

Getting Started with ArcGIS Online

Presented to Data Journalism by:
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Outline

- Intro to Esri products and ArcGIS Online
- Your ArcGIS Online account
- ArcGIS Online components
- Preparing your files for ArcGIS Online
- Add Layer
- Attribute Table and other components
- Basemap
- Change style (Symbology)
- Custom configure pop-ups
- Share and print

Esri's ArcGIS Online

- Esri is a corporation that produces GIS software and they are internationally recognized leaders in the GIS industry
- Esri builds ArcGIS one of the most powerful mapping and spatial analytics software and can leverage scripting language such as python
 - ArcGIS Pro, ArcGIS Desktop, ArcGIS Online
- They are solution oriented and they continue to launch software applications that help researchers answer questions using geospatial data
- ArcGIS Online is an online platform that offers mapping, app building, analysis, data collection, and knowledge disseminating capabilities

ArcGIS Online

- Build interactive maps that explain your data and encourage users to explore. Map your own data and gain perspective by adding the authoritative location-based data included in ArcGIS Online. Use smart mapping to guide your data exploration and visualization.
- Cloud-based, you log into ArcGIS Online using a public account or with an organizational account (e.g. Carleton GIS Services)
- The organizational account is a paid subscription and has more analysis capabilities and access to applications and the Esri academy online courses.

Get started with your AGOL account

- <https://library.carleton.ca/find/gis>

Carleton University
MACODRUM LIBRARY

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GIS

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GIS Data Use Agreement
GIS Workstations at the Library
Map Collection
Open Data Ottawa

Access popular datasets

- Ottawa 1:1000 topographic data
- Aerial Images
- Base Layers (e.g. roads, water)
- Elevation Data
- Bathymetric Data

...continued

Click on ArcGIS Online & Esri Training

Home » Services » ArcGIS Software and Online Resources

ArcGIS Software and Online Resources

Get ArcGIS software

- ArcGIS Pro
- ArcGIS Desktop for Students
- ArcGIS Desktop for faculty, staff & labs
- ArcGIS Online & Esri Training**

...continued

- Follow the instructions on the ArcGIS Online and Esri Training page
- The AGOL organization account uses your MyCarletonOne credentials to make access easier
- Email gis@Carleton.ca if you encounter any errors
- Any content you create in the Carleton organization account must be transferred to a public account when you graduate or you will lose access to the content

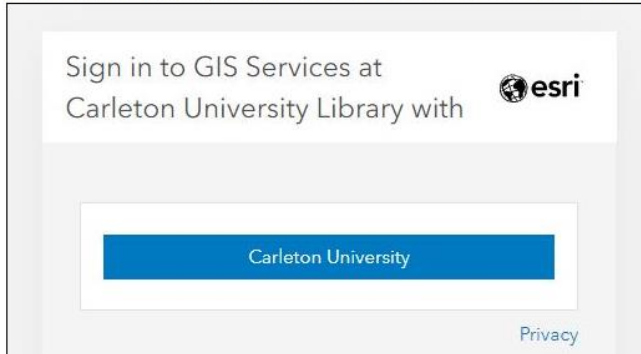
Home » Services » ArcGIS Software and Online Resources » ArcGIS Online and Esri Training

ArcGIS Online and Esri Training

Carleton University affiliated students, faculty & staff are eligible to join the Library GIS Services Organization to access ArcGIS Online to use various applications such as Smart Maps, Business Analyst, Community Analyst, Collector, Survey 123, etc. ***Creating an ArcGIS Online account using your My Carleton One (MCI) credentials gives you additional access to the online Esri Academy -Training***

ArcGIS Online Account Instructions

1. Go to **GIS Services at Carleton University Library** and click on the blue Carleton University button. Sign in to GIS Services at Carleton University using your My Carleton One credentials.

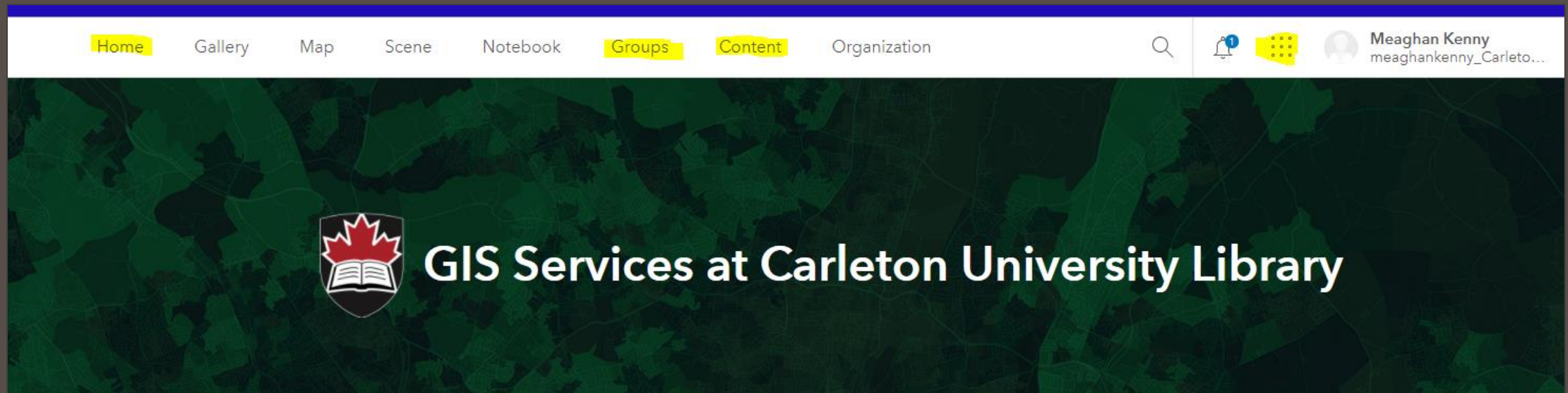


AGOL account with GIS Services organization

Groups – this will take you to a list of any groups you are a member of

Content – this takes you to any content you own

Apps – “dot box” displays link icons to any apps you want to explore and try out (including Story Maps)



The screenshot shows the top navigation bar of an AGOL account. The navigation items are: Home, Gallery, Map, Scene, Notebook, Groups, Content, and Organization. The 'Groups' and 'Content' items are highlighted in yellow. To the right of the navigation bar are icons for search, notifications, and a 'dot box' (apps menu). The user profile 'Meaghan Kenny' with the username 'meaghankenny_Carleton...' is displayed in the top right corner. Below the navigation bar is a banner with a green background featuring a map. On the left side of the banner is the Carleton University logo, which is a red maple leaf above an open book. To the right of the logo, the text 'GIS Services at Carleton University Library' is displayed in white.

Demo: Prepare your shapefiles for ArcGIS Online

- The shapefiles you want to use in ArcGIS Online must be zipped up separately

Add Layer from File

Locate the file you want to import.

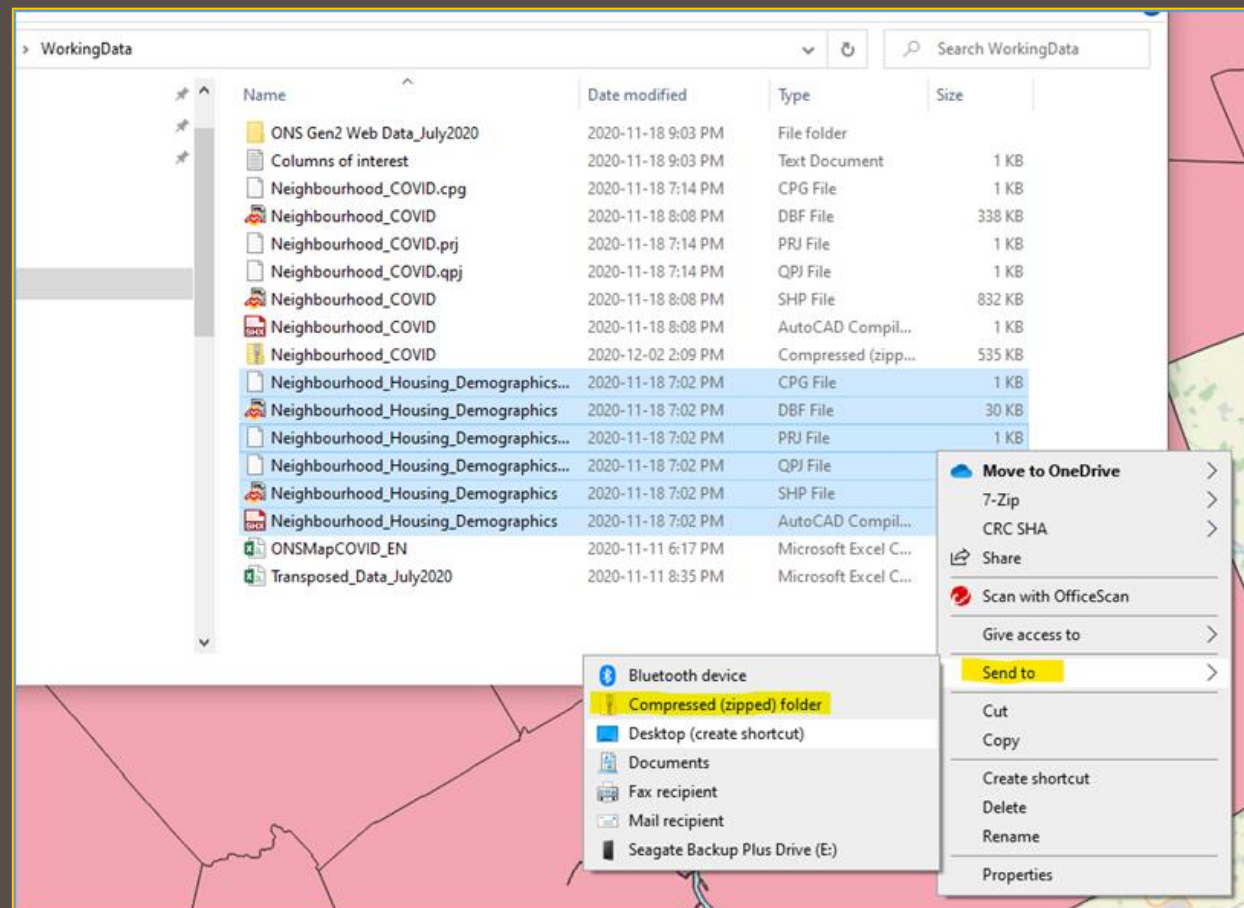
- Shapefile (ZIP archive containing all shapefile files)
- CSV or TXT files with optional address, place or coordinate locations (comma, semi-colon or tab delimited)
- GPX (GPS Exchange Format)
- GeoJSON (open standard format for simple geographical features)

