Review Lab, or, How do I do that again?

Believe it or not, this is our final lab before we start working on our multi-class period in-class final project. That final project is going to ask you to figure out how to solve some basic spatial analysis problems on your own. In order to better prepare you for this, this week’s lab will get you reacquainted with some of the old friends we haven’t seen for a while. Today you’ll have work through, by yourself, a vector based analysis. I’ll provide you with a short description of what you need to do, but you’ll have to remember/figure out/look up where to find particular commands and how to do common tasks like applying symbology.

Vector Refresher – Can you hear me now?

The New Brunswick City Council is considering the adoption of new noise ordinances. One component of these ordinances is requiring soundproof construction techniques on new buildings, additions or substantial remodeling for buildings where road noise exceeds 60 dB. At this early stage of the process, the commissioners would like a rough idea of what areas might be affected by this proposed component. Rather than spend significant sums of money to hire a noise consultant to measure actual road noise, the council decided to turn to you, a GIS intern, as a cost-effective first step.

You will be working with data in:

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The data layers we’ll need are newbruns_rds.shp and newbruns.shp. The first is a line layer representing the location of all roads in the city; the second is a polygon layer representing the city’s boundary.

You’ve found out that, typically, limited access highways and city highways generate noise in excess of 60 dB. It also turns out that limited access highways can generate that level of noise up to 300 feet away from them, and city highways 150 feet.

Luckily for you, there’s a field in the road data layer "RoadType" that classifies roads as Limited Access Highway, City Highway or Local Road.

Your task, then, is to create a map showing areas within New Brunswick that will show which areas are likely to be subject to the new noise related construction ordinances.

To accomplish this you must:

- **Select** the roads based on their type (**Select by Attributes**) and **buffer** by the appropriate amount (once for each type) (remember that the buffer tool will work on only the selected features if features are selected).
- **Union** the two buffers into a single data layer.
- **Dissolve** the results of your union so that the buffers have no unnecessary internal boundaries (the Dissolve tool is under Data Management Tools -> Generalization).
- **Clip** the results of your dissolve to the city boundaries so that your map looks neater.

Following the above steps will produce a data layer you can then use to make a map.

(OVER)
This map should show:
  • the final, clipped buffer layer
  • all roads, differentiated by RoadType
  • and the boundaries of New Brunswick.

Don’t forget to include a concise yet informative title, a legend, north arrow and scale bar, as well as a brief description of the process you used to create the buffers.

**EXTRA CREDIT**
With absolutely no help from me, figure out a way to label US Route 1, NJ Route 18, NJ Route 27 and the New Jersey Turnpike. Do not label any other roads. I don’t care what method you use, but you will receive the extra credit only if you correctly label those *four* roads (no more, no less).