UNIT 4: LAND RECORDS

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Context

Land records are one of the largest and most complex of the existing geographic data sets. In much of the developed world they are a key part of the tax system. Even in developing countries, where mapping is likely to be inadequate, land records are vital to any planning process involving new investments.

Since land records have historical significance, they obviously predate the computer era. To meet their legal obligations, and to hold down their costs, all levels of government are looking at ways to better computerize their operations. The maintenance and use by the public of land records is a major cost item for governmental entities.

The records include a detailed description of the property, structures built upon it, ownership, and many other entities. A map is always part of the record. However, these maps may well be maintained separately from the text records.

In the United States, the normal governmental entity maintaining the extensive land records is the county. Land records are usually located in the county courthouse in a register of legal documents called a deed book. Deed books list the property description, seller and buyer, and other information which may include the price. Other entities within the county such as cities or school districts may maintain separate records. These records are public, not confidential, documents.

Example Application

You are the GIS analyst for a large city. This city has the legal right to annex areas outside of the city boundaries. The city will annex property regularly in order to maintain or increase its own tax base. Because of the cost associated with new developments, such as streets and storm sewers, the city does not annex property until it is mostly developed. On the other hand the city can only annex property adjacent to its current boundary. Undeveloped areas, such as drainage ways, might need to be annexed

in order to reach developed areas on the other side.

The city does not maintain any records of any kind of property outside its own borders. The county continually updates its records in order that property be taxed correctly. The borders of the city need not correspond in any way with those of a county. A large city will normally cross one or more county boundaries.

Commercial and residential development has been going on for several years in a formerly rural area north of the city. The city planning department has proposed annexing this area next year. You are to prepare a series of maps and associated records showing possible areas to annex. The report will include the size of the area, the population, the type and value of all development. It should also include areas not yet developed as well as areas, which will not be taxed, such as parks and schools and water ways. The city planners need to be able to estimate both the costs and the revenues from any proposed annexation.

Learning Outcomes

The following list describes the expected skills which students should master for each level of training, i.e. Awareness/Competency/Mastery.

Awareness:

Students should be able to locate land records from a variety of sources and acquire these along with the necessary metadata.

Competency:

Students should be able to combine data from different formats, scales, and projections into a single map.

Mastery:

Students should be able to acquire land records from a variety of sources in different formats and combine these into a comprehensive and accurate map. They should be able to prepare a summary report to accompany the map.

Preparatory Units

Recommended:

1. (Unit 1) - Acquiring data
2. (Unit 7) - Use and interpret metadata

Complementary:

1. (Unit 8) - Error checking
2. (Unit 9) - Convert digital spatial data between formats,systems, and software
3. (Unit 10) - Project data
4. (Unit 11) - Register and conflate data

Awareness

Learning objectives:

1. Locate the source of land records
2. Determine the format of the data (raster or vector, GIS software format)
3. Identify the available metadata
4. Copy the required data

Vocabulary:

- Land records
- Deed book
- Raster data
- Vector data
- Metadata

Task List:

- You have been told that the Harris County Appraisal District has land records on line *[outdated link removed]* which are kept continually up to date. Included in their award winning site are the complete set of maps which you will need. The first task is to access the site to see what maps and metadata are available.

- Read the descriptions of the data and available maps. Note the updating procedures and the dates on the information.

- Look at the index map. It is generalized by school district. The map using city boundaries, which is provided for the city of Houston *[outdated link removed]*, does not appear as part of the property map.

- You can directly access a detailed property map. However, to do so, you must have an index to the facet maps, which are the county's method for organizing map sheets. This is not part of the on-line information

- In order to access a map from the database you need an index number or an owner's name or an address. To see how map and data access works, this unit was written by Kenneth L. Russell who lives at 2807 Valley Way Drive. This will take you to map

facet 5770D, section 12. You can download that map or send it to your printer.

- Your objective was to prepare a set of maps for possible annexation showing the value of developed and undeveloped properties. What you have seen so far is that information is available, if you know exactly what you want and where to look. It does not look much like your expected final product. This material is not in any GIS format, because there is not a tie from map back to the database.

Competency

Learning Objectives:

1. Determine the format of the maps.
2. Look at the scale of a map and choose a scale for your report.
3. Compare projections of maps to a reference map.
4. Plan the data capture.

Vocabulary:

- Scale
- Projection

Task List:

- One ofthe questions you obviously must answer is how up to date is your information. The database is updated every two weeks and the last date is given. The maps are pdf format, in other words picture files which cannot be updated, only replaced. Nothing in the metadata mentions updating them. Should you call your colleague at the Appraisal District?

- The text is designed to be read at a scale of 1" = 200. If you use this scale, your map will be huge. If you go to a smaller scale, the text will vanish. A possible scale for your work is 1" = 1000.

- This map is a typical surveyors plot. It does not have a projection. How to project it or to combine it with other projected maps are subjects for other units. The situation you are looking at is typical of land records. Your city map may or may not have a projection.

- Look at the map for quality control. It says 1" = 200. Use a ruler to check some simple lot lines. Look at the south property line for 2807 Valley Way Drive. It says, to a precision of two decimal points, that the lot line is over 1200 feet long! These dimensions shown are not dimensions in reality, they are just numbers typed into a

graphics file. For your assigned project, however, this does not matter. For many other projects, such as utility layouts, it certainly will matter.

- Is it useful to you to use these detailed property maps as they are available on-line. More likely, you need to contact the appraisal district, now that you know what is available, and ask about their original formats. What you really need are the maps from which the on-line site was constructed.

Mastery

Learning Objectives:

1. Combine information to produce the necessary maps
2. Provide a report of property values with the map

Vocabulary:

- Appraised value

Task List:

- Each piece of property on your map has an appraised value in the database. You need to generate a summary of property values for each possible annexation. There is no report generator available, especially since the map is not tied back to the database.

- Appraised values are continually changing, and are only estimates anyway. For the purposes of deciding the value of an area, they do not need to be perfectly accurate. Annexations are based upon developed areas and not based upon actual geography. You need to develop your mapping options based upon some concept such as neighborhood.

- This information is available separately from the city or the county data. Unfortunately this will mean yet another data format. In this case at least two sources provide property values summarized by neighborhood. One is a commercial source *[outdated link rmoved]*, the other is a service of the local newspaper *[outdated link removed]*.

- Your detailed property maps now need to be generalized by neighborhood. Average property values can then be established to estimate tax revenues. Undeveloped properties can also be projected as to when they become tax paying entities.

Follow-up Units

1. (Unit 19) - Plan a tabular database

2. (Unit 21) - Use spreadsheets
3. (Unit 49) - Operate plotter/printer hardware

Resources
[outdated links have been removed]

The state of Maryland is going digital

Plans on how to organize such a project

Land records exclusively in ESRI format:
Cabarrus County, North Carolina
Commonwealth of Massachusetts
Dade County Florida
San Diego

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