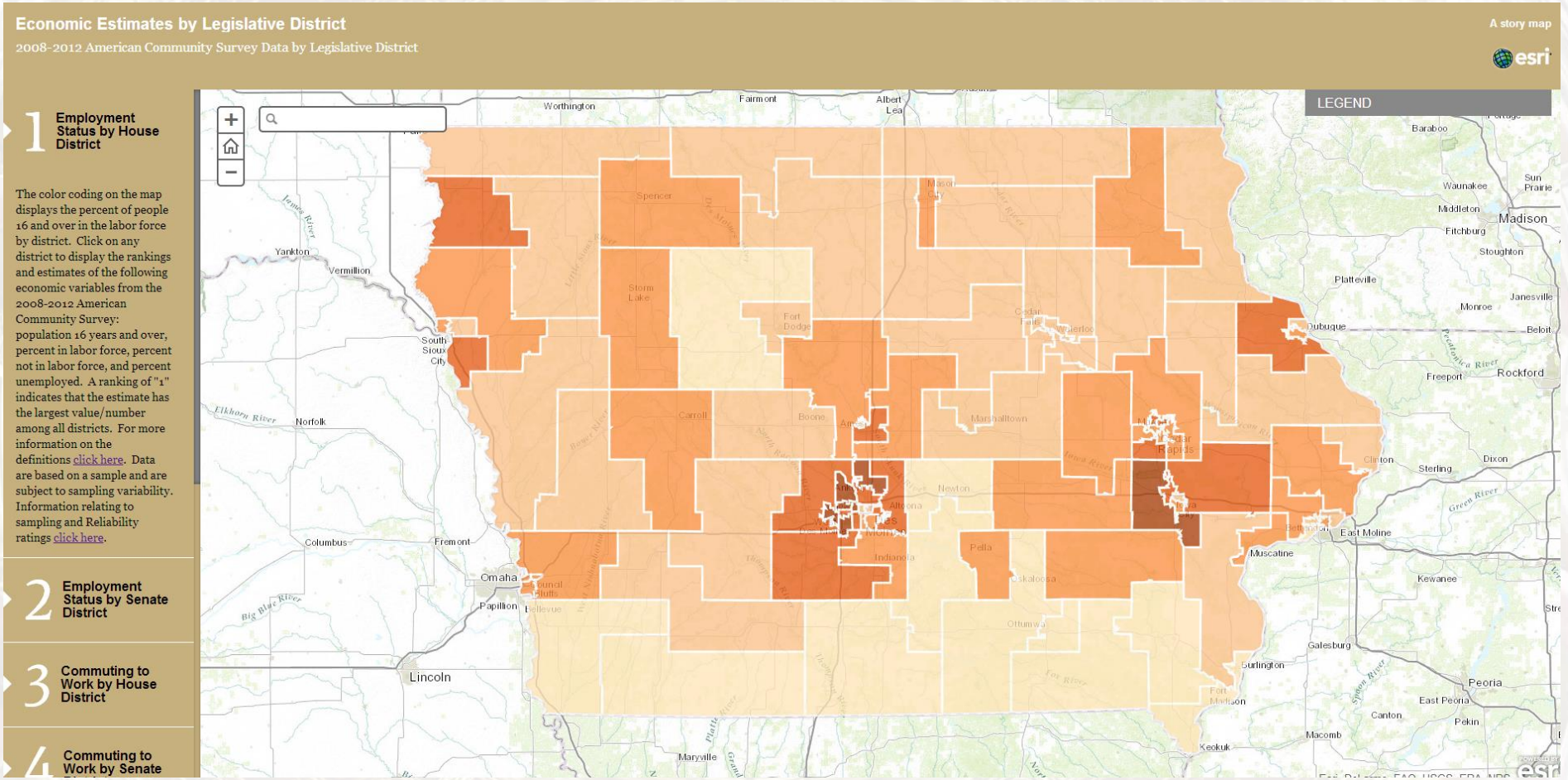
Using ACS data within ArcGIS Online for Organizations

Presentation Goals

1. Review an application that uses ACS Data
2. Process of Building an Application using ArcOnline Hosted Services

Live Demonstration of Application



The following slides display various features of the application that will be discussed during the presentation.

1 Employment Status by House District

The color coding on the map displays the percent of people 16 and over in the labor force by district. Click on any district to display the rankings and estimates of the following economic variables from the 2008-2012 American Community Survey: population 16 years and over, percent in labor force, percent not in labor force, and percent unemployed. A ranking of "1" indicates that the estimate has the largest value/number among all districts. For more information on the definitions click here. Data are based on a sample and are subject to sampling variability. Information relating to sampling and Reliability ratings click here.

2 Employment Status by Senate District

3 Commuting to Work by House District

4 Commuting to Work by Senate District

American Community Survey Subject Definitions

The following subject definitions correspond to the variables presented in the map. For a complete listing of all subjects click here.

The employment status data shown in American Community Survey tabulations relate to **people 16 years old and over**.

Labor Force – All people classified in the civilian labor force plus members of the U.S. Armed Forces (people on active duty with the United States Army, Air Force, Navy, Marine Corps, or Coast Guard).

Not in Labor Force – All people 16 years old and over who are not classified as members of the labor force. This category consists mainly of students, homemakers, retired workers, seasonal workers interviewed in an off season who were not looking for work, institutionalized people, and people doing only incidental unpaid family work (less than 15 hours during the reference week).

Unemployed – All civilians 16 years old and over are classified as unemployed if they (1) were neither "at work" nor "with a job but not at work" during the reference week, and (2) were actively looking for work during the last 4 weeks, and (3) were available to start a job. Also included as unemployed are civilians who did not work at all during the reference week, were waiting to be called back to a job from which they had been laid off, and were available for work except for temporary illness. Examples of job

Sampling Variability and Reliability of ACS Data

American Community Survey (ACS) estimates are period estimates that describe the average characteristics of population and housing over a period of data collection. The 2008-2012 5-year ACS estimates are averages over the period from January 1, 2008 through December 31, 2012. Multiyear estimates cannot be used to say what is going on in any particular year in the period, only what the average value is over the full period.

The ACS, like any statistical activity, is subject to error. ACS data is includes a **margin of error** for every estimate. Ninety-percent confidence intervals define a range expected to contain the true value of an estimate with a level of confidence of 90 percent. Margins of error (MOE) are easily converted into these confidence ranges. For example, from the 2008-2012 ACS, per capita income for the State of Iowa is $26,545. By adding and subtracting the margin of error from the estimate, we can calculate the 90 percent confidence interval for that estimate:

$26,545 - $136 = $26,409
$26,545 + $136 = $26,681

Therefore, we can be 90 percent confident that the true per capita income for Iowa falls somewhere between $26,409 and $26,681.

Environmental Systems Research Institute, Inc. (Esri) has developed a method to help users determine the quality of an estimate. Esri has simplified the interpretation of the MOE by adding color-coded symbols, based on Coefficient of Variation (CV) to indicate the reliability of the data. A coefficient of variation provides a measure of the relative amount of sampling error that is associated with a sample estimate. The CV is calculated as the ratio of the Standard Error (SE) for an estimate to the estimate itself and is usually expressed as a percent. It is a useful barometer of the stability, and thus the usability of a sample estimate.

Reliability

Included in PDF discussing Sampling Variability

	State House District 2 (2012), Iowa				St
	Estimate	Percent	Margin of Error (+/-)	Reliability	Es
.4	24,031	24,031	220	(X)	
.1	16,543	68.80%	384	1.4	
.3	7,488	31.20%	319	1.4	
IE!					
.1	16,475	16,475	378	(X)	

Replaced %MOE with Reliability making sure to copy over any %MOE needed for only Percent Estimates – Percent Unemployed

$$Standard\ Error\ (SE) = \frac{MOE}{1.645}$$

$$Coefficient\ of\ Variation\ (CV) = \frac{SE}{Estimate}\ \text{X}\ 100$$

Esri gets the credit for [Reliability Flags]

High Reliability: Small CVs, less than or equal to 12 percent, are flagged with a green check to indicate that the sampling error is small relative to the estimate and the estimate is reasonably reliable.

