Geography 222

Laboratory 6

Introduction

A web map is an interactive display of geographic datasets used to convey information, and depict stories in a spatial context. Interactive web maps contain a basemap and a set of data layers, which can include interactive pop-up windows to display attribute information. Other common functions included on web maps include: pan and zoom functions, toggles to turn datasets on and off, measure, and locator tools.

In today's laboratory you will use a combination of QGIS and ArcGIS online to create a map to show the locations of hiking trails in Prince George, British Columbia.
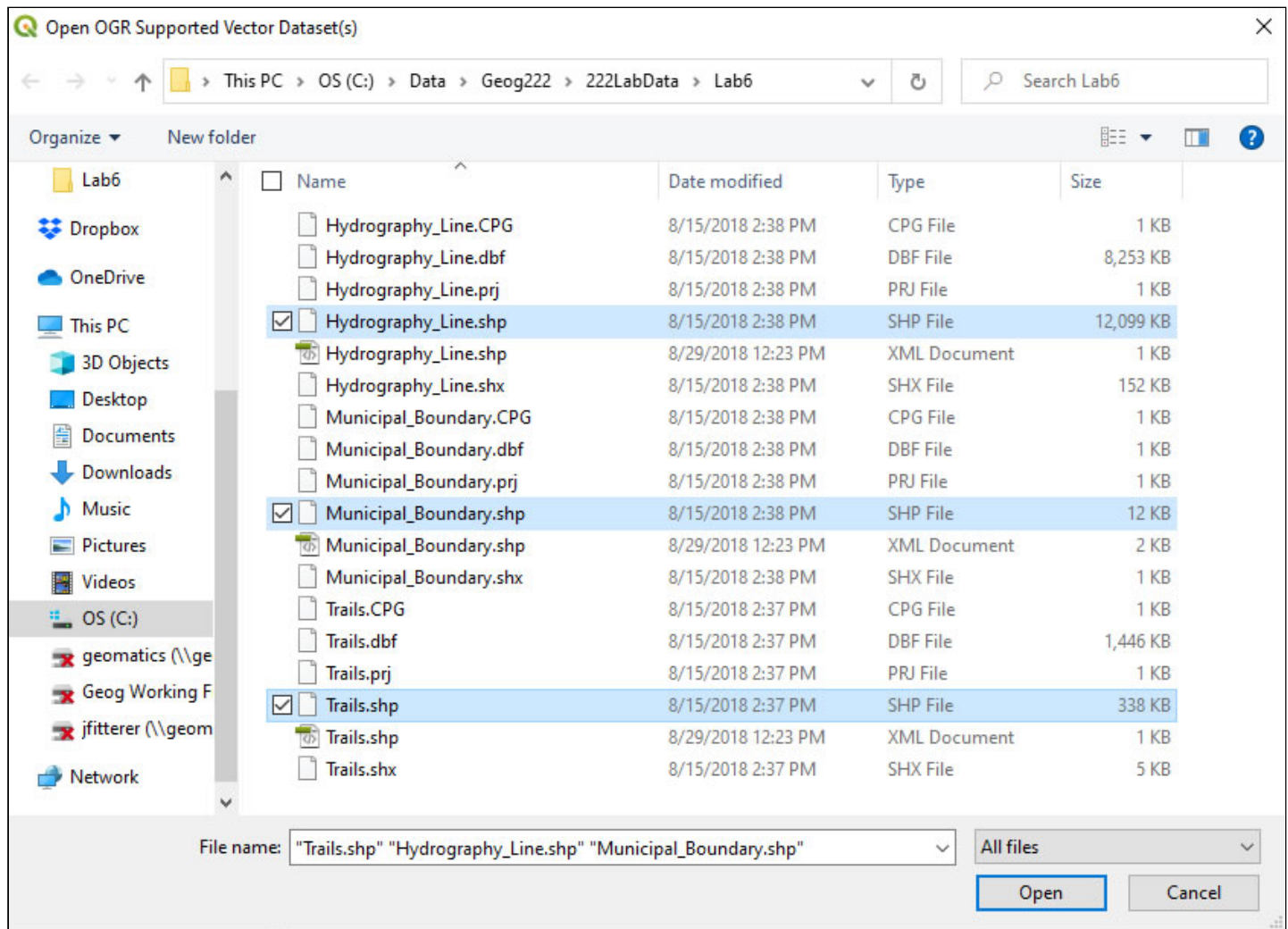
You will learn how to:

- Edit shapefiles for upload to ArcGIS Online
- Create and share a Web Map Application

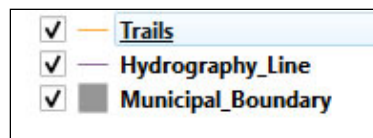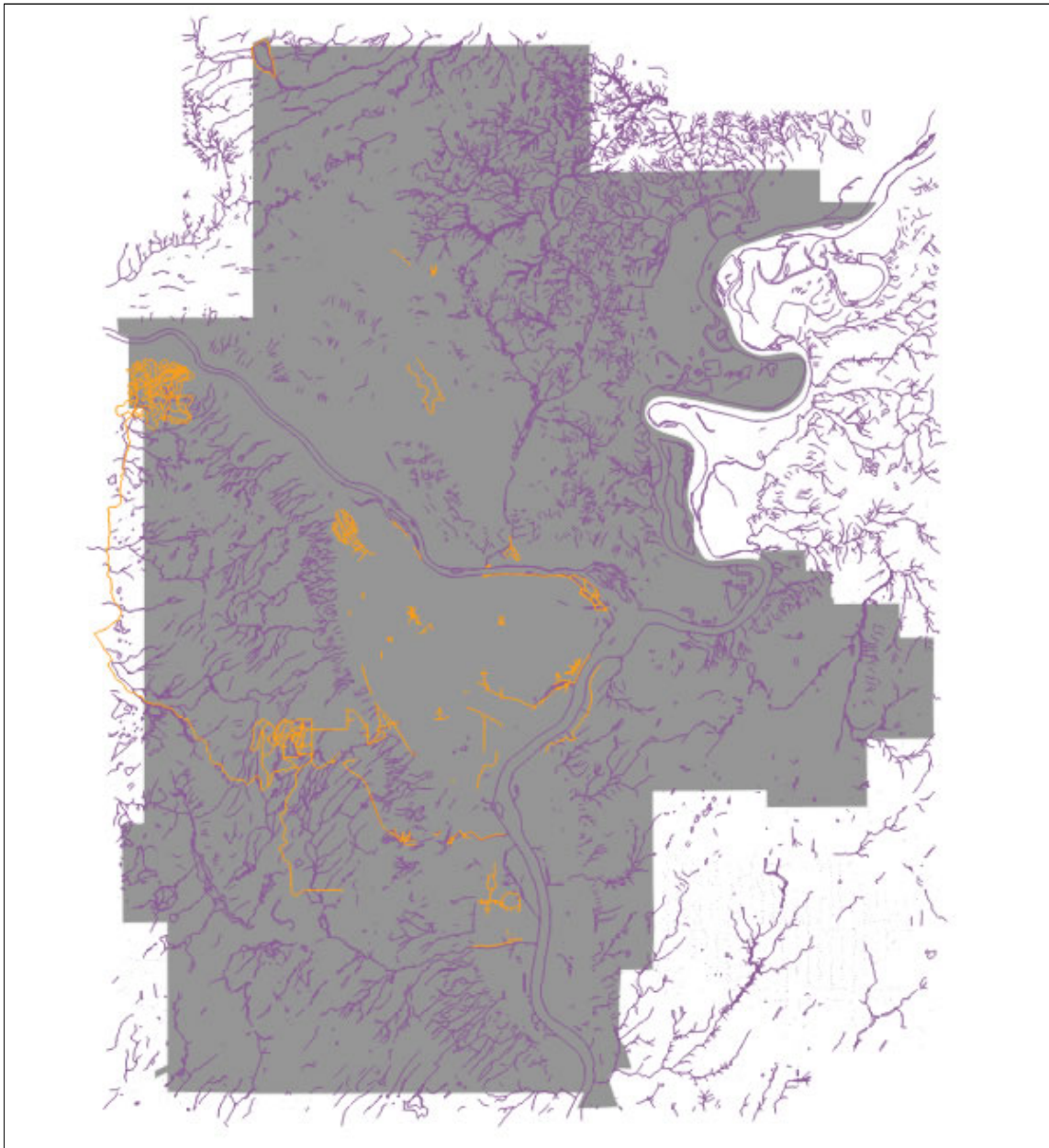# Exercise

Downloading Data

1.) Open QGIS

2.) Download the Prince George datasets to your Lab 6 folder and extract the folder

3.) In QGIS add the Trails, Hydrology_Line, and Municipal_Boundary shapefiles

- Press **Open**
- Press **Add**

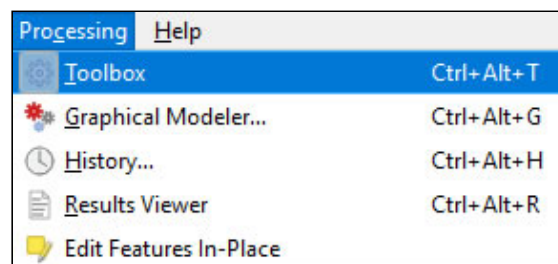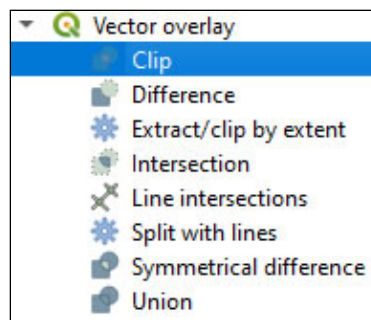4. Arrange the layers in the following drawing order

Data Editing

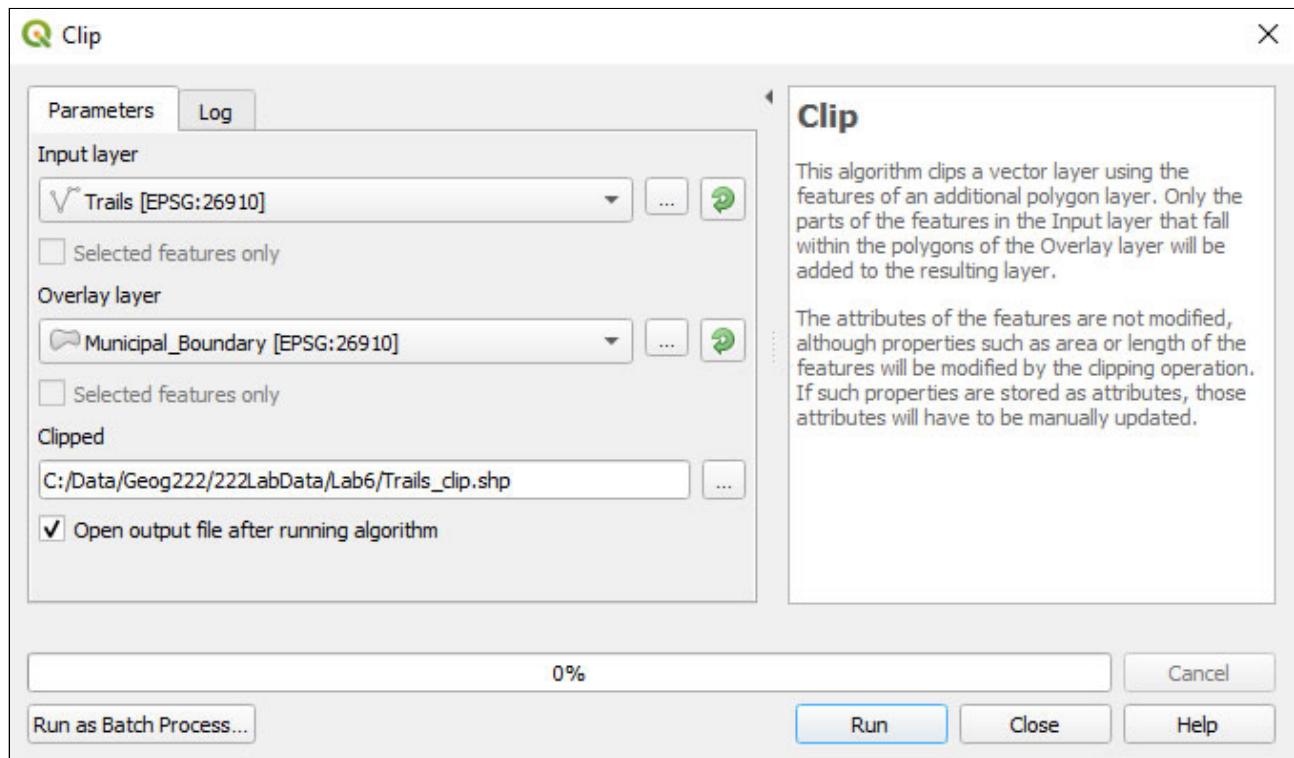You will want to clip the Trails and Hydrography layers to the municipal boundary.

