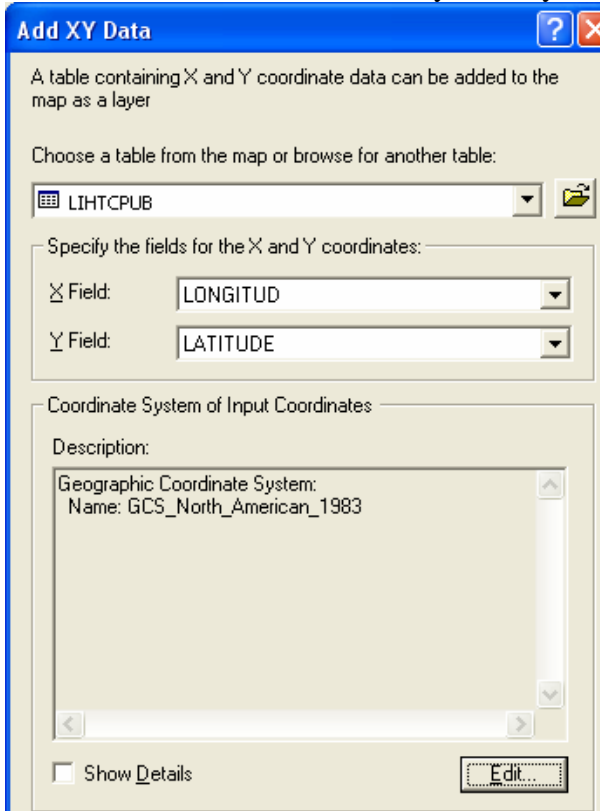
The database includes a data dictionary (LIHTC_DATA_DOC.pdf) which explains all the attribute field names and codes used in the table.

You can open the LIHTCPUB.DBF in Excel if you want to look at it before using it in ArcGIS.

Getting the LIHTC database into ArcGIS

To view the LIHTC data in ArcGIS follow these steps:

1. Add the LIHTCPUB.dbf file to ArcMap (you have to unzip it before you do this)
2. Choose Tools – Add XY Data from the menu
3. Specify that you want to use the LIHTCPUB.dbf
4. The X field should be the LONGITUDE field
5. The Y field should be the LATITUDE field
6. To specify the coordinate system, click on the EDIT button – the LIHTCPUB coordinates are in latitude and longitude which is a geographical coordinate system.
7. Click on the SELECT button to select a predefined coordinate system
8. Choose Geographic Coordinate System – North America - North American Datum 1983.prj and click ADD
9. Click OK for the coordinate system – your dialog box should look like this – if it does, click OK:



The newly added points can be viewed in ArcMap. But they are just a “virtual” view of the data – to create a permanent shape file, right-click on the *LIHTCPUB Events* layer and choose *Data – Export Data*. Navigate to a folder of your choice and name the new shape file LIHTC_US.

If you want a smaller subset, you can select the points you want first, and then export them to a new shape file.

Getting HUD Geography Boundary Files:

Go to: <http://www.hud.gov/offices/cpd/systems/mapping/formula/index.cfm>

You will need these to map the data. But read below first to see what you need.

Census 2000 Low and Moderate Income Summary Data

About the data

HUD tabulates census data to provide information on low and moderate income households to agencies applying for HUD funding like the Community Development Block Grants.

Go to <http://www.hud.gov/offices/cpd/systems/census/lowmod/index.cfm>

Read about the data at this site, and be sure to look at the data dictionary (link on the right) to understand the attribute field names and values.

