CRP 4080: Introduction to Geographic Information Systems for planners

Lecture 1: Introduction to GIS and Mapping Continue…

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City and Regional Planning
Fall 2024

Announcement

- If you want to access ArcGIS Pro via your computer (for Windows users only), please sign up here. DO NOT contact the IT staff individually

- Lab 1 has been released
  - Modules-> Lab1 -> Lab1_CRP4080_fall2024_updated.docx
  - Deadline: 09/10 (Tuesday, the third week)

- TA office hour: 4:30pm – 6:30pm, Wednesday, Sibley 305

- Today?
  - Lecture – how to make a map?
  - Lab session - work on Lab 1

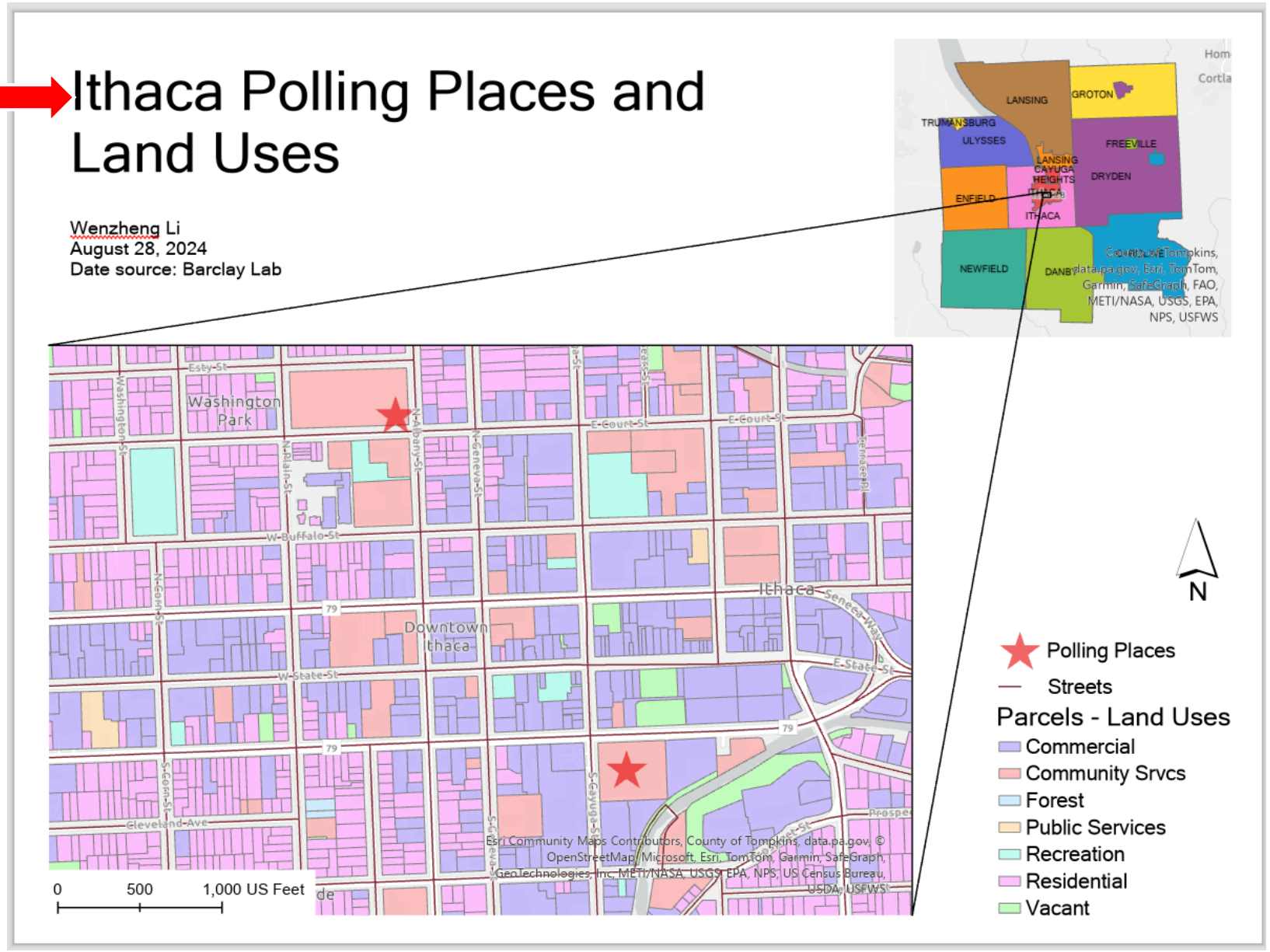
Important!!! What to include on a layout:

Create a "checklist" or standard set of information you will include in every map:

- **Title:** theme? What, where, and when?
- **Legend**: a guide that explains the meaning of the symbols, colors, and patterns used on the map
- Scale bar: the relationship between the map's distances and actual distances
- **north** arrow: indicates the direction
- **Metadata/notes**

- Data frame(s): 2 if necessary (location/ context map).
- Neat-line and border can help organize map layout

Title (and sub-titles if necessary): theme?