5. From the **Processing** menu select the **Toolbox**

- In the toolbox navigate to the **Vector overlay** tools → and select the **Clip**
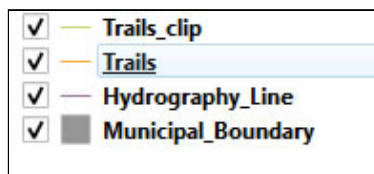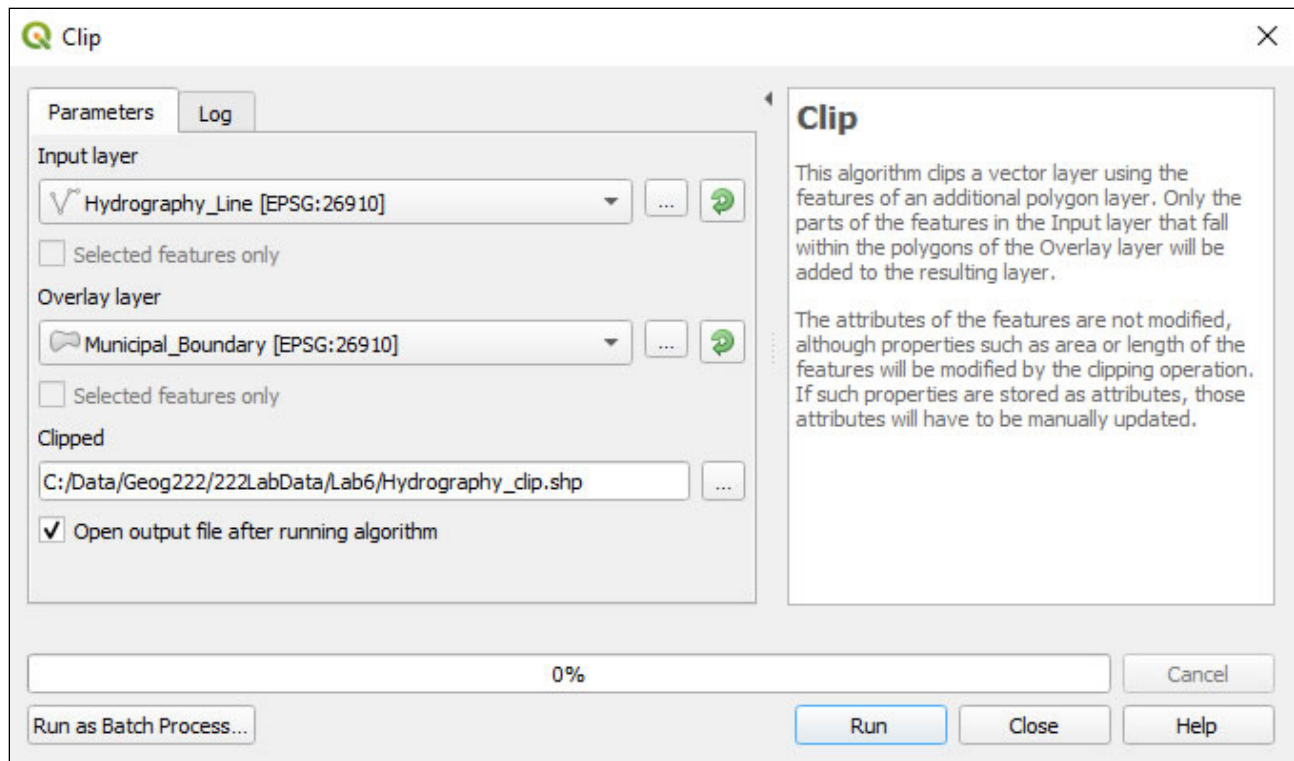
- Set the parameters as follows:

- Press **Run → Close**

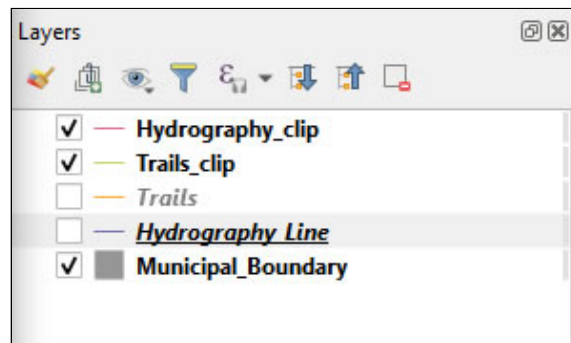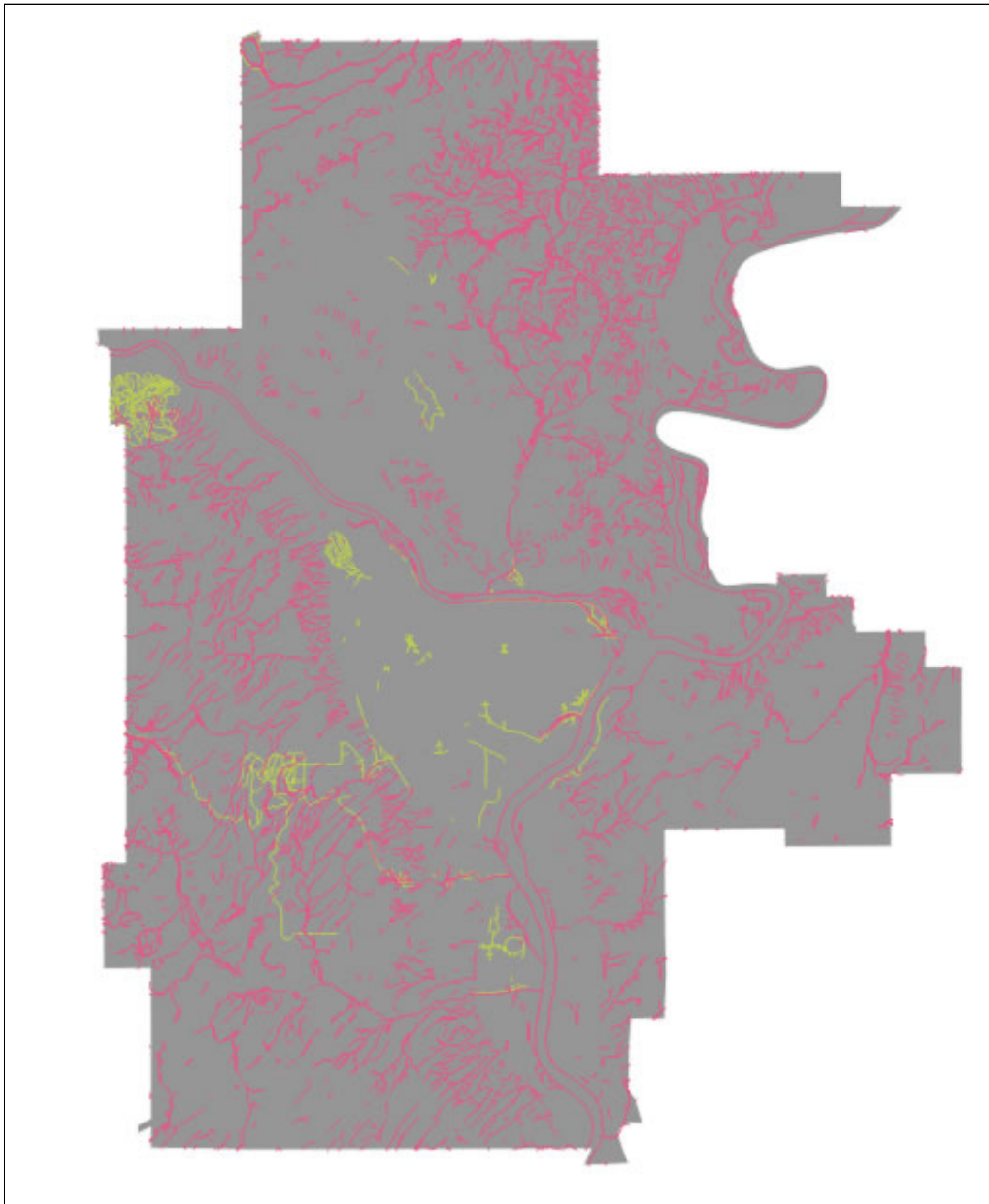A new clipped layer will have appeared in your table of contents