Medium Reliability: Estimates with CVs between 12 and 40 percent are flagged with a yellow exclamation mark—use with caution.

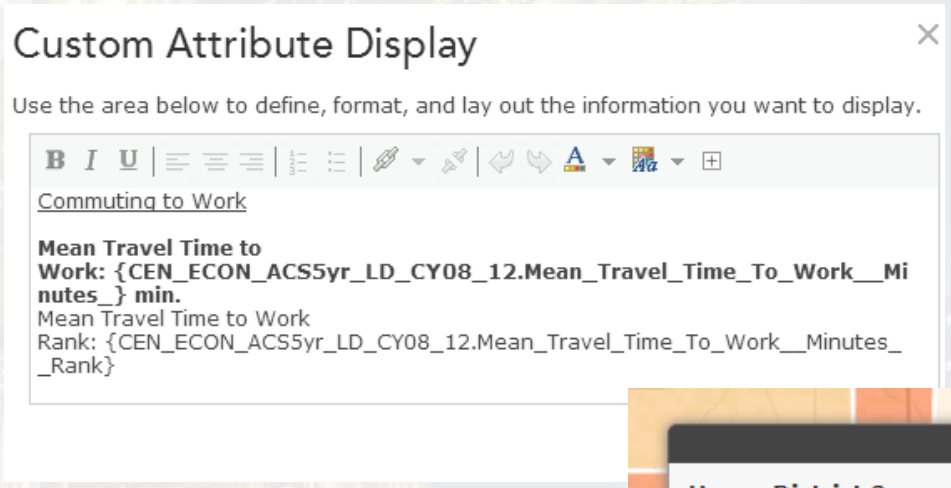
Low Reliability: Large CVs, over 40 percent, are flagged with a red “x” to indicate that the sampling error is large relative to the estimate. The estimate is considered very unreliable.

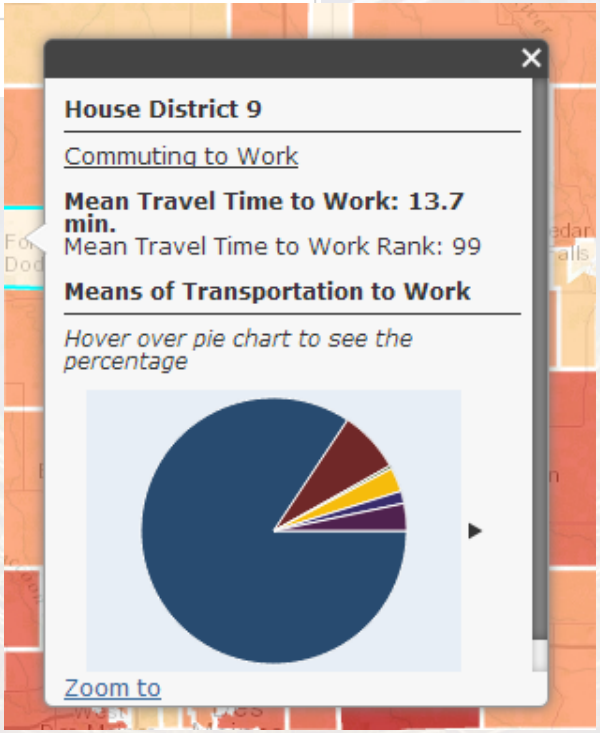
Resulting Table with all Estimates in the interactive map – One Page for Each District/Geography

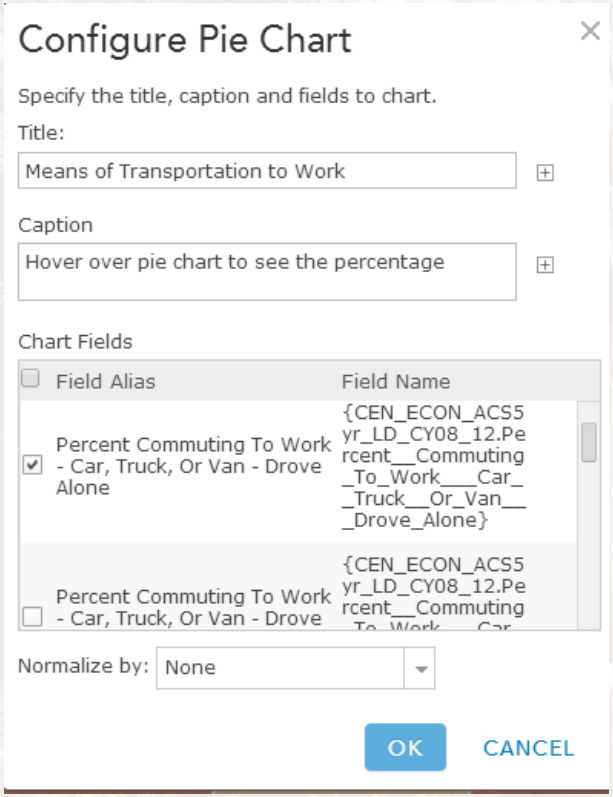
DP03: SELECTED ECONOMIC CHARACTERISTICS
2008-2012 American Community Survey 5-Year Estimates
An '(X)' means that the estimate is not applicable or not available.

Subject	State House District 18 (2012), Iowa			
	Estimate	Percent	Margin of Error (+/-)	Reliability
EMPLOYMENT STATUS				
Population 16 years and over	23,717	23,717	238	✓
In labor force	15,387	64.9%	386	✓
Not in labor force	8,330	35.1%	334	✓
Civilian labor force	15,374	15,374	387	✓
Percent Unemployed	(X)	3.7%	0.9%	!
COMMUTING TO WORK				
Workers 16 years and over	14,349	14,349	407	✓
Car, truck, or van -- drove alone	11,199	78.0%	388	✓
Car, truck, or van -- carpooled	1,661	11.6%	258	✓
Public transportation (excluding taxicab)	56	0.4%	41	✗
Walked	468	3.3%	123	!
Other means	121	0.8%	61	!
Worked at home	844	5.9%	147	✓
Mean travel time to work (minutes)	17.8	(X)	0.8	✓

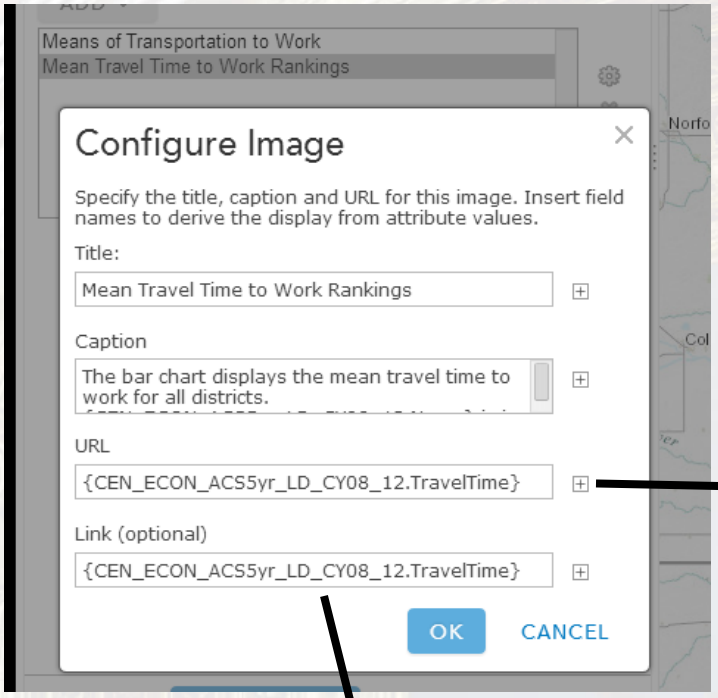
Custom Attribute Display = More Flexibility and Branding

