

Introduction to ArcGIS Online

DigitalScholarship@UTSC, Winter 2020 Event Series

Deena Yanofsky, Data Librarian
February 18, 2020

Learning Outcomes

During this workshop, you will be introduced to:

- Basic concepts of GIS and geospatial data
- Features and techniques for accessing, loading, and viewing spatial data
- Using symbology, styles and labels, popups, and some spatial analysis tools (time-permitting)
- Creating and sharing a completed map

GIS

A geographic information system (GIS) is defined by three main components:

1. a computer system
2. use of spatially referenced or geographical data
3. the performance of management and analysis tasks to produce useful information in support of decision-making



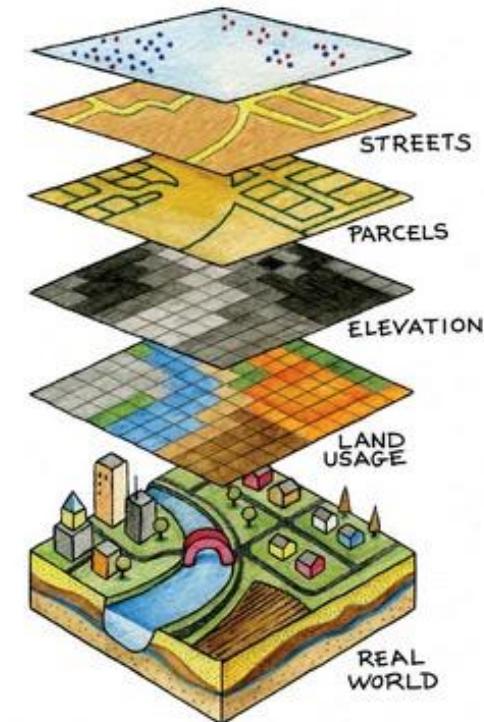
In general, a GIS application consists of a map display for viewing spatial data, a table of contents for listing the layers shown in the display, and a variety of toolbars for working with the data.