6. Now clip the **Hydrography_Line** layer as follows:

- Press **Run → Close**

7. Turn off the **Trails** and **Hydrography_Line** layers to see the clipped boundaries.

Next you will reproject the layers so you can important them into ArcGIS Online to build your webmap. In order to do so the layers must have a WGS 84 projection.
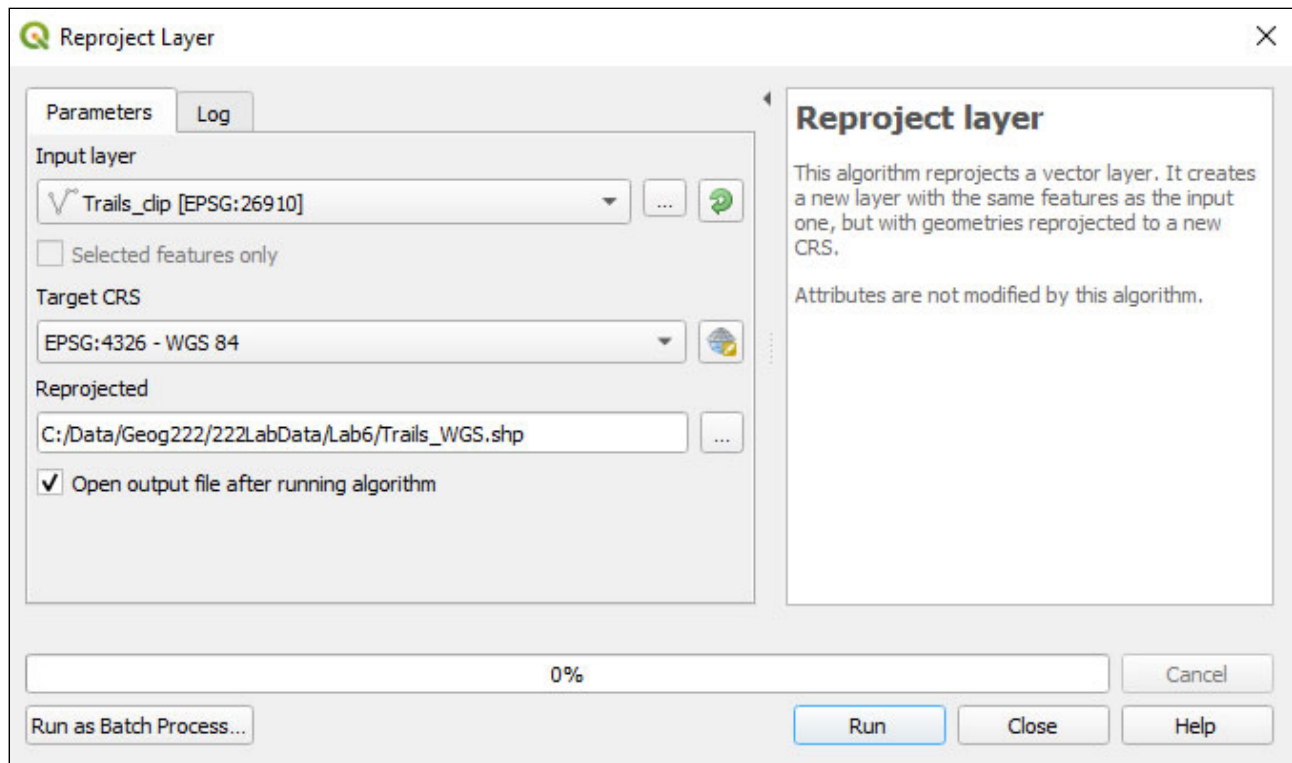
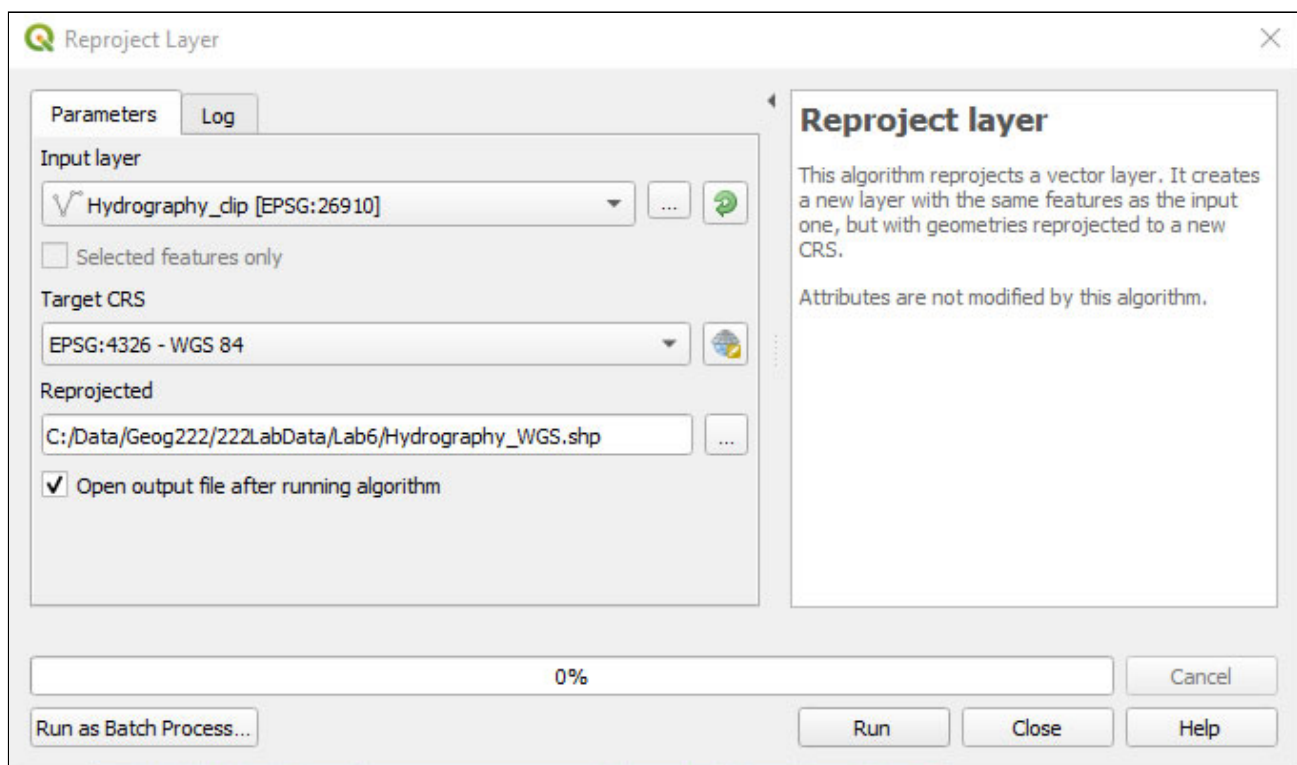8. From the Processing toolbox select Vector general and then choose "Reproject layer"
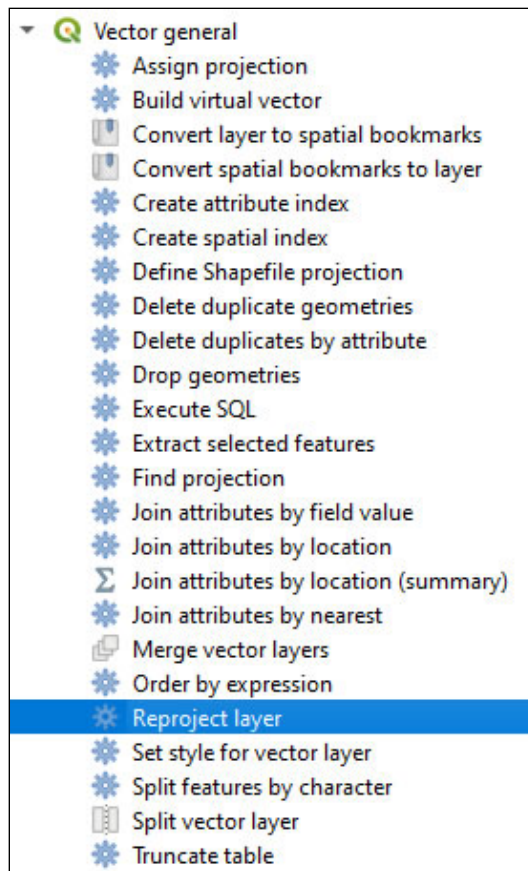
9. Set the Reproject layer parameters as follows:
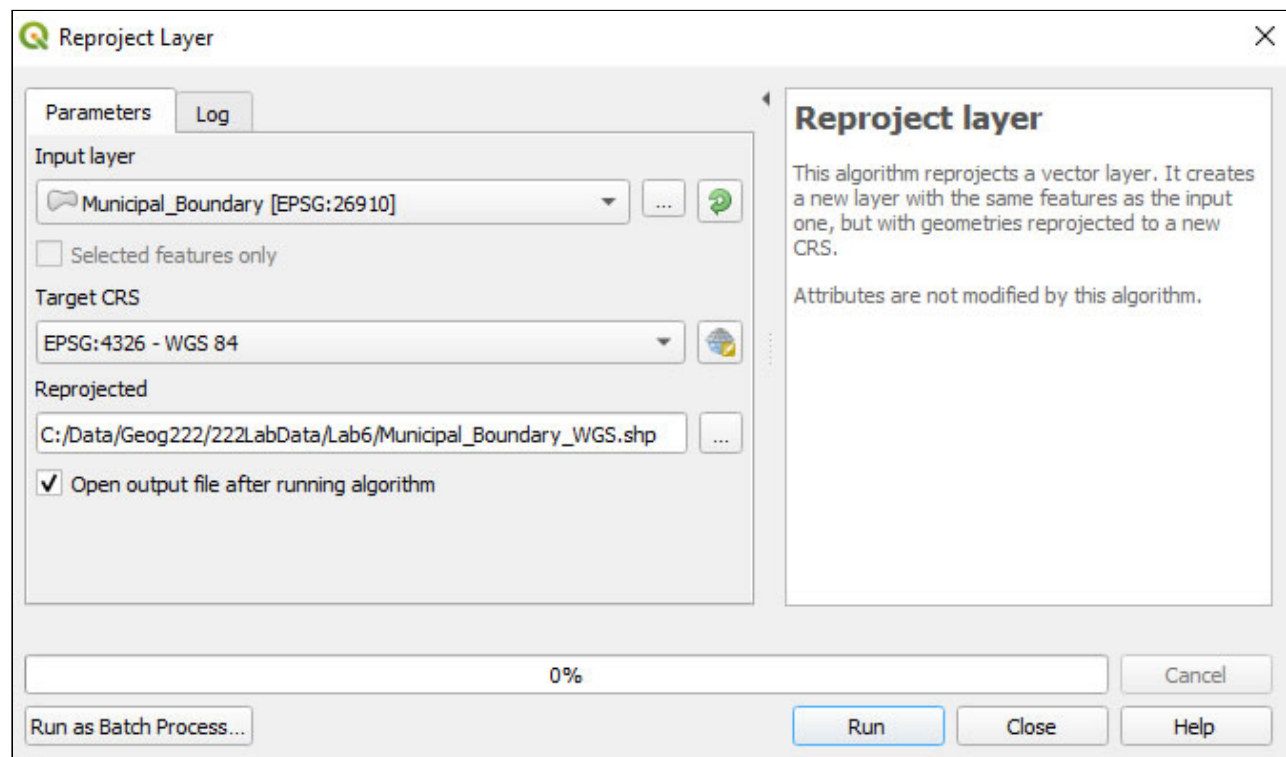
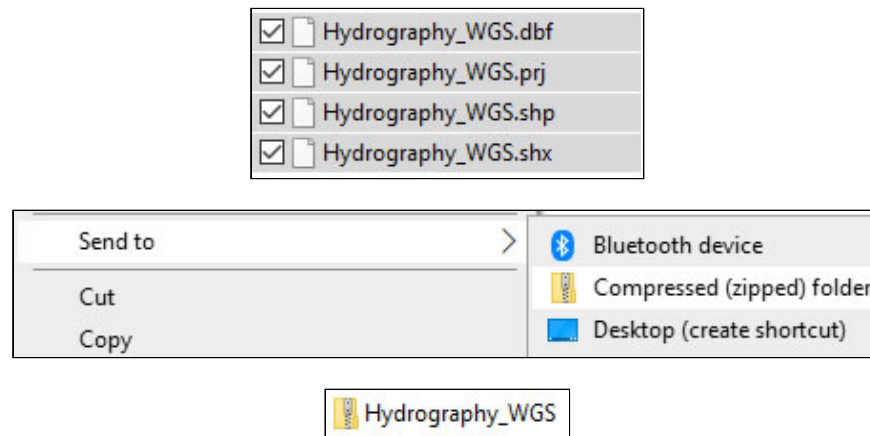- Press **Run** → Close

- Press **Run** → Close


- Press **Run** → Close

Now you are ready to prepare the layers for upload to ArcGIS online. ArcGIS online uploads shapefiles in a compressed storage format.

10. Using your computer's **File explorer** navigate to your Lab6 folder

11. Holding control, select all of the **Hydrography_WGS** files → right click → send to a **Compressed (zipped) folder**

12. Holding control, select all of the **Trails_WGS** files → right click → send to a **Compressed (zipped) folder**
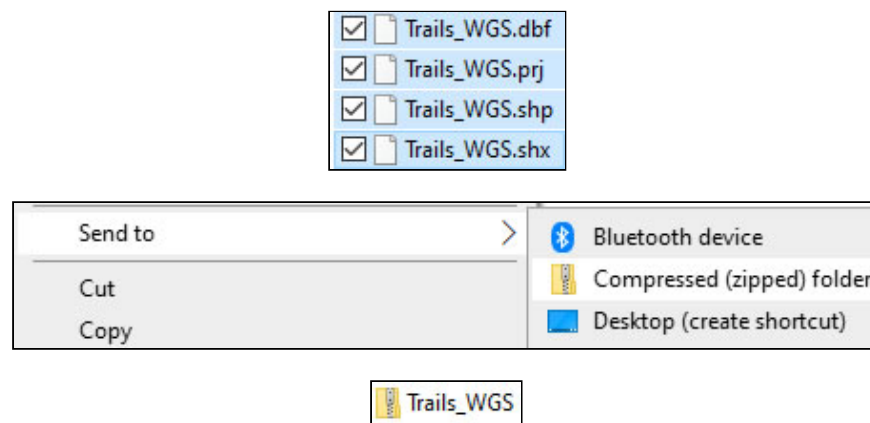
13. Holding control, select all of the **Municipal_Boundary_WGS** files → right click → send to a **Compressed (zipped) folder**
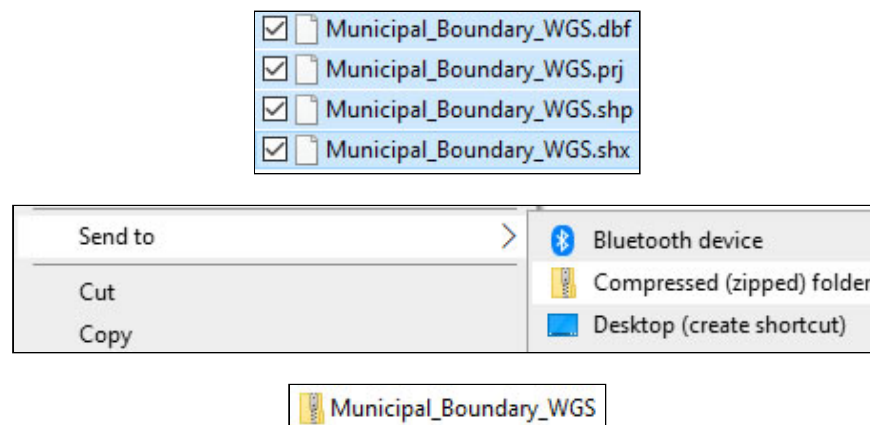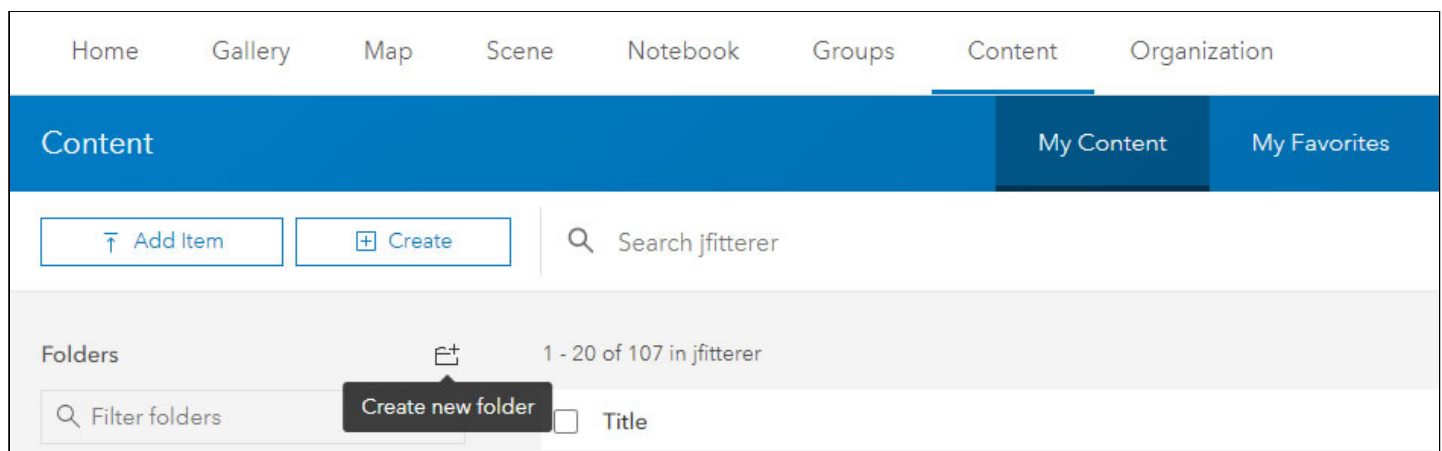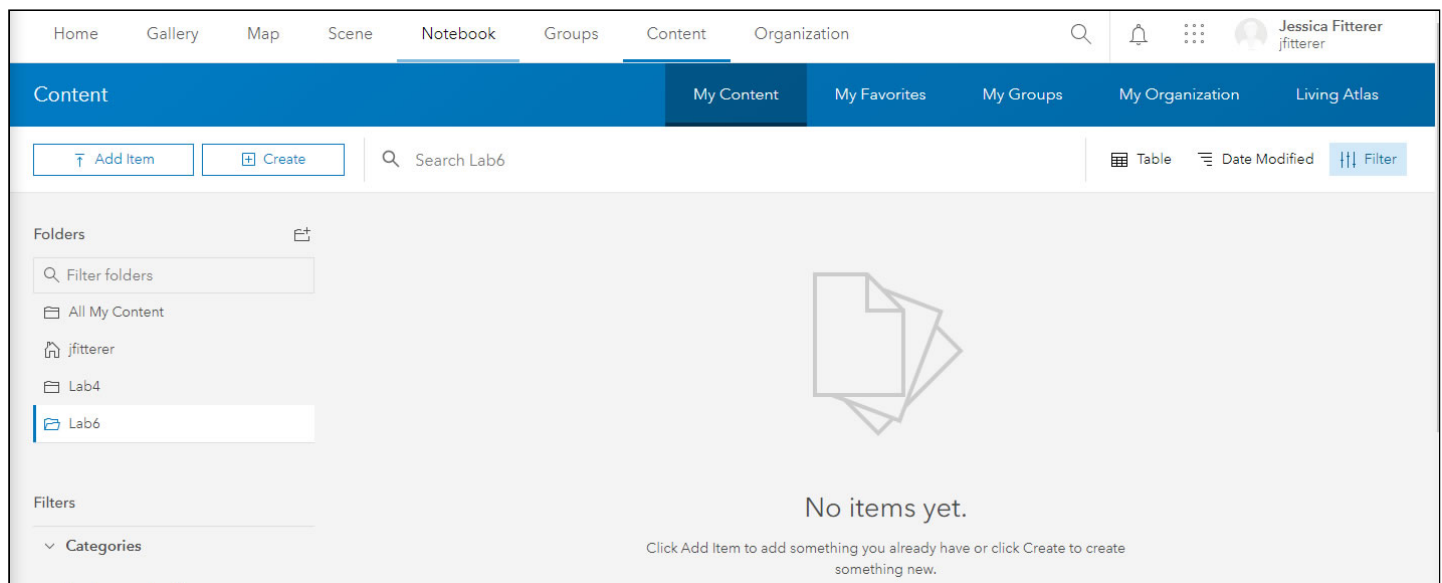