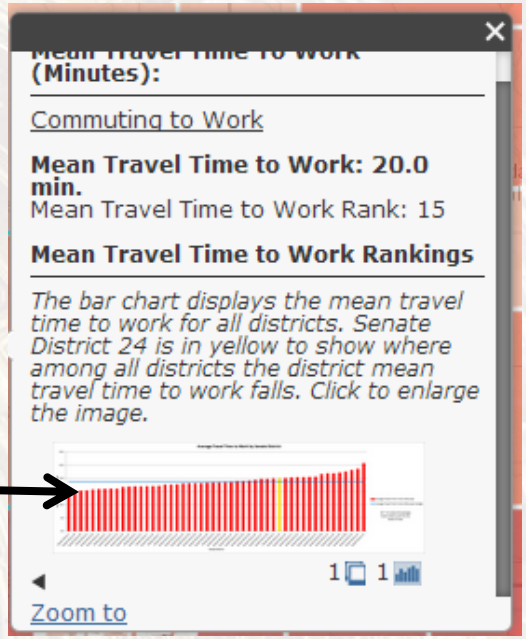


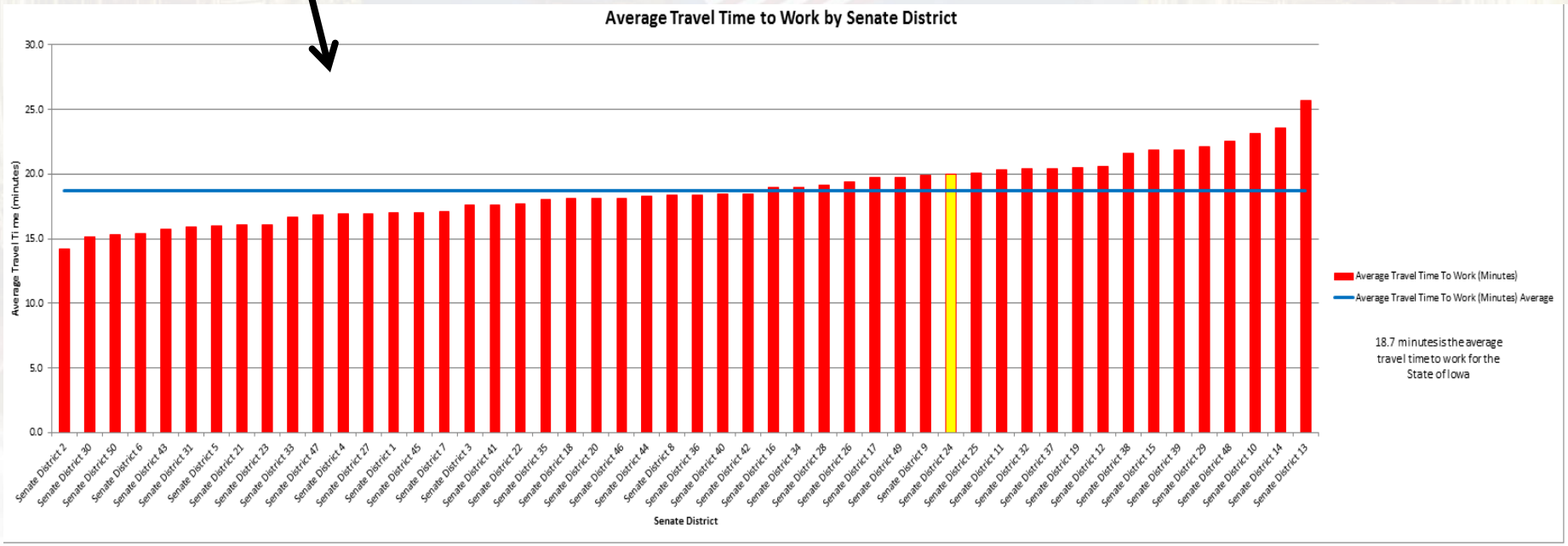




Add images into your pop-up to display customized information

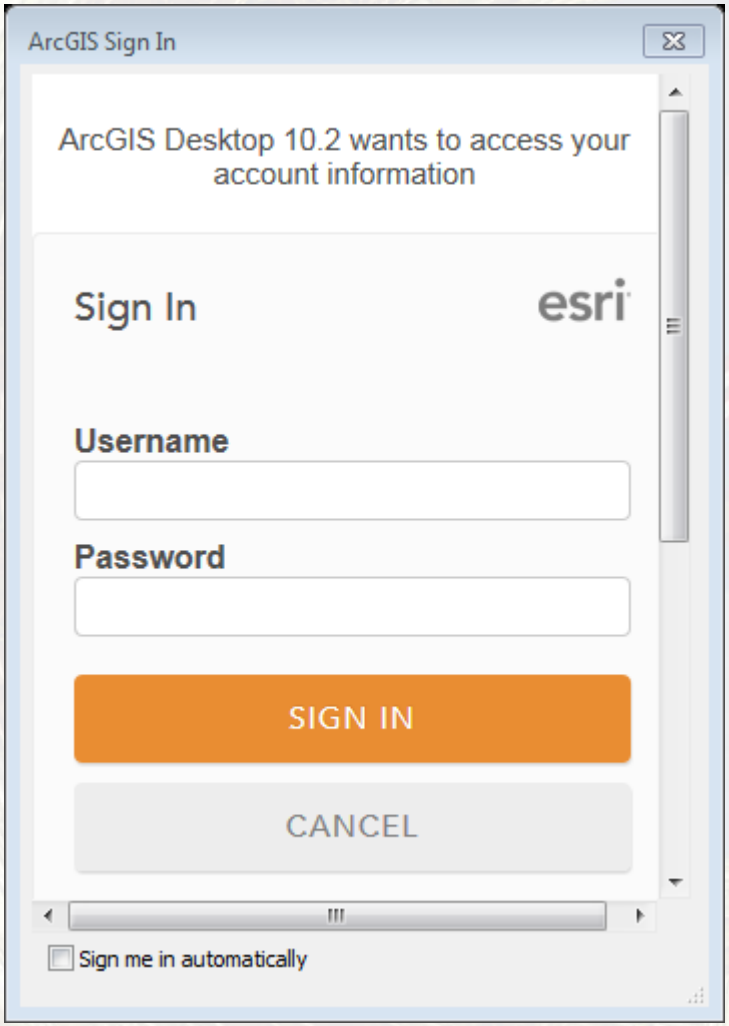






Preparing to export layers in ArcDesktop to ArcGIS Online for Organizations

Desktop Preparation For ArcOnline Hosted Service



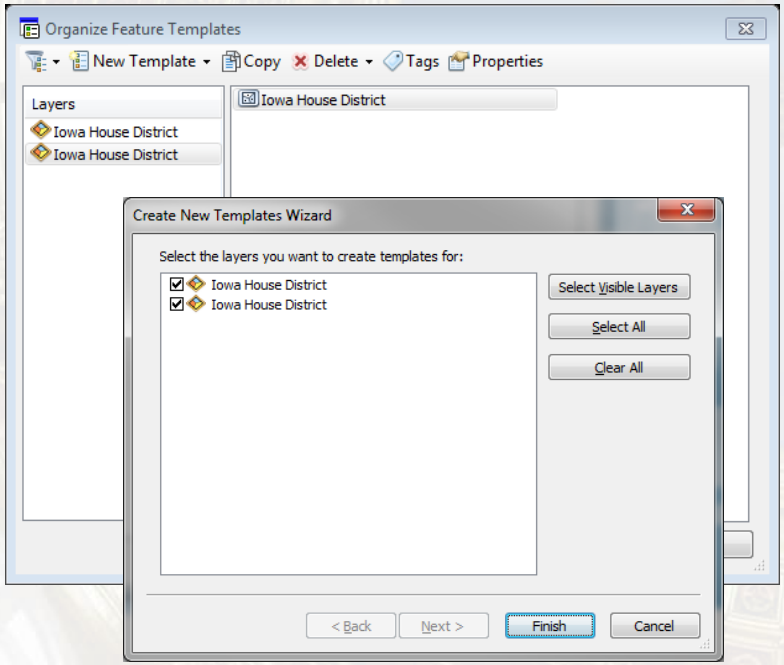
Steps in ArcMap

- Sign into ArcGIS Online
- Import table and join to geography
- Select Shape and other fields you want to be displayed in ArcOnline
- Exported to Shapefile and add to MXD
  - Preserves Attributes
- Symbolize Layers

