

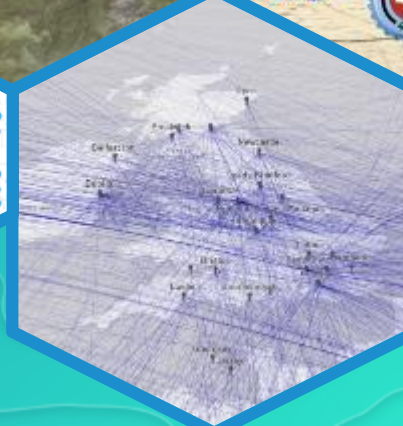
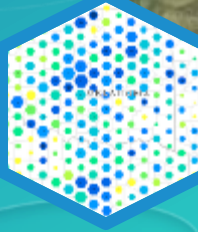
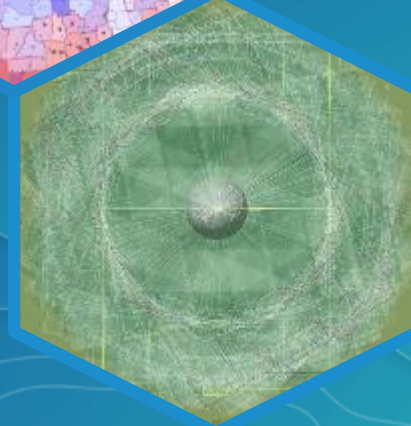
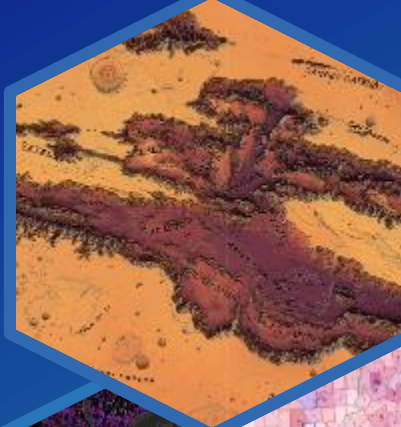
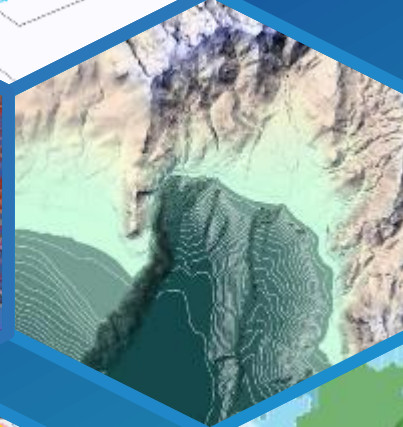
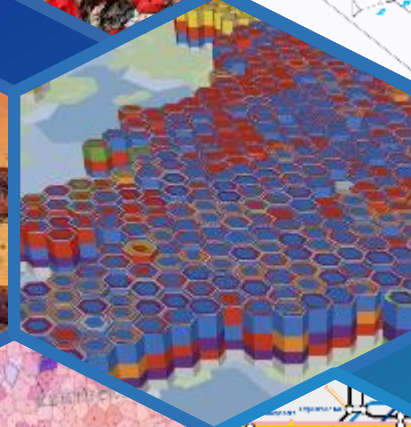
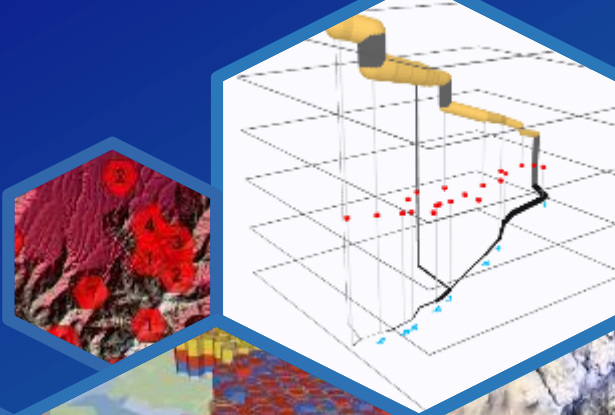
How Maps Work

Kenneth Field and Wes Jones

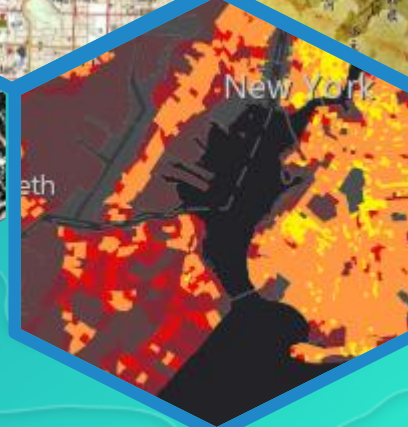
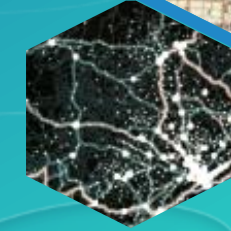
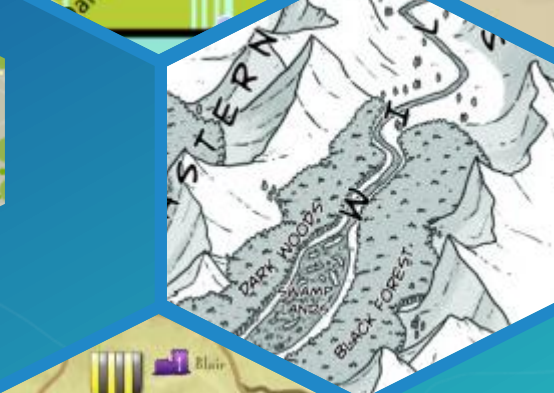
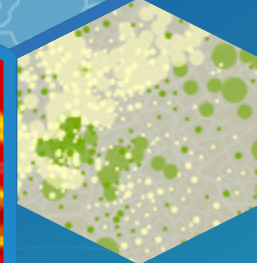
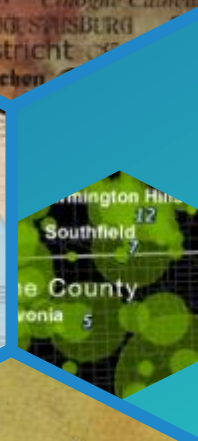
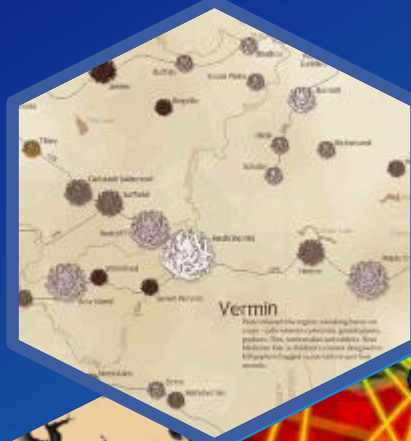
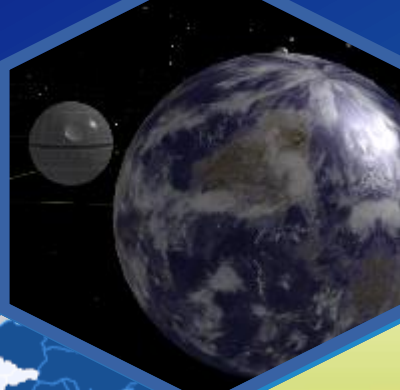
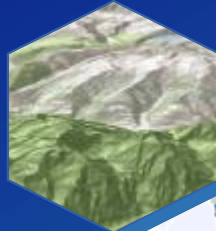


Kenneth Field

@kennethfield



Wes Jones



An introduction to some fundamental cartography...

