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Term Project proposal for GIS for Water Resources class

For this term project, I think that it would be very interesting for me to study a subject that is linked to what I will study as part of my Graduate research assistantship (I am an incoming Graduate student and am enrolled as a GRA). I do not know yet the exact subject of my research but it will be dealing with management of water and wastewater infrastructures in cities that are evolving (with gentrification for example).

That's why I would like, for this term project, to try to figure out if there is a correlation between changes in the structure of a city and its water supplies. To do so, I would pick a city that has been changing a lot for the past 10 years for example. I could pick a city where gentrification has occurred a lot over the past 10 years (for example Boston where a majority of low-price tracts has tended to gentrify since 2000, or even Austin, which is growing fast).

Then, I could study the change in population types (richer people?, people who work more?, people who commute to work?,…), in housing infrastructures (new infrastructures?, renovated infrastructures?,…) , and in land cover types in this city during an adequate period.

Resources I am planning to use for this study are:
1) The Multi-Resolution Land characteristics consortium (national land cover database)
http://www.mrlc.gov/nlcd11_data.php
It would namely be interesting to use this database to study their "2001 to 2011 land cover change" maps.
2) The United Sates Census Bureau's American Community Survey to understand changes in population.
http://www.mrlc.gov/nlcd11_data.php
3) The United States Census Bureau's American Fact finder, for example to find the average income of a specific area.
http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

After focusing on changes in population and housings, I could look at water supplies in this city or area, and see if I can find any correlation.
For this, I may use the Texas Water Development Board or its equivalent for the state in which the city or area I would choose is located. It would be interesting to look at demands and existing supplies.

I think that studying state water plan would be relevant too because it takes into account changes I described below. (example for Texas :
http://texasstatewaterplan.org/#/demands/2010/state) This would be relevant also to understand if the correlation between such changes and water supply is easily predictable or not, by looking at past plans (did they fail or where they realistic?).