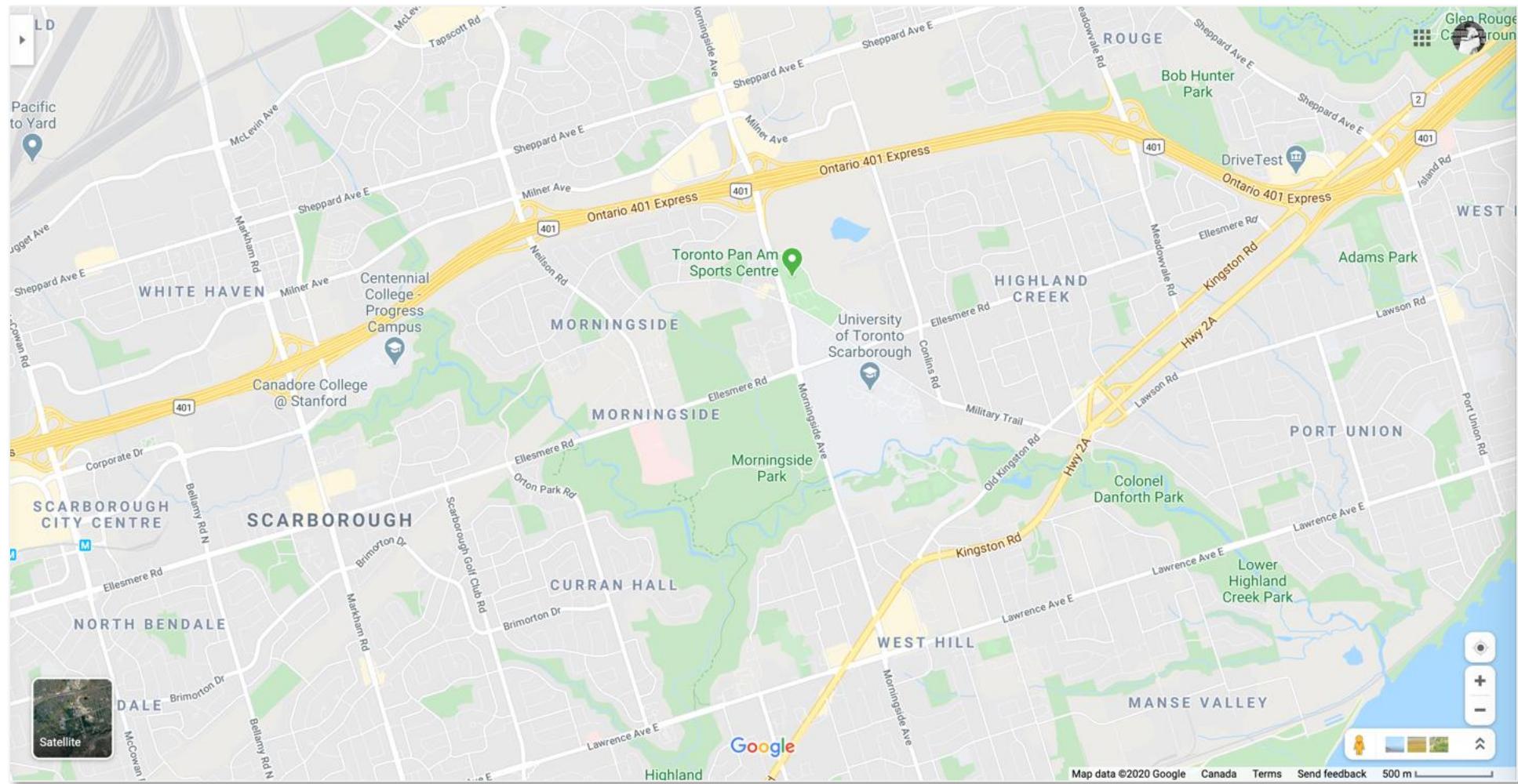


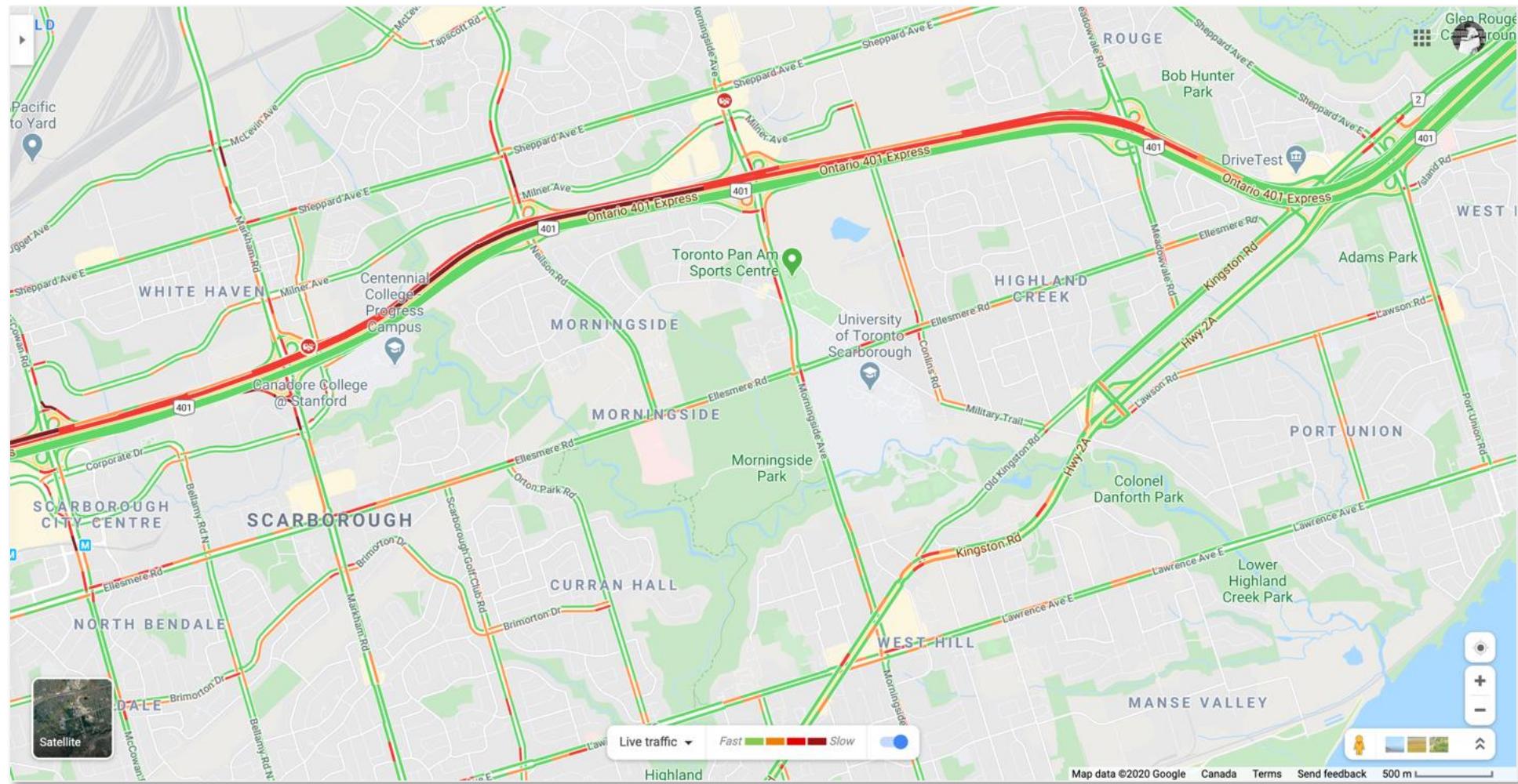
Layers

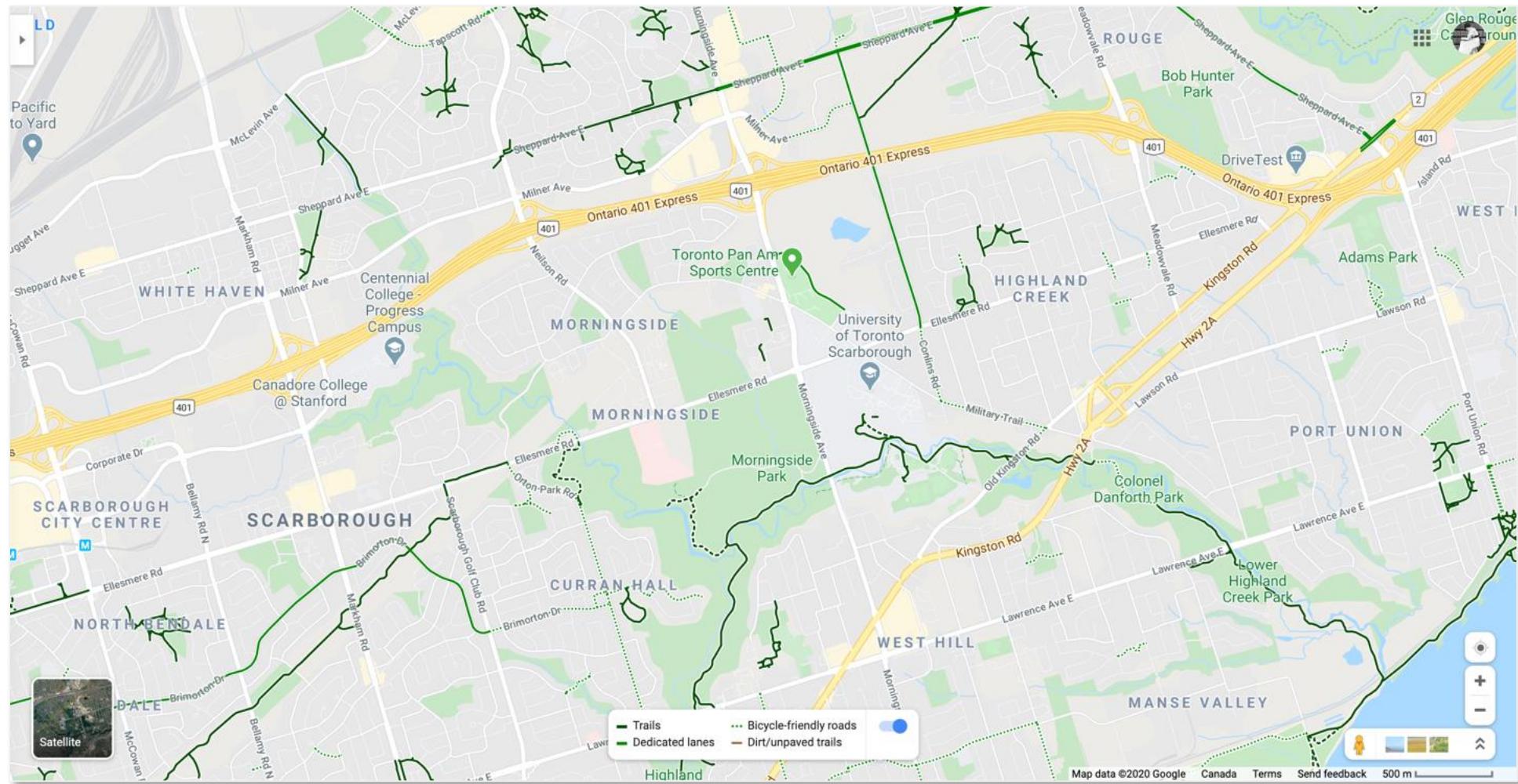
A GIS map is made up of layers, or collections of geographic objects that are alike and defined by a visual symbol.