Importance of design

The purpose of making a map

Aspects of map design:

hierarchy : contrast : figure-ground : projections

symbols : generalization: colour : typography

Putting the pieces together

Review / iterate / improve

...to help you become a smarter cartographer

Importance of Design

C ompromise

A

R

T

O pportunity

G

R

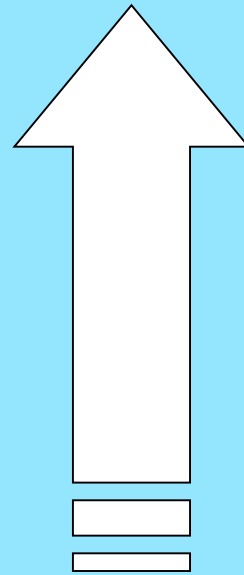
A

P

H

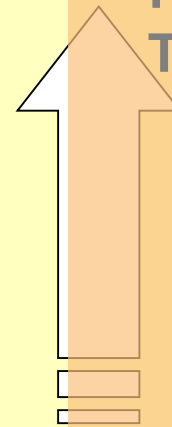
Y why?

Map User

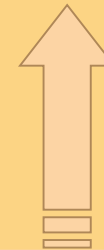


Map Maker

Knowledge
Transfer



GIS User



Cartographer



Design is crucial to communication

Large database

Equal
Treatment

No inherent
design



Design



Data
Processing

Function

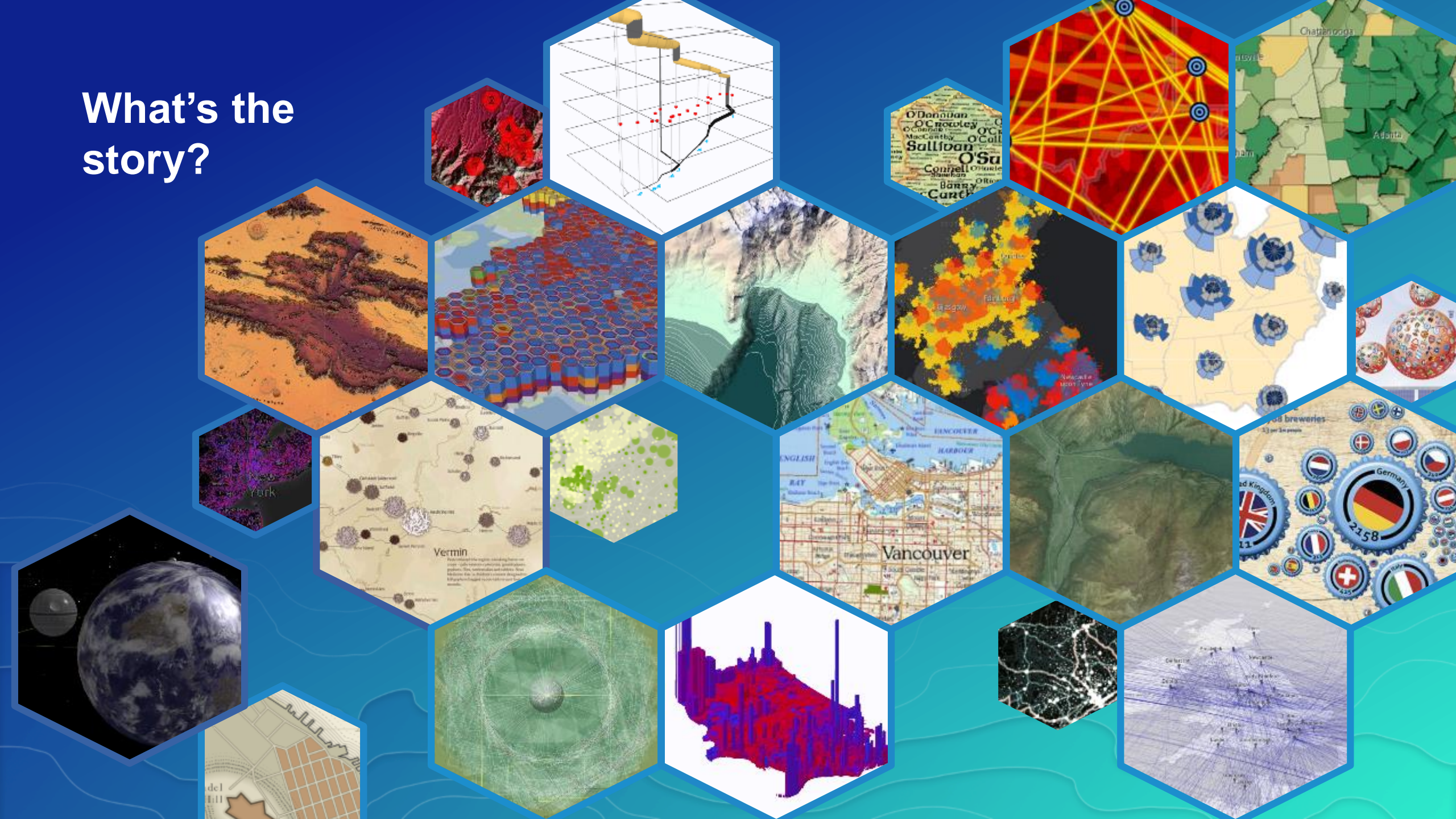
Meaning

The design process



**Why make
the map?**

What's the story?