To download the data tables:

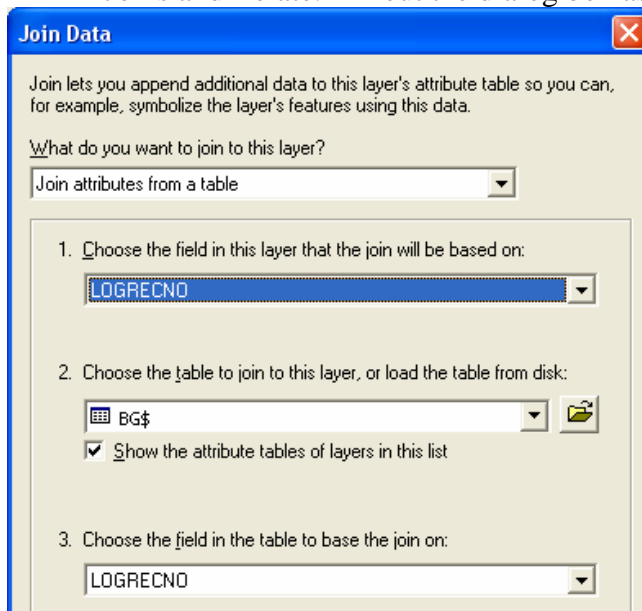
To get the actual data, go to the Census Data by State site at HUD:

<http://www.hud.gov/offices/cpd/systems/census/statemap.cfm>

Select your state of interest and download the FY07 All Block Groups Excel file.

Using this data in ArcGIS:

1. Download the GIS block group boundary data from HUD's Geographic Boundary File web site: <http://www.hud.gov/offices/cpd/systems/mapping/formula/index.cfm> - you want the Split Block Group – 090 level. For Massachusetts, this is *25_090.shp*
2. Add the blockgroup GIS data layer to an ArcMap session.
3. Add the Blockgroup Excel file to your ArcMap session – be sure to drill down to the worksheet level of the Excel file when adding – you can add the worksheet named *BG\$*
4. The Low and Moderate Income Summary Data Excel worksheet can now be joined to the HUD Split Census Block Group -090 level – data by the LOGRECNO field.
5. To perform the join, right-click on the Split blockgroup GIS layer in ArcMap and choose Joins – Joins and Relate. Fill out the dialog box as follows:



For some reason, when you join the Excel file to the GIS blockgroup 090 boundary file, you cannot open the joined table. However, you can map the data, and you can use the Identify icon to look at data values. Also, you can export the joined data layer to a new shape file and then you can open the table with no problem.

Be sure to understand the data values and the “universe” by which to normalize data values if you want percentages (e.g., normalize very low income family households by the universe of family households). The data dictionary is at <http://www.hud.gov/offices/cpd/systems/census/lowmod/dictionary.cfm>

Also read the Frequently Asked Questions (FAQ) about this data set - <http://www.hud.gov/offices/cpd/systems/census/lowmod/faq.cfm> - and note that it says this data can be linked to Census SF3 data by the *logrecno* field.

Consolidated Plan / CHAS (Comprehensive Housing Affordability Strategy)

About the Data

<http://www.huduser.org/datasets/cp.html>

This is a special set of aggregated data delivered to HUD from the Census Bureau for use by local governments doing housing planning, and the Consolidated Plan process in particular. To see what the data set has, go to *Basic Table Characteristics* link - <http://www.huduser.org/datasets/cp.html>

HUD requires state and local governments to produce a five-year Consolidated Plan and annual action plan to receive funds from the Community Development Block Grant (CDBG), Emergency Shelter Grant (ESG), HOME Investment Partnerships Program (HOME), and Housing Options for People With AIDS (HOPWA) formula grant programs. The five-year plan must include an analysis of low-income housing needs, the needs of homeless persons and special needs populations, and the local housing market.

To support the Consolidated Planning process, HUD provides housing affordability and income data sets, as well as GIS boundary files. See HUD’s Consolidated Planning web site for information about the process - <http://www.hud.gov/offices/cpd/about/conplan/>

Consolidated plans for cities and metropolitan regions can be found at this HUD site: <http://www.hud.gov/offices/cpd/about/conplan/local/index.cfm>

To download the data tables:

The tabular data used to support the Consolidated Plans is found at HUD-USER (<http://www.huduser.org/>) – go to Data Sets – then go to the Consolidated Plan link. See the full instructions in the next section.

