

# Using ACS data within ArcGIS Online for Organizations

[HOME](#) [GALLERY](#) [MAP](#) [GROUPS](#) [MY CONTENT](#) [MY ORGANIZATION](#)

10

John ▾



**Legislative Services Agency**  
STATE OF IOWA

Map Service  
Iowa Legislative Districts  
LSA  
GEOSPATIAL

Map Service  
School Districts FY 2024  
LSA  
Geospatial

App  
Vision Iowa, CAT, RECAT  
LSA  
TransportationInfrastructureCapitals

App  
Economic Estimates by District  
LSA  
Census

Iowa Legislative Districts with 2020/21

Iowa School Districts FY 2014

Vision Iowa, CAT, and RECAT Grant Awards

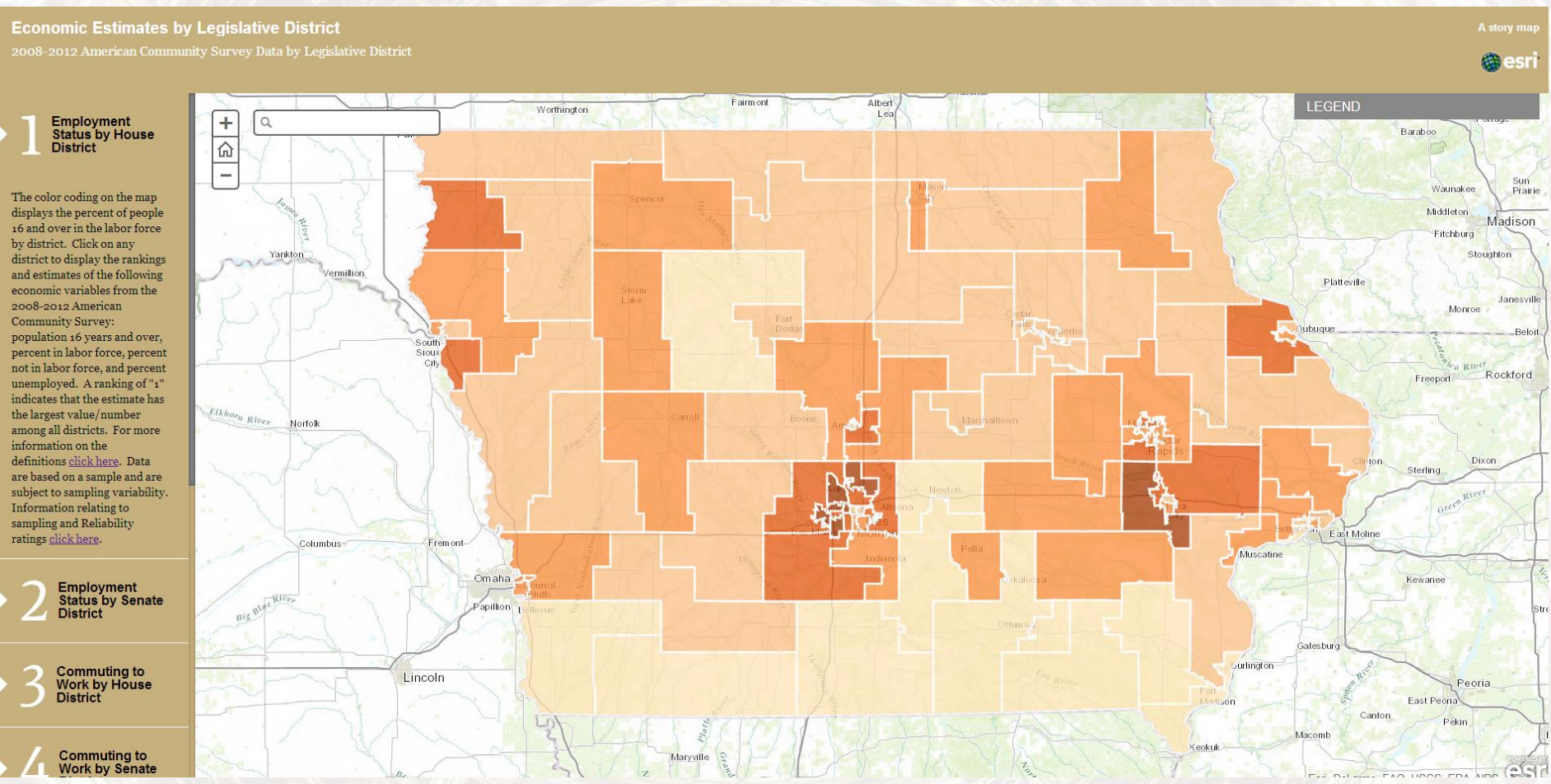
Health Insurance, Employment Status, and Income by

The Iowa Legislative Services Agency (LSA) provides nonpartisan staff services to all members of the General Assembly.