Desktop Preparation

Can create a Feature Template to define all information required to create a feature

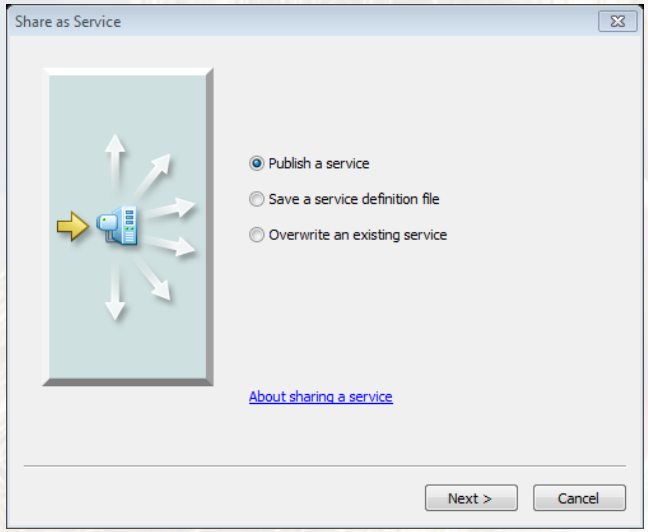
Right click a layer → Edit Features → Organize Feature Templates → Select Layers

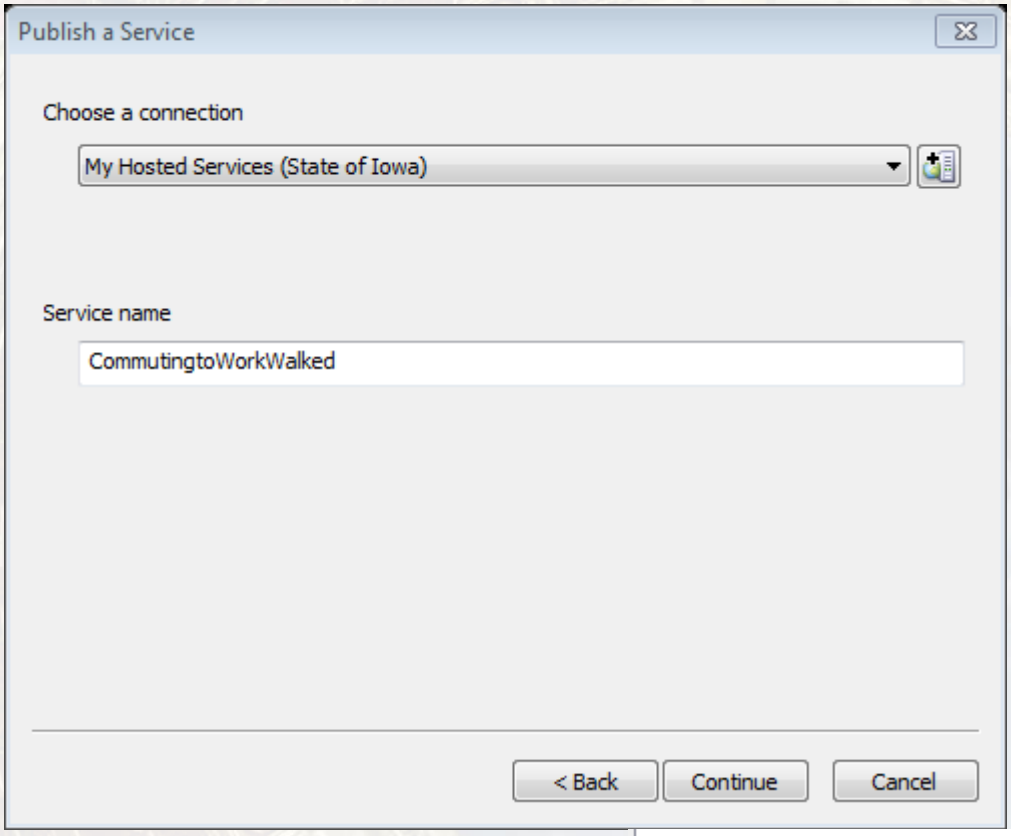


Steps in ArcDesktop

- Sign in to ArcGIS Online
- Import table and join to geography
- Selected Shape and other fields needed in ArcOnline
- Exported to Shapefile and added to MXD
- Symbolize Layers