Using this data in ArcGIS:

This data is fairly complex – you will need to carefully read the data web site, look at the data dictionary, look at the example tables HUD provides, and do some legwork. But it is quite possible to use the data in ArcGIS.

If you are joining the Consolidated Plan data at the census tract level to the HUD Census split tract data (080 summary level), follow these steps (we will use Massachusetts as an example):

1. First download the GIS data layer for the HUD Census Split Tract (summary level 080) boundaries from <http://www.hud.gov/offices/cpd/systems/mapping/formula/index.cfm> (note you can get them for the entire state if you select that, or for a county within the state).
2. Decompress the zipped file into a folder of your choice

3. Open ArcMap and add the data layer to a new map (the Massachusetts tract file is called 25_080.shp)
4. Go to the Consolidated Plan / CHAS data web site at HUD USER – <http://www.huduser.org/datasets/cp.html>
5. Read this site very carefully
6. Open HUD’s example of Interesting Tables and Maps to see examples of using the data - <http://www.huduser.org/datasets/cp/chas/InterestingTables.pdf>
7. Go back to the CP/CHAS data site
8. Under *Ways to Access the Data*, read through 2) *State Files* and read the link for Basic Table Characteristics (<http://www.huduser.org/datasets/cp/CHAS/Data%20Structure.htm>) to understand which tables will be of interest, e.g., *Table A12 – Rent asked by Low Income/Number of Bedrooms*
9. Return to the CP/CHAS main web site, *Ways to Access the Data*, and click on the link for 2) *State Files*
10. Read through the State Files page and note that there will be 59 files that will download (all in .dbf format). Because you are interested in census tracts, the files of interest to you will be the ones “080” in the file name, e.g., MA-A12080r.dbf (for Table A12, Massachusetts, at the Tract (080) level, rounded)
11. Download the file for the state of interest (e.g., Massachusetts).
12. Unzip it – it will unzip into 59 separate .dbf files
13. Let’s say we are interested in *Table A12 – Rent asked by Low Income/Number of Bedrooms* (see the Basic Table Characteristics again at <http://www.huduser.org/datasets/cp/CHAS/Data%20Structure.htm> and go to A12 – note that the universe for this table is Vacant For Rent Housing Units) – the data at the tract level for Table A12 is the dbf file *MA-A12080r.dbf* (it has the 080 at the end of the file name for tract level)
14. Add this data table to ArcMap
15. Join this data table to the Tract GIS data layer by right-clicking on the tract layer (25_080.shp) and choosing *Joins and Relates – Join*. Perform a table join based on the common attribute field *Sum080*.
16. For some reason, when you join the Excel file to the GIS tract 080 boundary file, you cannot open the joined table. However, you can map the data, and you can use the Identify icon to look at data values. Also, you can export the joined data layer to a new shape file and then you can open the table with no problem. But before you do anything, you need to know what the field names represent. Right now they are just letters and numbers. To see the Data Dictionary for Table A12, go to *Basic Table Characteristics* again at <http://www.huduser.org/datasets/cp/CHAS/Data%20Structure.htm> and go to A12, then click on the link for *Data Dictionary* and download it and open it with word processing software.
17. On the data dictionary for Table A12 you can see that the field named A12C1 stand for rent asked is less than the HUD 30 (less than 30% of an area’s median income as defined by HUD) for a housing unit of 0 or 1 bedroom. Total stands for the total number of units in this universe (Vacant For Rent Housing Units)
18. You can map this field by number or normalize it by the Total field.
19. If you want to provide a more descriptive name for the field, you can do this by using an Alias – right click on the data layer and go to Properties and then the Fields tab. Type in a new name under the Alias column next to the field of interest
20. If you want to create a permanent shape file of the data set, you can right click on the data layer, and choose *Data - Export Data* and export it to a new shape file.

Finally note that there is some data by block group – you would need the HUD Split Block Group 091 summary level GIS boundary file for this data. It is best to stick with the Tract level data.