ArcGIS Online

Now the layers are ready for upload to ArcGIS Online.
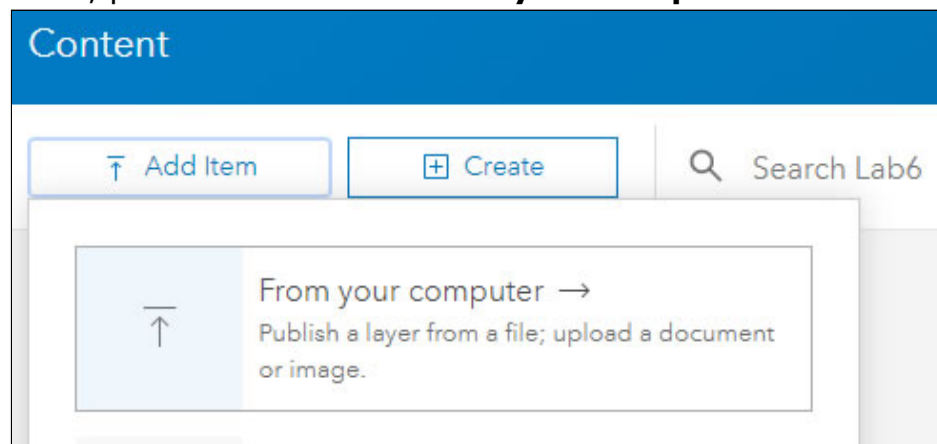
1. Login to [ArcGIS online](#)

2. Go to your **Content** tab → open **My Content** → and press **Create new folder**

- Name the folder Lab6

- Press OK

3. In the Lab 6 folder, press **Add Item** → **From your computer**

4. Drag and drop the **Trails_WGS.zip** file into the **New Item** window

- Choose to add the file as a "hosted feature layer"

- Press "**Next**"

- Set the Tags and Summary as "**Trails**" add your netlink ID to the end of the name if you get a warning about a hosted layer having the same name

5. Navigate back to the Content tab → **Add Item** → **From your computer**

Drag and drop the **Hydrography_WGS.zip** file into the **New Item** window

- Choose to add the file as a "hosted feature layer"

- Press "**Next**"

- Set the Tags and Summary as "**Hydrography**" add your netlink ID to the end of the name if you get a warning about a hosted layer having the same name

6. Navigate back to the Content tab → **Add Item** → **From your computer**

Drag and drop the file **Municipal_Boundary_WGS.zip** into the **New Item** window

- Choose to add the file as a "hosted feature layer"

- Press "**Next**"

- Set the Tags and Summary as "**Municipal Boundary**" add your netlink ID to the end of the name if you get a warning about a hosted layer having the same name

8. From the Content Page select the Trails layer

☐ 📍 Trails	Feature Layer (hosted)	🏢	☆ ⋯ Aug 6, 2020

9. From the data page select Metadata
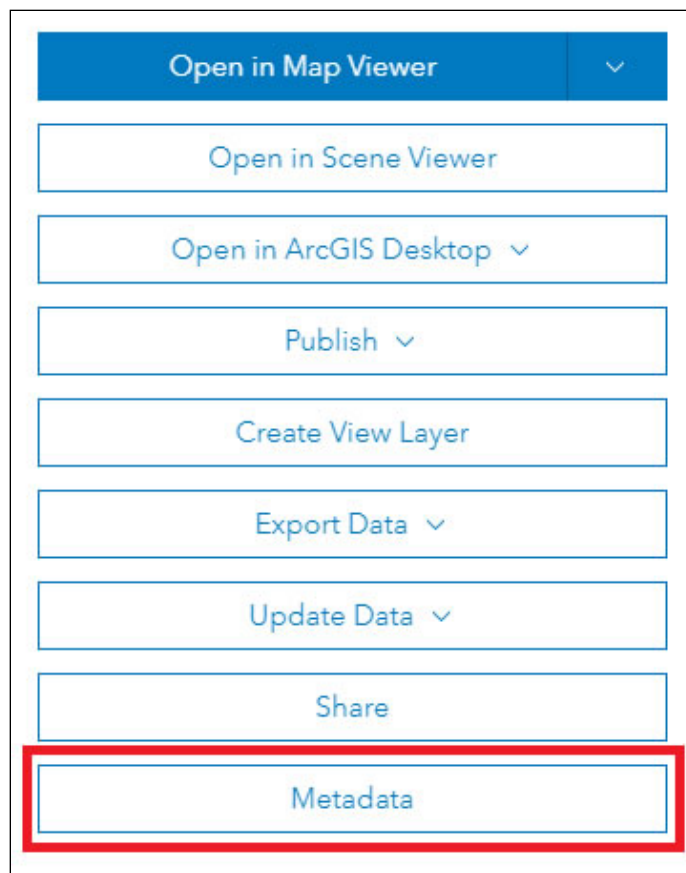
Metadata are information stored about a feature layer or shapefile. The information depicts the data source, curator, and date of acquisition.

- Select the Resources → Details

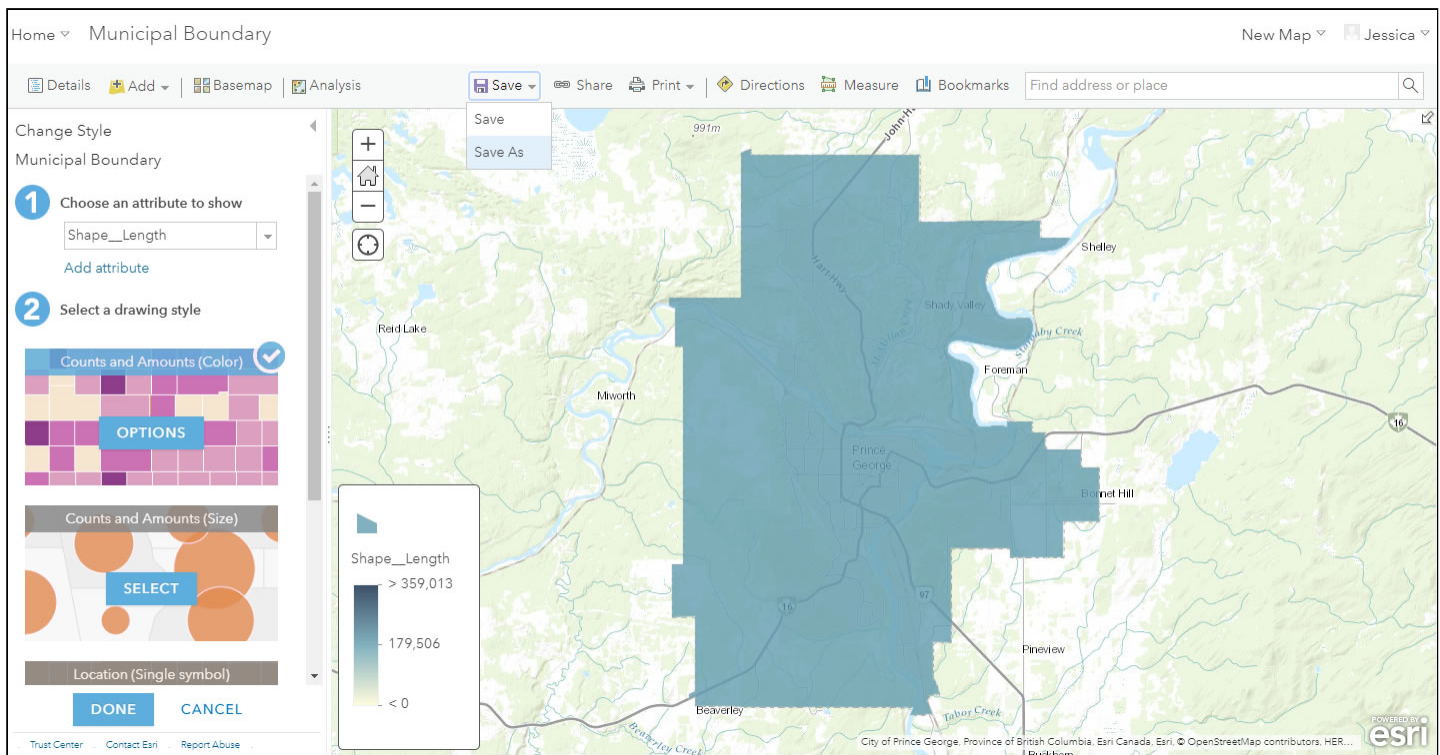- Scroll to the credits and enter in the open website url: http://data-cityofpg.opendata.arcgis.com/