File:

| Name | Date modified | Type | Size |
|---------------------------------------|--------------------|----------------------|--------|
| ONS Gen2 Web Data_July2020 | 2020-11-18 9:03 PM | File folder | |
| Columns of interest | 2020-11-18 9:03 PM | Text Document | 1 KB |
| Neighbourhood_COVID.cpg | 2020-11-18 7:14 PM | CPG File | 1 KB |
| Neighbourhood_COVID | 2020-11-18 8:08 PM | DBF File | 338 KB |
| Neighbourhood_COVID.prj | 2020-11-18 7:14 PM | PRJ File | 1 KB |
| Neighbourhood_COVID.qpj | 2020-11-18 7:14 PM | QPJ File | 1 KB |
| Neighbourhood_COVID | 2020-11-18 8:08 PM | SHP File | 832 KB |
| Neighbourhood_COVID | 2020-11-18 8:08 PM | AutoCAD Compil... | 1 KB |
| Neighbourhood_COVID | 2020-12-02 2:09 PM | Compressed (zipp... | 535 KB |
| Neighbourhood_Housing_Demographics... | 2020-11-18 7:02 PM | CPG File | 1 KB |
| Neighbourhood_Housing_Demographics... | 2020-11-18 7:02 PM | DBF File | 30 KB |
| Neighbourhood_Housing_Demographics... | 2020-11-18 7:02 PM | PRJ File | 1 KB |
| Neighbourhood_Housing_Demographics... | 2020-11-18 7:02 PM | QPJ File | 1 KB |
| Neighbourhood_Housing_Demographics... | 2020-11-18 7:02 PM | SHP File | 832 KB |
| Neighbourhood_Housing_Demographics... | 2020-11-18 7:02 PM | AutoCAD Compil... | 1 KB |
| ONSMAP_COVID_EN | 2020-11-11 6:17 PM | Microsoft Excel C... | |
| Transposed_Data_July2020 | 2020-11-11 8:35 PM | Microsoft Excel C... | |

Your Turn...Do:

- Go to your working data folder and zip the shapefiles you are going to use in ArcGIS Online

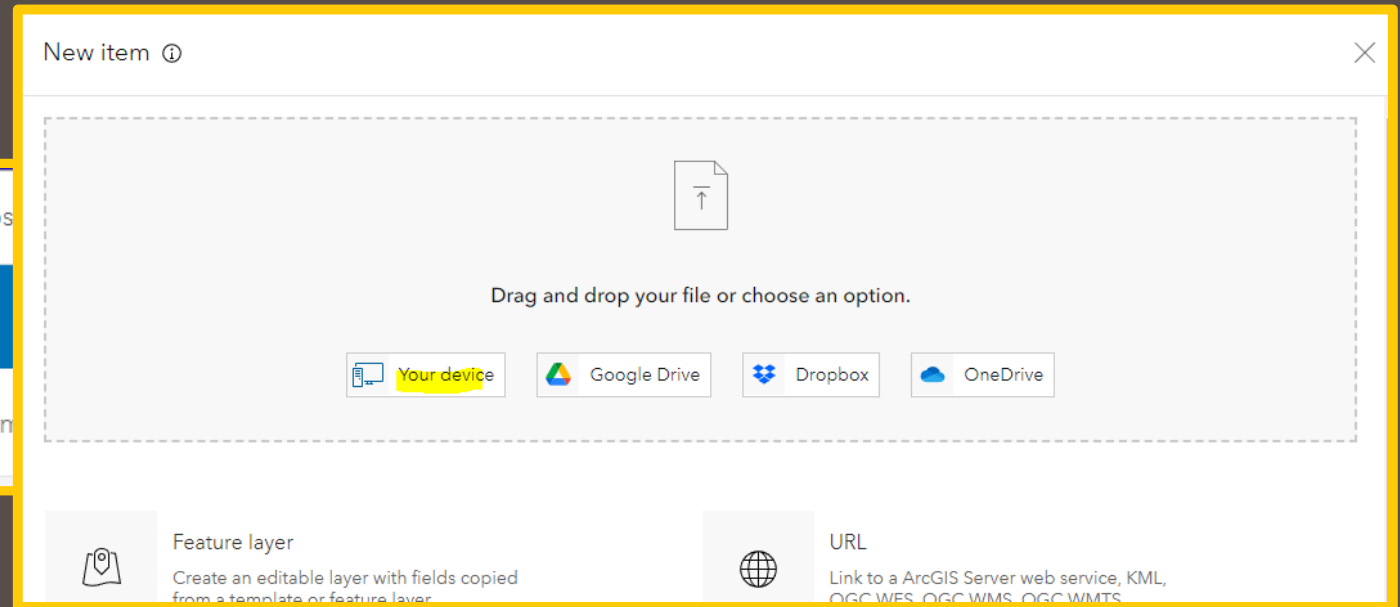
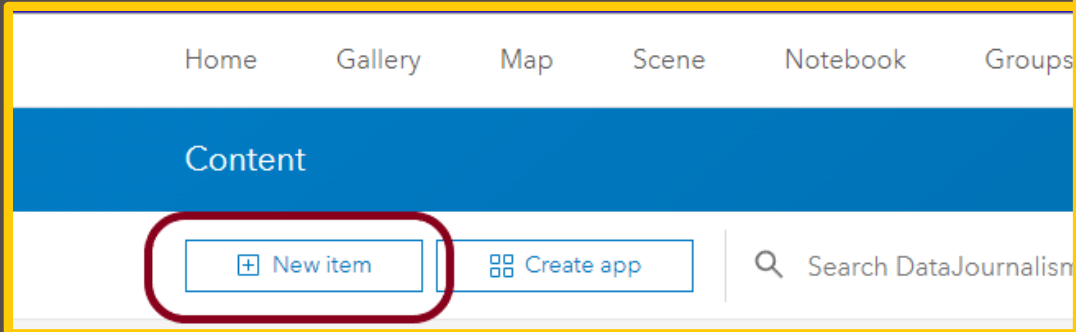


Demo and Do: Launch ArcGIS Online

- Click on content (yours should be empty but anything you create or add will be stored here as items (generally))
- Notice that some of my items are WebMaps, Feature Layers, StoryMaps
- I can add an item to my content by clicking on New Item | Choose File (my zipped shapefile) | Check Publish this file as a hosted layer
- I must add tags

Do:

- In Content
- Click on New Item
- Choose **one** of your zipped shapefile folders from your device OR drag and drop your zipped folder




Do: Hosted Feature Layers – Important to choose this!

New item ⓘ

File
NeighbourhoodFinal.zip

Item type

 **Shapefile**
A vector data storage format for storing the location, shape, and attributes of geographic features. A shapefile is stored in a set of related files and contains one feature class.

How would you like to add this shapefile?

Add NeighbourhoodFinal.zip and create a hosted feature layer
A shapefile with location information is the source for a hosted layer that displays as points on a map. A shapefile without location information displays as a table that can be viewed, charted and joined with other layers.

Add NeighbourhoodFinal.zip only
Add shapefile without publishing. File can be shared and downloaded by others or published at a later date.

Back Cancel Next

Demo: Item Overview

- Once you successfully add the zipped folder as an item you will be redirected to the newly created item overview page
- You will see:
 - Thumbnail
 - Description
 - Layer
 - Dates
 - Options for working with the layer in the right hand panel – such as *open in map viewer*

Do: Take a moment to explore the components of the Overview page | click on Content to see the item listed in your Content | Click on the Item again | Open in *Map Viewer Classic*

The screenshot shows the ArcGIS Content page for an item named "NeighbourhoodFinal". The interface includes a top navigation bar with tabs for Home, Gallery, Map, Scene, Notebook, Groups, Content, and Organization. The user profile "Meaghan Kenny" is visible in the top right. Below the navigation bar, the item name "NeighbourhoodFinal" is displayed with an edit icon. A secondary navigation bar contains tabs for Overview, Data, Visualization, Usage, and Settings, with "Overview" and "Data" highlighted by red circles. The main content area is divided into several sections: "Edit thumbnail" with a placeholder image and "Add to Favorites" button; a summary section with a red circle around the text "Add a brief summary about the item." and a red circle around the item title "Feature Layer (hosted) by meaghankenny_Carleton_U"; a "Description" section with a red circle around the text "Add an in-depth description of the item."; a "Layers" section with a red circle around the "NeighbourhoodFinal Polygon Layer" entry; and a "Terms of Use" section with a red circle around the text "Add any special restrictions, disclaimers, terms and conditions, or limitations on using the item's content.". On the right side, a vertical menu of actions is shown, with "Open in Map Viewer Classic" highlighted by a red circle. Other actions include "Open in Scene Viewer", "Open in ArcGIS Desktop", "Publish", "Create View Layer", "Export Data", "Update Data", and "Share". At the bottom right, the "Item Information" section shows a progress bar from "Low" to "High" and a "Top Improvement: Add a summary" prompt.