# Presentation Goals

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





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 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.



State House District 2 (2012), Iowa				
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
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

# Reliability

Included in PDF discussing Sampling Variability

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

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

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
<b>EMPLOYMENT STATUS</b>				
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%	!
<b>COMMUTING TO WORK</b>				
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

## Custom Attribute Display

Use the area below to define, format, and lay out the information you want to display.

**B I U** | [Text Alignment] | [List] | [Link] | [Image] | [Color] | [Font Size] | [More]

### Commuting to Work

#### Mean Travel Time to

**Work: {CEN\_ECON\_ACS5yr\_LD\_CY08\_12.Mean\_Travel\_Time\_To\_Work\_\_Minutes\_} min.**

Mean Travel Time to Work

Rank: {CEN\_ECON\_ACS5yr\_LD\_CY08\_12.Mean\_Travel\_Time\_To\_Work\_\_Minutes\_\_Rank\_}

## House District 9

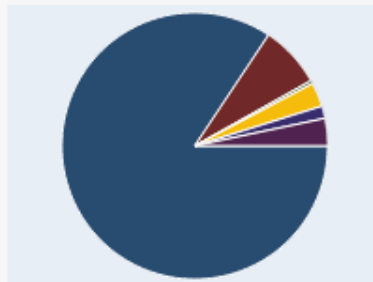
### Commuting to Work

**Mean Travel Time to Work: 13.7 min.**

Mean Travel Time to Work Rank: 99

### Means of Transportation to Work

*Hover over pie chart to see the percentage*



[Zoom to](#)

## Configure Pie Chart

Specify the title, caption and fields to chart.

Title:

Means of Transportation to Work

Caption

Hover over pie chart to see the percentage

Chart Fields

<input type="checkbox"/> Field Alias	Field Name
<input checked="" type="checkbox"/> Percent Commuting To Work - Car, Truck, Or Van - Drove Alone	{CEN_ECON_ACS5yr_LD_CY08_12.Percent__Commuting_To_Work__Car__Truck__Or_Van__Drove_Alone}
<input type="checkbox"/> Percent Commuting To Work - Car, Truck, Or Van - Drove	{CEN_ECON_ACS5yr_LD_CY08_12.Percent__Commuting_To_Work__Car__Truck__Or_Van__Drove}

Normalize by: None

OK

CANCEL

Add images into  
your pop-up to  
display  
customized  
information

### Configure Image

Specify the title, caption and URL for this image. Insert field names to derive the display from attribute values.

Title:

Mean Travel Time to Work Rankings

Caption:

The bar chart displays the mean travel time to work for all districts.

URL:

{CEN\_ECON\_ACS5yr\_LD\_CY08\_12.TravelTime}

Link (optional):