- Press Save

- Press Close

10. Repeat the metadata proceedure for the Hydrography and Municipal Boundary layers

11. From the Municipal boundary layer page select **"Open in Map Viewer"**

On the new map page select Save → Save As

12. Save the map details as:
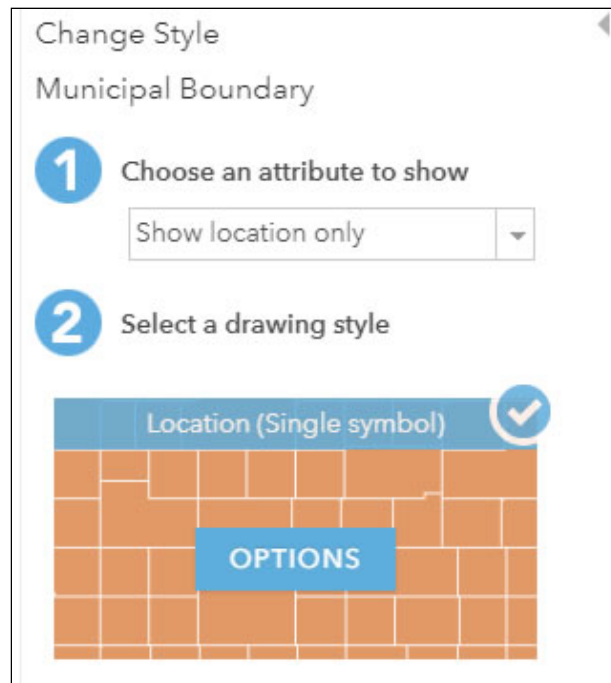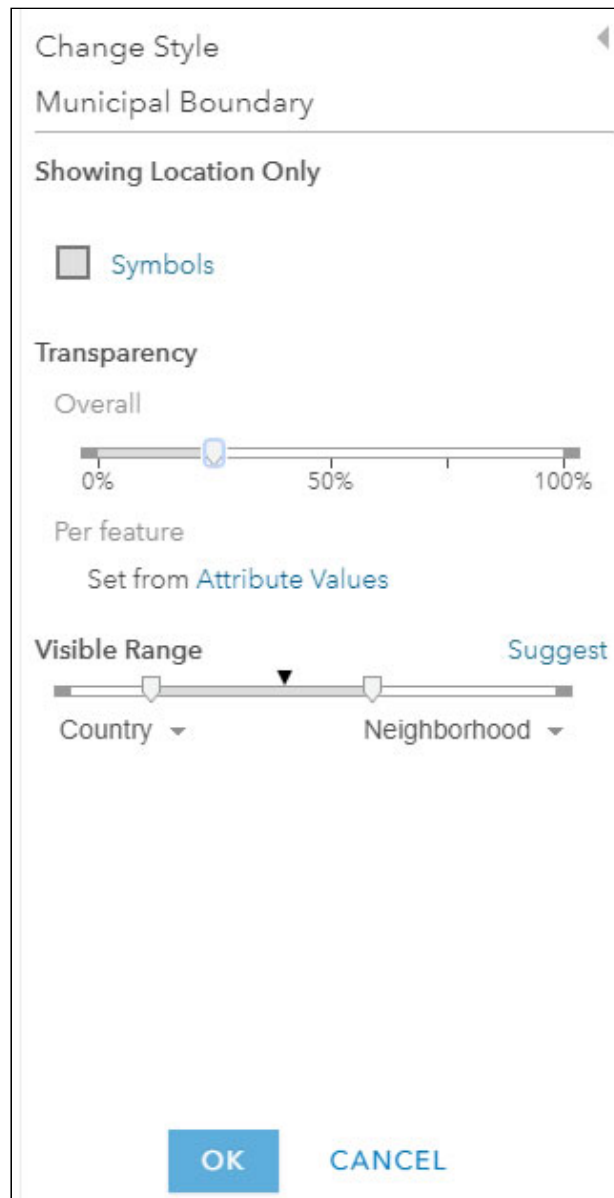

- Press **Save Map**

Symbology

1. In the symbology options for the municipal boundary set the "Choose an attribute to show" as "Show location only"
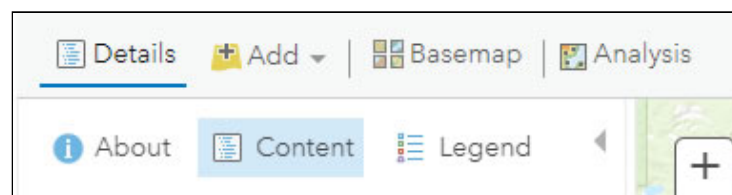
- Select the symbol options
  - Change the symbol to grey
  - Set the transparency to 25%
  - Set the visble range between Country and Neighbourhoods (this means that within the web map the boundary will be visible between these zoom levels
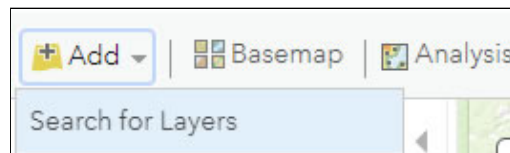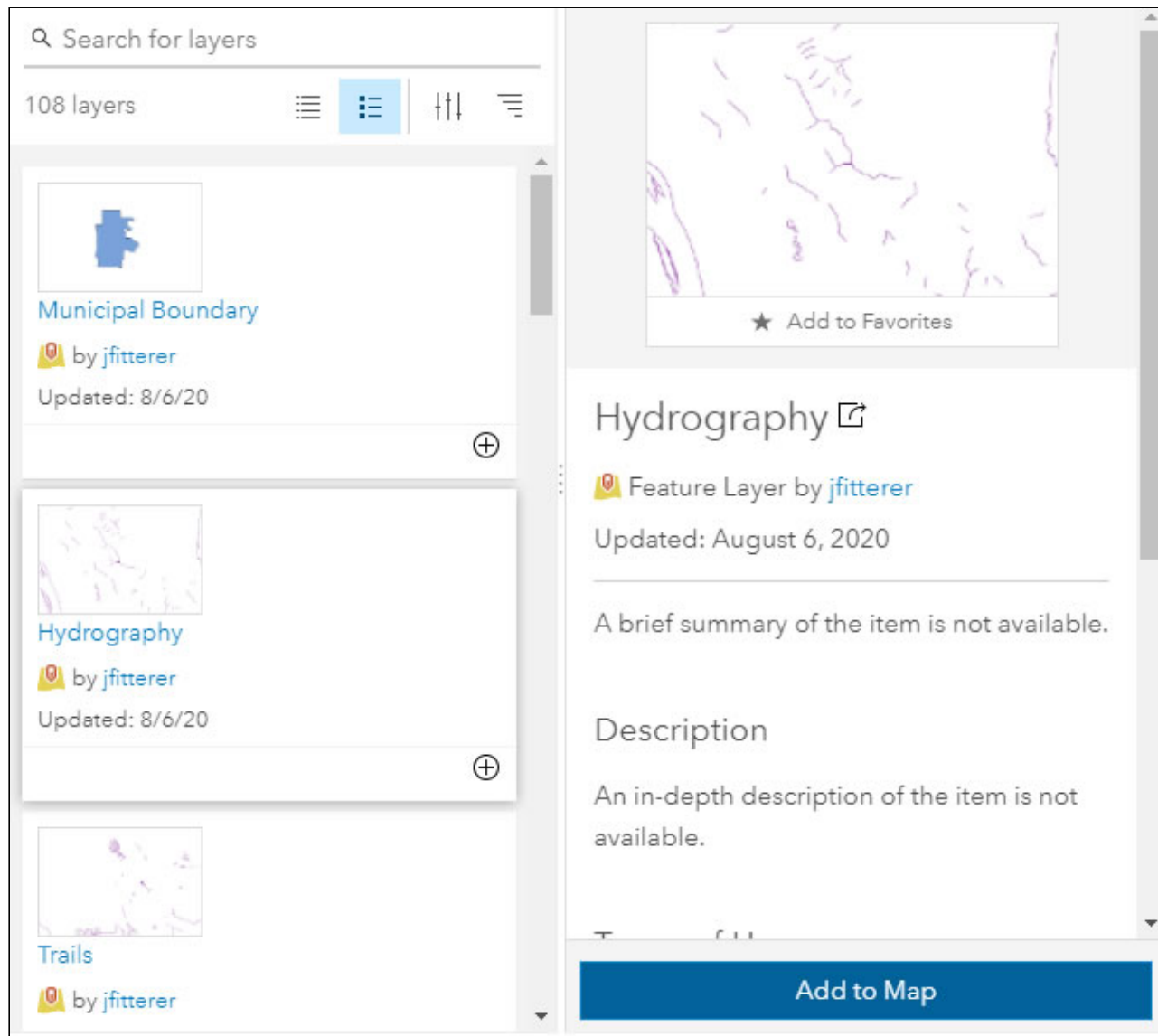
- Press **OK → Done**

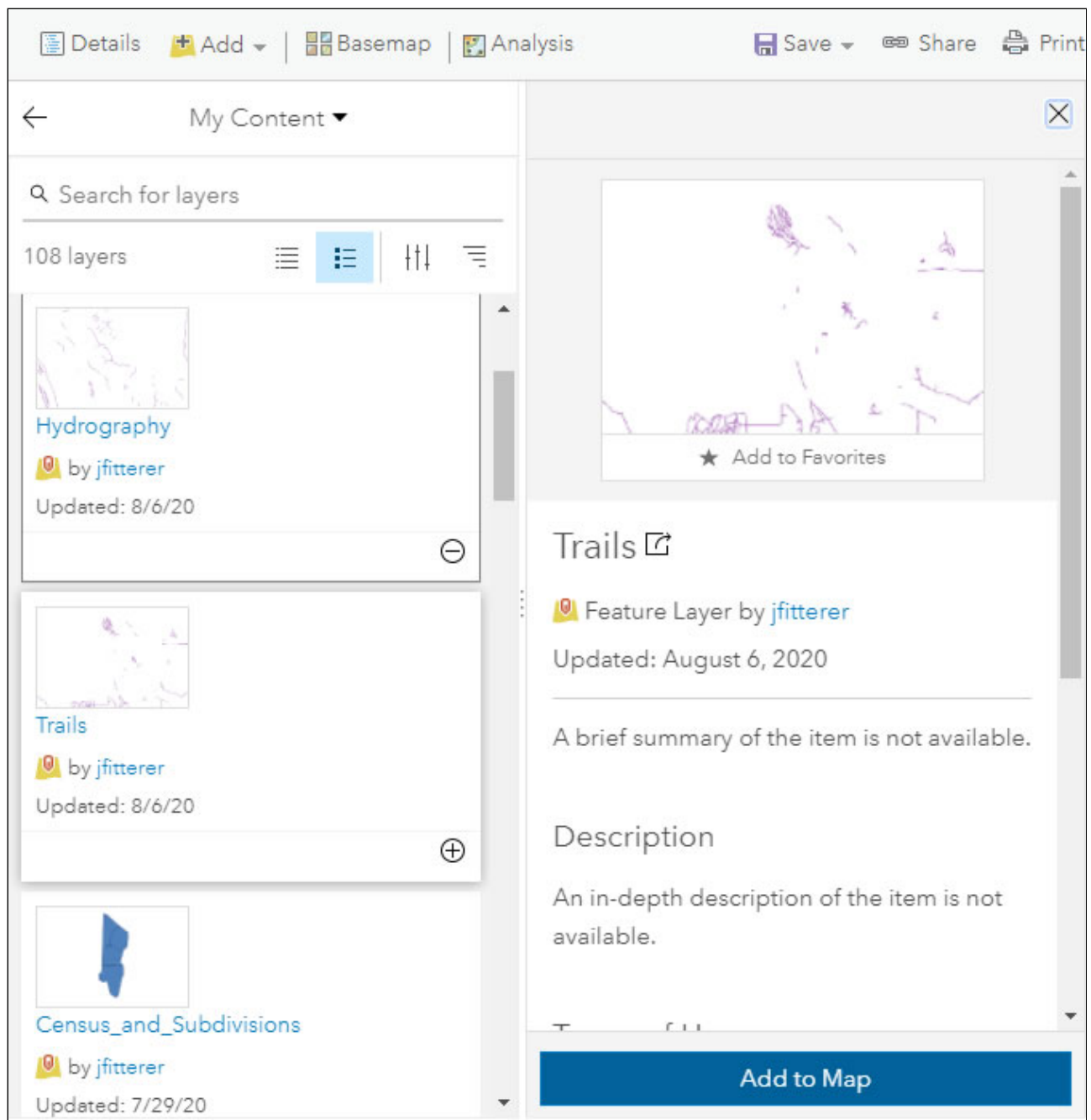2. To exit the symbology options go back to the **Details** and **Content** options in the left hand side layer menu

3. To add the trails and hydrology layers to your webmap use the Add button → search for layers

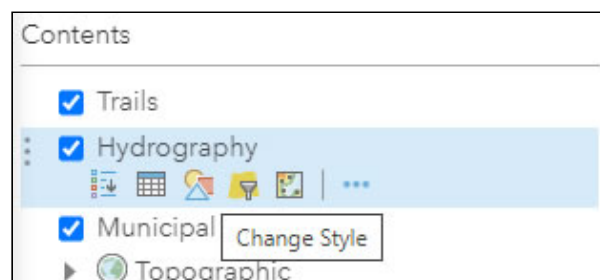## 4. Choose the **Hydrography** layer → **Add to Map**
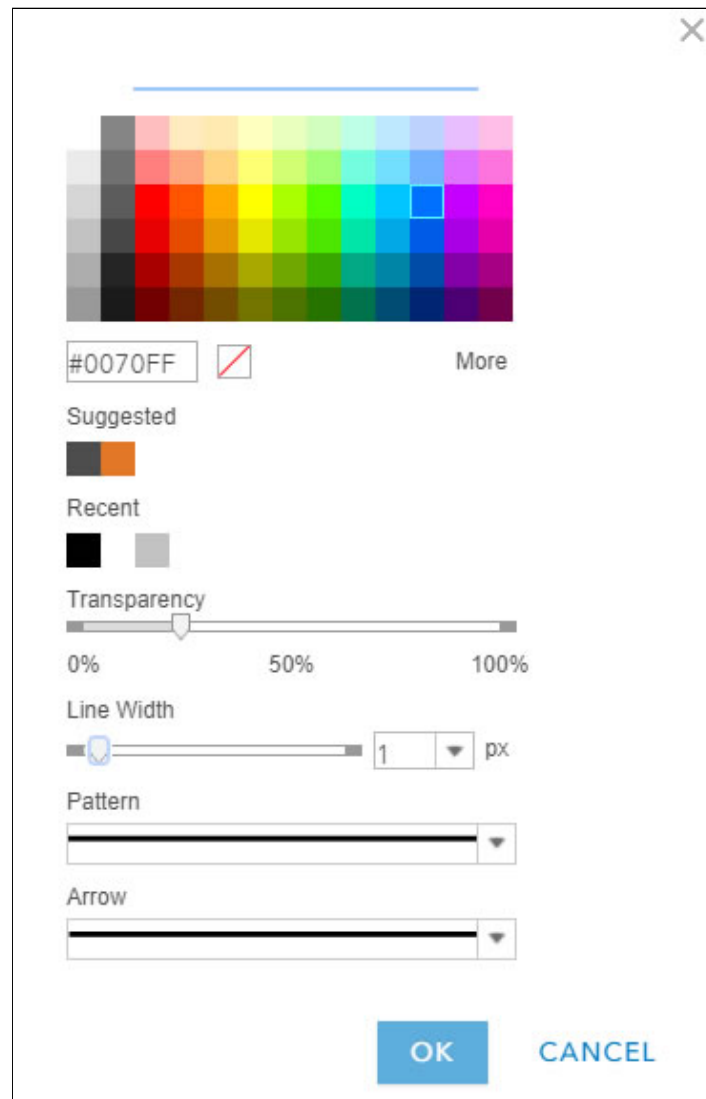