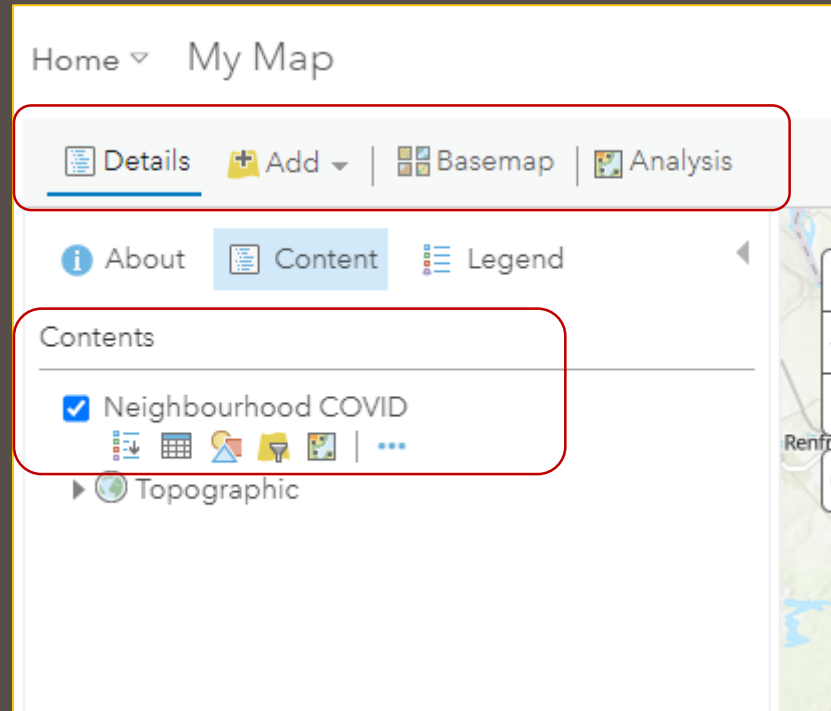
Demo: WebMap Components

Content Panel

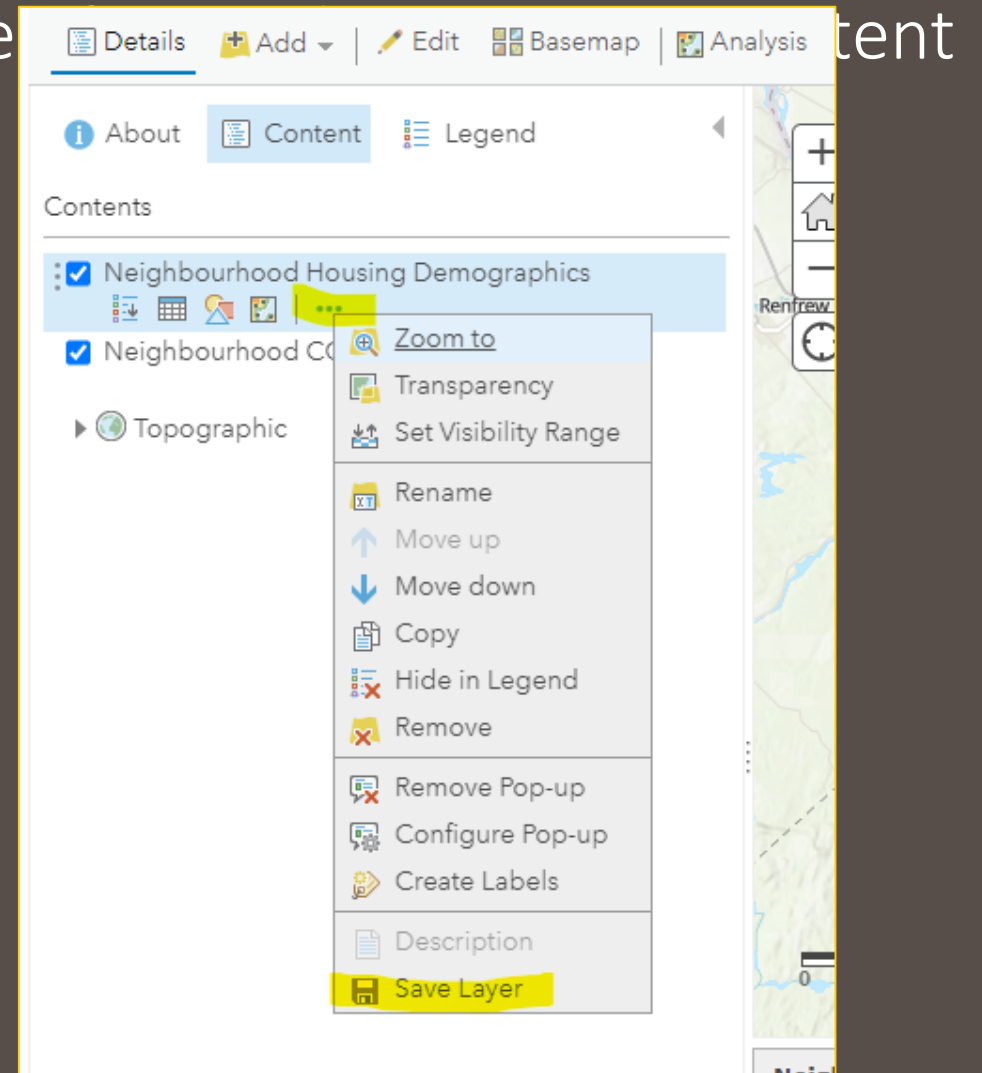
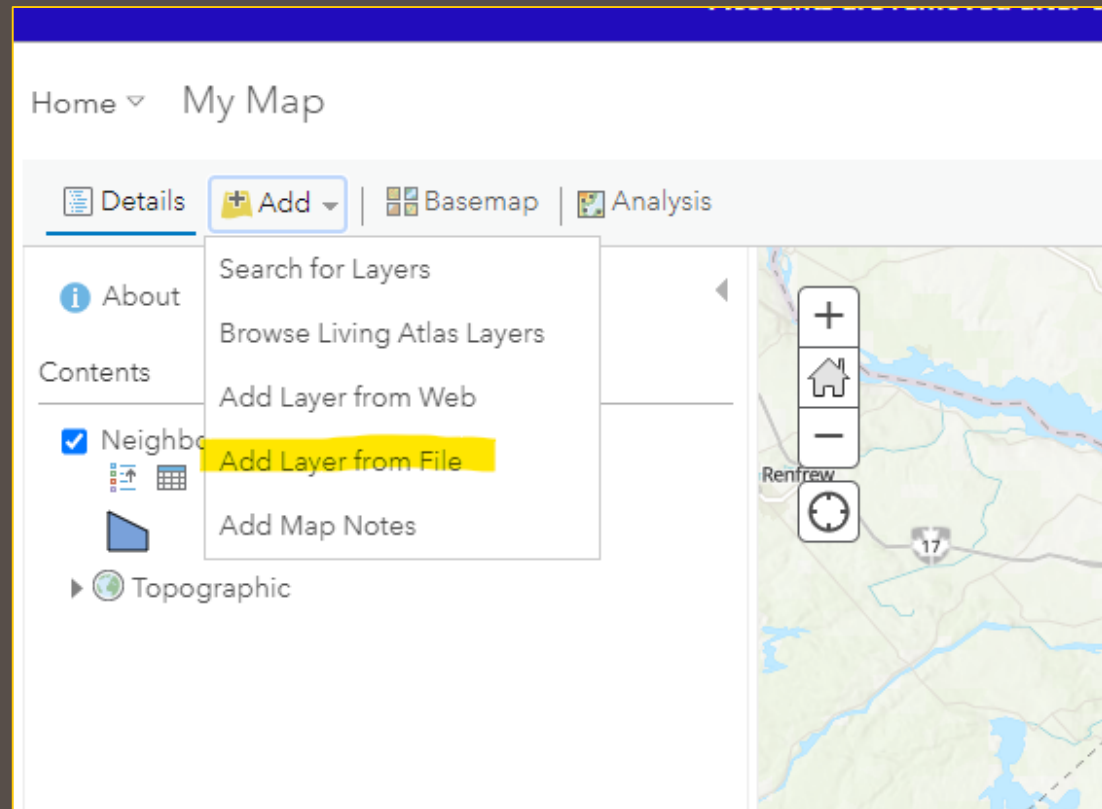
- About | Content | Legend
- Content | Neighbourhood Layer
- Attribute Table
- Change Style
- Filter (like field calculator in Q)
- Perform Analysis

Grey Ribbon

- Details
- Add (Use this to add more layers to your Map)
- Basemap
- Analysis



Demo (another way to add a layer to your map): Click on Add | Select Add Layer from File | add your zipped neighbourhood demographic shapefile | Save Layer by clicking on “...” (more options) | This will create and save the shapefile as a hosted