{CEN\_ECON\_ACS5yr\_LD\_CY08\_12.TravelTime}

OK

CANCEL

### Mean Travel Time to Work (Minutes):

#### Commuting to Work

**Mean Travel Time to Work: 20.0 min.**

Mean Travel Time to Work Rank: 15

#### Mean Travel Time to Work Rankings

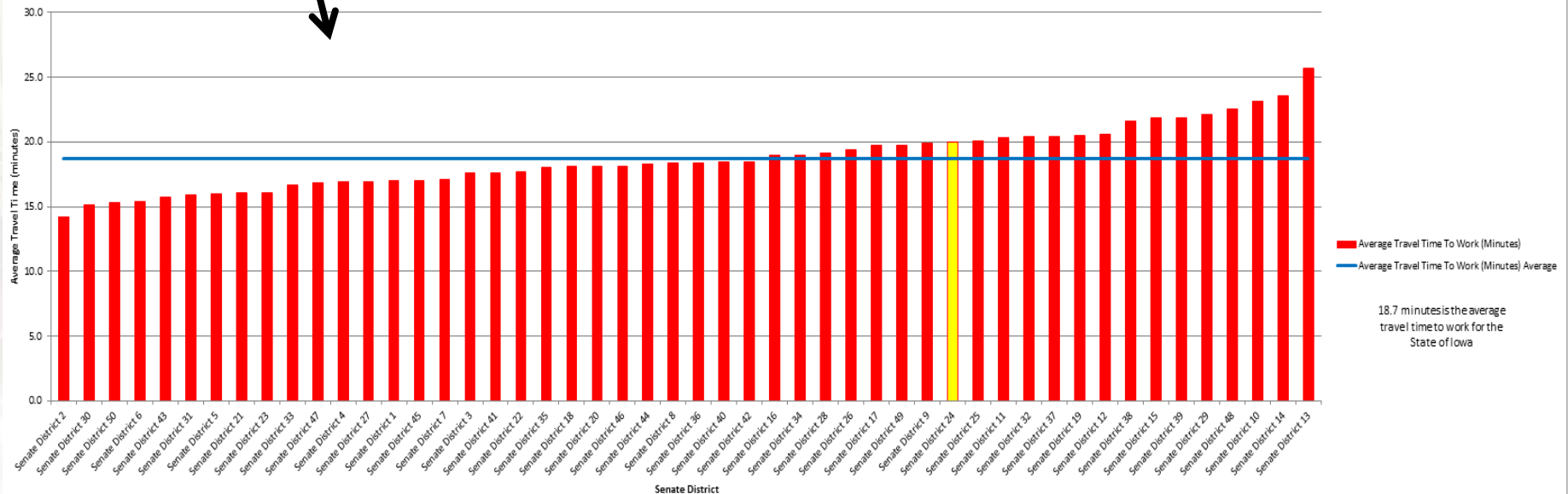
The bar chart displays the mean travel time to work for all districts. Senate District 24 is in yellow to show where among all districts the district mean travel time to work falls. Click to enlarge the image.



1 1

Zoom to

Average Travel Time to Work by Senate District

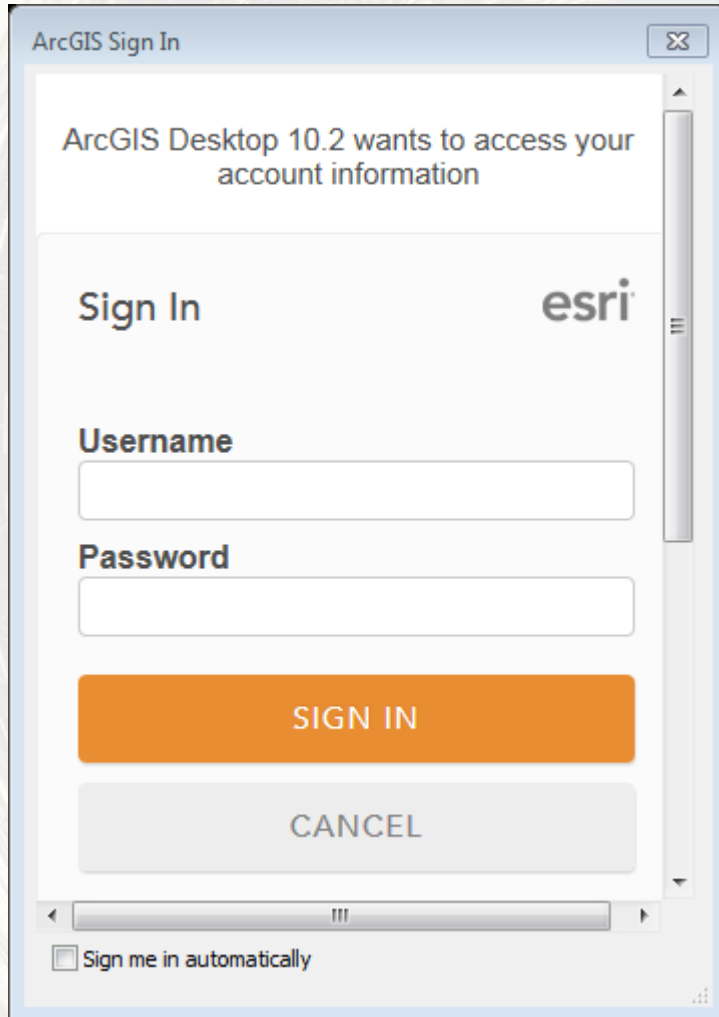






# Preparing to export layers in ArcDesktop to ArcGIS Online for Organizations

# Desktop Preparation For ArcOnline Hosted Service

A screenshot of the ArcGIS Sign In dialog box. The window has a title bar that says "ArcGIS Sign In" with a close button. The main content area has a header that says "ArcGIS Desktop 10.2 wants to access your account information". Below this is a "Sign In" section with the "esri" logo. There are two input fields: "Username" and "Password". Below the input fields are two buttons: "SIGN IN" (orange) and "CANCEL" (gray). At the bottom, there is a checkbox labeled "Sign me in automatically".