5. Choose the **Trails** layer → **Add to Map**

6. Go back to the Details and Cotent to set the symbology for the Hydrography and Trails layers

7. From the Content list, select the **Hydrography** layer and choose the **Change Style** option
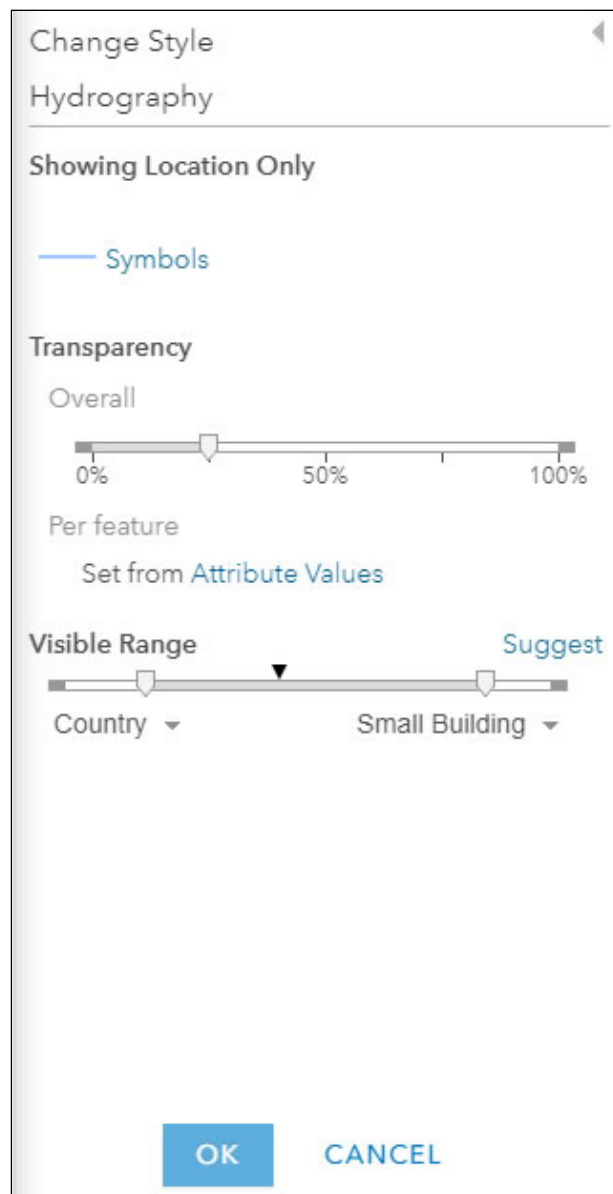

- Set the "Choose an attribute to show" as Name

- Then choose **Location (Single Symbols)** → **Options**

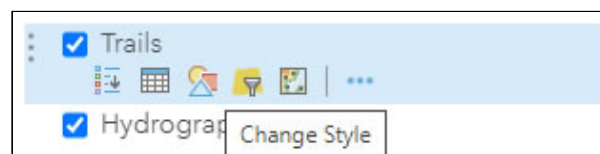 - Choose the symbol ⎯⎯ Symbols and set the options to:

  - Press OK

- Set the transparency to 25%

- Set the Visible range to: Country to Small Building

- Press OK → Done

These options set all the hydrology features to a blue thin line. Now you will change the trail items.

8. From the Table of Contents, select the Trails layer → choose Change Style

Set Choose an attribute to show as "TrailSurfa"

Select drawing style as: "**Types(Unique Symbols)**" → **Options** this will create a different colour trail for each trail type

In the options change the symbol to:
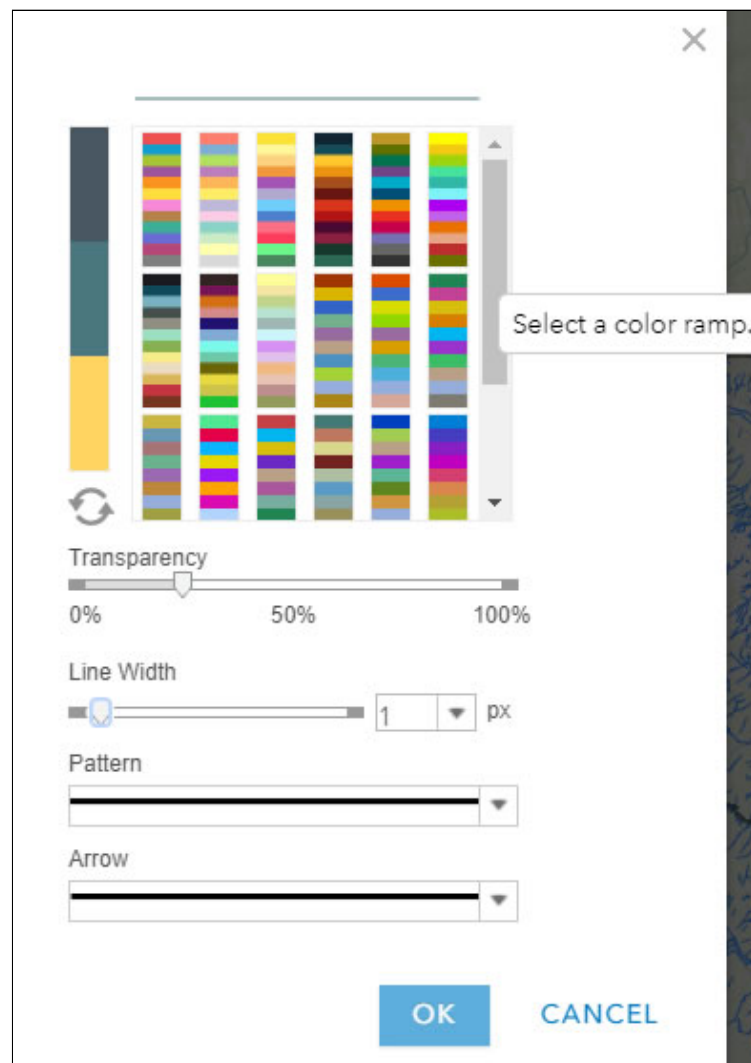
- ○ Press OK
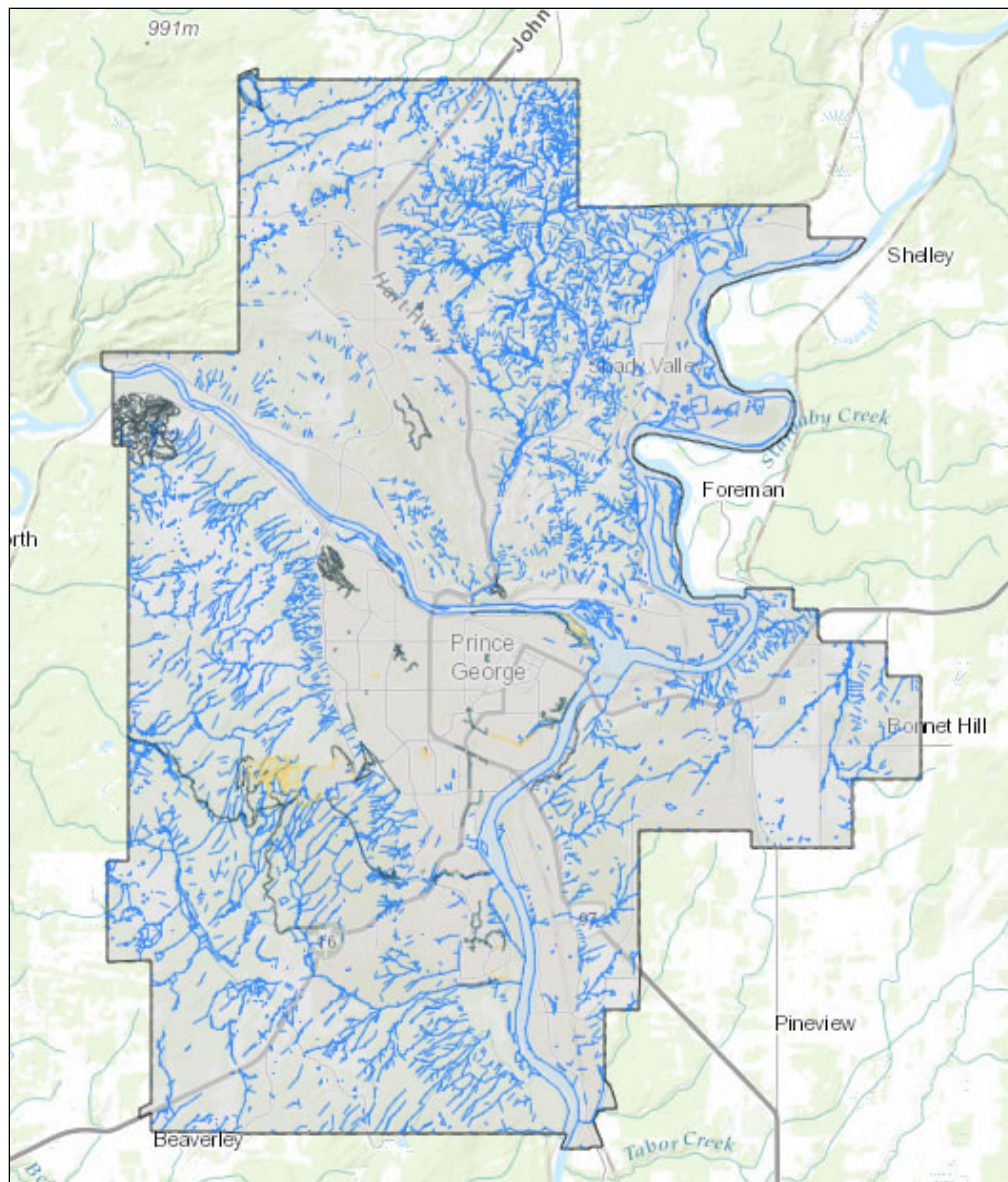
- Set the transparency to 25%
- Set the visible range to: Country to Building

- Press OK

Configure Pop-ups

Now that the symbology is set you will configure the pop-ups.

Pop-ups are windows that show attribute information linked to each location on your map. In a web map these pop-up are displayed as you hover over or select information on the map.
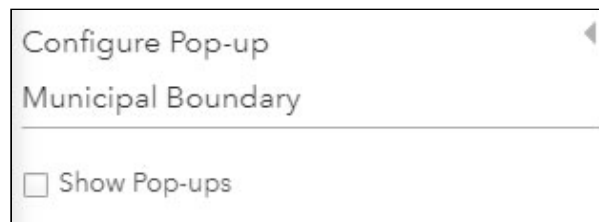
1. In the Contents pane, click on the **Municipal Boundary** layer to select it.