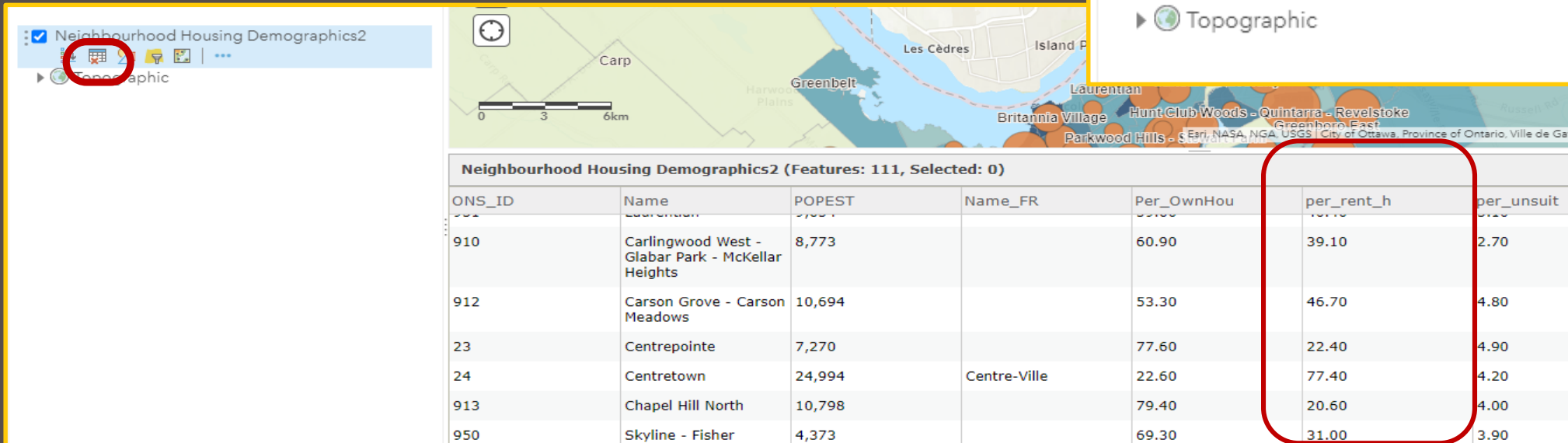
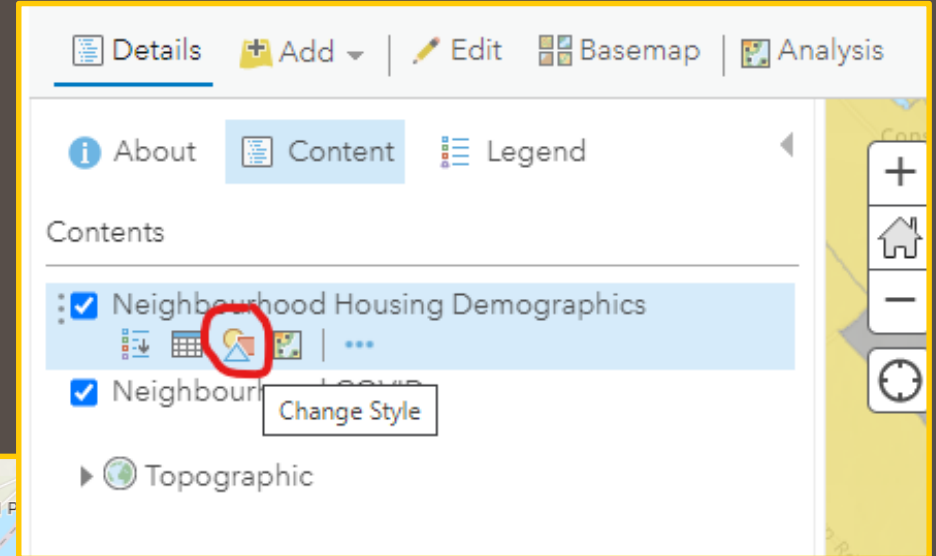


Symbology/Change Style Demo and Do

- You can change the symbology by clicking on the very tiny “change style” icon as seen in the image below
- For best results, for this type of data, it is important that all your **data is in integer format**. If the column you want to display has text or characters, you will not have the option to use “Counts” Style (as seen in the next slide).

Do:

- Open the **Attribute Table** icon and make sure the column you want to display is in **integer** format (If you need to make changes you can do this in QGIS and re-add the updated shapefile as a new hosted feature layer). If you are not happy with your field headings see slide #30 for bonus instruction on changing field headings
- Click on the **Change Style** Icon

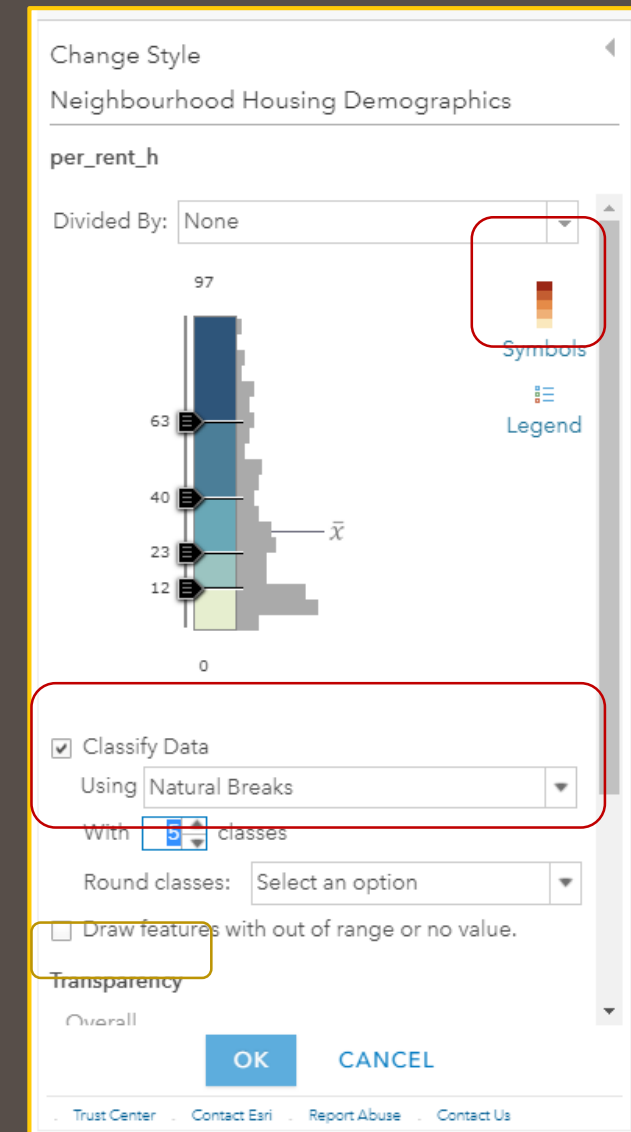
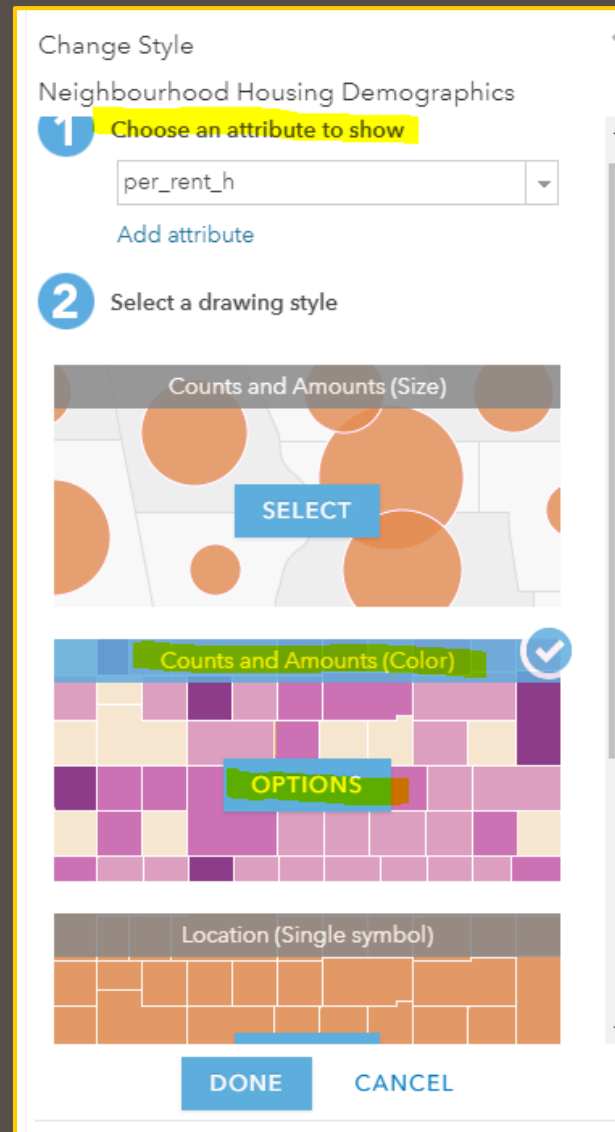


| ONS_ID | Name | POPEST | Name_FR | Per_OwnHou | per_rent_h | per_unsuit |
|--------|---|--------|--------------|------------|------------|------------|
| 910 | Carlingwood West - Glabar Park - McKellar Heights | 8,773 | | 60.90 | 39.10 | 2.70 |
| 912 | Carson Grove - Carson Meadows | 10,694 | | 53.30 | 46.70 | 4.80 |
| 23 | Centrepointe | 7,270 | | 77.60 | 22.40 | 4.90 |
| 24 | Centretown | 24,994 | Centre-Ville | 22.60 | 77.40 | 4.20 |
| 913 | Chapel Hill North | 10,798 | | 79.40 | 20.60 | 4.00 |
| 950 | Skyline - Fisher | 4,373 | | 69.30 | 31.00 | 3.90 |

Demo and Do: Demographic Data Symbology/Change Style

DO:

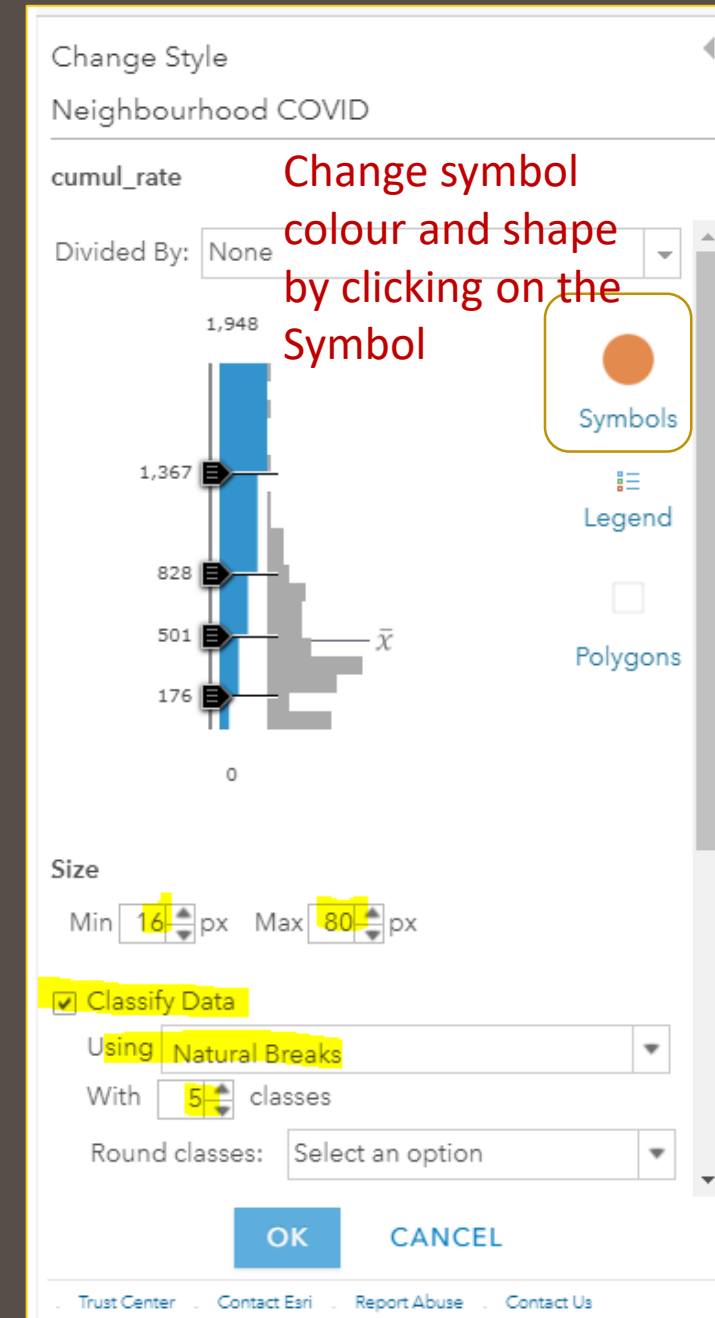
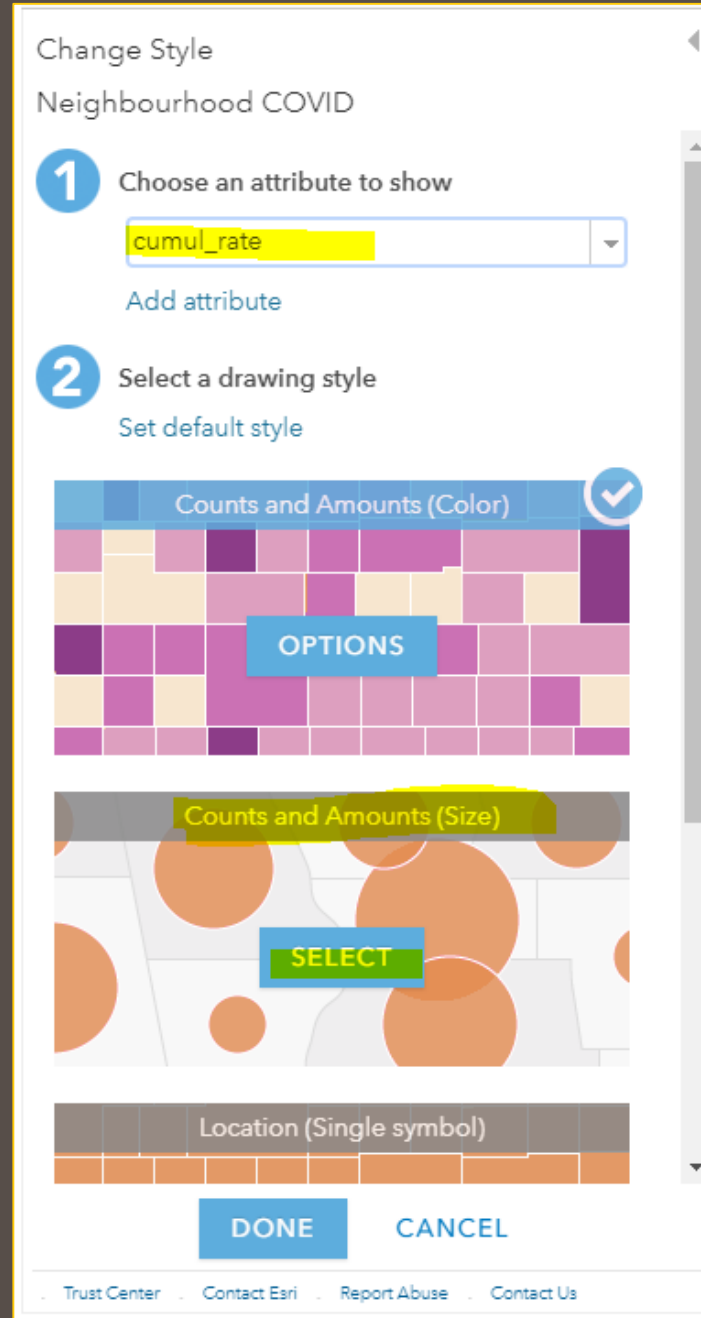
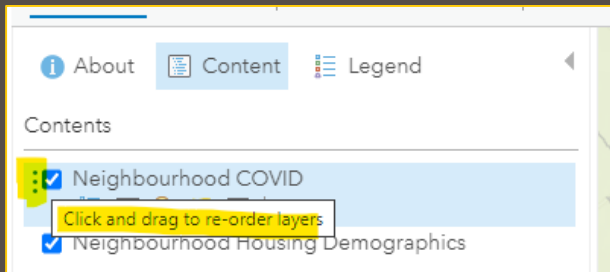
- Choose the attribute you want to symbolize for your **Vaccine** data
- Choose Counts and Amounts (Color)
- Check Classify Data using Natural Breaks (I changed my breaks to 5 classes)
- Play with transparency if you want
- **Click OK** (very important!)
- **Click Done** (Very important!)
- *If your data was not integer, you would not have either of the "Count" options*



DO: COVID Data

Change Style/Symbology

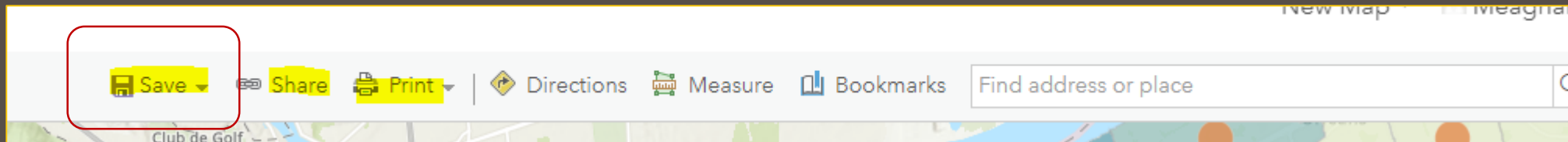
- Choose the attribute you want to show
- Choose Counts and Amounts **Size**
- You can change your symbol colour by clicking on the Symbol represented in “Symbols”
- Classify Data using Natural Breaks
- Optional - You can set a minimum and maximum size of the symbols (I like to decrease my symbol size to 8 min and 50 max)
- Click Ok
- Click Done
- *If your COVID counts are underneath your Demographics, click and drag the layer to the top position in the content list*



Create Layers from Hosted Feature Layer

- What do you do if want to symbolize more than one attribute? Create a copy of the Hosted Feature Layer by clicking on the layer properties icon (...) and selecting copy
- This will create a copy of the hosted feature layer that you can use to symbolize another attribute
- You can rename the layer by going into the layer properties and selecting rename
- Save your map

Demo and Do: SAVE the Map!



- Click the **Save** tab
- If it's your first time saving the map you can choose "save as" or "save"
- Fill out the Save Map box
- Choose a concise and relevant title (unlike my title in the image I've shared!)
- Add a brief summary for your audience if you wish
- Click **Save Map**

A screenshot of the 'Save Map' dialog box. It features a title bar with a close button (X). The form contains the following fields:









- Title:** A text input field containing 'Neighbourhood Cumulative COVID Rate and Percent of Ho'.
- Tags:** A text input field containing 'COVID Maps' with a close icon (X) and the text 'Add tags'.
- Summary:** A text input field containing 'Description of the map.'
- Save in folder:** A dropdown menu with 'meaghankenny_Carleton_U' selected.

At the bottom right, there are two buttons: 'SAVE MAP' (highlighted in blue) and 'CANCEL'.

Hosted Feature Layers

- It is very important to ensure all the layers you want to include in your webmap for public viewing are made into *hosted feature layers*
- An embedded or a shared webmap will require the informing *hosted feature layers to be set to public*