ArcGIS Sign In

ArcGIS Desktop 10.2 wants to access your account information

Sign In **esri**

**Username**

**Password**

**SIGN IN**

**CANCEL**

☐ Sign me in automatically

## 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

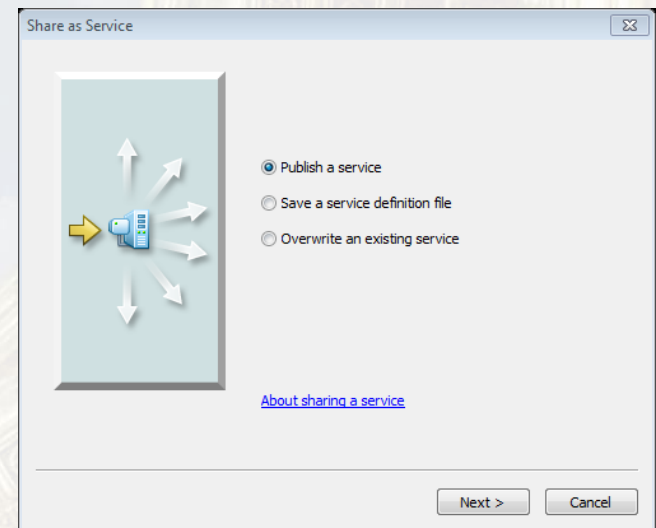
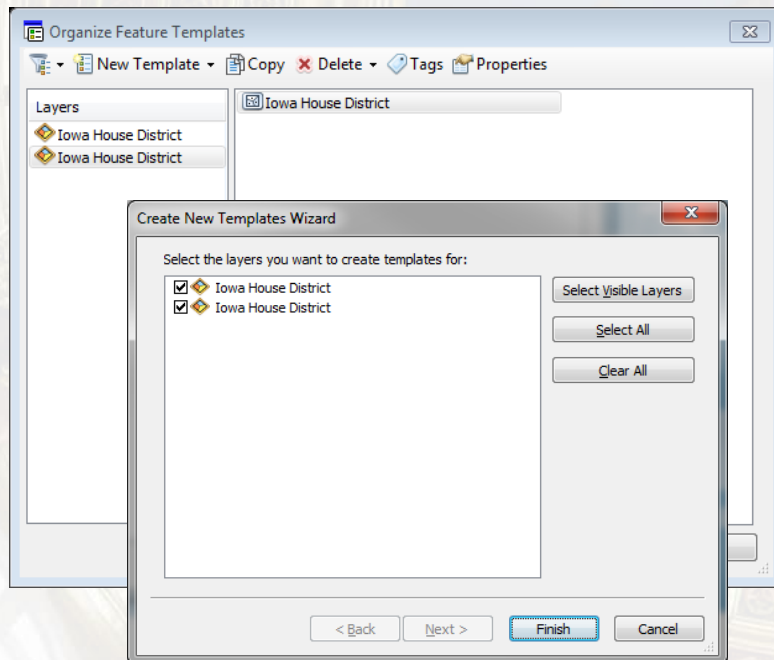
Can create a Feature Template to define all information required to create a feature

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 →



Publish a Service

Choose a connection

My Hosted Services (State of Iowa)

Service name

CommutingtoWorkWalked

< Back Continue Cancel

Option to Share to  
your ArcGIS Online  
account or ArcServer

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

### Feature Access

REST URL:

The REST URL will be defined once the service is published

Operations allowed:

☐ Create ☐ Delete ☒ Query ☐ Sync ☐ Update

Properties



Service Editor

Connection: My Hosted Services Service Name: ACS\_5yr\_08\_12\_EconomicVariabl...

Import Analyze Preview Publish

Parameters

Capabilities

Tiled Mapping

Caching

Advanced Settings

Item Description

Sharing

### Item Description

Summary (required):

Percent of people walking to work by Iowa House District - ACS 2008-2012

Tags (required):

Iowa House, Iowa Districts, Census, Commuting to Work

Choose Your Tags...

Description:

Percent of people walking to work by Iowa House District including reliability of the estimate. Data is from the 5-year 2008-2012 American Community Survey.

Access and Use Constraints:

Credits:

☒ Update missing metadata in document based on item description.

Service Editor

Connection: My Hosted Services Service Name: ACS\_5yr\_08\_12\_EconomicVariabl...