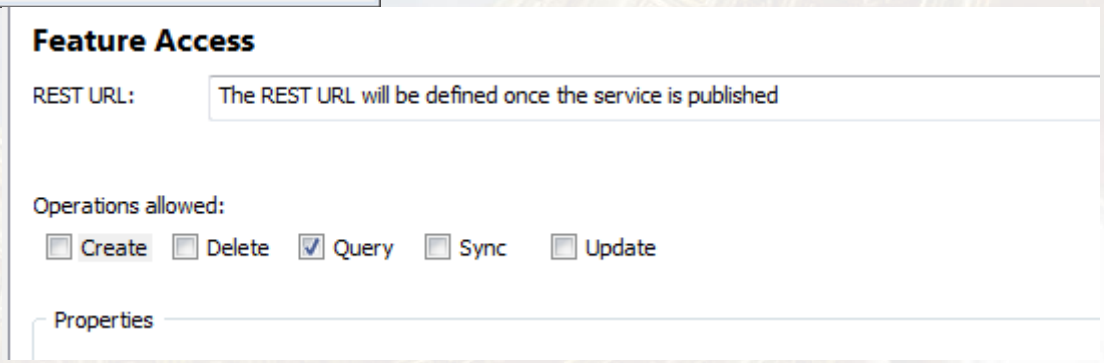
File → Share as Service →

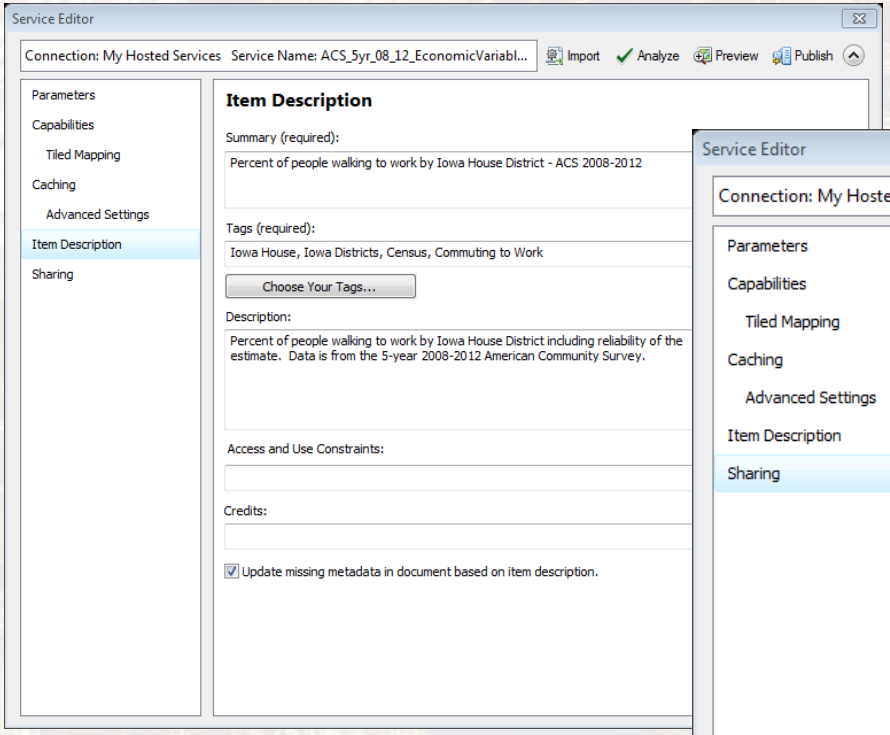


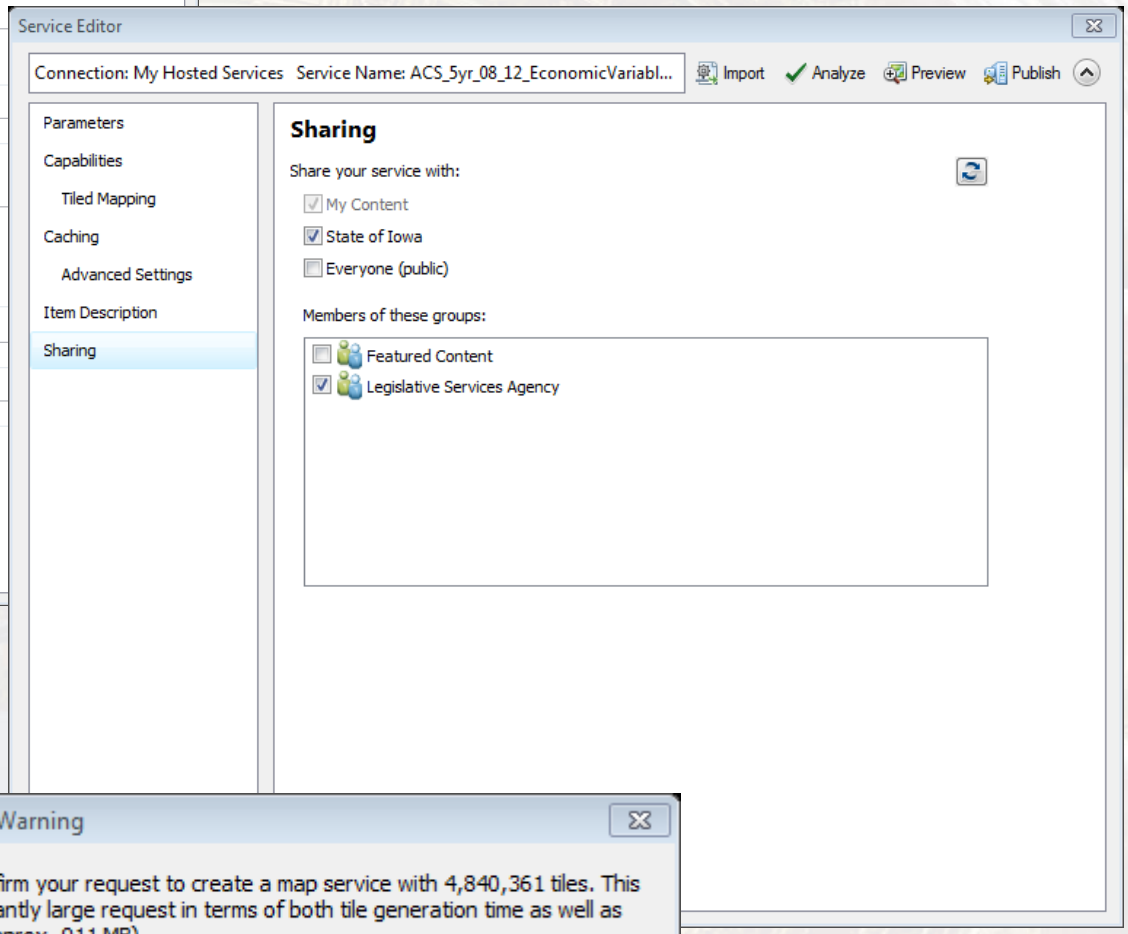


Option to Share to your ArcGIS Online account or ArcServer

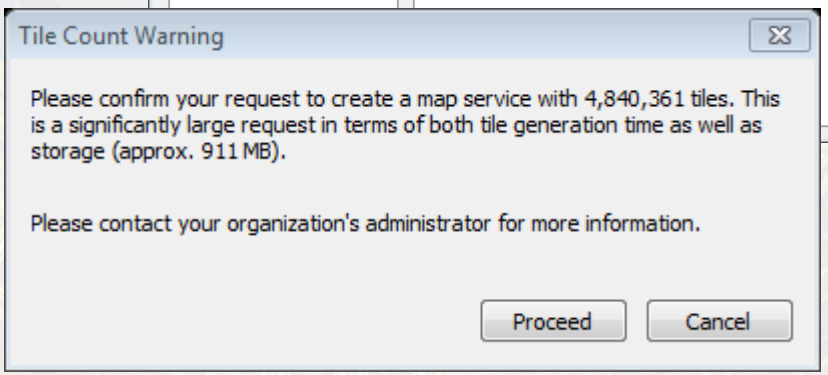
Featured Access, Tiled Mapping uses too many credits –use for Basemaps





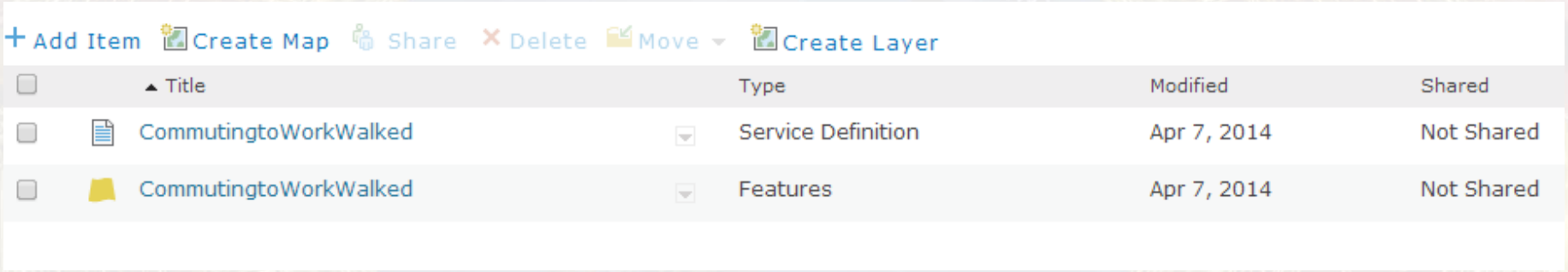


Must have one Capability Enabled – Tiled Mapping or Featured Access. This service would use almost 5,000 credits!
[Credit Estimator Here]