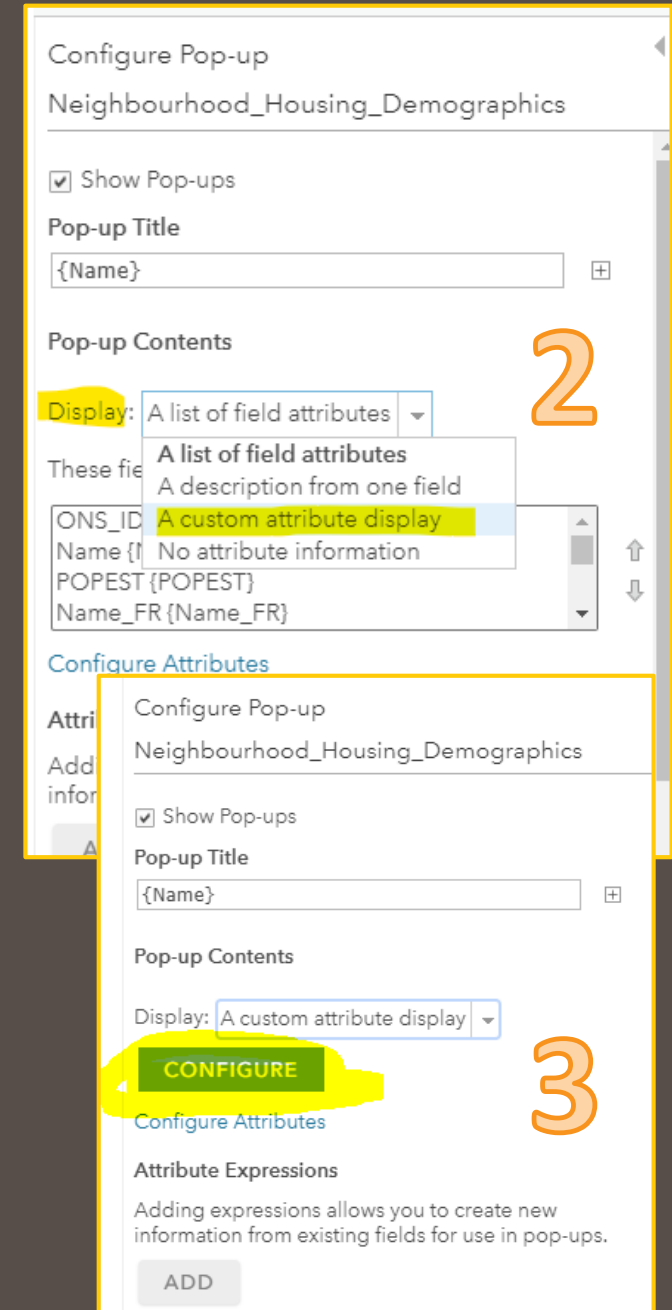
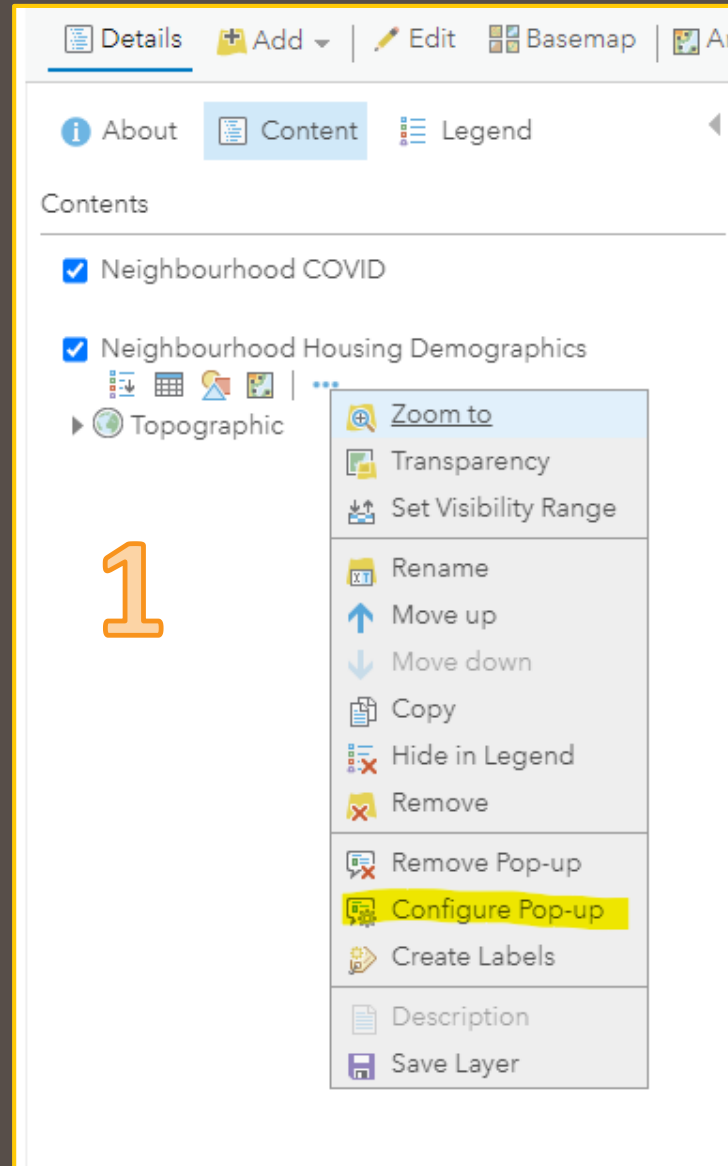
1 - 4 of 4 in DataJournalism

| <input type="checkbox"/> | Title | | | Modified |
|--------------------------|--|------------------------|---|-------------------|
| <input type="checkbox"/> |  DataJourn2021 | Web Map |  | ☆ ... Dec 1, 2021 |
| <input type="checkbox"/> |  NeighbourhoodFinalData | Feature Layer (hosted) |  | ☆ ... Dec 1, 2021 |
| <input type="checkbox"/> |  NeighbourhoodFinalData | Shapefile |  | ☆ ... Dec 1, 2021 |
| <input type="checkbox"/> |  Wards | Feature Layer |  | ☆ ... Dec 1, 2021 |

Demo: Configure pop-ups

DO:

- To configure pop-ups, click More Options (...) on the layer.
- Then choose Configure Pop-up.
- From the **Display** drop down menu Choose a “**custom attribute display**.”
- Click the big green **Configure** button to open the custom attribute display configuration panel.



Demo: Configure a custom attribute display using text and fields

Do:

- In Custom Attribute Display you can enter a combination of **free text** and **fields**. Click **[+]** to display a drop-down list of **fields**, the field names appear in curly braces when added to your pop-up.
- When you are satisfied with your text click **OK**
- You can add pop-up Media if you wish
- Click **OK** when you are finished configuring your pop-up
- Click on a polygon in your layer and note the change in your pop-up box

Custom Attribute Display

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

Font [] Size x-small []

{Name} has a {per_rent_h} percent of households that re

- per_rent_h {per_rent_h}
- per_unsuit {per_unsuit}
- Per_repair {Per_repair}
- per_unaffo {per_unaffo}

OK CANCEL



Configure Pop-up

Neighbourhood_Housing_Demographics

CONFIGURE

Configure Attributes

Attribute Expressions

Adding expressions allows you to create new information from existing fields for use in pop-ups.

ADD

No expressions.
Click 'Add' to add one.

Pop-up Media

Display images and charts in the pop-up:

ADD

No images or charts.
Click 'Add' to add one.
Use the arrows to order.

OK CANCEL

Fine Tuning Pop-Ups

Demo:

- There are two layers that are represented when you click on a neighbourhood polygon
- To make it easier for your audience, change the pop-up title to something more concise and relevant

Configure Pop-up
Neighbourhood_Housing_Demographics

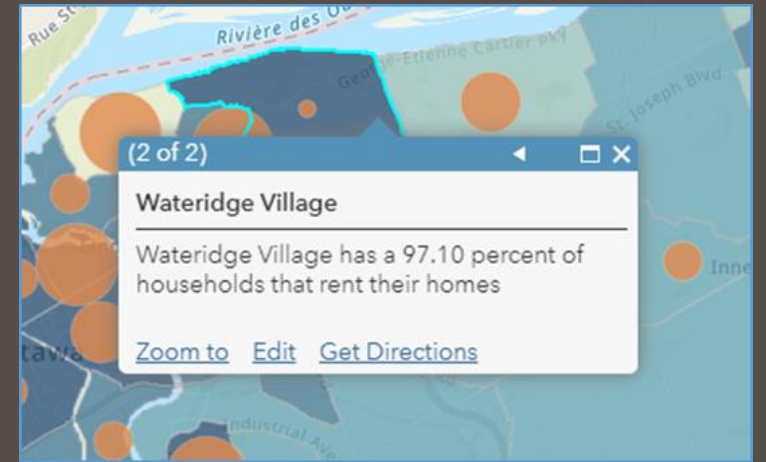
Show Pop-ups

Pop-up Title
Neighbourhood Rental Rate - {Name}

Pop-up Contents
Display: A custom attribute display

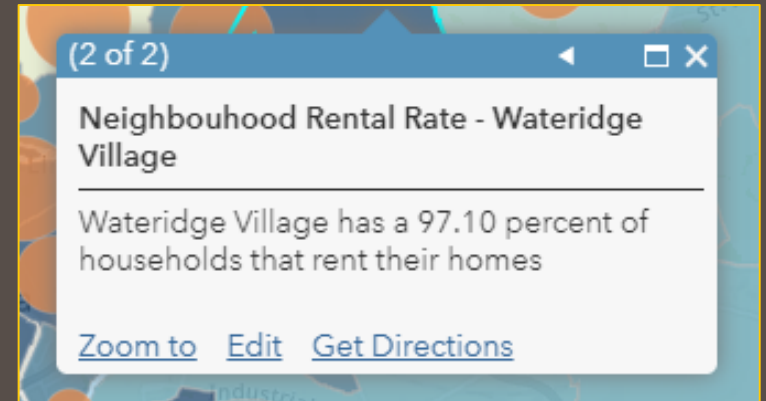
CONFIGURE

[Configure Attributes](#)



DO:

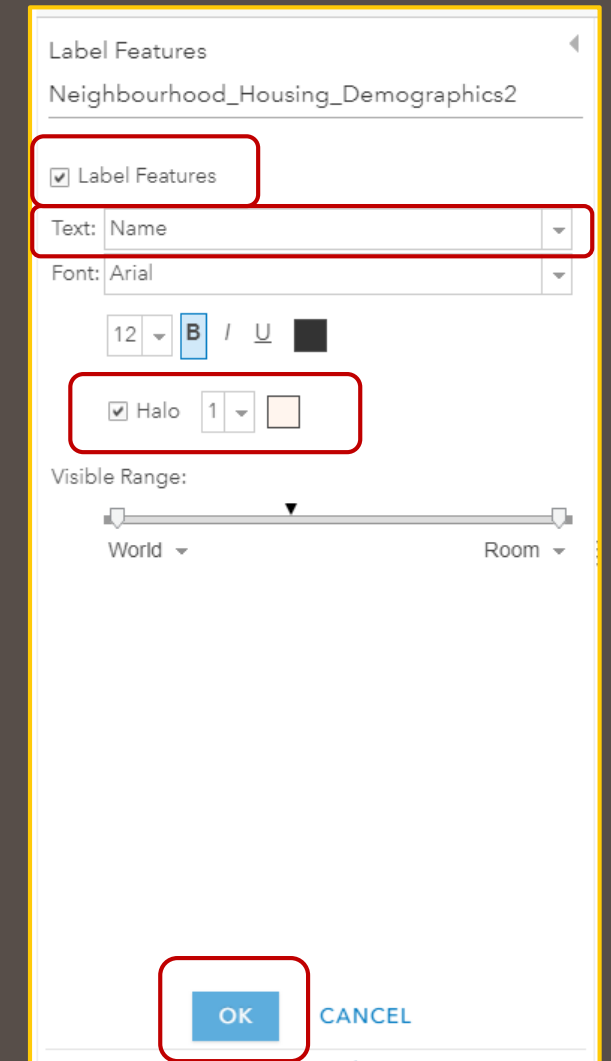
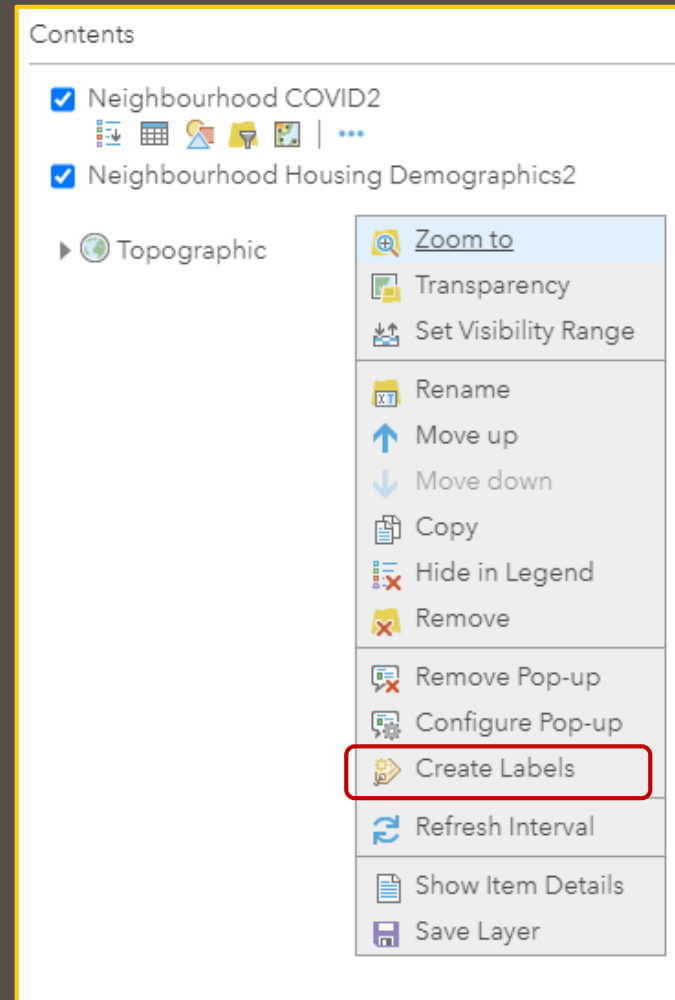
- Go back to tweak your pop-up by clicking on your layers “more options” | click on configure pop-up | Change your pop-up title to something concise and relevant | you can use the plus sign on the right of the title box to add **fields** again
- See [here](#) for more in-depth walk through of configuring pop-ups
- Repeat the steps for configuring pop-ups for your other layer(s) and **SAVE YOUR MAP!!**



Add **Labels** to your Neighbourhood Demographic Layer

Do:

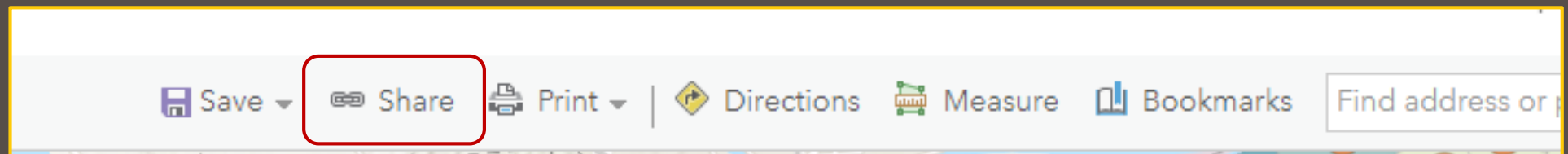
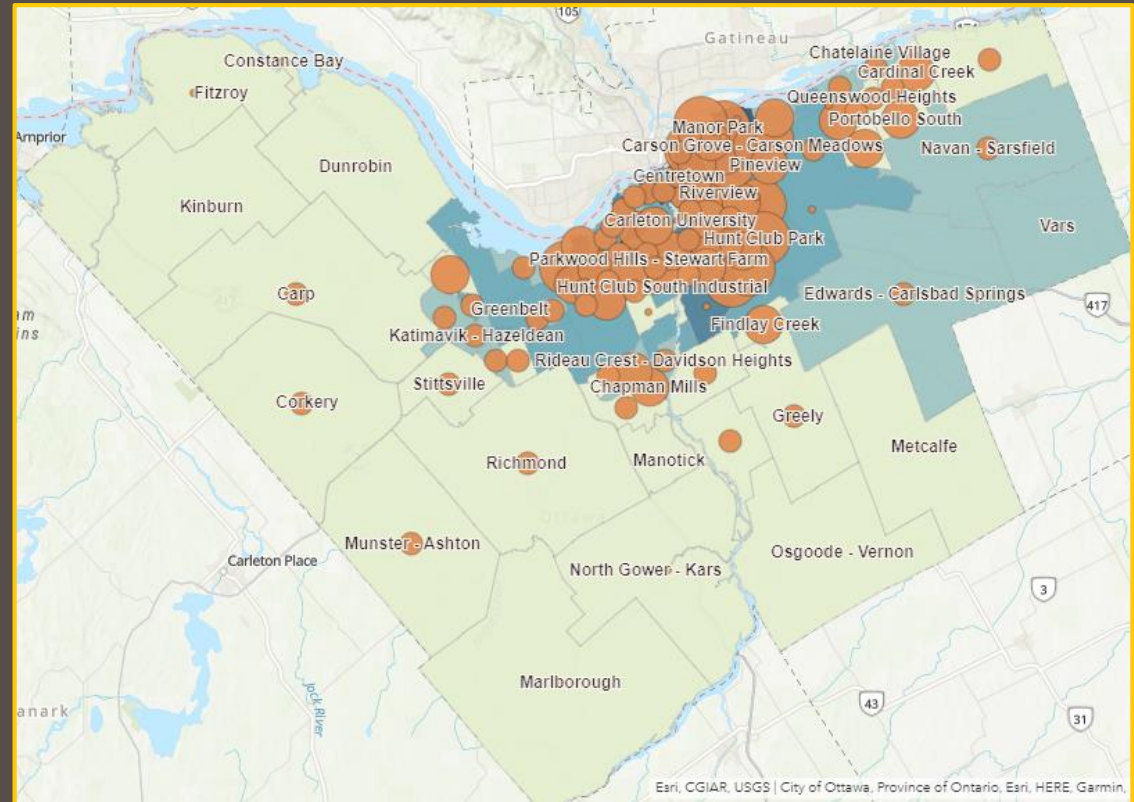
- Click on your **more options** icon under your Demographics layer
- Click on **Create Labels**
- In the Label Features panel, make sure the **Label Features box is checked**
- Use the Drop down menu for Text to choose the Field you want to display as labels (I used neighbourhood “Name” column)
- Adjust your font settings to ensure the labels are clean and clear for your audience
- I like to add a **Halo** so my labels pop against darker backgrounds
- When you are happy with how your labels appear, **Click OK!**



Share and create a Web App to imbed on a website

Do:

- When you are happy with your labels and the appearance of your map, zoom in or out to the map extent you want your audience to see when they view the embedded map on your webpage
- If you zoom in or out too much the map may be less impactful to grab attention. Think of the map as a first impression or the “hook”
- Next click on the **Share** tab in the grey ribbon



Share your Web Map

Do:

- Use the check boxes to include who you want to share your map with.
- Make it available for public viewing on your website by checking off the Everyone (public) box.
- If you are a member of a group or multiple groups you can check off members of these groups
- If you were happy with the map extent you previously set, check off Share the current map extent
- There is a link to the map you can copy for your records and share
- There are also two options to embed the map...the next slides will explain the two options

Share

Choose who can view this map.

Your map is currently shared with these people.

Everyone (public)

GIS Services at Carleton University Library

Members of these groups:

Trial for Iman

Link to this map

Share current map extent

Embed this map

Facebook Twitter

EMBED IN WEBSITE CREATE A WEB APP

DONE

Option One: Embed in Website

- This is the fastest “no fuss” way to get your map to your website
- You can adjust the size of the map that your viewers will see on your website before opening it in a new tab (remember this is the “hook”)
- You can play with the Map Option settings to enable or disable viewer controls or Map components (e.g. scale bar, legend)
- Copy the HTML to embed it on the webpage.
- If you are happy with your settings click **Done**
- *Or check the next slide for the WebApp option*

Embed in Website

Choose the size of your map. ?

W X H Allow responsive sizing

Copy and paste HTML to embed in website.

```
<style>.embed-container {position: relative; padding-bottom: 80%; height: 0; max-width: 100%;}.embed-container iframe, .embed-container o
```

COPY

Map Options

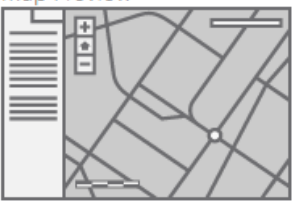
Choose options to display on your map.

| | |
|--|---|
| <input checked="" type="checkbox"/> Zoom Control | <input checked="" type="checkbox"/> Scale Bar |
| <input checked="" type="checkbox"/> Home Button | <input checked="" type="checkbox"/> Location Search |
| <input type="checkbox"/> Basemap Selector | <input checked="" type="checkbox"/> Current Extent |
| <input type="checkbox"/> View larger map | <input checked="" type="checkbox"/> Map Details |
| <input type="checkbox"/> Disable scroll zoom | <input checked="" type="checkbox"/> Legend |
| | <input type="checkbox"/> Layer Toggle |
| | <input checked="" type="checkbox"/> Preview image |

Choose Active Panel

Choose your theme.