Import Analyze Preview Publish

Parameters

Capabilities

Tiled Mapping

Caching

Advanced Settings

Item Description

Sharing

### Sharing

Share your service with:

☒ My Content

☒ State of Iowa

☐ Everyone (public)

Members of these groups:

☐ Featured Content

☒ Legislative Services Agency

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

Tile Count Warning



Please confirm your request to create a map service with 4,840,361 tiles. This is a significantly large request in terms of both tile generation time as well as storage (approx. 911 MB).

Please contact your organization's administrator for more information.

Proceed Cancel

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

# Result after publishing to ArcOnline from ArcDesktop

+ Add Item   Create Map   Share   Delete   Move   Create Layer				
<input type="checkbox"/>	▲ Title	Type	Modified	Shared
<input type="checkbox"/>	 CommutingtoWorkWalked	<input type="checkbox"/> Service Definition	Apr 7, 2014	Not Shared
<input type="checkbox"/>	 CommutingtoWorkWalked	<input type="checkbox"/> Features	Apr 7, 2014	Not Shared

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

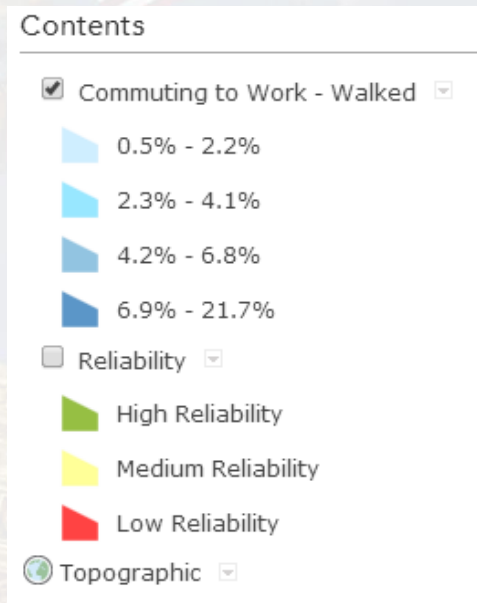




# ArcOnline Settings

# 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

## Custom Attribute Display

Use the area below to define, format, and lay out the information you want to display.

**B I U** | [Text Alignment Icons] | [List Icons] | [Link Icon] | [Image Icon] | [Table Icon] | [More Icon]

### Commuting to Work

#### Mean Travel Time to

**Work: {CEN\_ECON\_ACS5yr\_LD\_CY08\_12.Mean\_Travel\_Time\_To\_Work\_\_Minutes\_} min.**

Mean Travel Time to Work

Rank: {CEN\_ECON\_ACS5yr\_LD\_CY08\_12.Mean\_Travel\_Time\_To\_Work\_\_Minutes\_\_Rank\_}

## House District 9

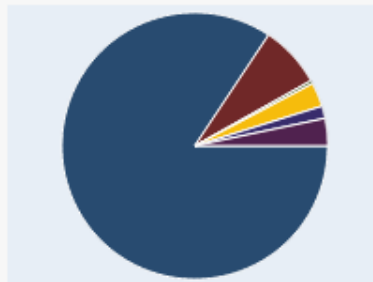
### Commuting to Work

**Mean Travel Time to Work: 13.7 min.**

Mean Travel Time to Work Rank: 99

### Means of Transportation to Work

*Hover over pie chart to see the percentage*



[Zoom to](#)

## Configure Pie Chart

Specify the title, caption and fields to chart.

Title:

Means of Transportation to Work

Caption

Hover over pie chart to see the percentage

Chart Fields

<input type="checkbox"/> Field Alias	Field Name
<input checked="" type="checkbox"/> Percent Commuting To Work - Car, Truck, Or Van - Drove Alone	{CEN_ECON_ACS5yr_LD_CY08_12.Percent__Commuting_To_Work__Car__Truck__Or_Van__Drove_Alone}
<input type="checkbox"/> Percent Commuting To Work - Car, Truck, Or Van - Drove	{CEN_ECON_ACS5yr_LD_CY08_12.Percent__Commuting_To_Work__Car__Truck__Or_Van__Drove}

Normalize by: None

OK

CANCEL




# 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

×

Share


Choose who can view this map.  
Your map is currently shared with these people.