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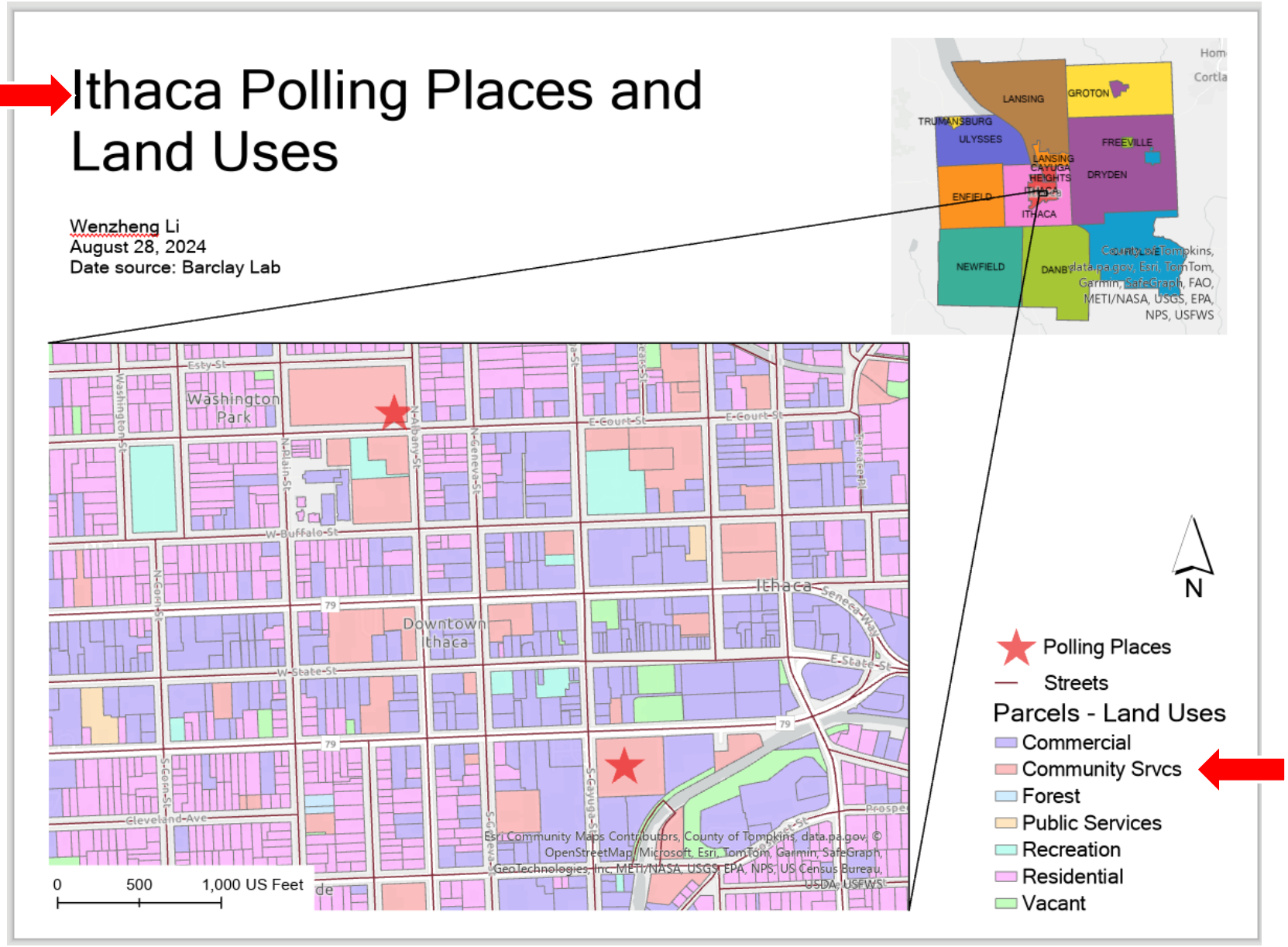
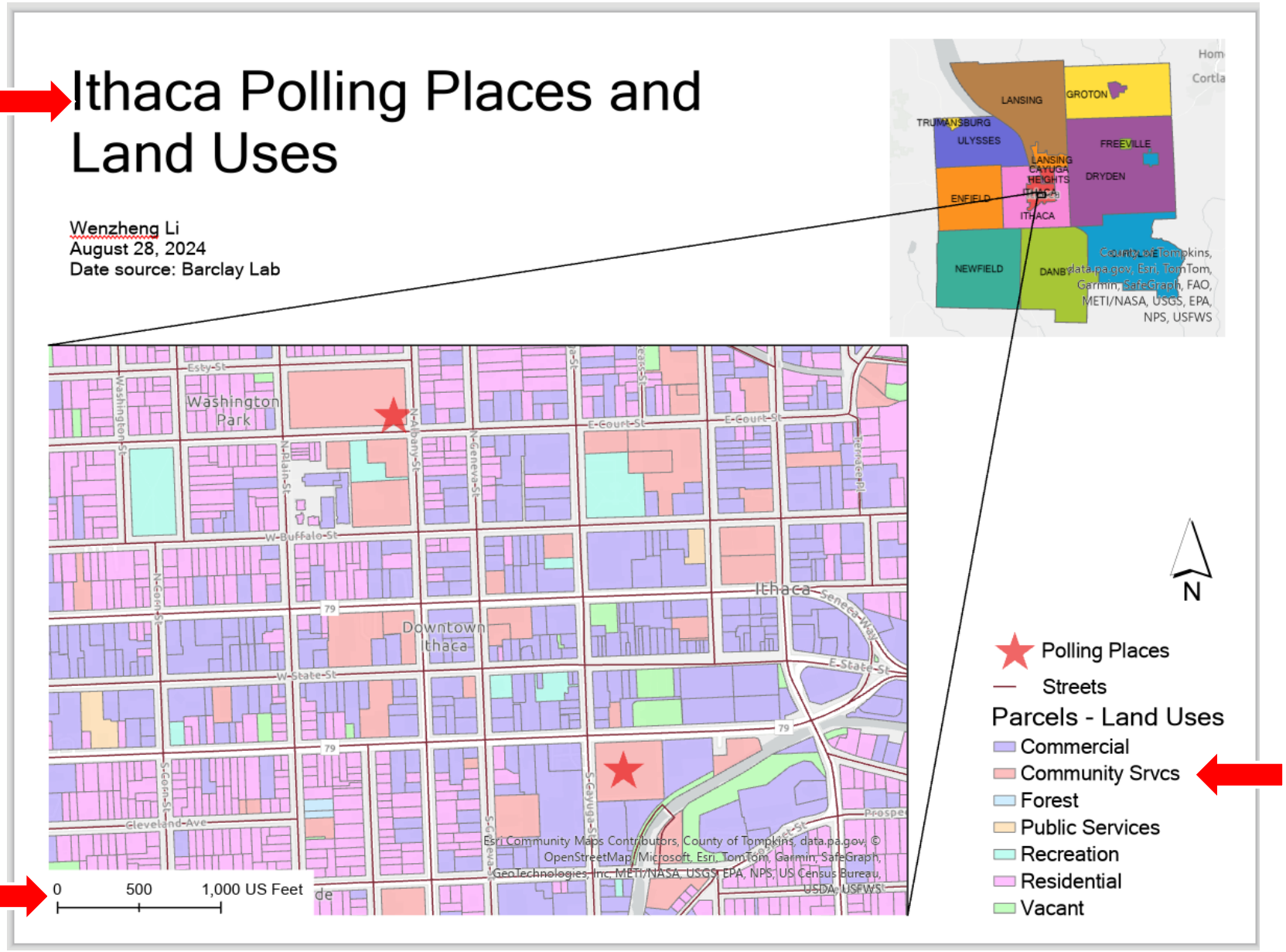


Legend:
Is it legible? Does it make sense? Are the number breaks logical? Are the categories reasonable?

- Check symbology, classification!
- Don't use default!

Title (and sub-titles if necessary): theme?



Scale bar: Do units (feet, miles), breaks (not too many!) make sense? Do not use default!

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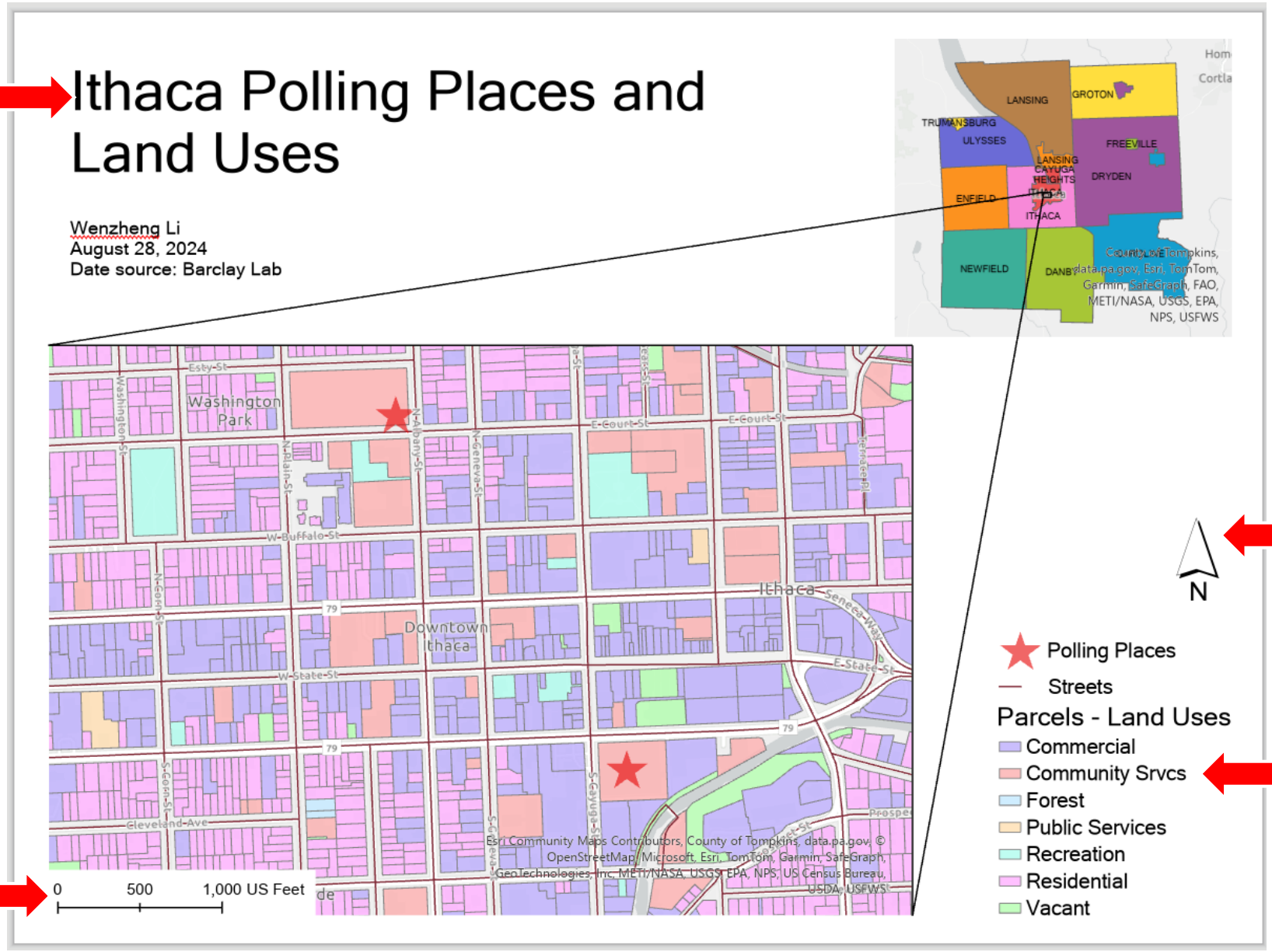