Feature Access = 688 KB or 2 credits per year = $0.20

Result after publishing to ArcOnline from ArcDesktop

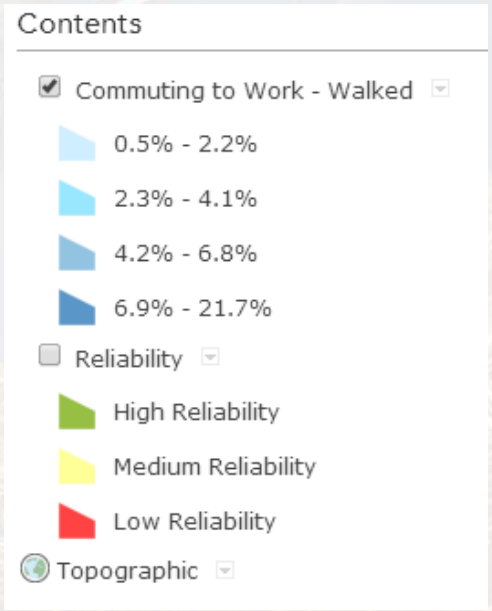


Now you can add the Feature Layer to a Web Map and start to configure

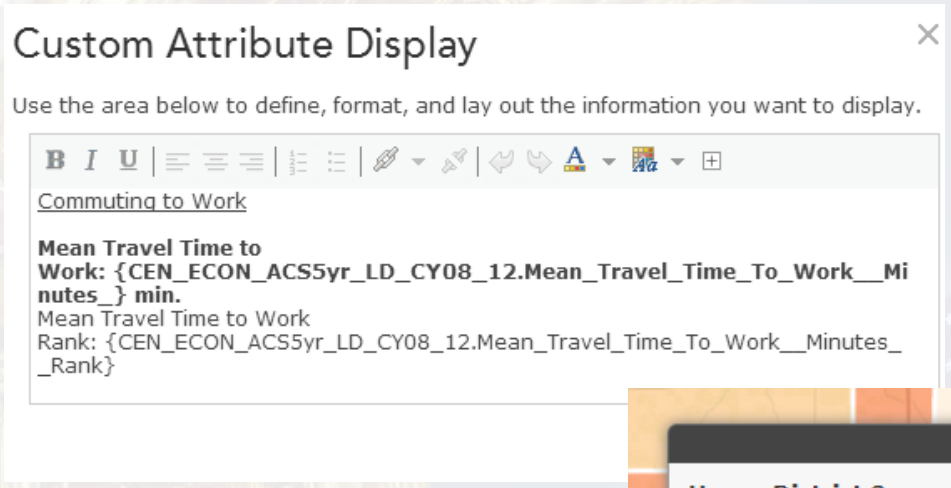
ArcOnline Settings

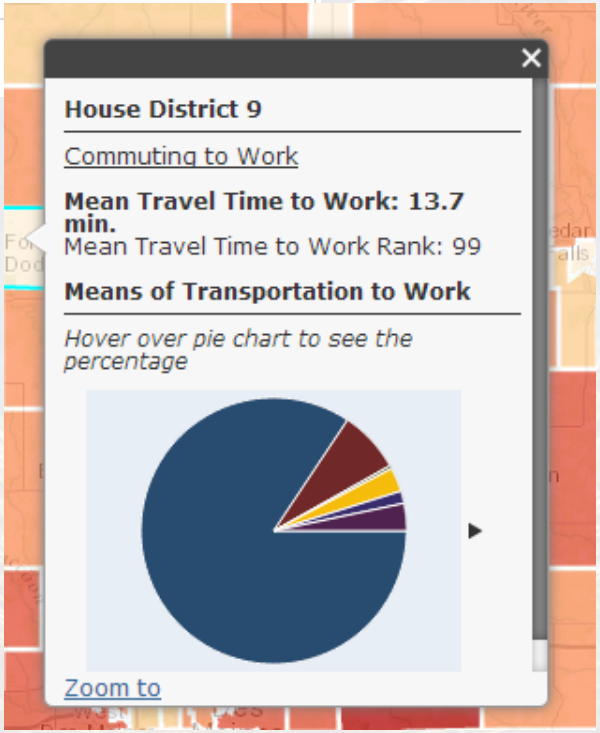
Configuration in ArcOnline

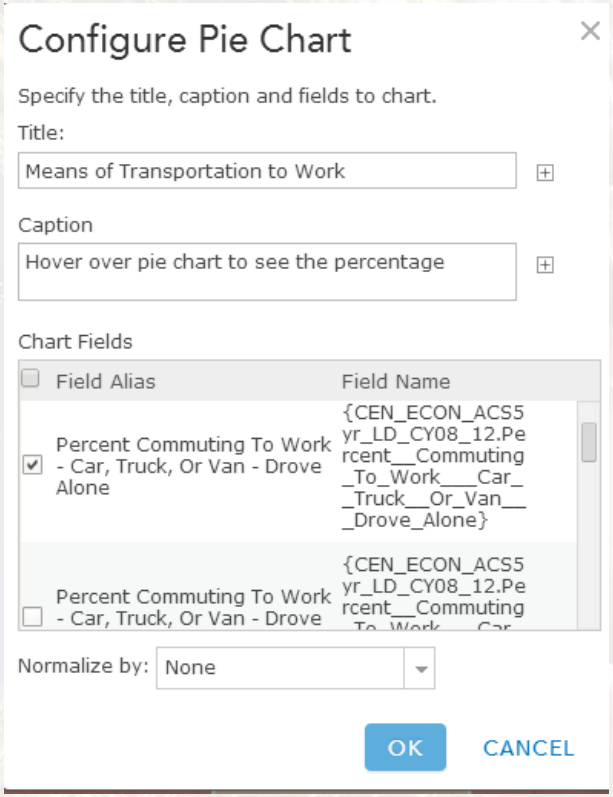
- Set Transparency to see Basemap – 25% seems to work best
- Rename the Layers
- Configure the Pop-ups of all layers
- Save the map with only one layer displayed to build an application then select the other layer and create a second map with the remaining layer(s) turned on – One map to one layer.
  - Note: Depending on the application could have multiple layers visible. Depends on application settings



Custom Attribute Display = More Flexibility and Branding







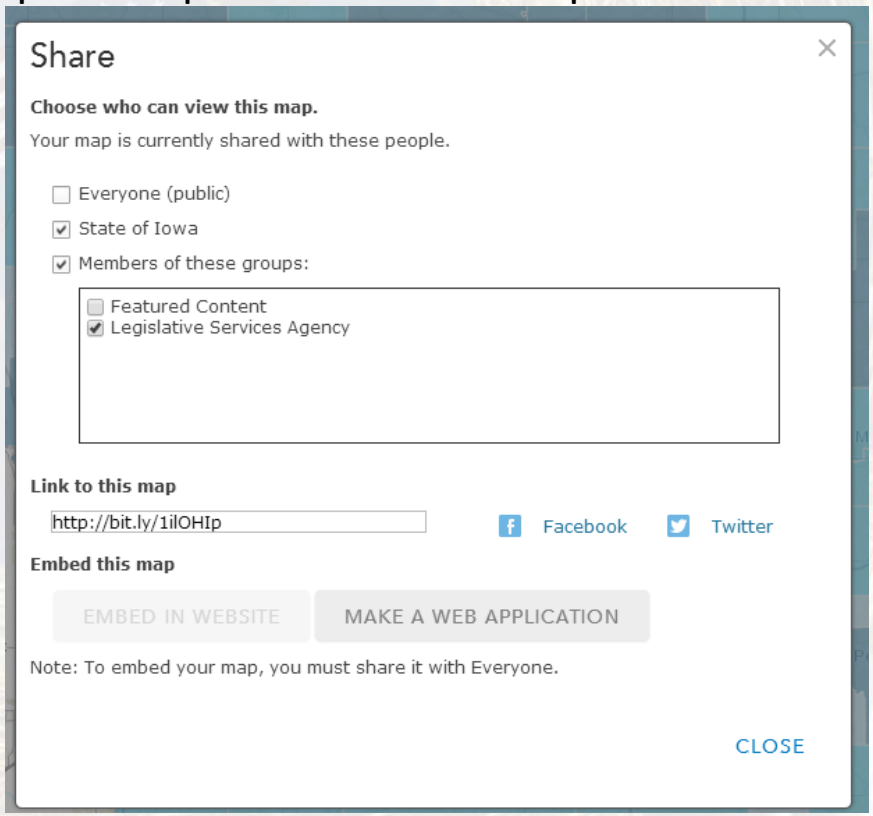
Building an Application

Live Demonstration

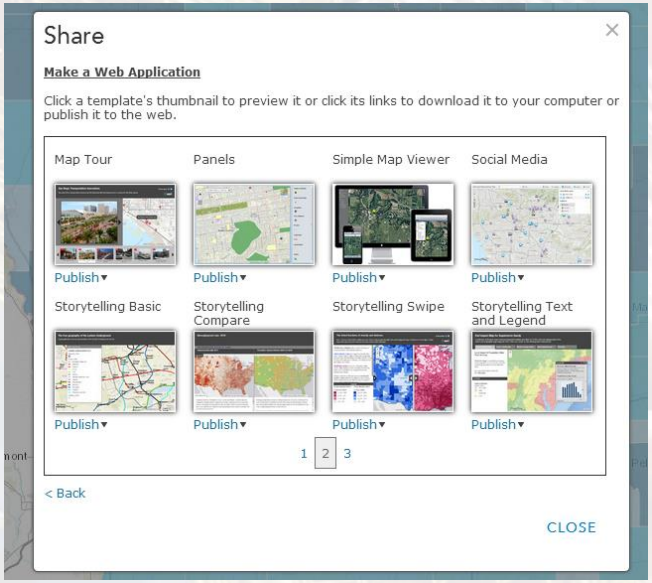
Building an Application

Once you have all the ArcOnline Maps configured and saved now it is time to build an application.