☐ Everyone (public)  
☒ State of Iowa  
☒ Members of these groups:

☐ Featured Content  
☒ Legislative Services Agency

Link to this map  

 Facebook

 Twitter

Embed this map  

EMBED IN WEBSITE

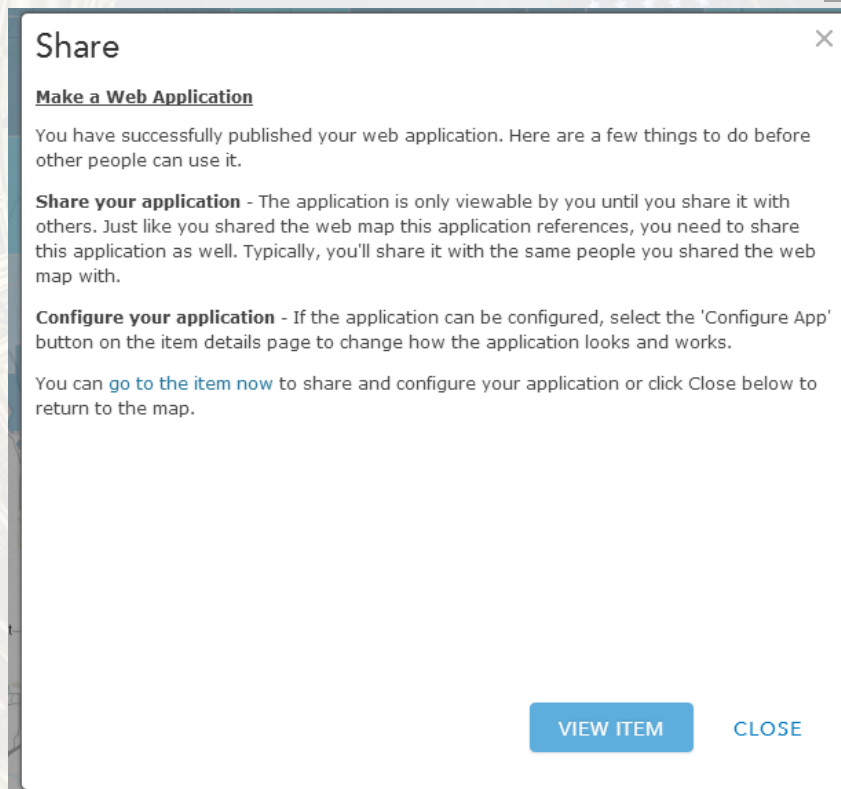
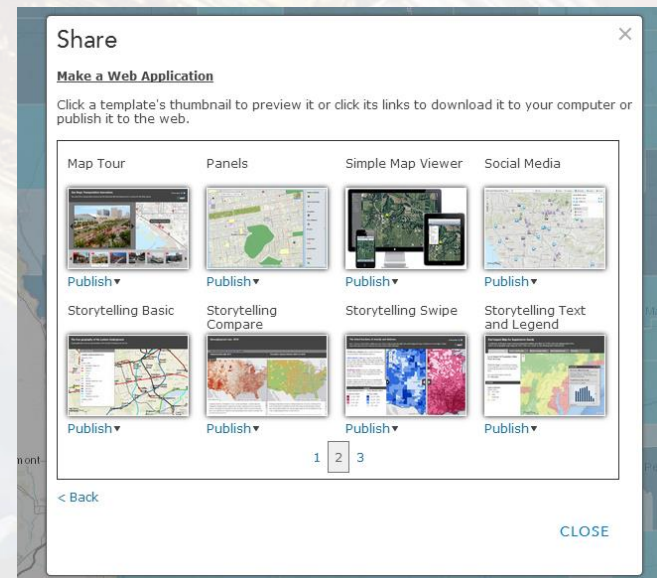
MAKE A WEB APPLICATION

Note: To embed your map, you must share it with Everyone.

CLOSE



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

### Commuting to Work - Walked



Percent of People Walking to work and the Reliability of the Estimate by House District

Web Mapping Application by [jparker\\_iowa](#)  
Last Modified: April 7, 2014

★★★★★ (0 ratings, 0 views)

[Facebook](#) [Twitter](#)

[OPEN](#) [SHARE](#) [EDIT](#) [DELETE](#) [MOVE](#) [ATTACH CODE](#) [CONFIGURE APP](#)

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

SAVE SHARE SETTINGS HELP

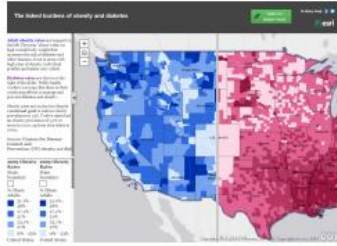
1 unsaved change ; Application is not shared

### Application settings

Swipe Style Swipe Type App Layout Pop-up Theme Header Extent

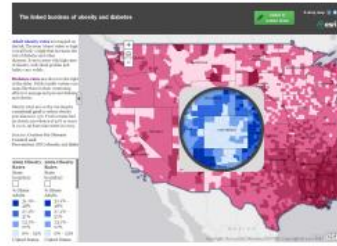
Choose a style for the swipe tool.