Speaking in graphical tongues

Written/spoken word: **SERIAL**



Graphics: **PARALLEL**



Audience

Media resolution

Viewing distance

Output medium

Anticipated level of understanding

Conditions of use

One map or multiple maps

What areal extent to show

Insets/multiscale



Demo: Requirement

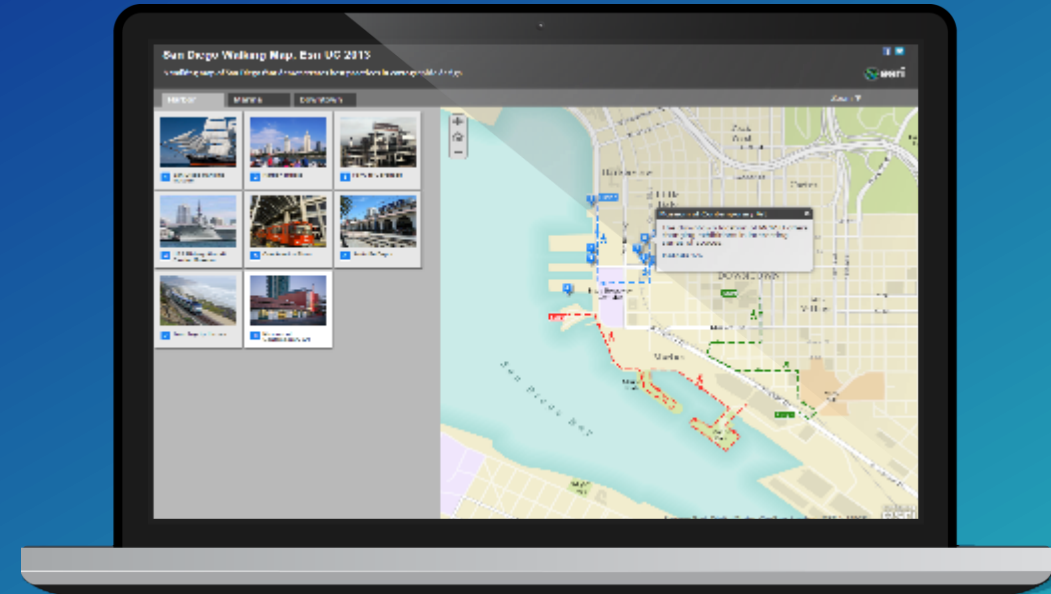
San Diego Walking Map



Legend

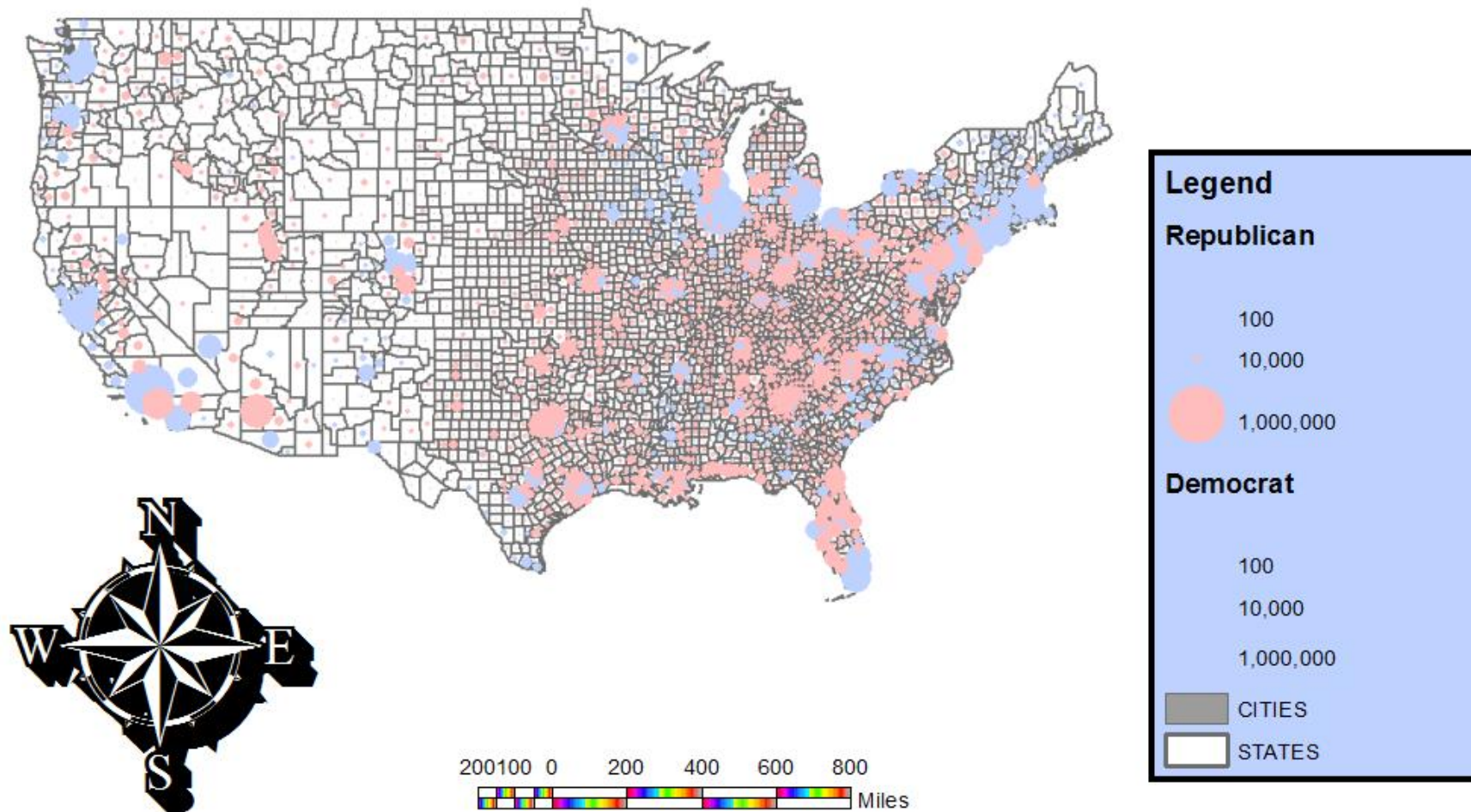
- Downtown walk
- Marina walk
- Museums walk

Copyright © 2011
 All rights reserved. This map is for informational purposes only.
 The walking routes on this map are for demonstrational purposes only.