- Click the layer options   ***   and click **Configure Pop-ups**
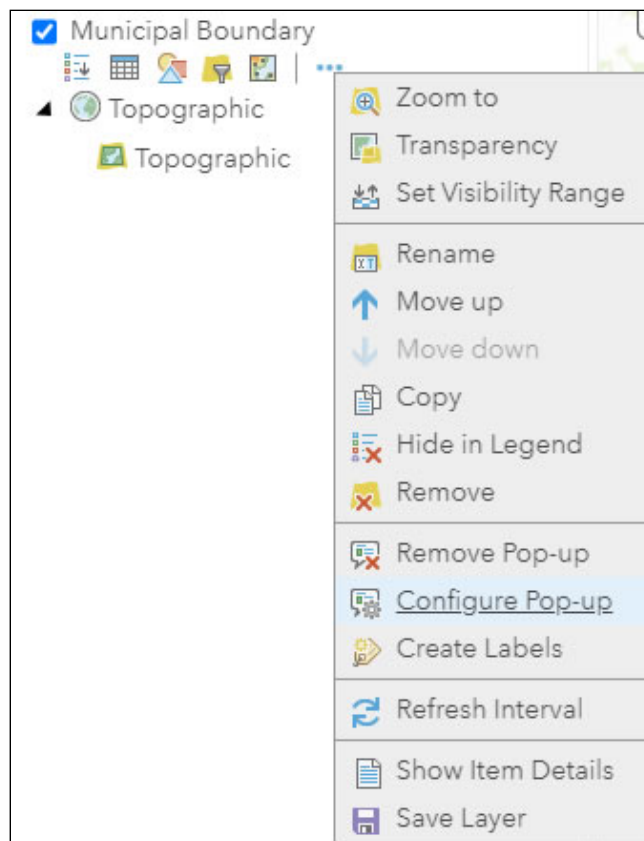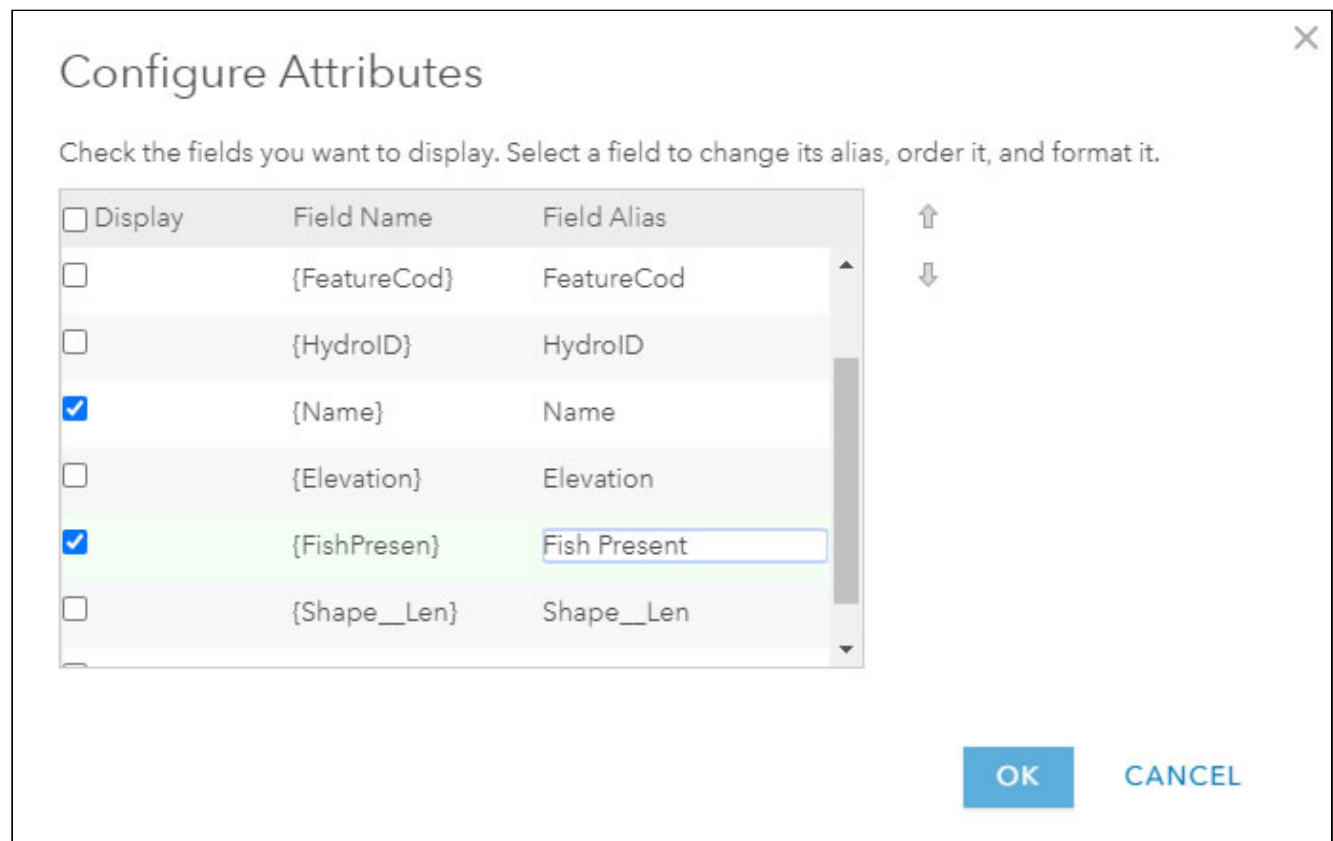
2. Uncheck the Show Pop-ups

- Pop-ups were disabled, since there is no need to have a pop-up window for the Municipal boundary

- Press OK

3. In the Contents pane, click on the **Hydrography** layer to select it.

- Click the layer options ⋯ and click **Configure Pop-ups**
  - Display: A list of field attributes
  - Press Configure Attributes to edit the list
  - Leave the "Name" and "FishPresen" selected
  - Edit the Field Alias (heading that shows in the pop up) to Fish Present

Configure Attributes

Check the fields you want to display. Select a field to change its alias, order it, and format it.

Display	Field Name	Field Alias
☐	{FeatureCod}	FeatureCod
☐	{HydroID}	HydroID
☑	{Name}	Name
☐	{Elevation}	Elevation
☑	{FishPresen}	Fish Present
☐	{Shape__Len}	Shape__Len

OK   CANCEL

- ○ Press OK

- The press Ok on the configure pop-ups window

- Press OK

4. In the Contents pane, click on the **Trails** layer to select it.

- Click the layer options ⋯ and click **Configure Pop-ups**
  - Display: A list of field attributes
  - Press Configure Attributes to edit the list
  - Leave the "LifeCycleS" and "TrailName" "trailSurfa" checked
  - Edit the Field Alias (heading that shows in the pop up) to:

| ☑ | {TrailSurfa} | Trail Surface |

- ○ Press OK

- Then press OK on the configure pop-ups window

Configure Pop-up

Trails

☑ Show Pop-ups

Pop-up Title

Trails: {TrailName}   ⊞

Pop-up Contents

Display: A list of field attributes ▼

These field attributes will display:

Life Cycle {LifeCycleS}
Trail Name {TrailName}
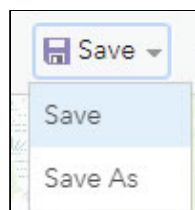Trail Surface {TrailSurfa}

Configure Attributes

Attribute Expressions

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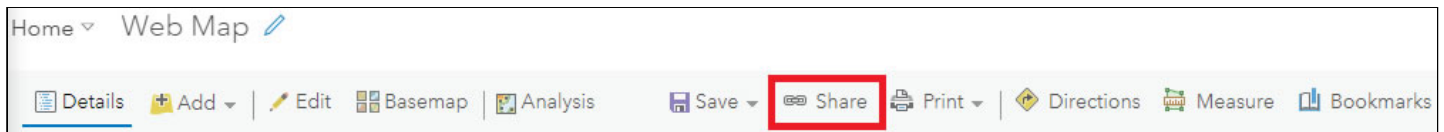
ADD

OK   CANCEL

Now is a good time to save your web map.
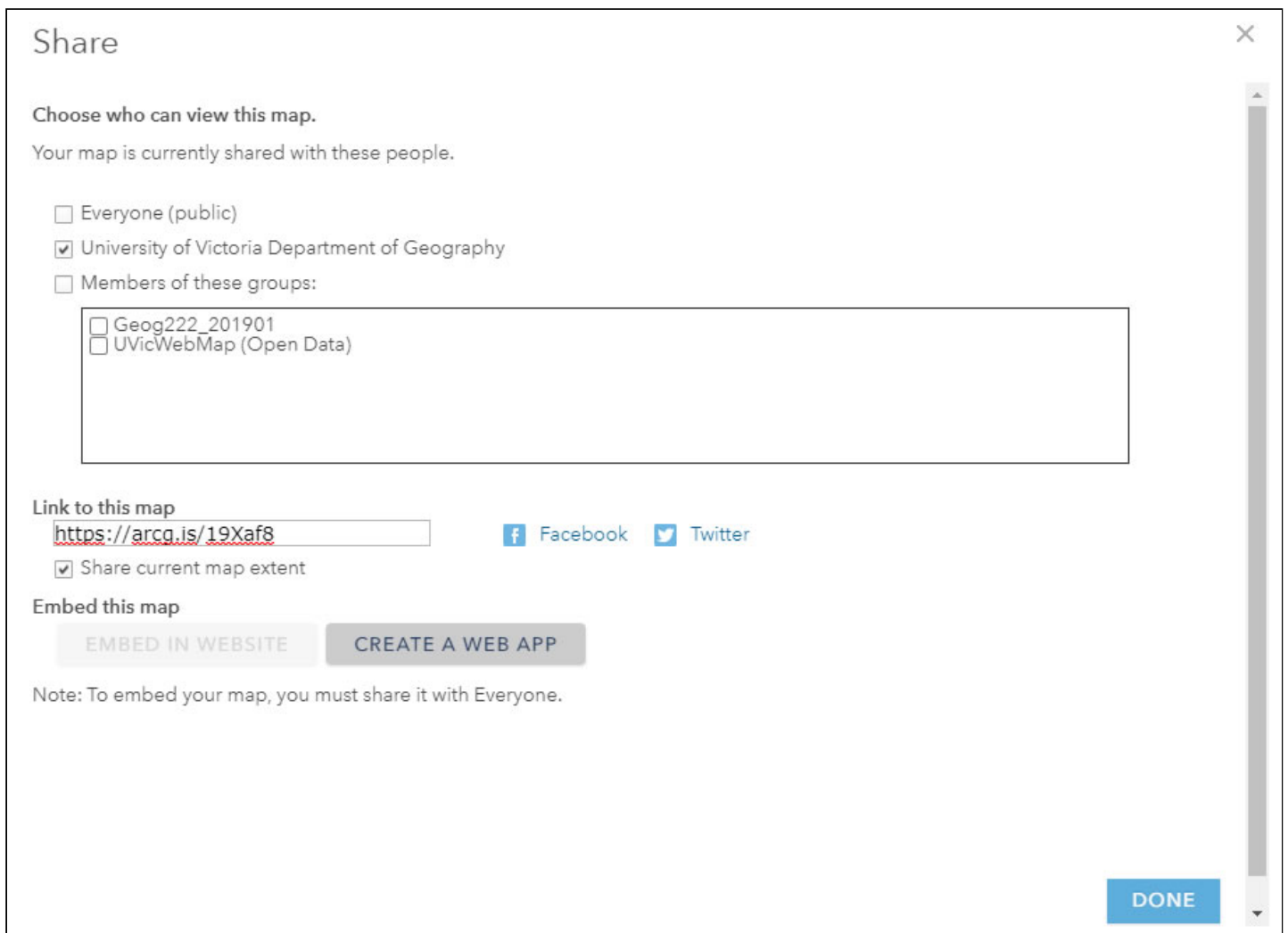
💾 Save ▼

Save

Save As

Sharing the Map to the Web

Now you will convert your web map to a web map application.

1. Select the **Share** button next to the save button in your web map window
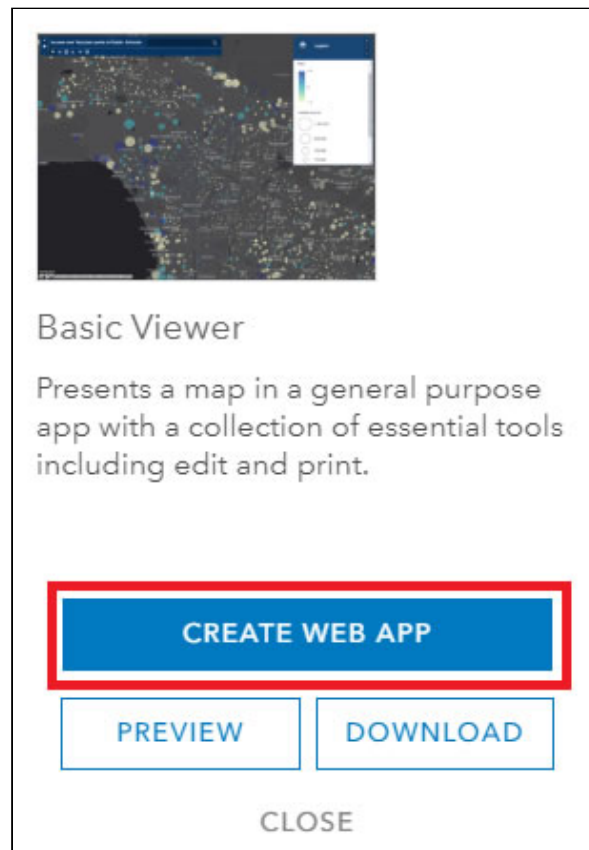

- Check the **"University of Victoria Department of Geography"**

- Copy the "Link to this map"