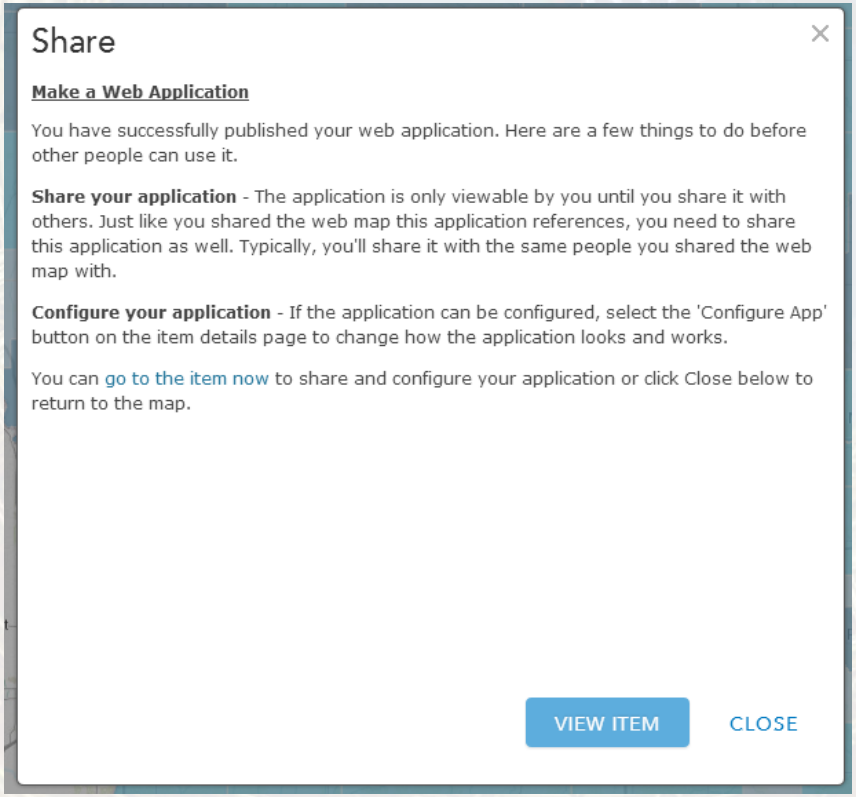
1. Open one of the Maps you want to use for an application
2. Click Share
3. Share with at least one other Group or the public to have the option to make a Web Application
4. Click on Make a Web Application



5. Select one of the Templates in ArcOnline
   - Options to Publish – View and Configure immediately
   - Download – Alter the Template
   - Preview

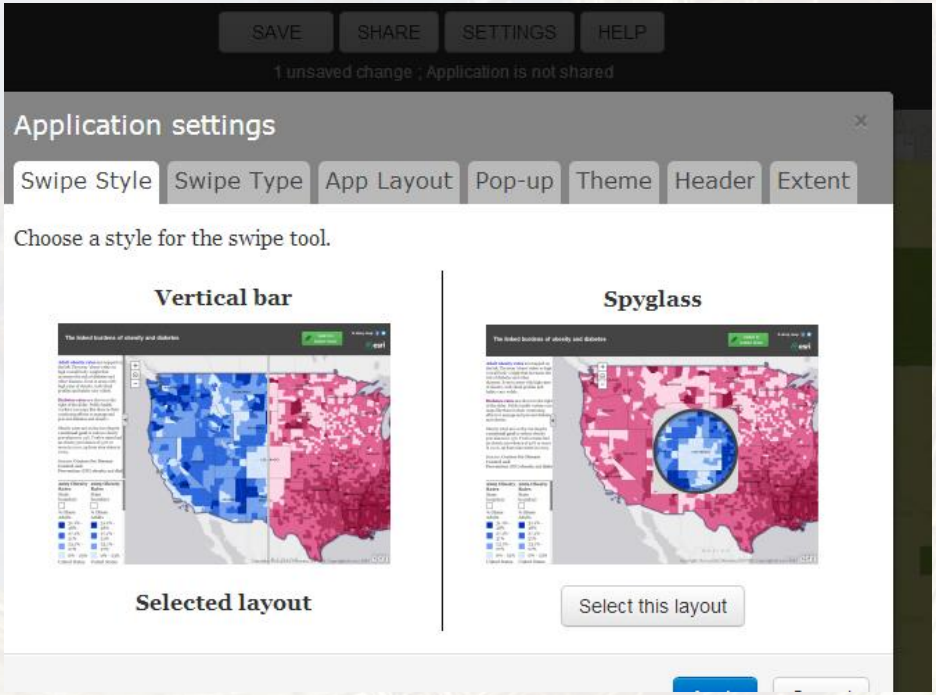


6. Save map with name and tags – click on go to item now to configure the application

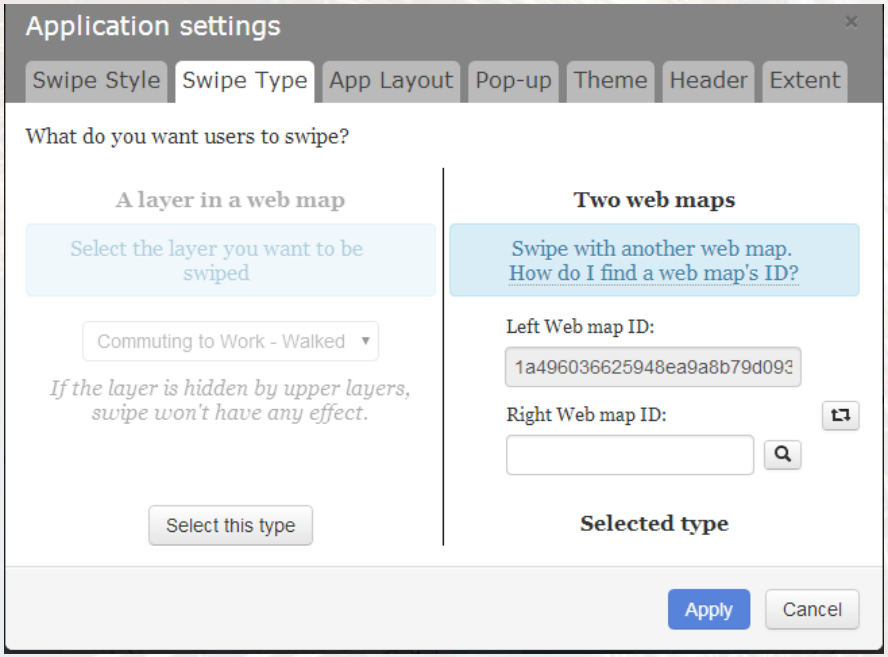


7. Click on CONFIGURE APP

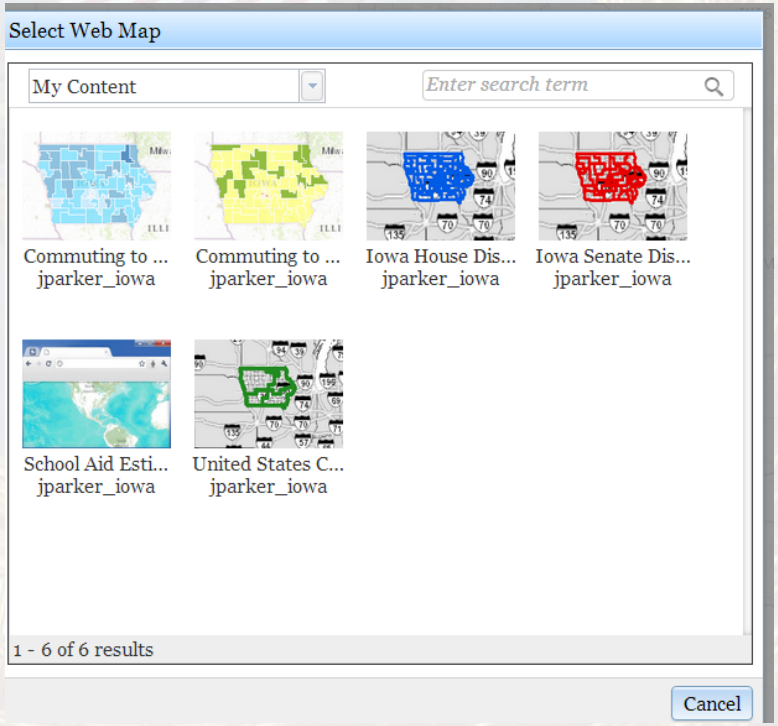
8. Depending on the application the configuration screen may look different