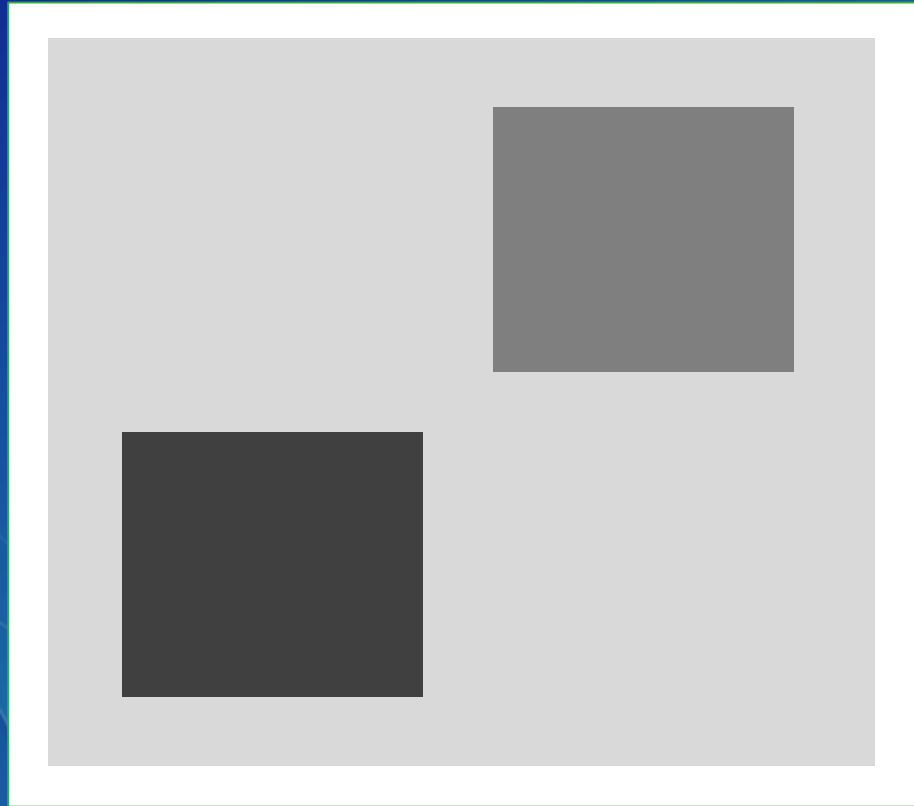


Aspects of Map Design

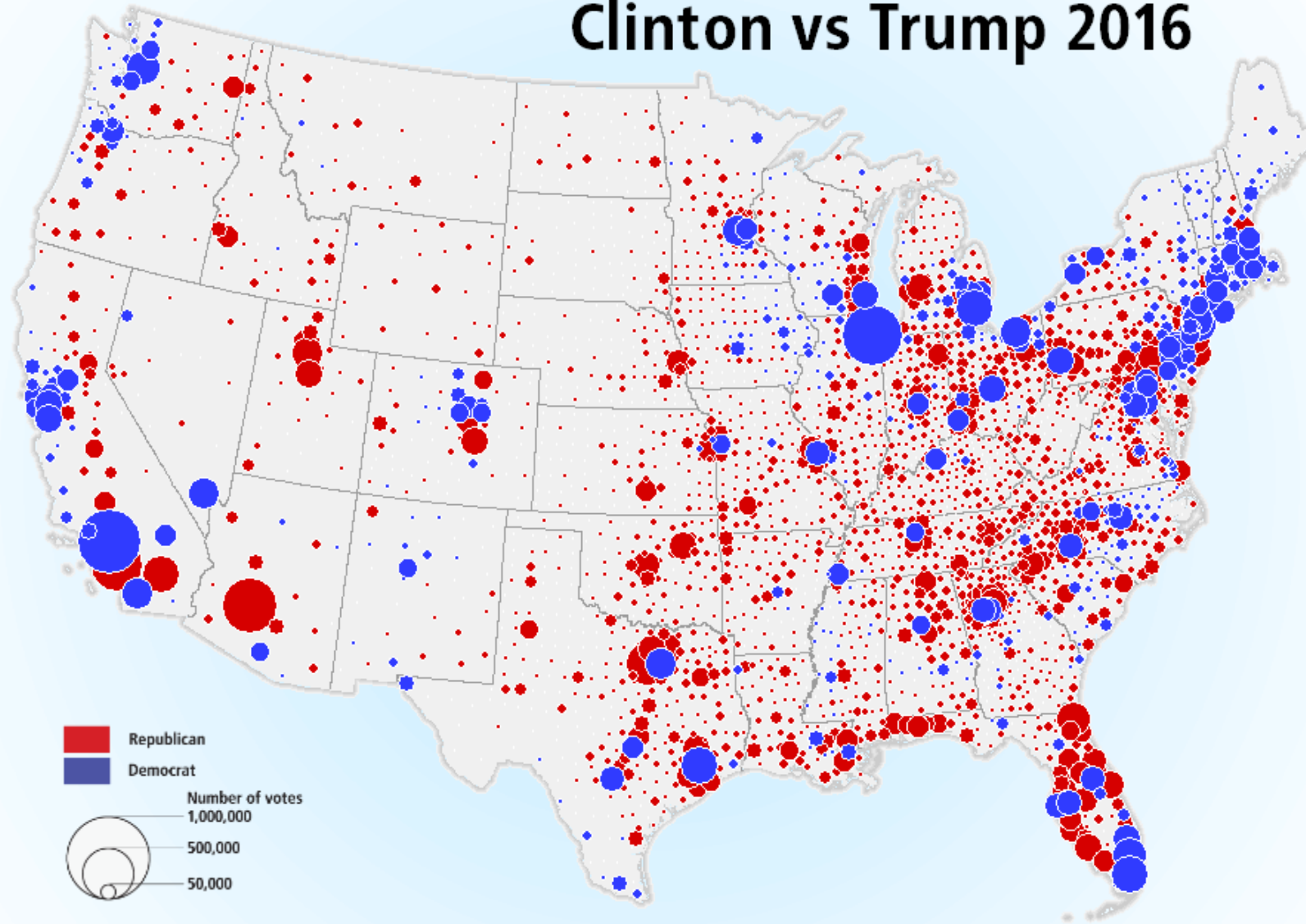
CLINTON vs TRUMP 2016



Hierarchy, contrast and figure-ground



Clinton vs Trump 2016



Demo: Hierarchy

Projections

WGS 1984 Web Mercator (Auxiliary Sphere)

ArcGIS Online

Bing

OSM

Google



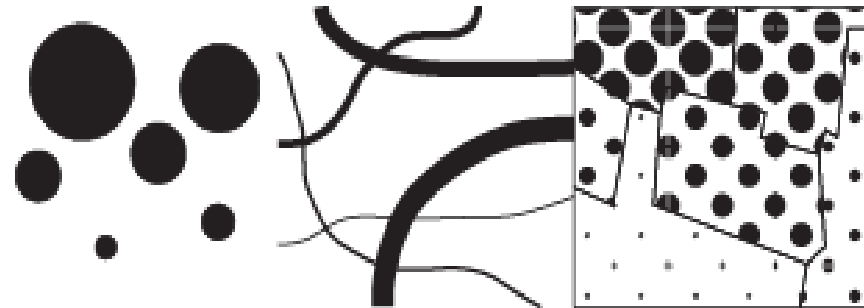
Demo: Projections

Symbol palette

spacing



size



shape



orientation



































hue



lightness



Symbol meaning

	Points	Lines	Areas
Nominal	 Airport  Emergency Phone  Picnic site	 Motorway  Railway  River  Canal	 Forest  Agricultural
Ordinal	 Large  Medium  Small	 Motorway  A road (dual)  A road  B road  Minor	 Large  Medium  Small
Interval or Ratio	 500 - 999  100 - 499  0 - 99	 30 - 39  20 - 29  10 - 19  0 - 9	 40 - 49  30 - 39  20 - 29  10 - 19  0 - 9 %