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north arrow

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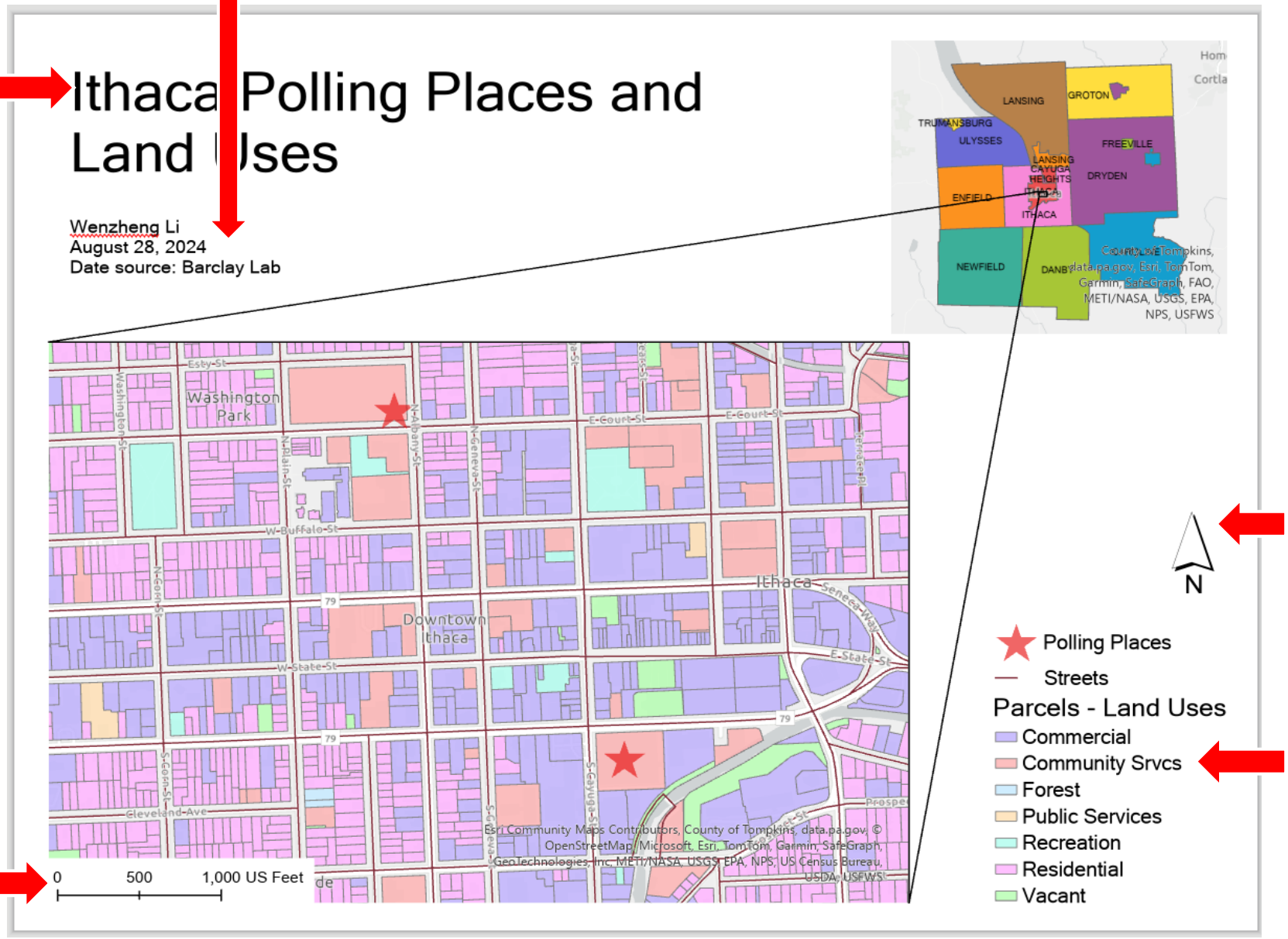
Metadata/notes: tell us about the map! Who was it created by? Where? Date? what is the data source? Projection? Units? How is the data classified? What is the purpose of the map?

Title (and sub-titles if necessary): theme?



north arrow

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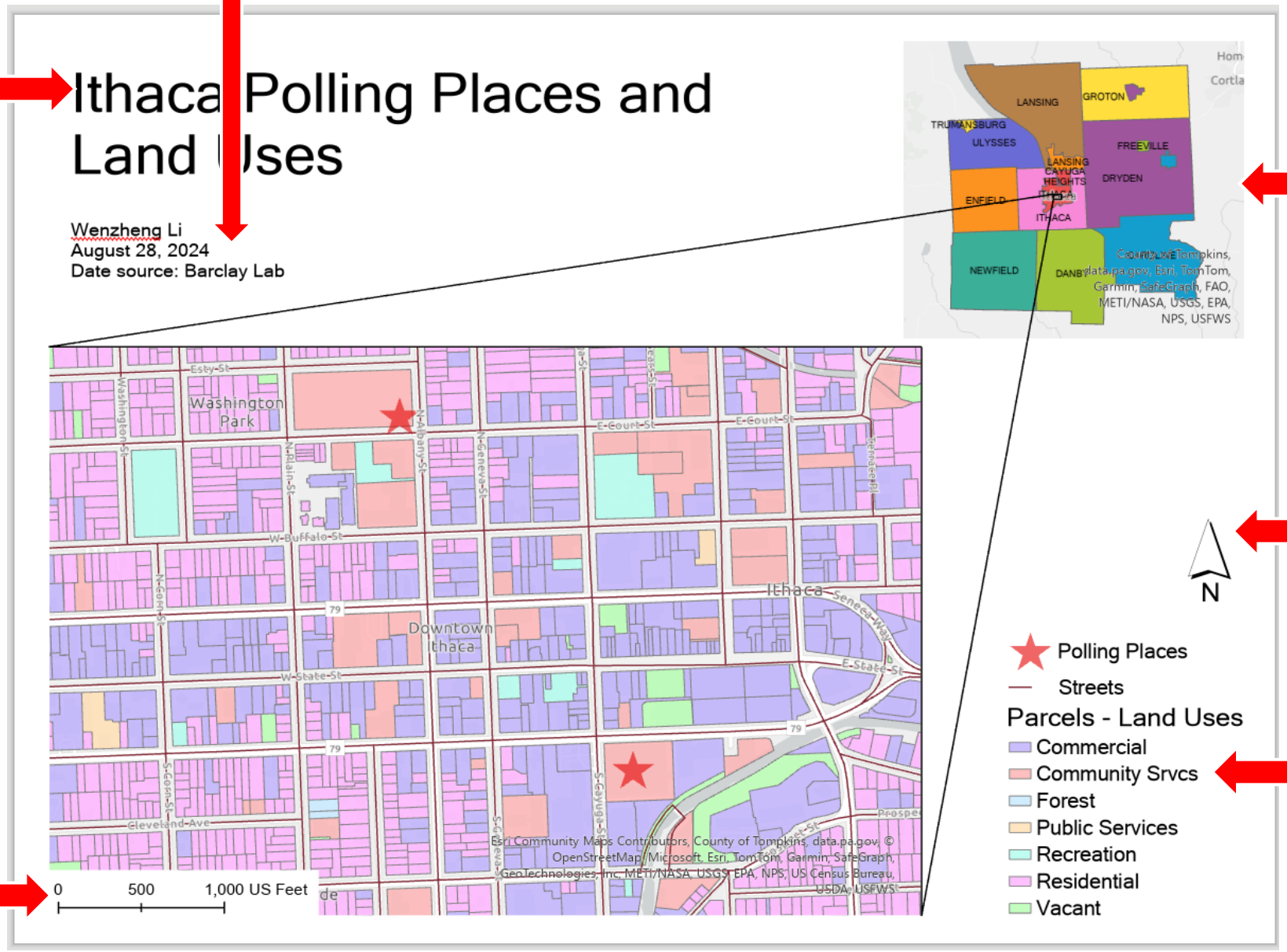

