

EnvSci 360 – Computer and Analytical Cartography Spring 2017

- Lab 5 -

Exercise 1: Maplex for ArcGIS Tutorial

Task: Learn advanced labeling options by completing all four exercises in the “Maplex Label Engine Tutorial”.

The **data** are located at <http://www.faculty.umb.edu/michael.trust/data360/lab5ex1.zip>.

Once downloaded, **unzip** the file into a folder for this lab. The **tutorial** link is:

<http://desktop.arcgis.com/en/arcmap/10.4/map/working-with-text/introduction-to-the-maplex-tutorial.htm>

Note: Wherever the tutorial refers to the path to the data as C:\ArcGIS\ArcTutor\Maplex, substitute the location where you extracted the data.

Steps:

- Read the Introduction and Exercise 1.
- Create a Word document and paste into it screen shots of your data frame after completing:
 - Exercise 2 (your map should resemble the “after” screen shot as seen at the end of the exercise).
 - Exercise 3.
 - Exercise 4.

Email the Word doc, named **Lab5_yourname.doc**, to michael.trust@umb.edu.

Exercise 2: Detailed Map of Downtown Pittsfield, Mass.

Task: Gain experience working with symbols and Maplex labeling by creating an 8.5 x 11 inch color general reference map of the downtown Pittsfield area showing the following features:

- K-12 Schools
- Colleges
- Police stations
- Fire stations
- Hospitals
- The city hall
- Ice rinks

The **data** are located at <http://www.faculty.umb.edu/michael.trust/data360/lab5ex2.zip>.

Once downloaded, **unzip** the file into a folder for this lab.

Steps:

- Choose or create a marker (point) symbol appropriate for each of the above point feature classes.
- Also show these features:
 - Streets, symbolized on the CLASS field (see <http://www.mass.gov/itd/eotroads> for details)
 - Parks (all one shade of light green)
 - Water bodies, symbolized on the TYPE field, with no outline (use a pattern symbol for the wetlands)
 - Rivers (includes the outlines of the water bodies – draw above the water bodies)
- **Using the Maplex label engine, dynamically label all features.** Each feature class should have a different type style. Use lecture 5, chapters 5 and 6 in Designing Maps, and chapter 11 in Making Maps as a guide.

- For the streets, label the lines with their names, and include State and U.S. route shields as appropriate (based on ADMIN_TYPE – see <http://www.mass.gov/itd/eotroads> for details).
- Include a title, legend, scale bar, North arrow, your name, and the date.

Export the map as a PDF file named **Lab5_Map1_yourname.pdf** and **email** it to michael.trust@umb.edu.

Exercise 3: United States and Capital Cities Map for Kids

Task: Create an **8.5 x 11-inch** color map layout of the United States that shows the full state names and capital cities, all labeled, using the Maplex label engine.

The **data** are located at <http://www.faculty.umb.edu/michael.trust/data360/lab5ex3.zip>.
Once downloaded, **unzip** the file into a folder for this lab.

Steps:

- Show the Continental 48 states, and also Alaska and Hawaii, appearing elsewhere on the page.
- Choose appropriate PROJECTED coordinate systems for each of the three data frames (one each for the lower 48, Alaska, and Hawaii).
- The states and cities layers should each have its own label style. (Note: You'll need to use a **definition query** in the cities layer to show **only the capitals**. Examine the attribute table to see what query you will need to build.)
- Use leader lines for capital city names as you see fit.
- For small states along the east coast, manually place the state names offshore and use leader lines to show which state is being labeled.
 - You'll need to set the label properties of the layer(s) to have leaders before you place those labels. To do so, go into the properties of the layer > Symbology tab > Symbol button > Edit Symbol... button in the Symbol Selector > Advanced Text tab > check the box for Text Background and click Properties > choose Type Simple Line Callout. Click OK until you are out of all the dialog boxes. Then use the Label Tool on the Draw toolbar to add the labels (for Label Tool Options, select 'Place label at position clicked' and 'Use properties set for the feature layer').

Tip: Add and adjust the labels using the data view mode in layout view; this will let you see how the labels will look on your final output. To access this mode when in layout view, double click each data frame so that the frame's outline becomes a thicker line hatch pattern.

Include a title, legend, scale bar, North arrow, your name, and the date. In small text somewhere on the layout, list the projected coordinate systems you used for each data frame.

*** Remember, this is a map for young kids just learning about maps that will serve to show them where each state is and what each state's capital is, so keep your audience in mind when designing this map (it should grab kids' attention and teach them at the same time). Think about how you should use color on the map and how to keep it simple.*

Export the map as a PDF file named **Lab5_Map2_yourname.pdf** and **email** it to michael.trust@umb.edu.