Demo: Symbols

Feature generalization



1:147,914,382



1:577,791



1:72,224

Large
scale

Small
scale

1:18,489,298



1:144,448



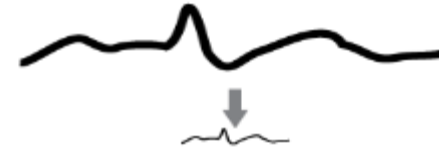
1:4,514



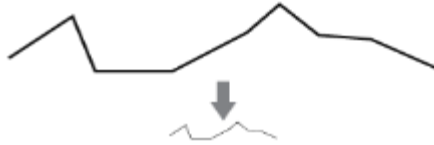
No generalization

Generalized

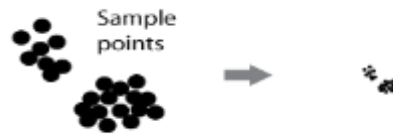
Simplify



Smooth



Aggregate



Amalgamate



Collapse



No generalization

Generalized

Merge



Refine



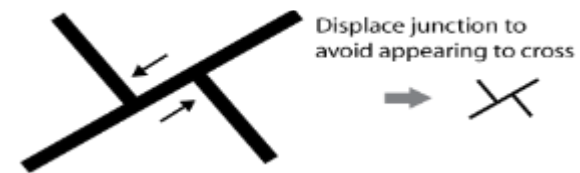
Exaggerate



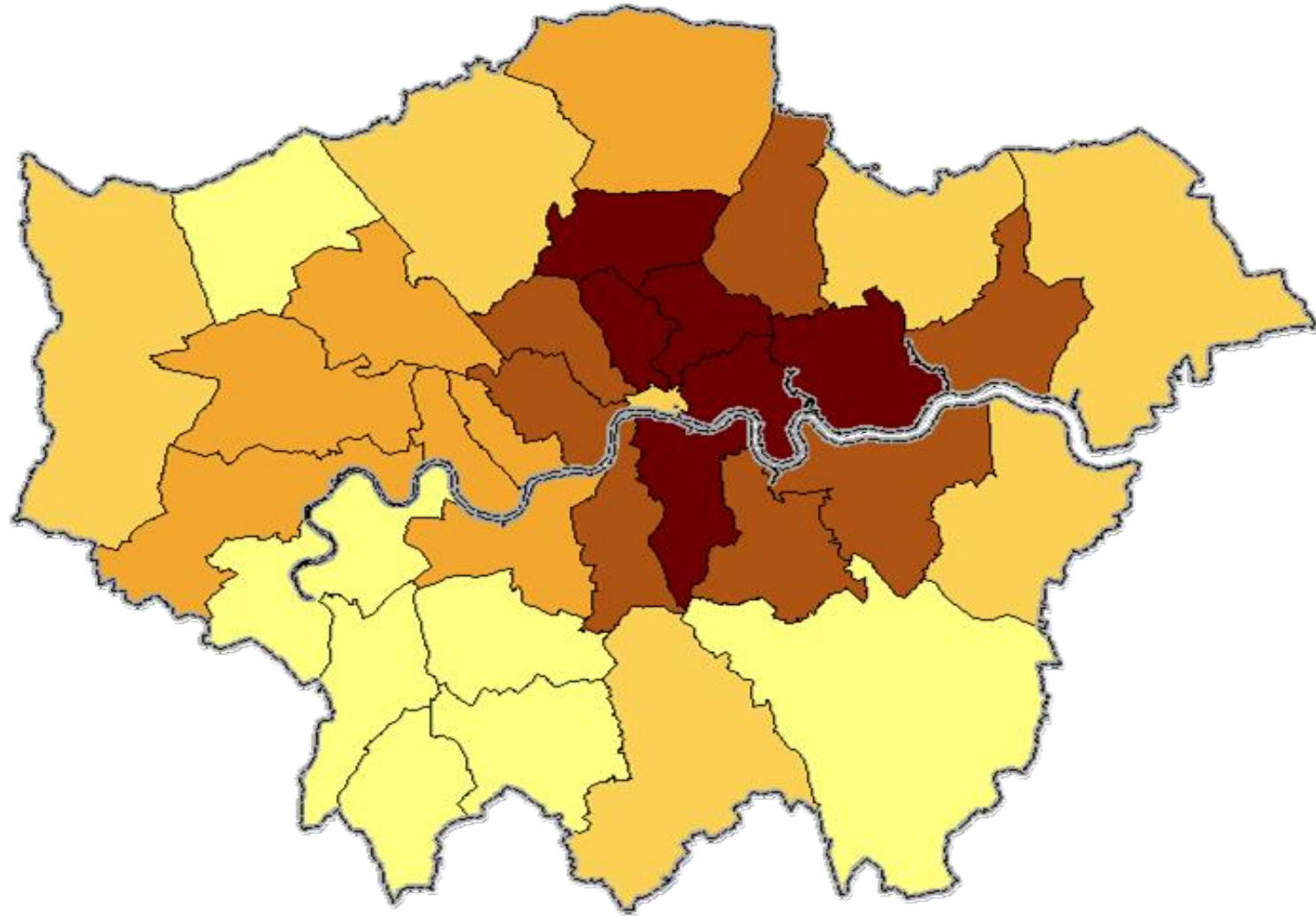
Enhance



Displace



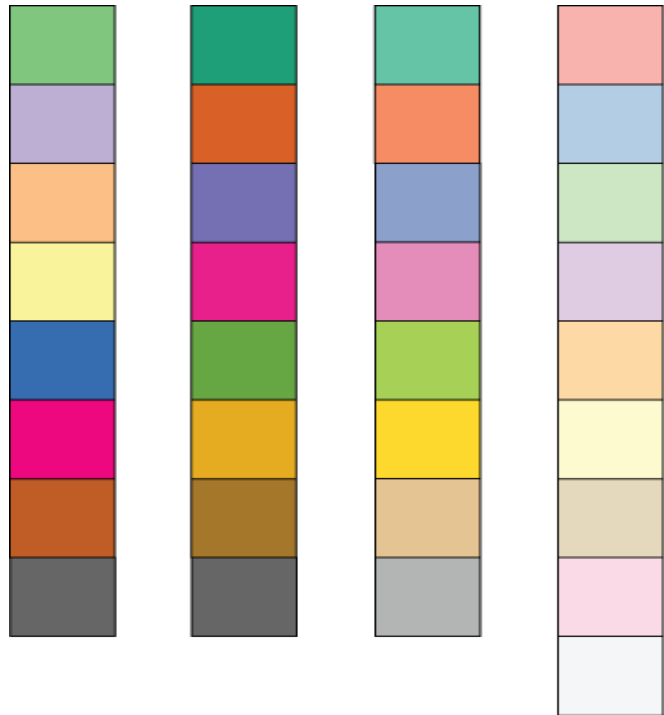
Classification



Demo: Generalization

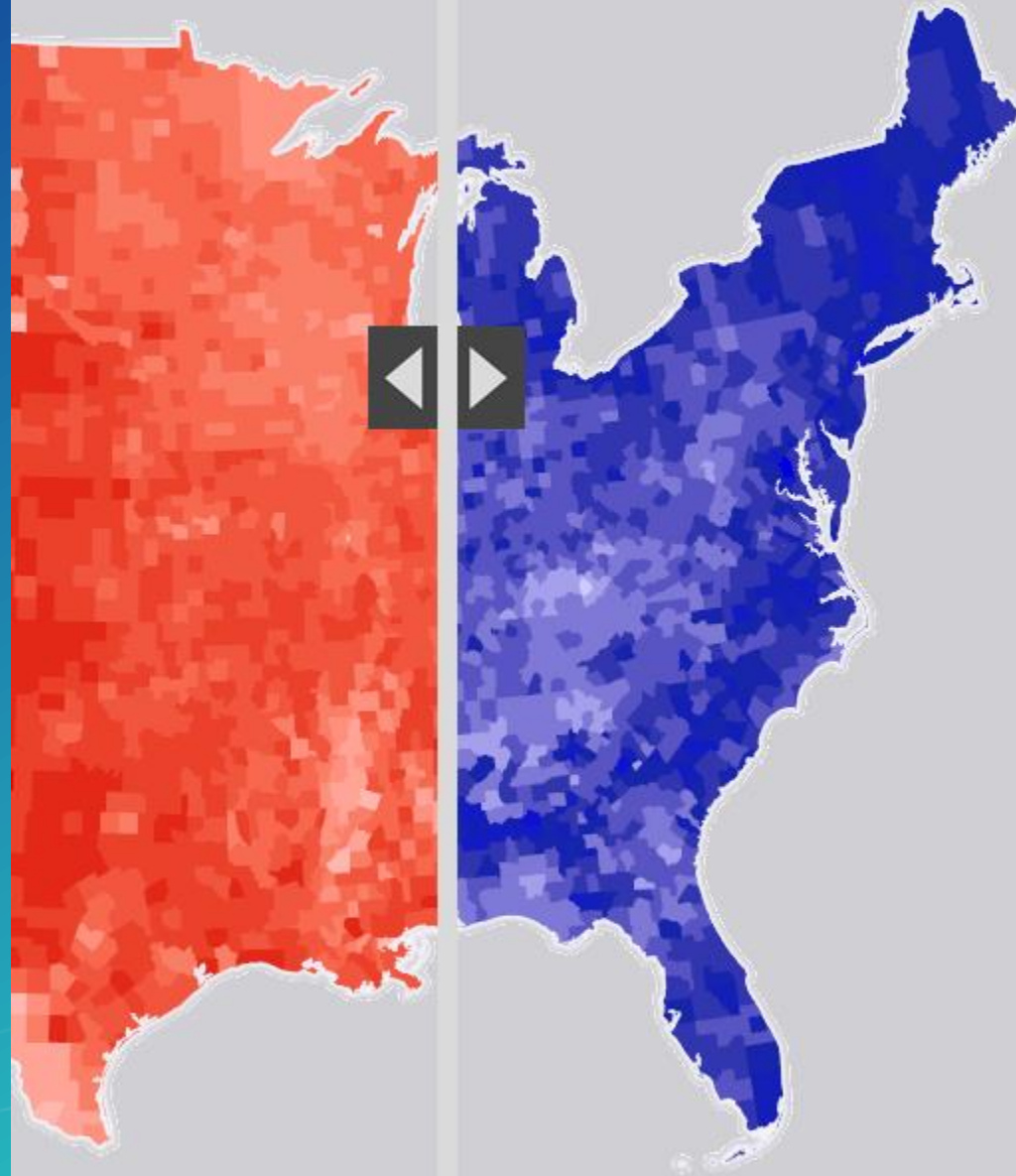
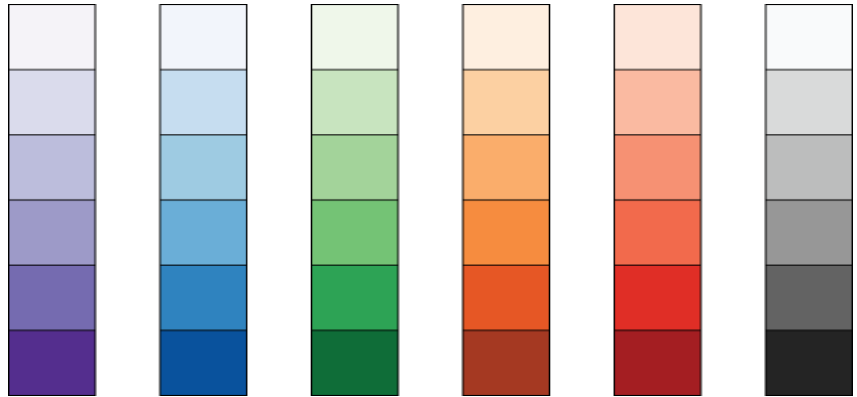
Colour – qualitative