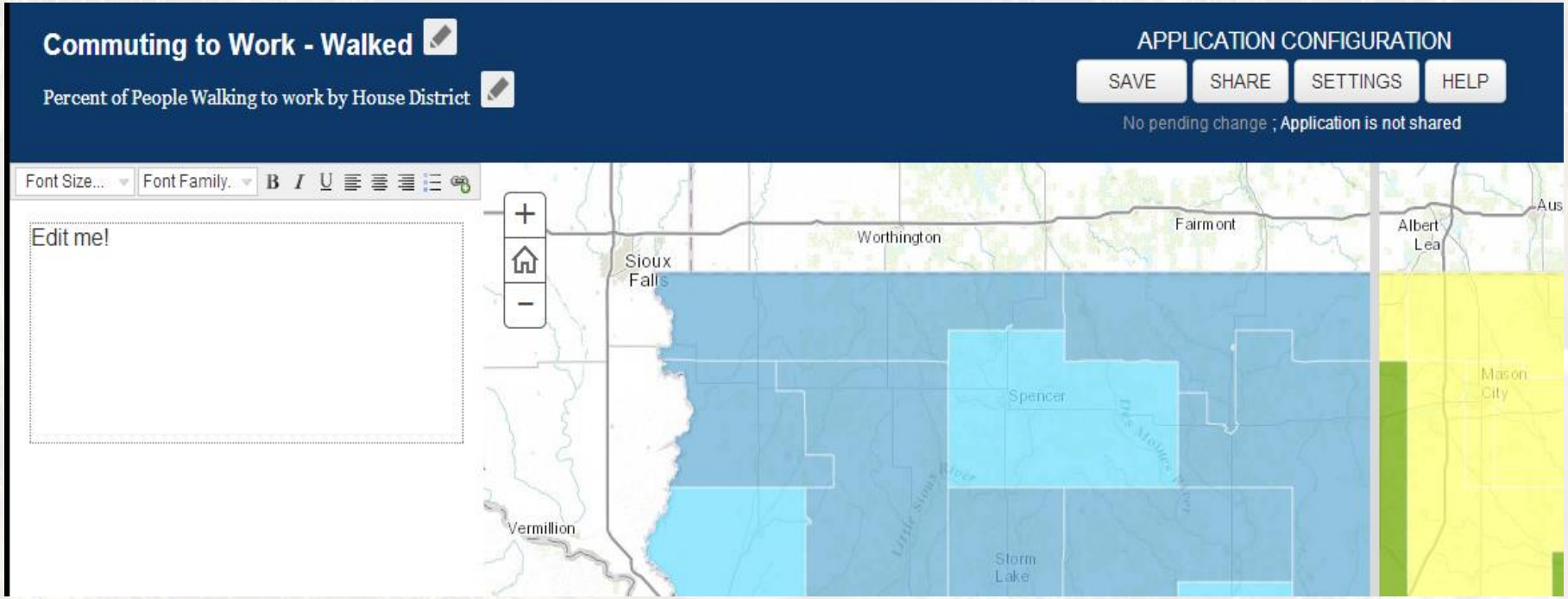
9. Select they Swipe Type tab and Select compare Two web maps



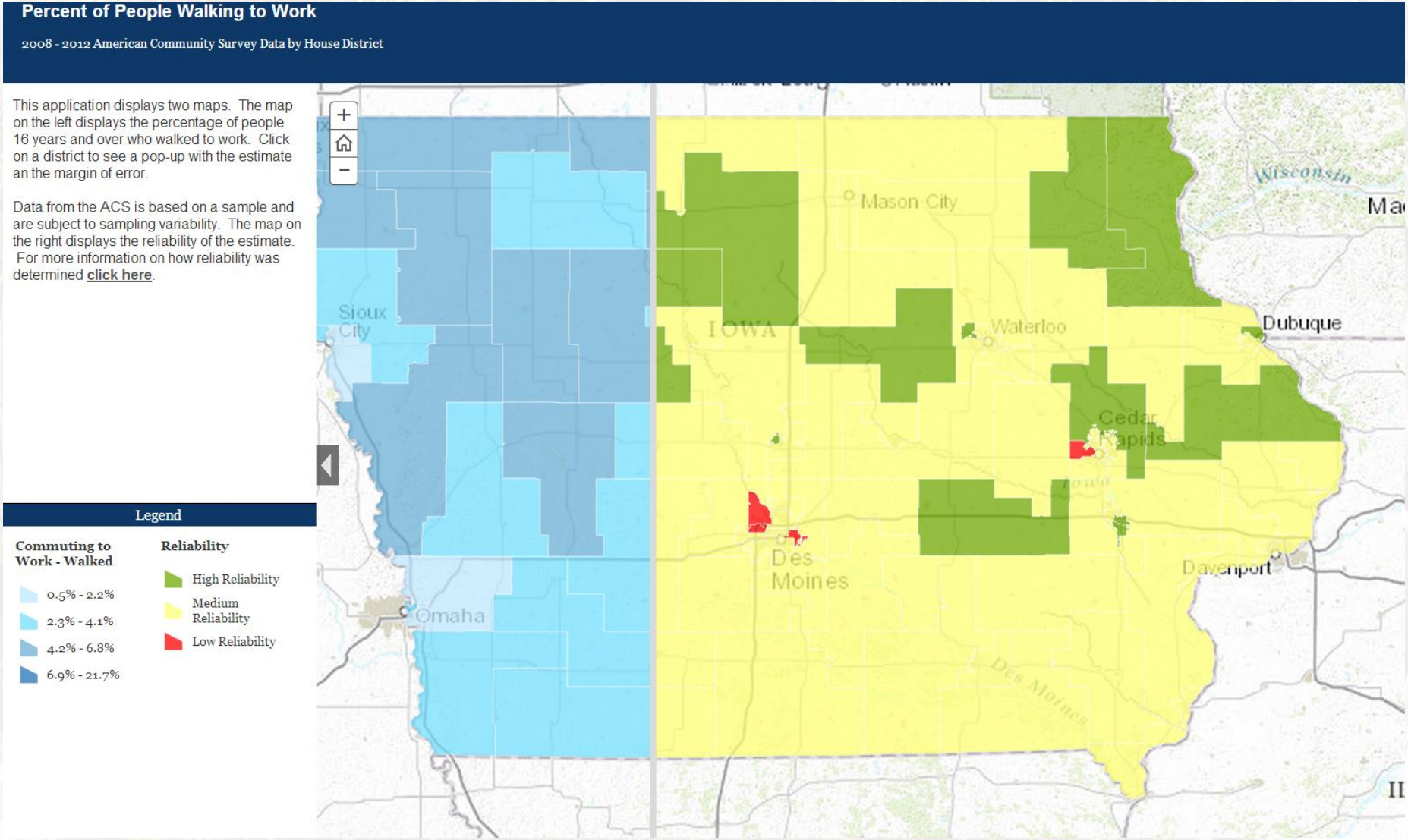
10. Click on the Search Icon to find other maps and select the Web Map you want



11. Other settings include enabling an address search tool, picking the header title and color for pop-ups, changing the color theme, adding a custom logo to the map, and setting the initial extent.
12. After editing the other settings click Apply
13. Edit the Title and Subtitle by clicking on the Pencils and do not forget to add a description to give users a better understanding of what they are looking at.



Final Application



Information

Github to download side accordion application

- https://github.com/Esri/side-accordion-map-storytelling-template-js

- John Parker – john.parker@legis.iowa.gov