

SOC 4650/5650: PS-02

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Directions

Please complete all steps below. Your final map images and mark-down file with answers should be uploaded to your GitHub assignment repository by 4:20pm on Tuesday, February 14th, 2017. This lab uses data found in `Springfield.gdb`, a geodatabase featuring data on public safety and infrastructure in Springfield, MO.

For this assignment, you are asked to take on the role of a public safety planner for **CoxHealth**, one of two EMS providers for Springfield. CoxHealth's EMS operations staff have asked you to locate and map public schools in their two response zones in the city to assist in pre-planning for a major incident. You will also want to include the locations of other public safety resources including fire and police stations.

Create a Basemap

1. Create a save a new map document to your PS-02 subfolder. Make sure that you set the "relative paths" option.
2. Rename the data frame to "Basemap".
3. Add the following layers to your map from `Springfield.gdb` in the order listed below and symbolize them with the given attributes:
 - (a) City Boundary - no fill, Dark Umber outline with width = 1.6
 - (b) Schools - Use the "School 1" pre-set symbol
 - (c) Street Centerlines - Gray 70% with width = 0.2
 - (d) City Boundary - White fill, no outline
 - (e) County Boundaries - 10% Gray fill, 50% Gray outline with width = 0.4
4. Turn labeling on for the *top* city boundary layer. Use the NAME field. Use the "Country 3" pre-set label and add the halo effect.¹
5. Zoom to the city boundary layer.
6. Export the map as a pdf file at 300 dpi.

¹ *Hint:* Use the Symbol... button to access these properties.

Map Public Safety Resources

6. Add a new data frame to your map document and name it “Public Safety”.
7. Copy and Paste all of the layers from your “Basemap” data frame into the “Public Safety” data frame. Re-order layers if necessary so that they follow the order specified in question 3.
8. Add the public safety stations layer from Springfield.gdb. Place it directly below the *top* city boundary layer and symbolize based on type (fire or police). In the Symbology tab, choose Categories and then Unique values. For the Value Field select CLASS, then click Add All Values. Un-check <all other values>. Double click on the Symbol for FIRE, and use the “Circle 2” pre-set symbol. Change its fill to “Mars Red” and its size to 8. Click OK and then double click on the Symbol for LAW. Use the “Circle 2” pre-set symbol but change its fill to “Cretan Blue” and its size to 8.
9. Add the EMS districts layer from Springfield.gdb. Place it directly *below* the street centerlines layer and use a Definition Query to select only the polygons that represent CoxHealth EMS’s response area. The query should look like this: “AGENCY” = ‘CX’. Symbolize this layer using the “Rose” pre-set symbol.
10. Zoom to the city boundary layer.
11. Export the map as a pdf file at 300 dpi.

Map Schools in CoxHealth EMS’s Northern Response Area

12. Add a new data frame to your map document and name it “Response Area North”
13. Copy and Paste all of the layers from your “Public Safety” data frame into the “Response Area North” data frame. Re-order layers if necessary so that they follow the order specified in question 3.
14. Zoom in on the northern response area (towards the “top” of the mpa) for CoxHealth EMS. You can zoom in past the edges on both the east and west sides of this area where there are no schools to maximize your view of where schools are located.
15. Make the schools layer the only one that is selectable.

16. Select all of the schools within CoxHealth EMS's northern response area and create a new layer symbolizing only those schools. This new layer should be positioned directly above the original schools layer and should be symbolized with the "School 2" preset symbol with an "Electron Gold" fill and size = 24.
17. For the schools that are in the northern response area, label them with the NAME attribute and add the halo effect.
18. Export the map as a pdf file at 300 dpi.

Follow-up Questions

In a new Atom document, switch the language to GitHub Markdown. Expand the headMarkdown snippet and fill in the header with the assignment title, your name, and the date. Answer the following questions:

1. What type of *spatial* data is the school layer?²
2. What type of *tabular* data is the NAME attribute on the schools layer?³
3. What level of measurement is the NAME attribute on the schools layer?⁴
4. How many schools are located in the northern response area for CoxHealth EMS? What types of schools are located there, and how many of each type of school are there?
5. Based on the third map, are there fire department resources nearby the schools in the northern part of the city? What schools might have the *longest* response time from a fire station? What schools might have the *shortest* response time?

² *Hint:* By spatial data, we mean point, line, or polygon.

³ *Hint:* By tabular data, we mean string or numeric.

⁴ *Hint:* By level of measurement, we mean categorical, ordinal, or continuous.