Qualitative



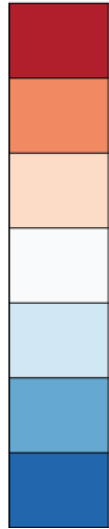
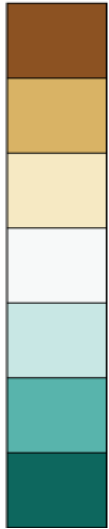
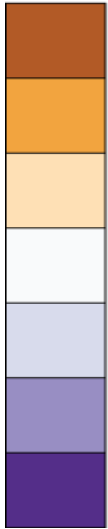
Colour – sequential

Sequential

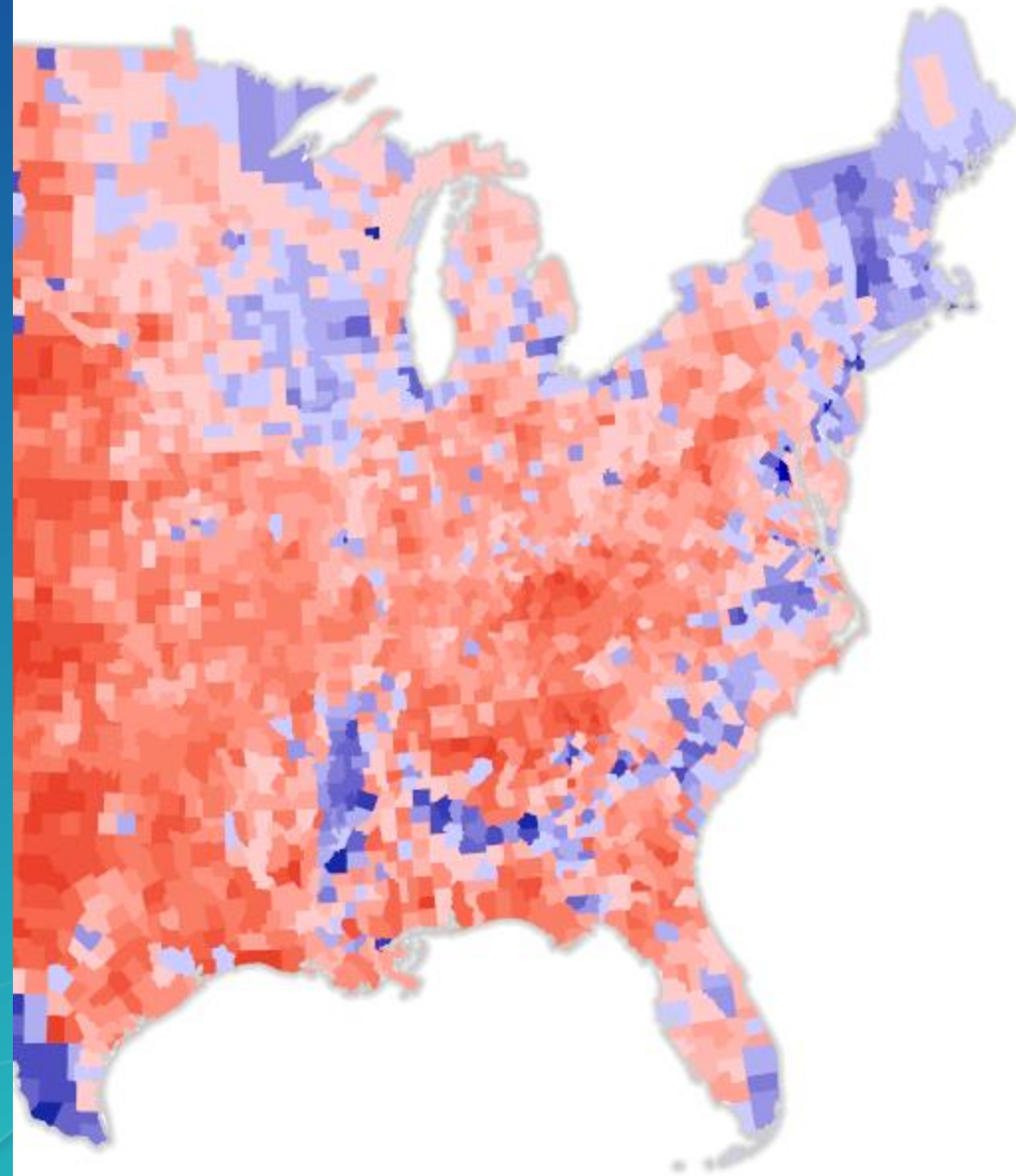
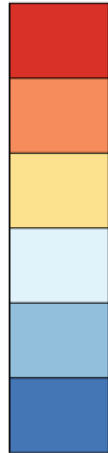
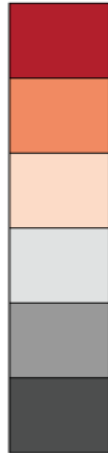


