

GIS Project 1: Demographics of Western Massachusetts Cities

Here you analyze the population and housing demographics of 13 cities located in Western Massachusetts. Specifically, you compare population demographics (i.e. number/percentage of white persons and persons of color) with housing statistics (i.e. number/percentage of vacant, owner-, and renter-occupied housing units). You present the results of your analysis as a GIS poster that includes a map, a table, graphs, and explanatory text around these analysis questions:

1. Which city had the highest/lowest number of Whites? Persons of Color? *Why?* Consider both absolute values and percentages.
2. Which city had the highest/lowest amount of Vacant housing? Total housing? Renter vs. Owned housing? *Why?* Consider both absolute values and percentages.
3. What conclusions can you reach regarding ethnic diversity and housing in Western Massachusetts cities?
4. What new questions emerged from your analysis? Given additional time, how could you expand your analysis to answer these questions?

1) GIS Mapping

Create a choropleth map focused on the 13 cities located in the four counties of Western Massachusetts.

- Create your GIS poster in 24 by 18 inches, landscape orientation, with one data frame for your map.
- Use States.shp, Counties.shp, and Cities.shp.
- Show the 13 cities in W-MA as red circles with the circle diameter as a function of population in 2000.
- Label the cities and counties.
- Include all necessary map elements and create a professional and beautiful map.

2) Data Analysis – Table

Create a MS Excel spreadsheet from the Cities.shp attribute table for the 13 cities in Western Massachusetts, sorted ascending by population in 2000 that includes 10 columns:

- Col 1 City name
- Col 2 Population in 2000
- Col 3 White (absolute value)
- Col 4 Persons of Color (absolute value)
- Col 5 Males (absolute value)
- Col 6 Females (absolute value)
- Col 7 Housing Units (HSE_UNITS)
- Col 8 Vacant Housing Units (VACANT, absolute value)
- Col 9 Owner-Occupied Housing Units (OWNER_OCC, absolute value)
- Col 10 Renter-Occupied Housing Units (RENTER_OCC, absolute value)

Underneath this table, create a second table with relative values (i.e. percentages).

- Col 1 City name
- Col 2 Population in 2000
- Col 3 White (percentage of total population)
- Col 4 Persons of Color (percentage of total population)
- Col 5 Males (percentage total population)
- Col 6 Females (percentage of total population percentage)
- Col 7 Housing Units (HSE_UNITS)
- Col 8 Vacant Housing Units (VACANT, percentage of total housing units)
- Col 9 Owner-Occupied Housing Units (OWNER_OCC, percentage of total housing units)
- Col 10 Renter-Occupied Housing Units (RENTER_OCC, percentage of total housing units)

Tips and Hints

- Determine Persons of Color as Total Population *minus* White.
- Calculate the percentage white/persons of color/male/female relative to the total population for each city.
- Calculate the percentage of vacant/rental/owned housing units relative to the total housing units for each city.
- Check the metadata for Cities.shp in ArcCatalog!

3) Data Analysis – Graphs

Create at least two useful and meaningful graphs in MS Excel to visualize your analysis with respect to the four questions above. These can be line, bar, pie charts – whatever you feel is most appropriate.

4) Documentation, Methods, Results, and Interpretation

Add text boxes to your GIS poster to document your analysis and methods. Also include a description and discussion of your results, interpretation, and conclusions.

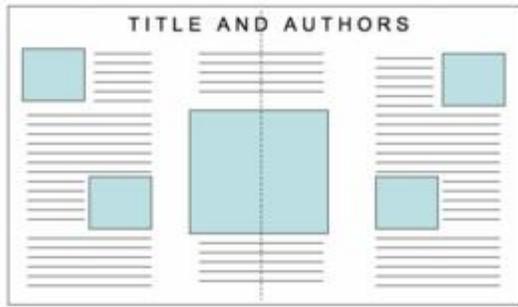
➔ *Your GIS poster has to be able to stand-alone and be understandable without additional explanations or an accompanying written report. Think of it as being displayed on the wall outside of Bates 22 – a normal person walking by should be able to fully understand your poster.*

Deliverables

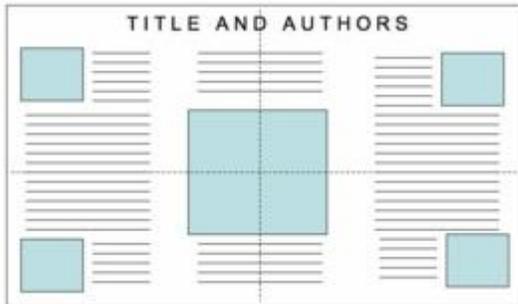
Please submit professional, well-designed, and error-free poster printed in 24 by 18 inches in color. Use proper English language and professional formatting and layout. Think in terms of using this GIS poster as a sample of your GIS skills for a job interview.

- Export your poster as a JPG file and email to me.
- Include this project on your blog or website.
- Due Date: Monday 30 September 2013 at the beginning of class.

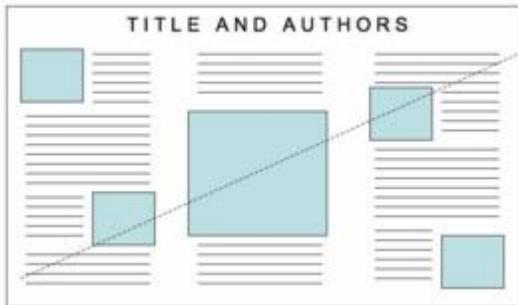
➔ *Contact me for help or clarification of this project or my expectations as needed.*



Horizontal Symmetry



Vertical Symmetry



Diagonal Symmetry



Asymmetry: text-heavy on the left side, image-heavy on the right side

After: <http://www.ncsu.edu/project/posters/NewSite/CreatePosterLayout.html>