

Old Business: Q/A for last week's exercise [Intro to Raster Overlay Models](#)

New Business:

The problem of population density in site suitability models.

Conceptual Model:

One parameter to consider when evaluating a site for a hub library is the residential population density **nearby**.

To leave our conception like this is not good. What does "Nearby" mean? This would be extremely simple to simulate, yet this vague term means nothing. There is no way to evaluate the result in terms of how things work in the real world. Why?

Point-In_Polygon (Spatial Join)

The easiest way of approaching the concept of Density Nearby would be simply look at the census block or block group that a proposed site falls within, and assign this population density to the site. What is the problem with this? By the way, this is easy to do, it is called Point-in-Polygon analysis and can be accomplished with the [ArcMap Spatial Join procedure](#)

When you see people doing this, it should be clear that they have put zero thought into the way that their system actually works.

The Spatial join procedure can also summarize population within a distance using centroids which is also illustrated in the Vector-Relational GIS tutorial with the accompanying model in the pbcVectorDemo tool-set.

In the first half of this workshop, we will work through the Neighborhood Density model that can be found in [last week's tutorial data-set](#) in the **pbcRasterDemo/Cartographic_Modeling** tool-set. This model demonstrates to evaluate the count of nearby population for every cell in the processing extent. You can read more about this in the Raster Patterns tutorial. It is not without its caveats, but at least it takes into account that people move around, and it should not be necessary to knock down existing housing to build a library that is close to lots of residents.

After Break: we will go through the second part of the [Mapping Census Tutorial](#) which covers resources and methods for working with data from the American Community Survey. Background on the ACS can be found in the [About Census Data tutorial](#)

Note: nobody has to use ACS in their projects. You could always just stick with block level population data which will be much more straight-forward.