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north arrow

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Important!!! What to include on a layout:

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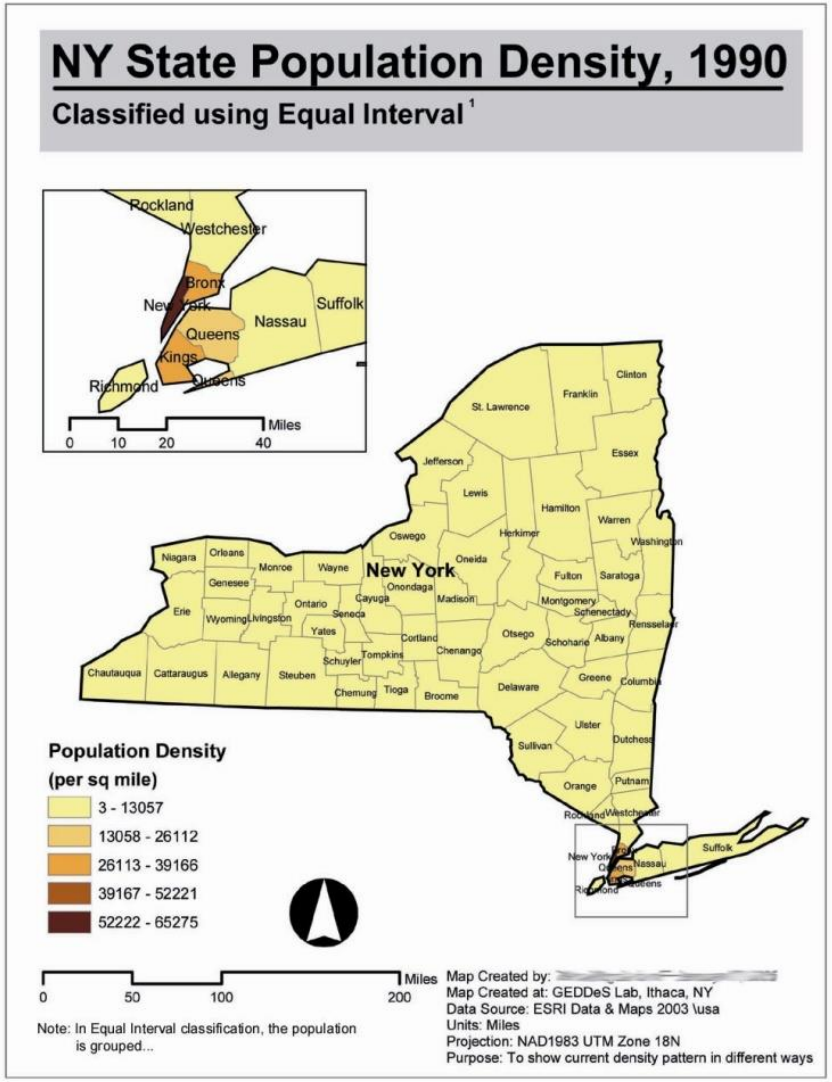
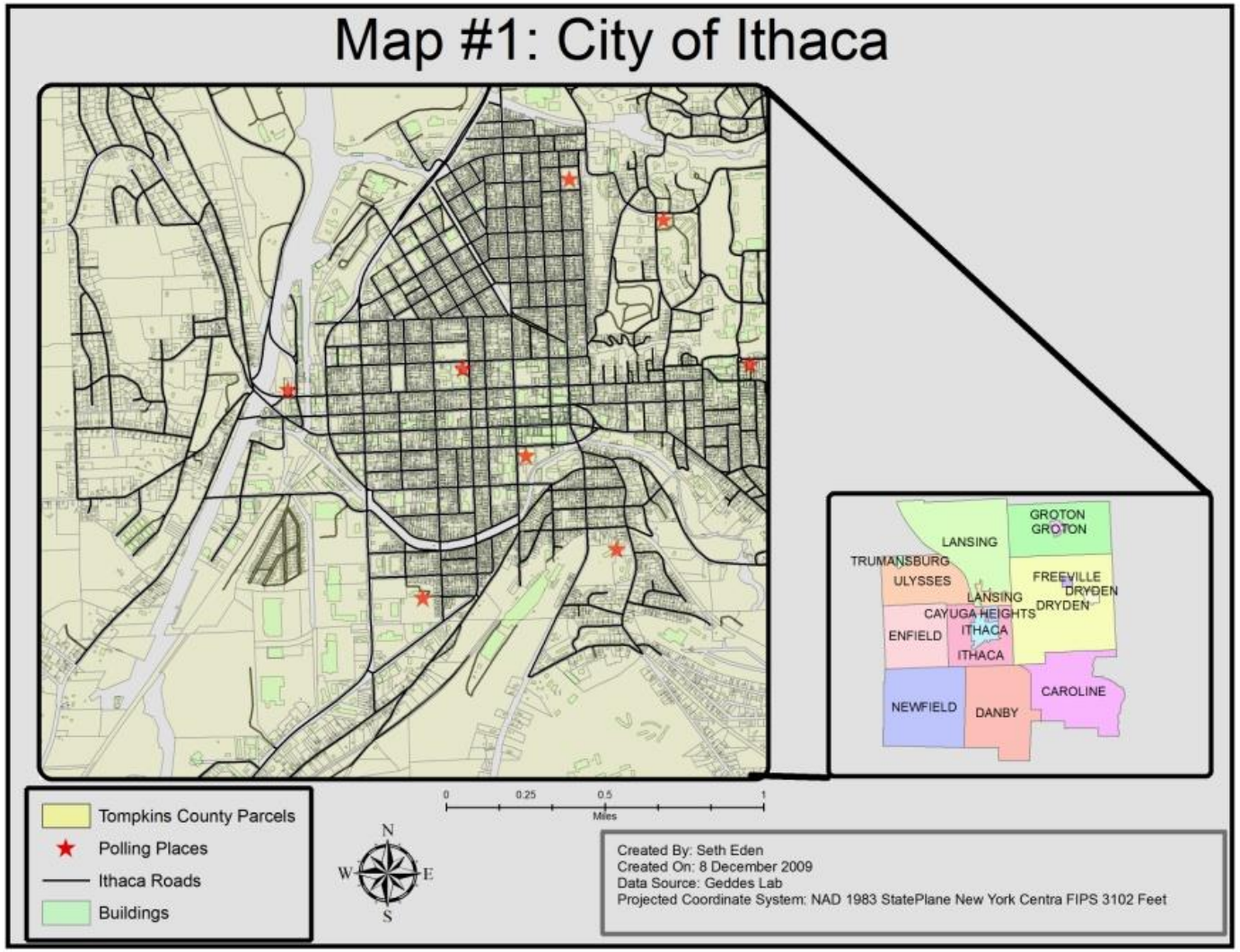
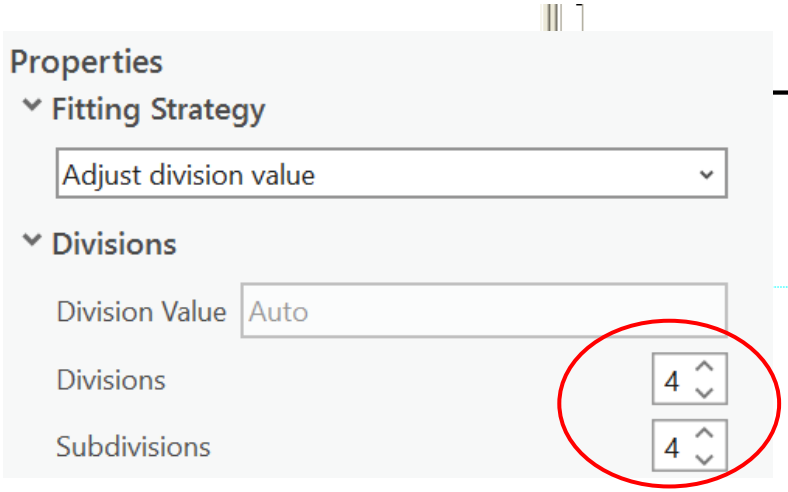
  - Don't use default!
- **Scale bar:** Do units (feet, miles), breaks (not too many!) make sense? Do not use default!
- **north arrow**
- **Metadata/notes:** tell us about the map! Who was it created by? Where? Date? what is the data source? Projection? Units? How is the data classified? What is the purpose of the map?
- Data frame(s): 2 if necessary (location/ context map).
- Neat-line and border can help organize map layout