- Press CREATE A WEB MAP

- Press Done

2. The next window will present options for your web map application. **Choose the "Show All" menu and then choose the "Basic Viewer".**
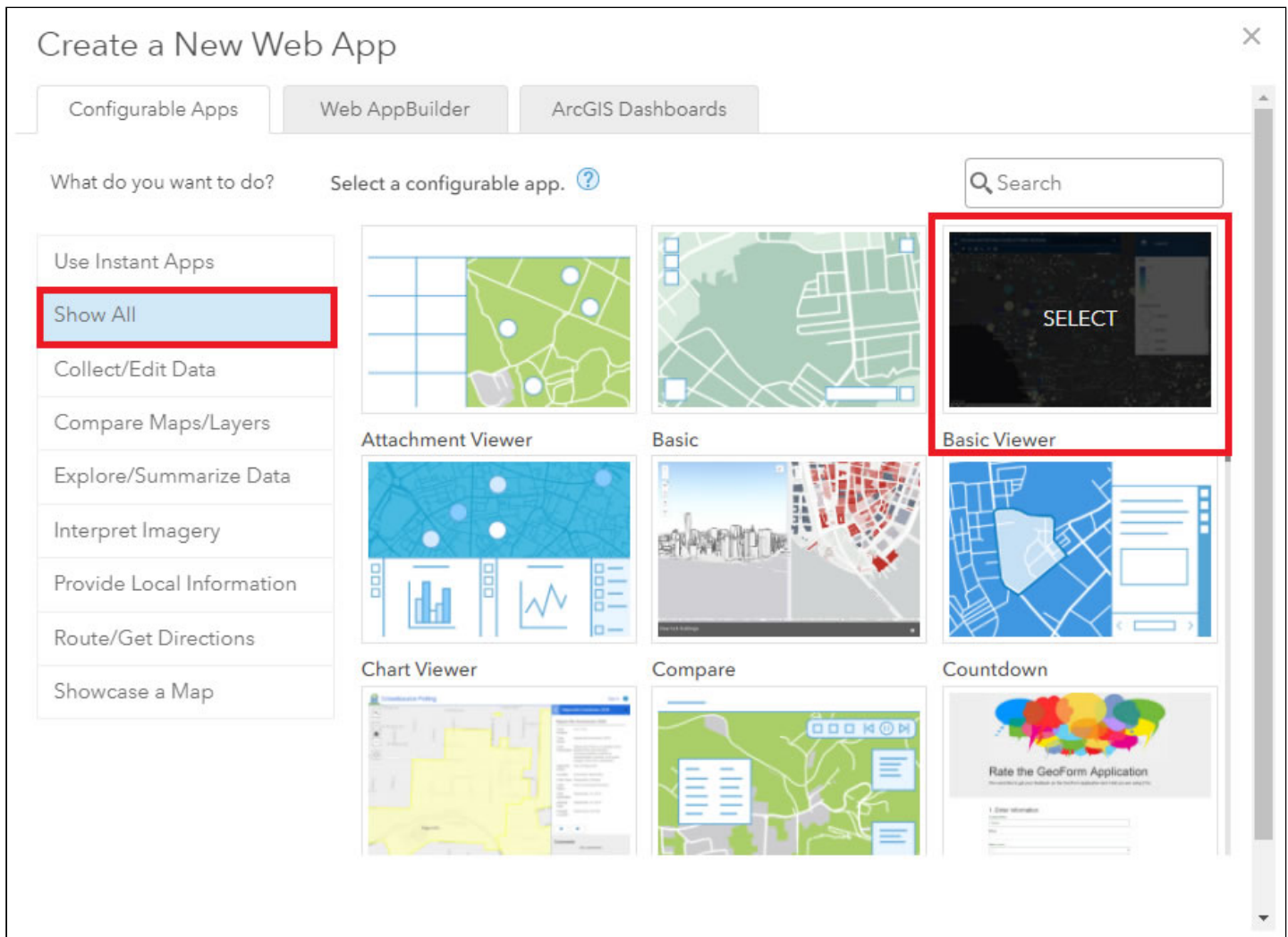
3. Press CREATE WEB APP

Change the title to:

Prince George Nature Trails Map

Enter the following summary:

The Prince George Trail map delineates the boundary of Prince George showing the locations of all rivers/lakes, and nature trails. All data layers were downloaded from the Prince George's open data website http://data-cityofpg.opendata.arcgis.com.

Create a New Web App

×

Specify a title, tags, and a summary for the new web app.

Title: Prince George Nature Trails Map

Tags: Prince; George; trails ✕

         Add tags

Summary: (Optional)   The Prince George Trail map delineates the boundary of Prince George showing the locations of all rivers/lakes, and nature trails. All data layers were downloaded from the Prince George's open data website http://data-cityofpg.opendata.arcgis.com.

Save in folder: Lab6

☑ Share this app in the same way as the map (University of Victoria Department of Geography)

BACK   DONE   CANCEL

- Press DONE

The configuration window will appear:

4. Explore the options that you can adapt for the web map by toggling through the General, Theme, Options, and Search Tabs

5. If you make any changes press **Save**

6. Then press **Launch**
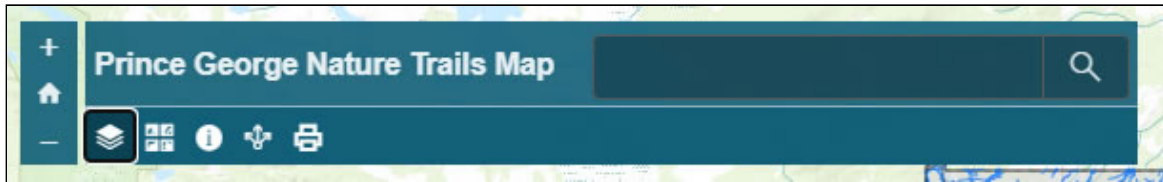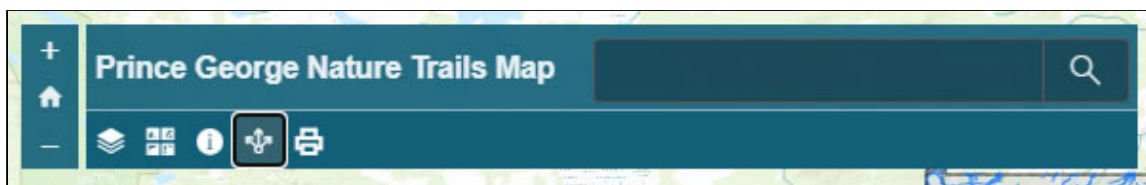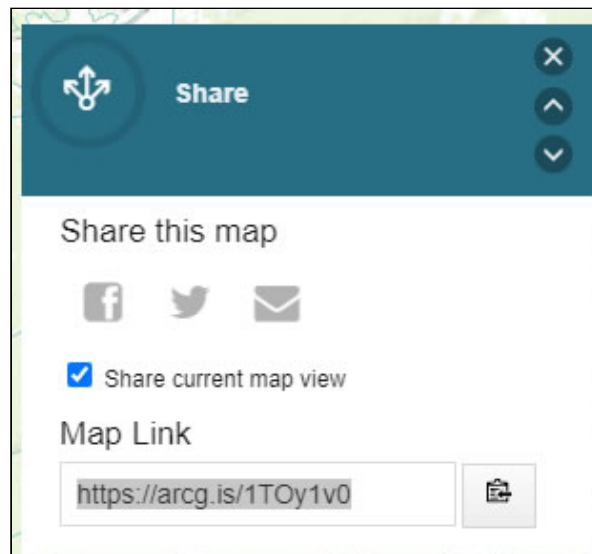
7.) From the menu options choose **layers** to see how you can toggle on and off the layers in your web map.

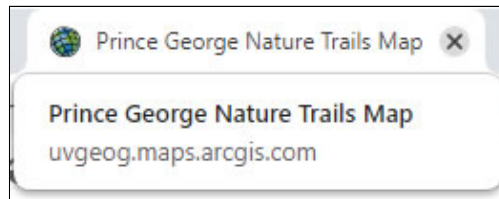- You can also click on the map to see your pop-ups
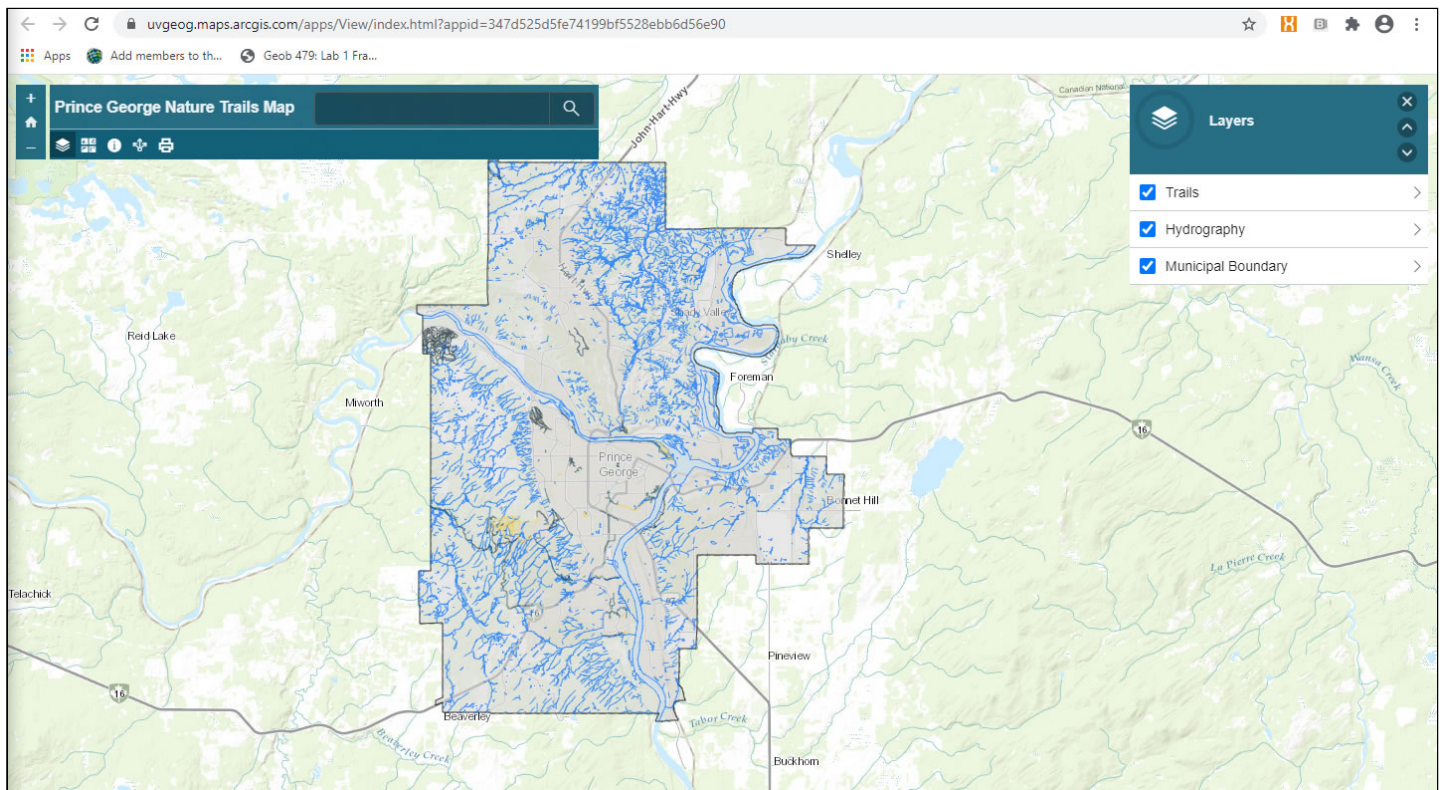
40.) From the menu options choose **Share** to gather the website link for your map.

41.) Close your map application, and open your **Content** page on **ArcGIS online**.

- Go to your My Content page in ArcGIS Online to see the list of your **Web Map** and **Web Mapping Application**.
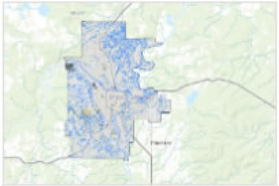
42.) Choose to open the **Prince George Nature Trail Map** Web Mapping Application

- Edit the **Description** to include the same **Web Map** description:
  - The Prince George Nature Trail map delineates the boundary of Prince George, and shows the locations of all rivers/lakes, and nature trails in the region. All data layers were downloaded from the Municipality of Prince George's open data website at:http://data-cityofpg.opendata.arcgis.com/.

Prince George Nature Trails Map ✎

✎ Edit Thumbnail

The Prince George Trail map delineates the boundary of Prince George showing the locations ✎ Edit of all rivers/lakes, and nature trails. All data layers were downloaded from the Prince George's open data website http://data-cityofpg.opendata.arcgis.com.

🔲 Web Mapping Application by jfitterer

Created: Aug 7, 2020   Updated: Aug 7, 2020   View Count: 7

☆ Add to Favorites

Description   ✎ Edit

The Prince George Nature Trail map delineates the boundary of Prince George, and shows the locations of all rivers/lakes, and nature trails in the region. All data layers were downloaded from the Municipality of Prince George's open data website at:http://data-cityofpg.opendata.arcgis.com/.
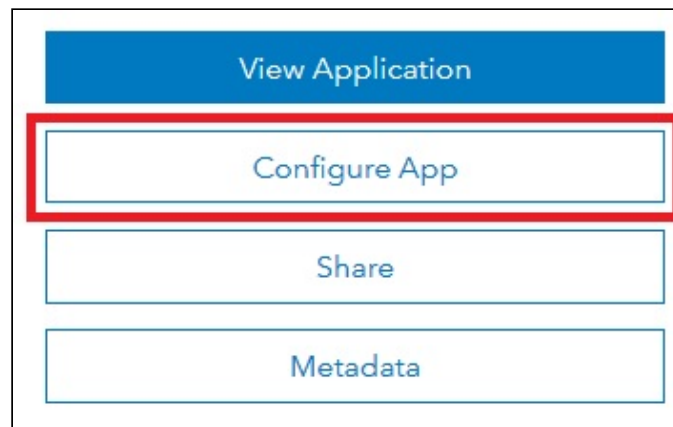
Terms of Use   ✎ Edit

Add any special restrictions, disclaimers, terms and conditions, or limitations on using the item's content.

If you wanted to edit the web application from the content window you would select:

- Configure App

View Application

Configure App

Share

Metadata

Assignment

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