#### Vertical bar



**Selected layout**

#### Spyglass



Select this layout

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

Application settings

Swipe Style | **Swipe Type** | App Layout | Pop-up | Theme | Header | Extent

What do you want users to swipe?

**A layer in a web map**

Select the layer you want to be swiped

Commuting to Work - Walked ▼

*If the layer is hidden by upper layers, swipe won't have any effect.*

Select this type

**Two web maps**

Swipe with another web map.  
[How do I find a web map's ID?](#)

Left Web map ID:  
1a496036625948ea9a8b79d093

Right Web map ID:  
 🔍

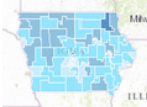
**Selected type**

Apply Cancel

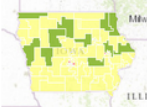
10. Click on the Search Icon to find other maps and select the Web Map you want

Select Web Map


My Content  🔍



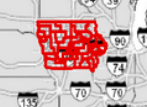
Commuting to ...  
jparker\_iowa




Commuting to ...  
jparker\_iowa



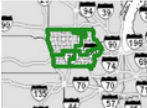
Iowa House Dis...  
jparker\_iowa



Iowa Senate Dis...  
jparker\_iowa



School Aid Esti...  
jparker\_iowa



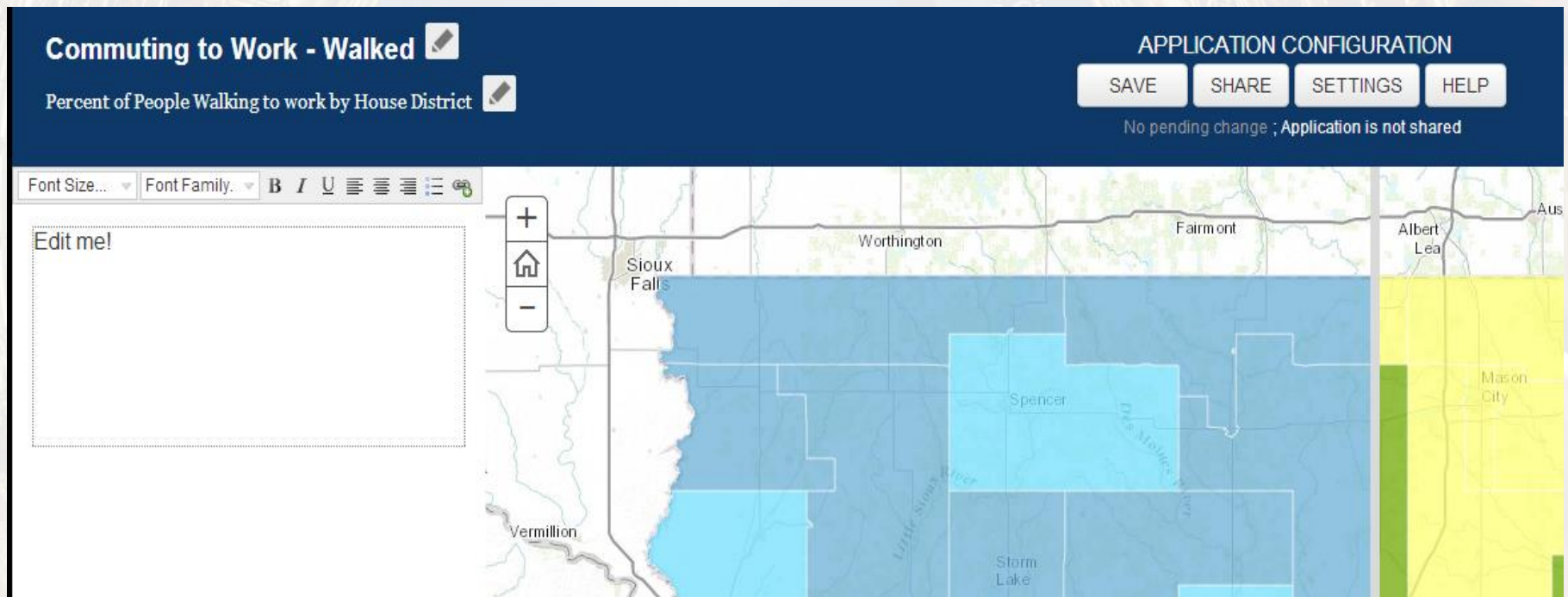
United States C...  
jparker\_iowa

1 - 6 of 6 results

Cancel



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.