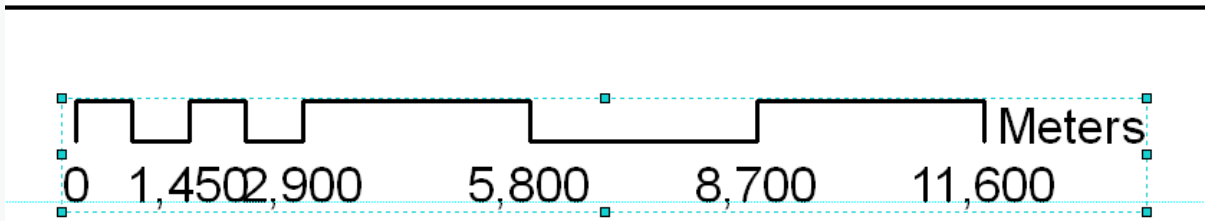
Title?

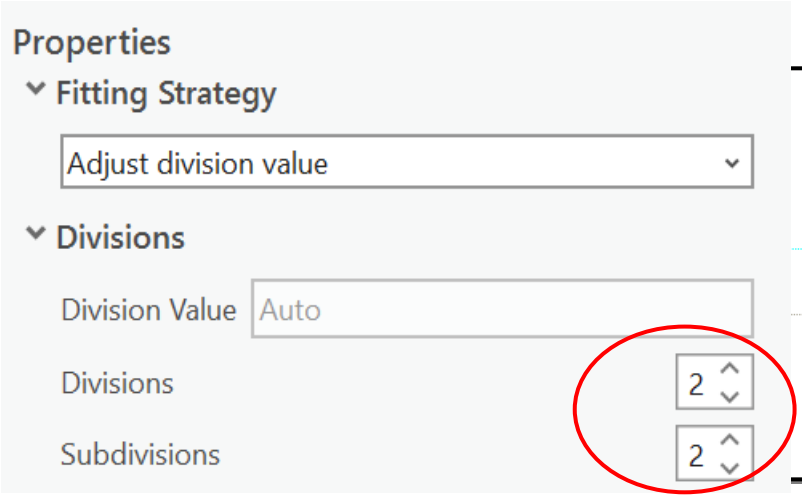

NY State Population Density, 1990
Classified using Equal Interval [1]
Rockland
Westchester
Bronx
New York
Nassau
Suffolk
Queens
Kings
Richmond
Miles
0 10 20 40
New York
Population Density
(per sq mile)
3 - 13057
13058 - 26112
26113 - 39166
39167 - 52221
52222 - 65275
Miles
0 50 100 200
Note: In Equal Interval classification, the population is grouped...
Map Created by:
Map Created at: GEDDeS Lab, Ithaca, NY
Data Source: ESRI Data & Maps 2003 \usa
Units: Miles
Projection: NAD1983 UTM Zone 18N
Purpose: To show current density pattern in different ways

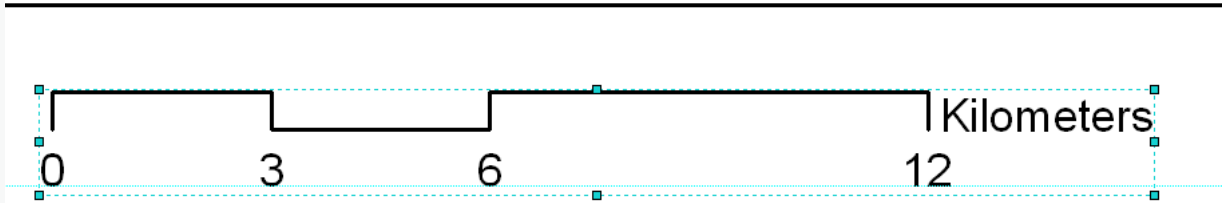

Map #1: City of Ithaca
Tompkins County Parcels
Polling Places
Ithaca Roads
Buildings
0 0.25 0.5 1
Miles
N
W
E
S
GROTON
LANSING
TRUMANSBURG
ULYSSES
FREEVILLE
DRYDEN
CAYUGA HEIGHTS
ENFIELD
ITHACA
NEWFIELD
DANBY
CAROLINE
Created By: Seth Eden
Created On: 8 December 2009
Data Source: Geddes Lab
Projected Coordinate System: NAD 1983 StatePlane New York Centra FIPS 3102 Feet

Scale Bar – do not use the default





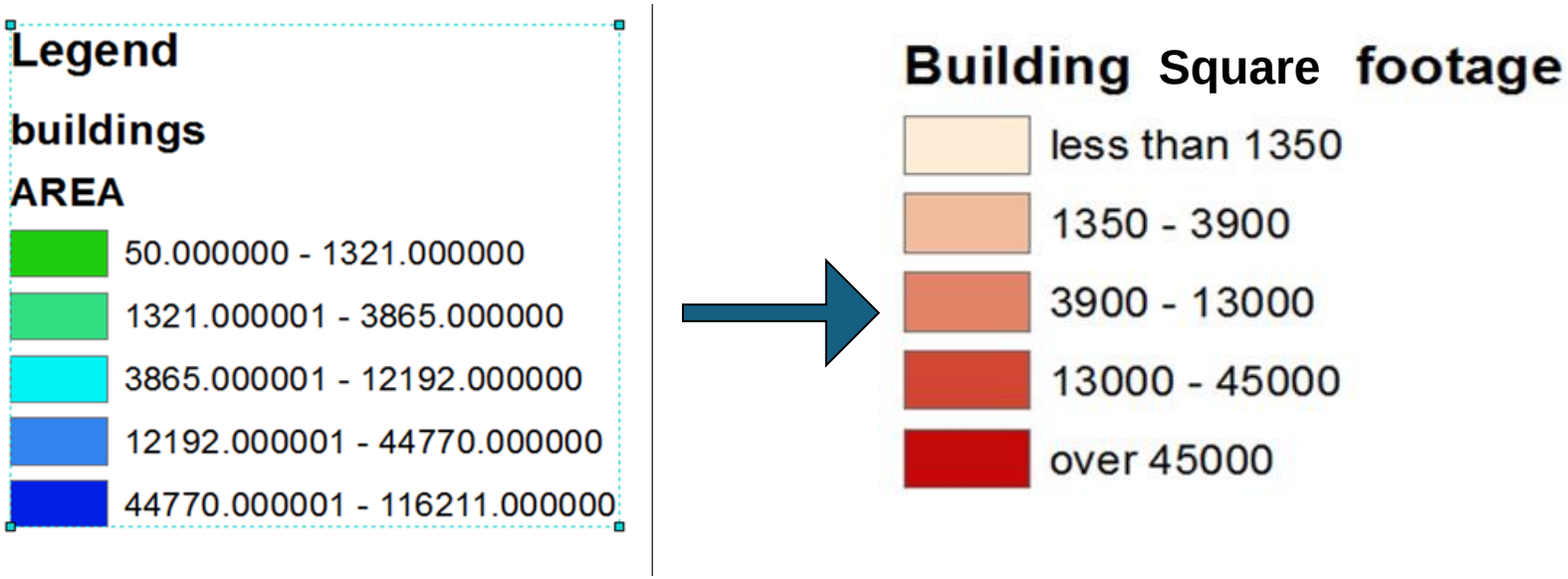




- Miles, kilometers for small scale map
- Feet, Meters for large scale map….