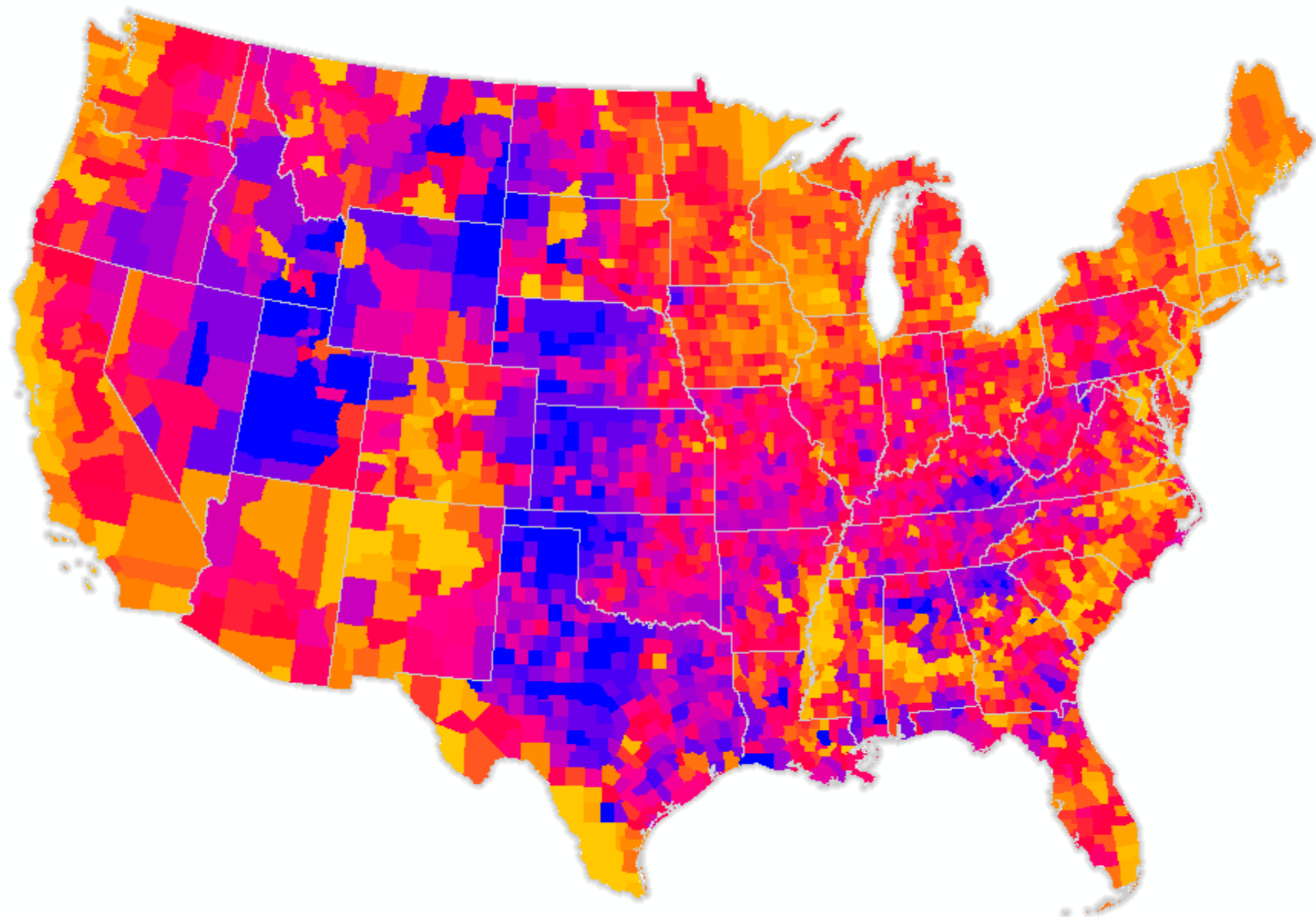
Colour – diverging

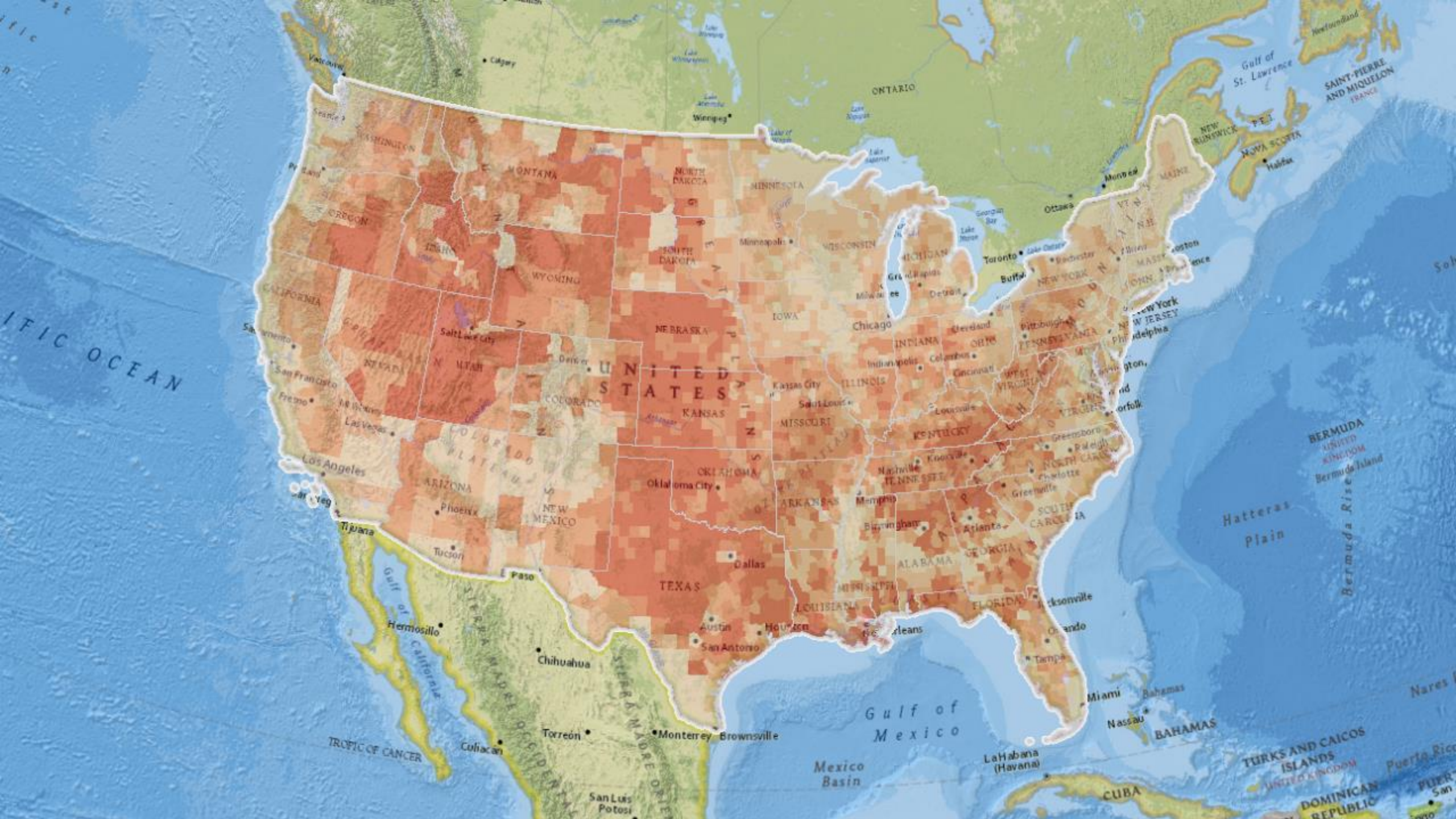
**Diverging
Critical Class**



**Diverging
Critical Break**







Demo: Colour

Typography

Size

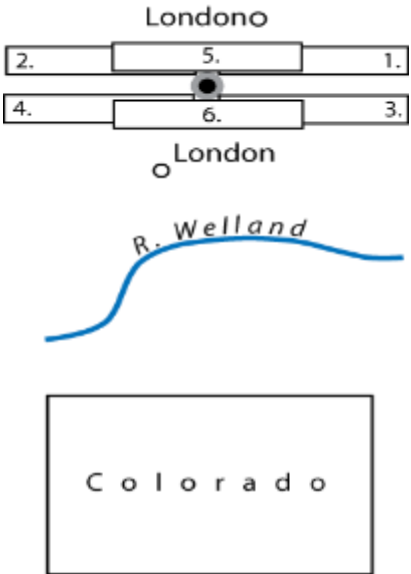
5 point 7 point
10 point 12 point
18 point
24 point

CITIES
Towns
villages

Conflict



Position



Style

sans serif
serif



Demo: Typography

**Putting pieces
together**

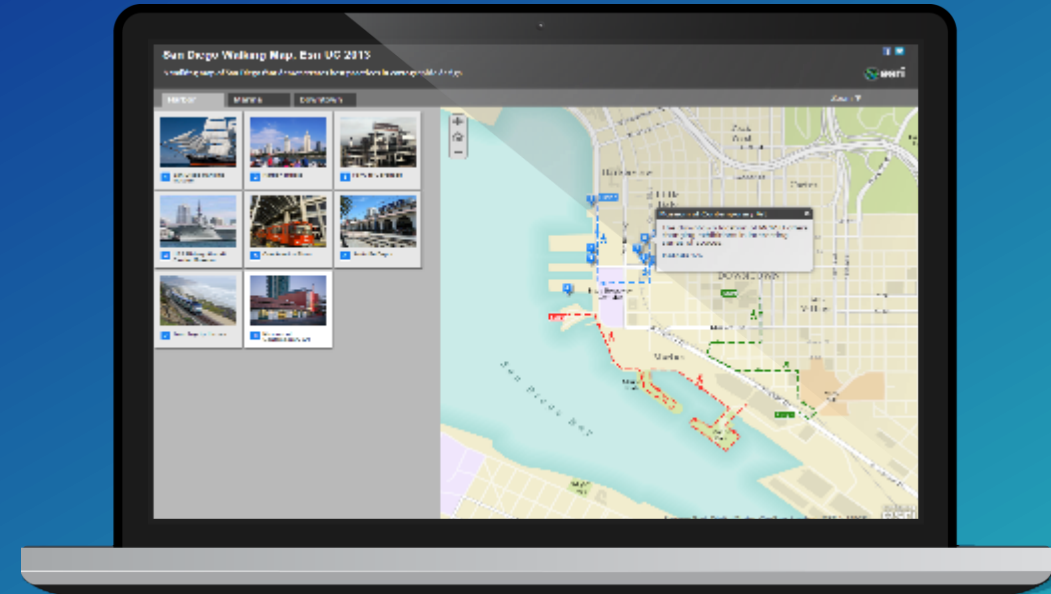
San Diego Walking Map



Legend

- Downtown walk
- Marina walk
- Museums walk

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 The walking routes on this map are for demonstrational purposes only.



Demo: 2D/3D layout

Review the outcome

One more thing

Actually...a few more things

Cartography.