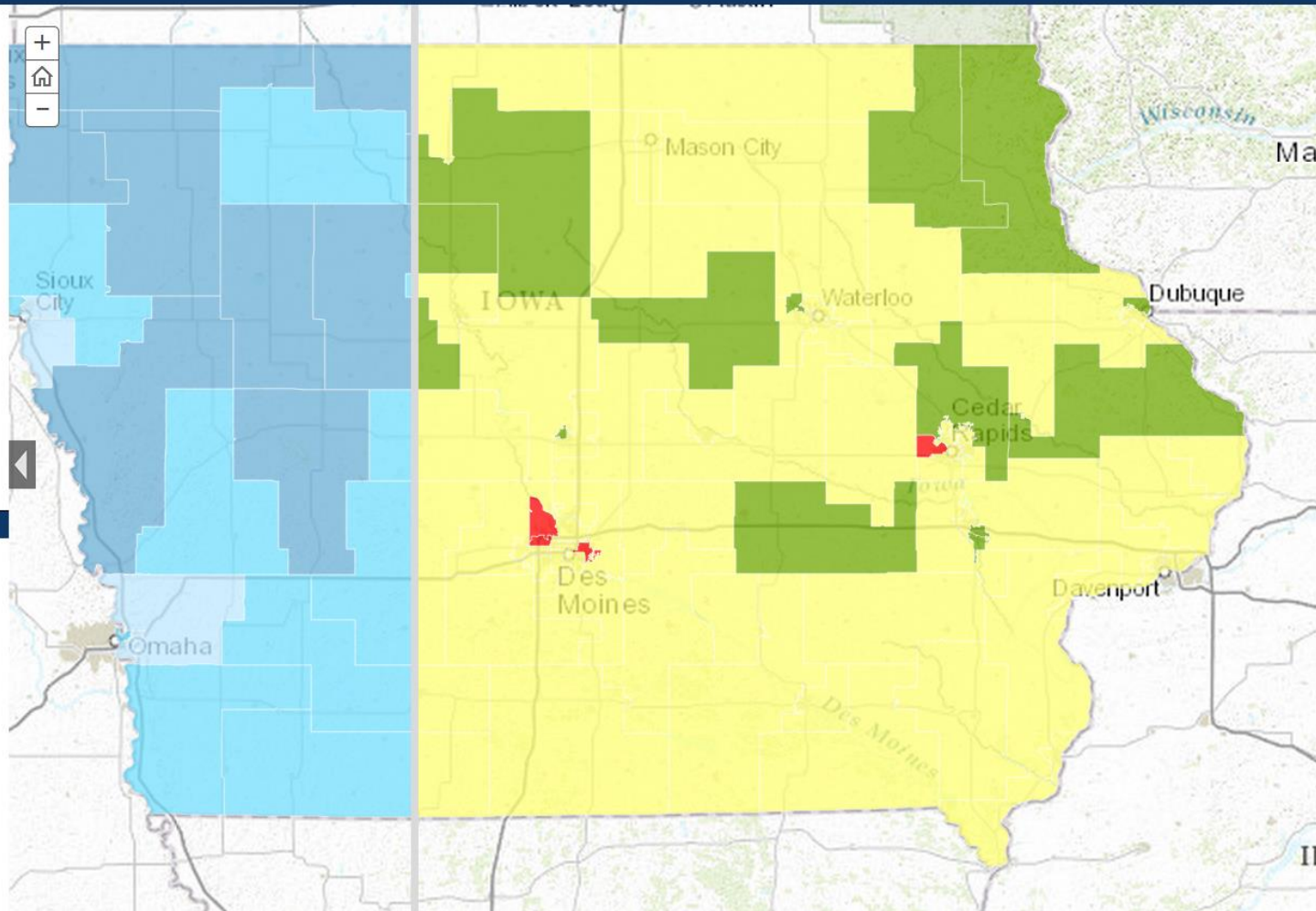
# Final Application

## Percent of People Walking to Work

2008 - 2012 American Community Survey Data by House District

This application displays two maps. The map on the left displays the percentage of people 16 years and over who walked to work. Click on a district to see a pop-up with the estimate and the margin of error.

Data from the ACS is based on a sample and are subject to sampling variability. The map on the right displays the reliability of the estimate. For more information on how reliability was determined [click here](#).





# Information

Github to download side accordion application

- <https://github.com/Esri/side-accordion-map-storytelling-template-js>
- John Parker – [john.parker@legis.iowa.gov](mailto:john.parker@legis.iowa.gov)