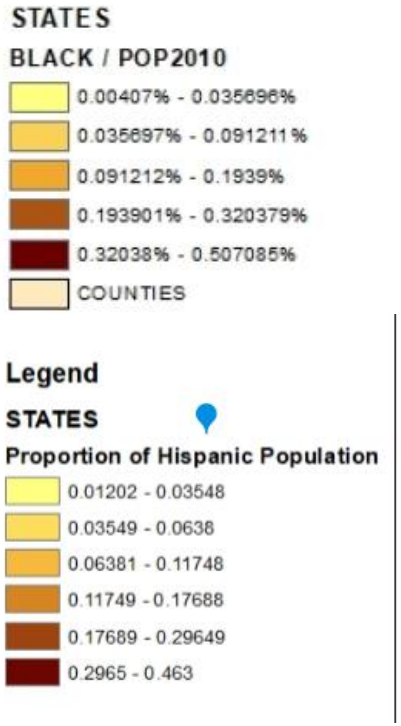
Rounded, sensible breaks

Clean up your Legend – do not use the default

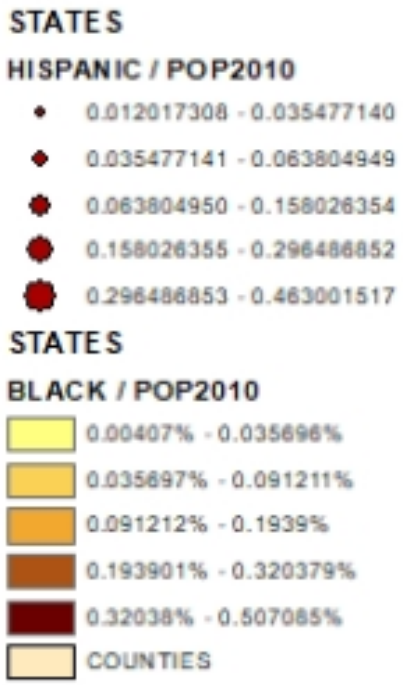


-Default “Legend” deleted
-Title cleaned up (units included)
-Monochromatic color scheme
-Rounded, sensible categories

Check units and measurements. Do they make sense?

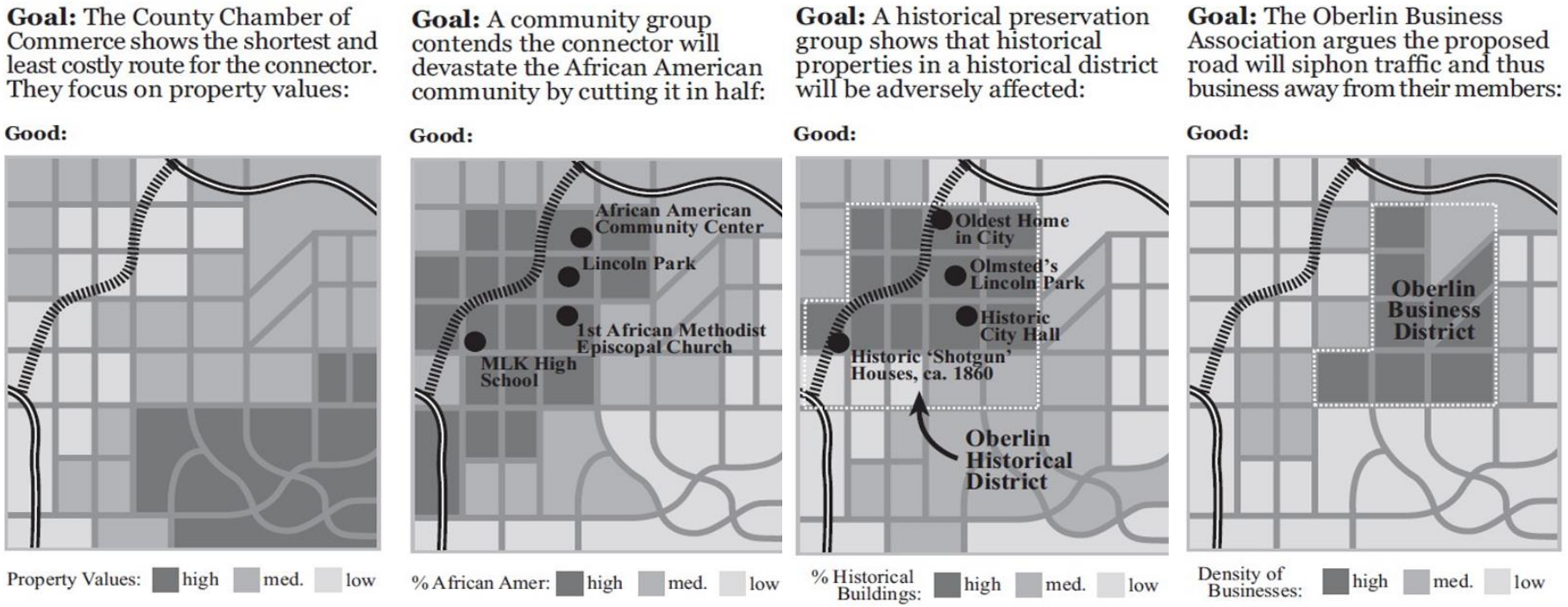


Why are percentages less than 1? Does that make sense? Something's up.



Why so many decimal places? Keep two decimal places is fine.

What is the message?



From: ***Making Maps: A Visual Guide to Map Design for GIS*** *by John Krygier and Denis Wood*

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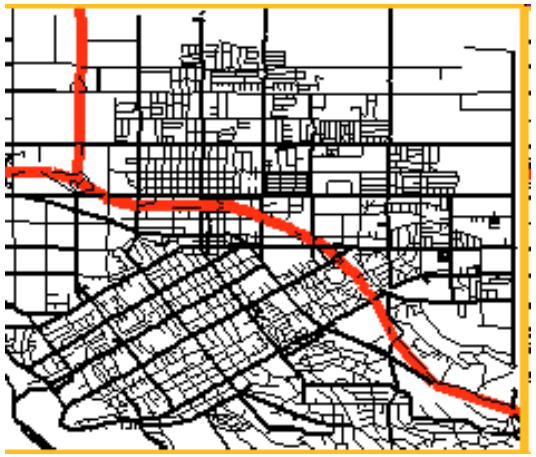
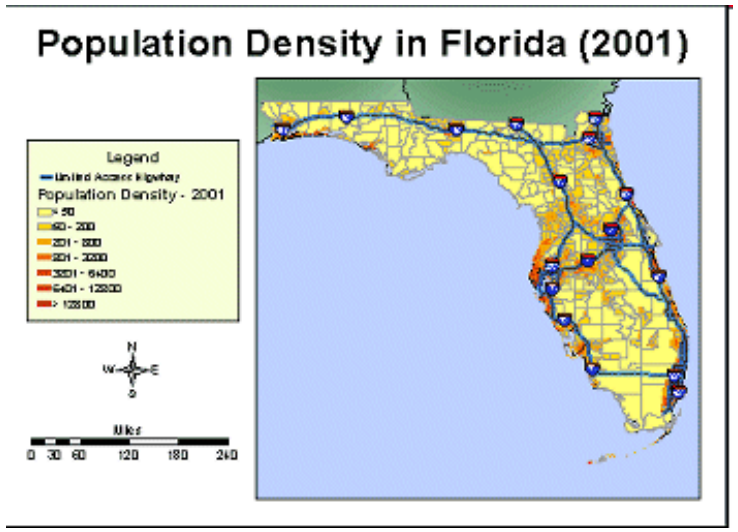
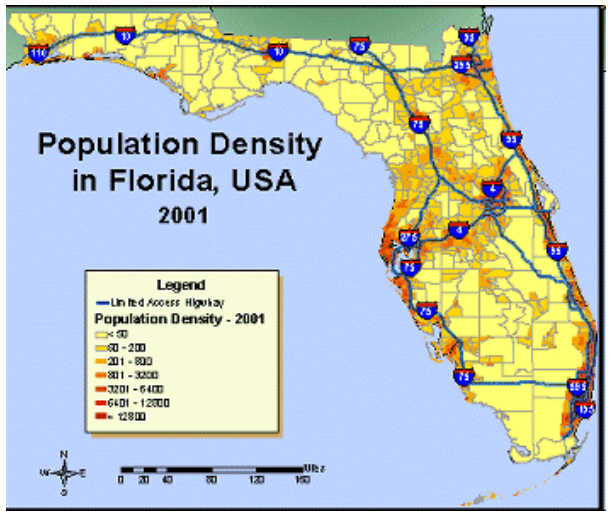
Layout design