The book (Nov 2017)

esripress.esri.com

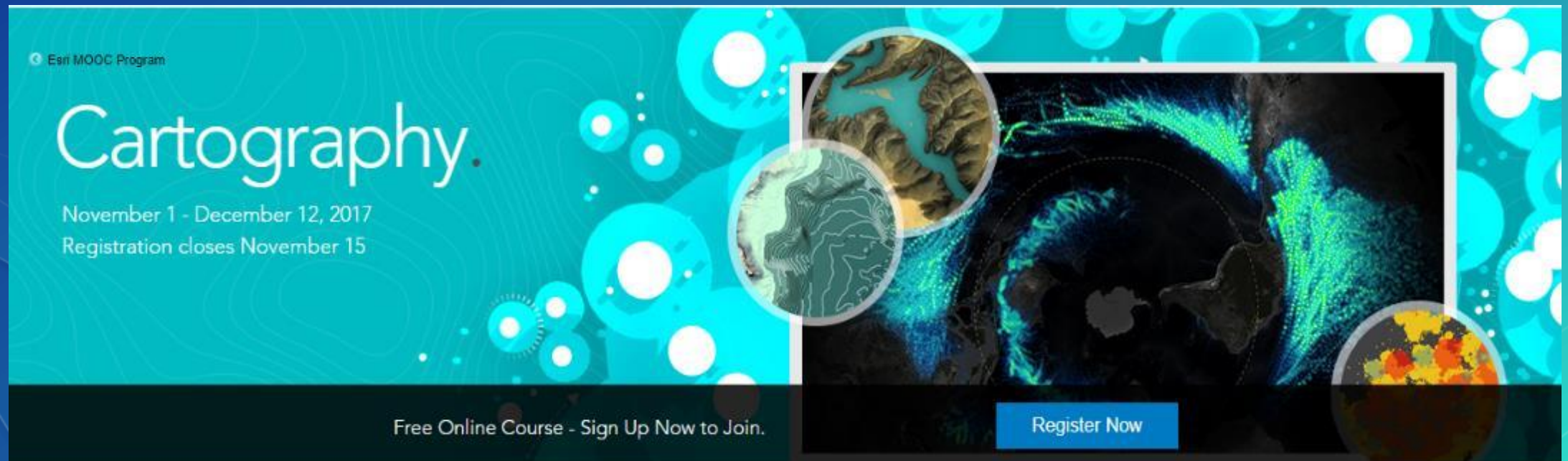
Cartography.



Kenneth Field

Cartography. The MOOC

esri.com/mooc/cartography (Nov 2017)

A promotional banner for the 'Cartography' MOOC. The background is a vibrant teal with a pattern of white and light blue circles of varying sizes. On the left, the word 'Cartography.' is written in a large, white, sans-serif font. Below it, in a smaller white font, are the dates 'November 1 - December 12, 2017' and 'Registration closes November 15'. In the top left corner, there is a small icon of a person and the text 'Esri MOOC Program'. On the right side, there is a large, dark rectangular area containing several circular inset images: a topographic map, a satellite map, a map with green and blue data points, and a map with yellow and red data points. At the bottom left, the text 'Free Online Course - Sign Up Now to Join.' is displayed in white. At the bottom right, there is a blue button with the text 'Register Now' in white.

Esri MOOC Program

Cartography.

November 1 - December 12, 2017
Registration closes November 15

Free Online Course - Sign Up Now to Join.

Register Now

carto.maps.arcgis.com

cartonerd.com

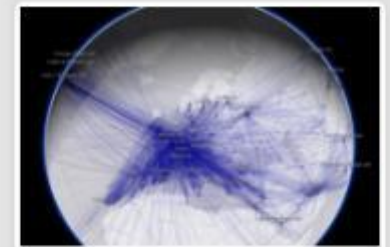
adventuresinmapping.com

mapdesign.icaci.org

Compelling Cartography

Map Gallery to showcase examples of high quality map design in an online environment

Search maps



Other sessions

How maps work (KF/WJ)

Tue 15:15 | Thu 13:30

Amazing and Inspiring maps (KF/JN)

Tue 08:30 | Wed 10:15

Thematic map design (KF/JN)

Tue 13:30 | Fri 09:00

3D Cartographic Techniques (NS/KF)

Wed 13:30 | Thu 15:15

Map Design for relief representation (KF/JN)

Wed 08:30 | Thu 10:15

Designing Story Maps to Change Hearts & Minds (JN/JB)

Tue 10:15

Designing Esri's Vector Tile Basemaps (WJ/AS)

Tue 14:00 | Wed 12:00

Styling Vector Basemaps (WJ/AS)

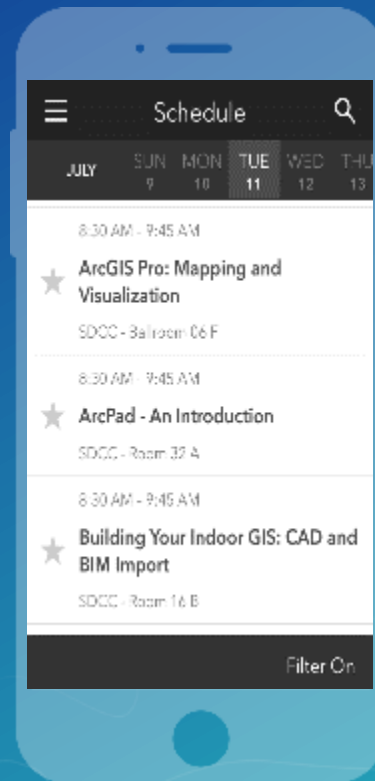
Thu 10:15

Thank you...Please take our Survey

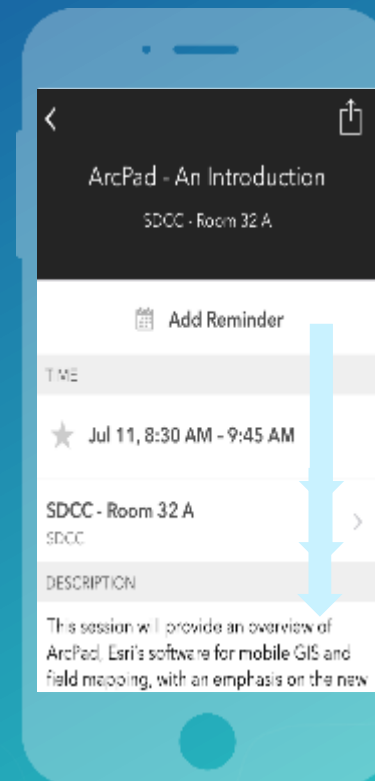
Download the Esri Events app and find your event



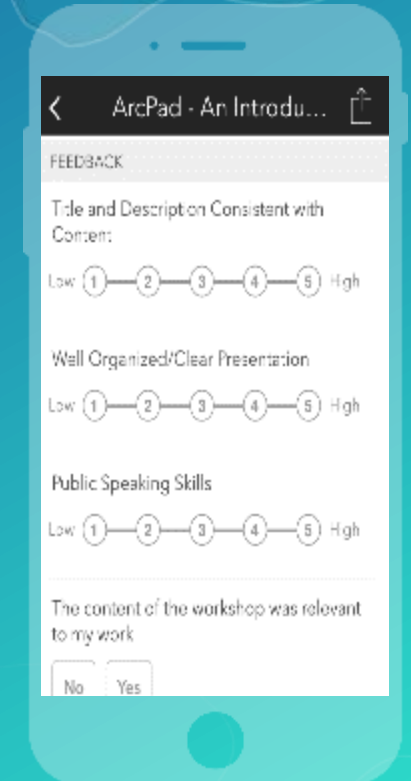
Select the session you attended



Scroll down to find the survey



Complete Answers and Select "Submit"





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OF
WHERE

kfield@esri.com
wjones@esri.com



@kennethfield