Map Preview

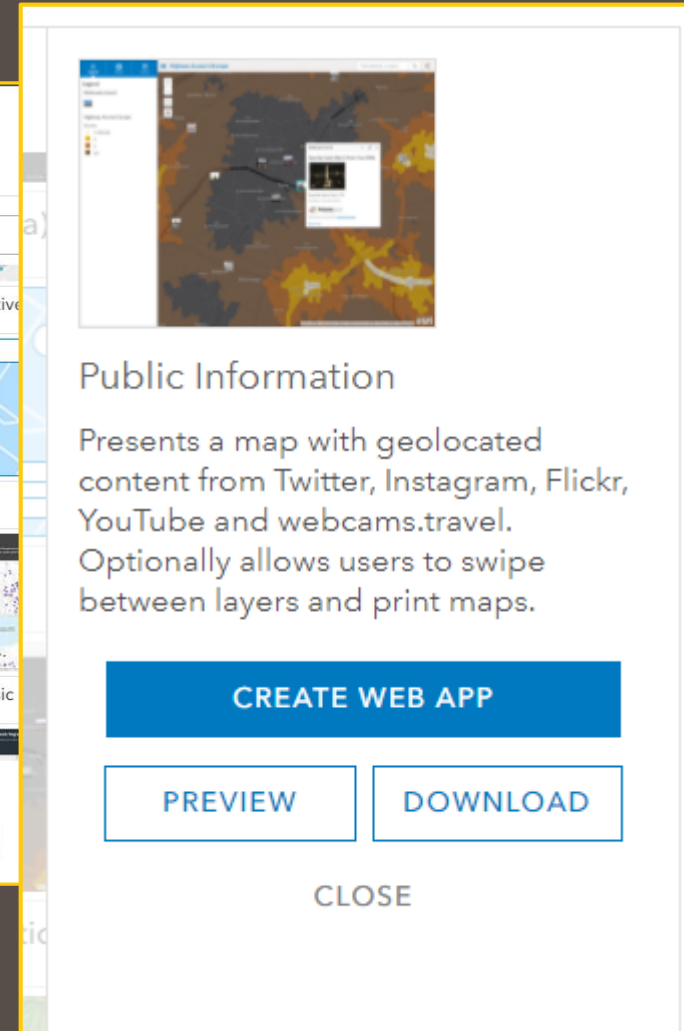
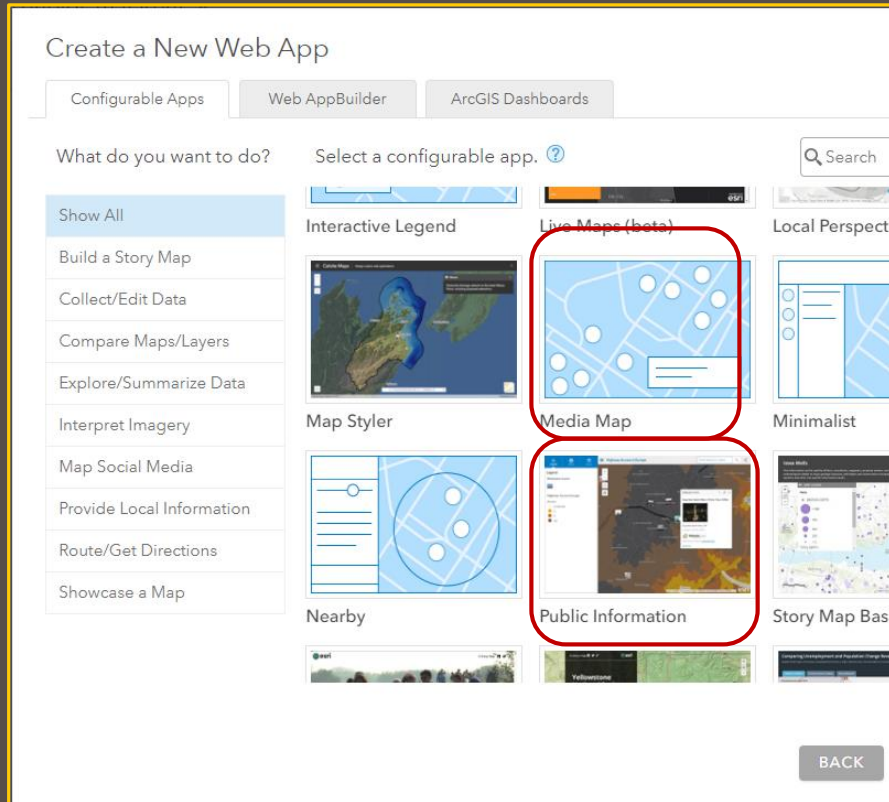


BACK

DONE

Option two: Create a Web App

- Option two allows you to create an app that you can configure and customize – leveraging templates and “widgets”
- You can explore and preview different app templates like **Media Map** or **Public Information** by click on them
- When you are happy with the app template you have chosen, click **Create Web App**
- You will have a familiar box pop-up that requires you to fill in the title, tags, summary, and folder like you have in previous steps
- Of course when you are finished filling in the required information, click **Done!**
- The Web App can be a lot of fun but it is more involved, so I recommend you use the following **resources**
 - <https://doc.arcgis.com/en/web-appbuilder/create-apps/make-first-app.htm>
 - <https://doc.arcgis.com/en/arcgis-online/create-maps/choose-configurable-app.htm>

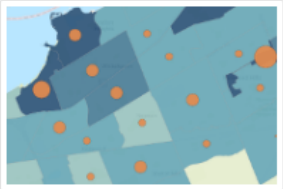


Configure Web App

- Creating and Configuring your Web App
- Here is where you configure the context and map **Options** to for your audience
- When you are finished with the option settings click **Save** and then **Launch** to preview the Web App

Configure: COVID Rate per Percent of Household

General Options Social Media Feeds Search



COVID Rate per Percent of Households that Rent

Select Web Map

Provide general information about your application with a title and description.

Application Title

Application Summary [Edit](#)

Splash Screen

Shows a dialog window on application load.

 Enable Splash Screen

Configure: COVID Rate per Percent of H

General Options Social Media Feeds Search

Side Panel Settings

Default Menu Panel

Legend ▾

Enable or disable features in your application.

- Enable Summary Information
- Enable Modified date
- Enable Views Count
- Enable More Information link
- Enable Legend Panel
- Enable About Panel
- Enable Layers Panel

Tools

- Enable Home Button
- Enable Scalebar on the map
- Enable Locate Button
- Enable Basemap Toggle
- Enable Share Dialog
- Enable Bookmarks
- Enable OverviewMap widget
- Enable Print Button
- Open Overview Map Widget by default

Basemap Toggle

Choose which basemaps can be toggled on your application.

Save Launch Close

Share your Web App or Embed Map

- When you are happy with how you have configured your Web App, Click on the Share icon in the top right corner
- Resources again:
 - <https://doc.arcgis.com/en/web-appbuilder/create-apps/make-first-app.htm>
 - <https://doc.arcgis.com/en/arcgis-online/create-maps/choose-configurable-app.htm>

The screenshot displays an ArcGIS web application interface. The main map area shows a geographic region with various neighborhoods and a legend on the left. The legend includes two layers: 'Neighbourhood_COVID2' with five categories of cumulative rates (represented by orange circles of varying sizes) and 'Neighbourhood_Housing_Demograph' with five categories of rental rates (represented by blue squares of varying colors). The map title is 'COVID Rate per Percent of Households that Rent'. In the top right corner, there is a search bar and a share icon. A 'Share' dialog box is open, showing options to share the map via social media (Facebook, Twitter, Email, Link) and a checkbox for 'Share current map extent'. Below this, the 'Map Link' is displayed as 'https://arcg.is/1DbLje0'. The 'Embed Map' section shows an iframe code snippet and a size selector set to '100% x 640px'.

Legend

Neighbourhood_COVID2

cumul_rate

- > 1,367 - 1,948
- > 828 - 1,367
- > 501 - 828
- > 176 - 501
- 0 - 176

Other

Neighbourhood_Housing_Demograph

per_rent_h

- > 63.8 - 97
- > 40 - 63.8
- > 23 - 40
- > 12 - 23
- 0 - 12

Other

Share

Share this map

Share current map extent

Map Link

<https://arcg.is/1DbLje0>

Embed Map

```
<iframe width="100%" height="640px" src="https://carleton-u.maps.arcgis.com/apps/PublicInformation/index.html?appid=5f19bfaa11324be3a28cdcdb6343f0ff" frameborder="0" scrolling="no"></iframe>
```

Size (width/height): 100% x 640px

Change Field Headings in ArcGIS Online Attribute Table

- To help the people who use your hosted feature layers understand what each field stores, you should provide a useful, easy-to-read field display name, provide text to describe the purpose of each field, and define what type of data each field contains.
- Go to your feature **layers item overview** page, click on **Data**
- Click on **Fields**
- Under **Display Name**, click on the **Field** Heading you want to change
- Click on the **edit Pencil** next to the Field Heading title
- When you are happy with your change, click **Save**
- Full details are in the link below:
 - <https://doc.arcgis.com/en/arcgis-online/manage-data/describe-fields.htm>

1 Overview

2 Fields

3

| Display Name | Field Name |
|--|------------|
| <input type="checkbox"/> FID | FID |
| <input type="checkbox"/> flag | flag |
| <input type="checkbox"/> ONS_ID | ONS_ID |
| <input type="checkbox"/> Name | Name |
| <input type="checkbox"/> POPEST | POPEST |
| <input type="checkbox"/> Name_FR | Name_FR |
| <input type="checkbox"/> Per_OwnHou | Per_OwnHou |
| <input type="checkbox"/> per_rent_h | per_rent_h |
| <input type="checkbox"/> per_unsuit | per_unsuit |

4 per_rent_h

Description
A brief summary of the item is not available.

Field Value Type ?
Field Value type is not available.

Settings

5 % Households Renting Save Cancel

Thanks and great work everyone!

- Contact us at gis@Carleton.ca with your questions