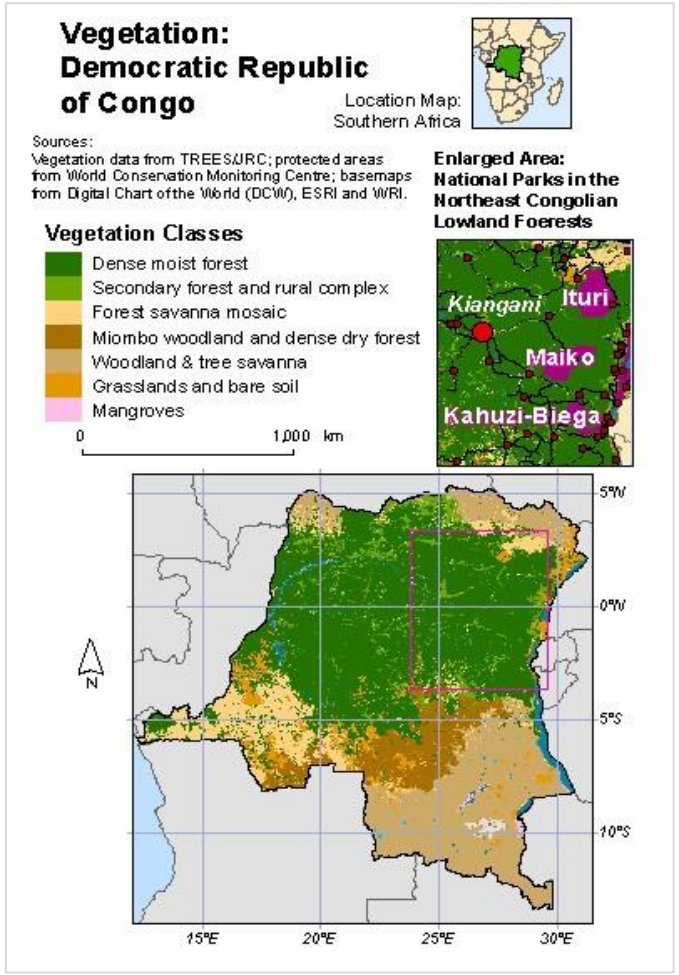
- Purpose
- Audience
- Size and scale
- Focus
- Balance

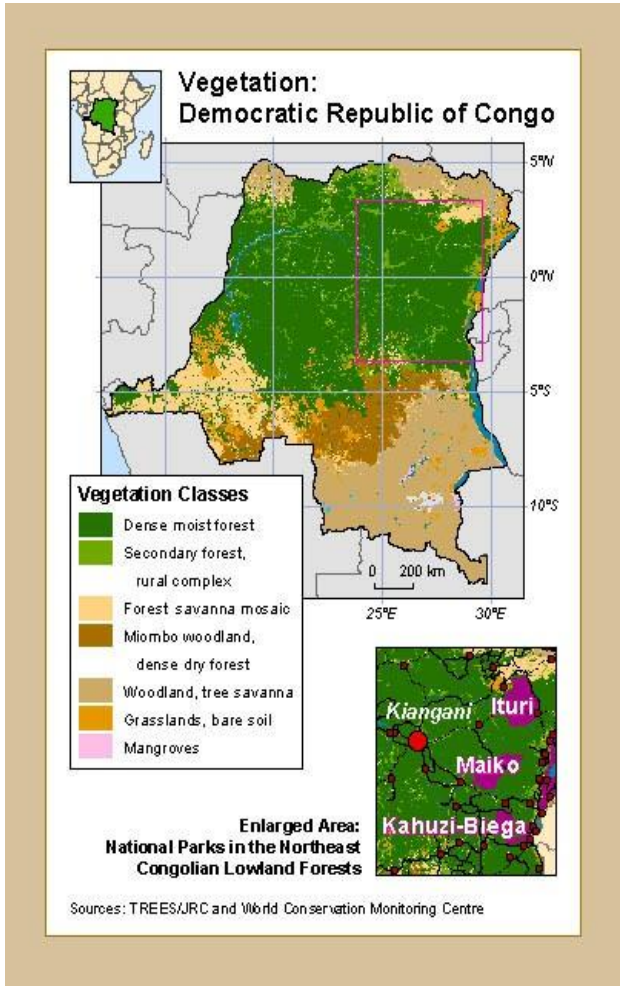




Map Layout Design Example

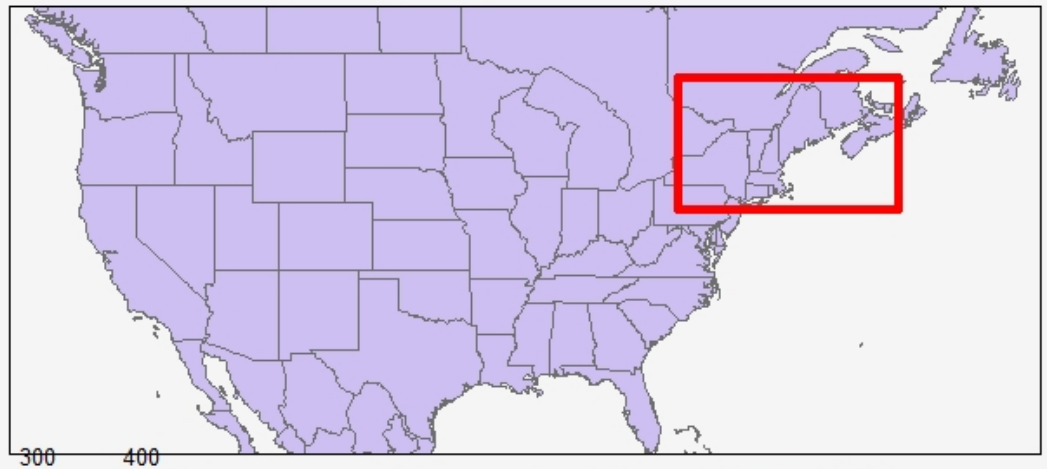
Map layout design is about developing a **balanced** arrangement





- context/locator maps are often placed in the top/bottom corners
- Main map often placed in center (usually largest & most detailed)
- Legend is tucked into the main map for easy comparison with the data.
- Scale bars and north arrows shouldn't be a distraction from the main map.
- Sources should run along the bottom.

Map of income by state



Legend

ACS_county_NE

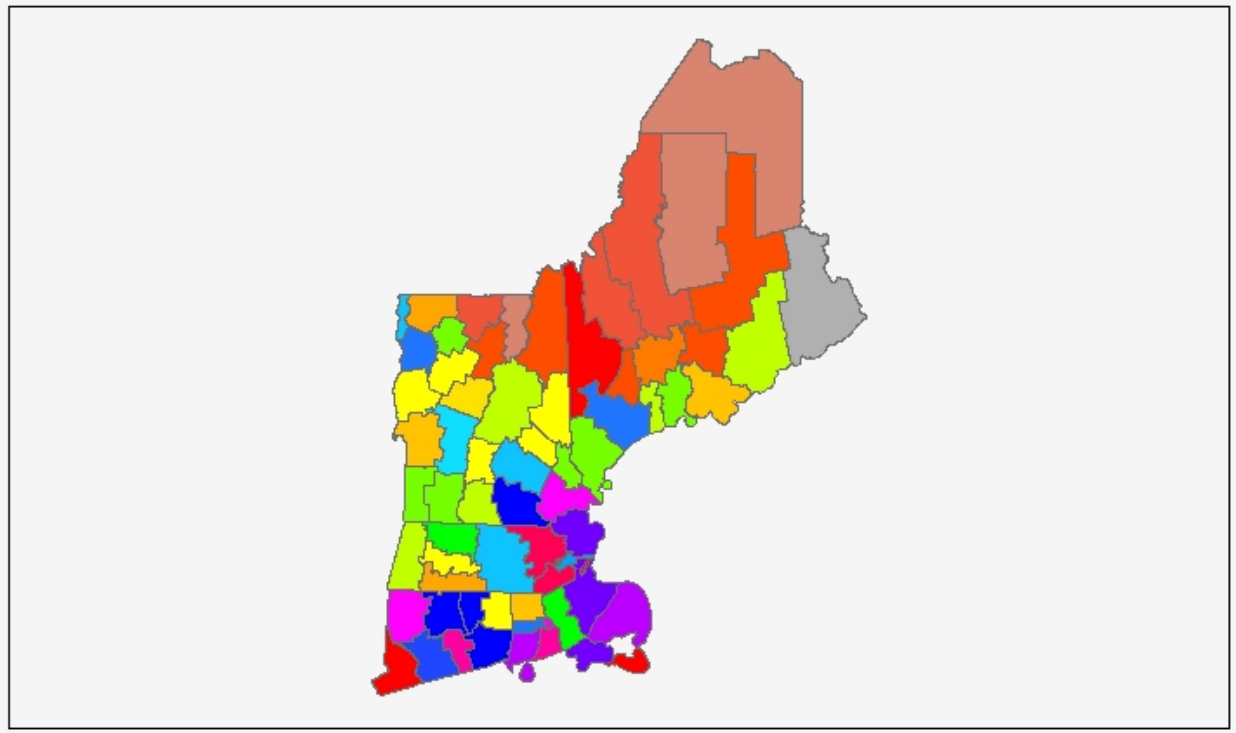
B19301_001E

- 19401.000000
- 19401.000001 - 20251.000000
- 20251.000001 - 20838.000000
- 20838.000001 - 21254.000000
- 21254.000001 - 22977.000000
- 22977.000001 - 24656.000000
- 24656.000001 - 24767.000000
- 24767.000001 - 25426.000000
- 25426.000001 - 25951.000000
- 25951.000001 - 26599.000000
- 26599.000001 - 27045.000000
- 27045.000001 - 27247.000000
- 27247.000001 - 27736.000000
- 27736.000001 - 28059.000000
- 28059.000001 - 28300.000000
- 28300.000001 - 28517.000000
- 28517.000001 - 29053.000000
- 29053.000001 - 30557.000000
- 30557.000001 - 30720.000000
- 30720.000001 - 31221.000000
- 31221.000001 - 31720.000000
- 31720.000001 - 33151.000000
- 33151.000001 - 33828.000000
- 33828.000001 - 35246.000000
- 35246.000001 - 35889.000000
- 35889.000001 - 37519.000000
- 37519.000001 - 42371.000000
- 42371.000001 - 53410.000000

0 50 100 200 300 400

Miles

Income data source: Census Bureau ACS, 2010.

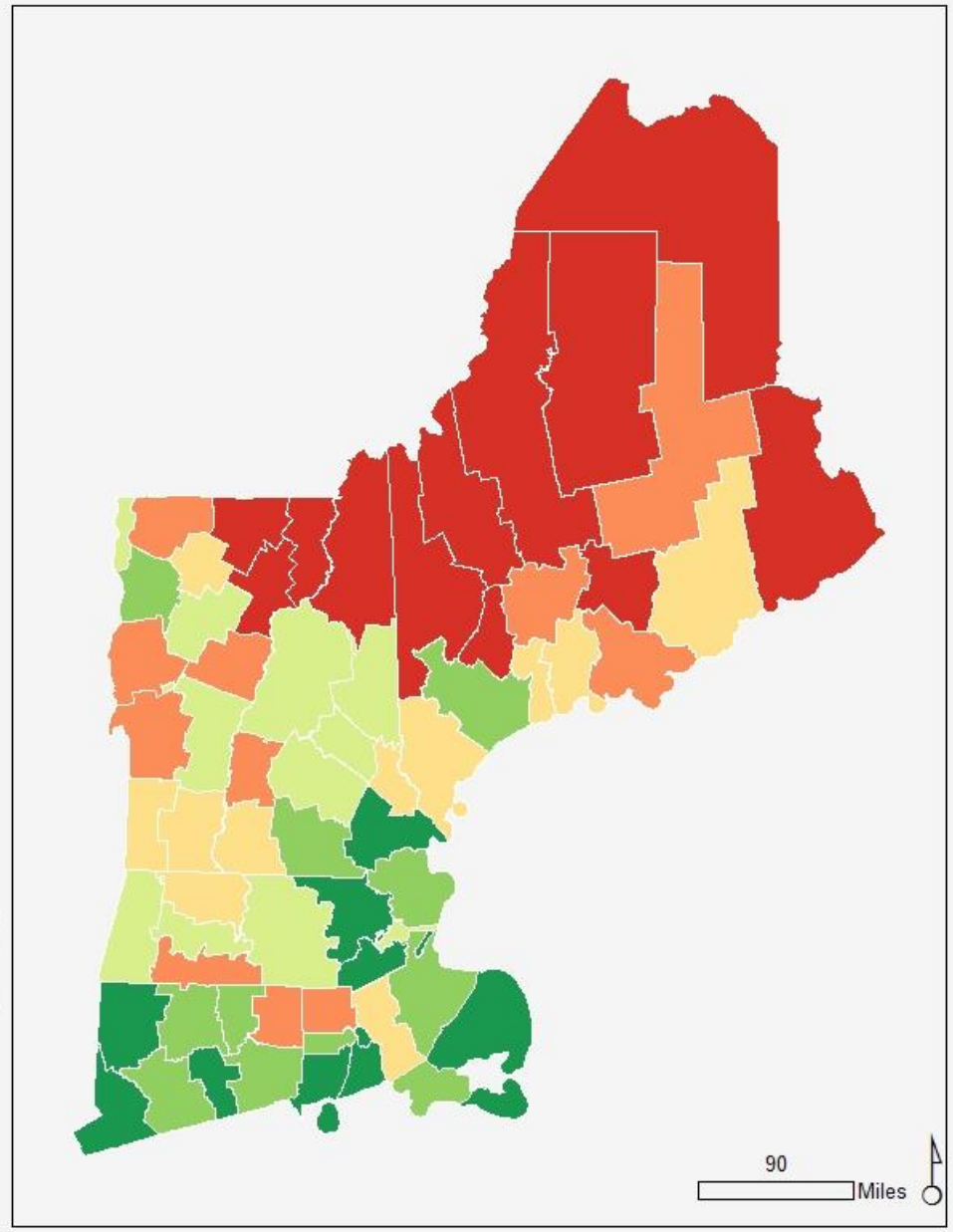


Median Per Capita Income by County for 2010

Income data source: Census Bureau ACS, 2010

Income values are classified into quantiles with a median per capita income of $28,059.

- Under $22,976
- $22,976 - $26,599
- $26,599 - $28,059
- $28,059 - $30,720
- $30,720 - $33,828
- $33,828 and greater



CRP 4080 Lab assignments

Find

All labs, readings and data (if provided) will reside on canvas under the Modules tab

Copy

Always copy data into your own folder (i.e. Lab 1, Lab 2, etc.) and save your work to that drive

Keep

Keep your folder clean.

- Keep all files in subfolders (titled by date, lab #, etc.)
- For each lab create an 'output' folder
- Carefully (re)label all files – do not use default titles!
- Delete temporary files

Submit

Submit your homework as a word document including maps electronically via Canvas ('Assignments' link)

- Export map as *.jpg file (or .bmp, etc.)
- Insert your map into a word document
- Save word document as "your name_lab#".doc