By adding a few or many layers to a GIS map, we can see relationships between different objects.



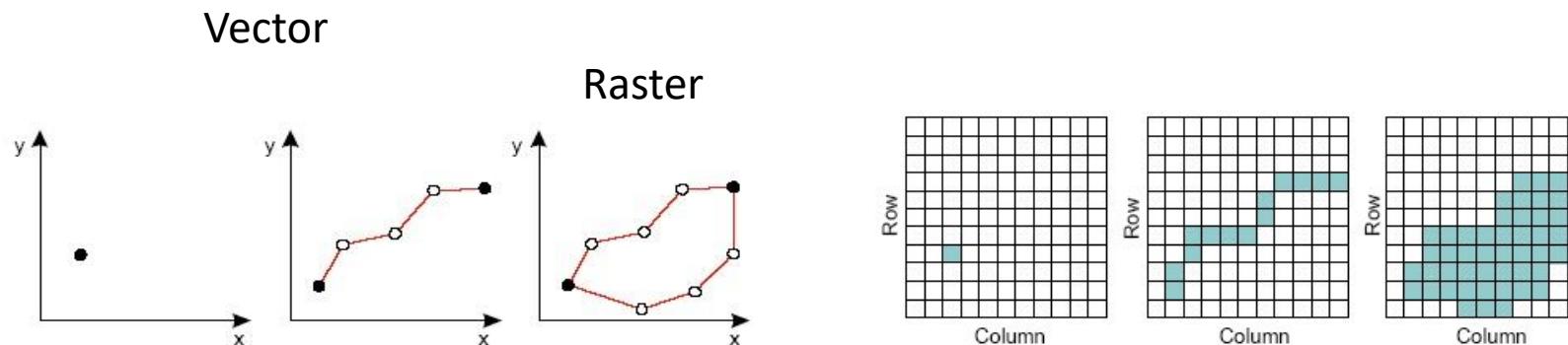




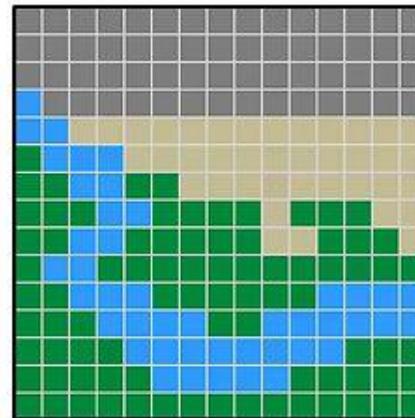


Features and Surfaces

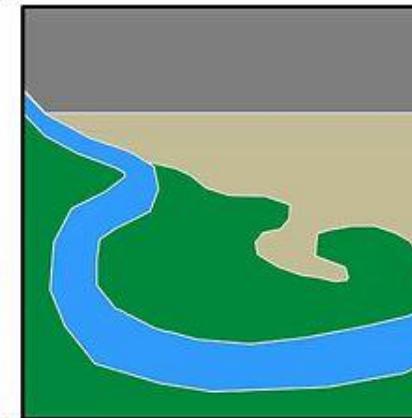
- Geographic objects can be represented as one of three geometric forms – a polygon, a line, or a point. These forms are collectively referred to as **vector** data.
- Geographic phenomena that is continuous (with no distinct shape) can be represented as a surface. A surface is a **raster**, a matrix of identically sized squares.



THE WORLD can be represented in two ways:



RASTER



VECTOR

Creating a map

In this workshop, you will create a map that shows all the active shelters serving the City of Toronto.

1. You will create a new map and locate Toronto, Ontario.
2. You will add a map layer that shows the TTC Subway Stations.
3. Next, you will add monthly shelter occupancy data for the City.
4. You'll change the way your map and layers look to better visualize the data.

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Research guides
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RefWorks and citation management
Peer review and Ulrich's
Assignment calculator

Research guides

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Renew & pay fines

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M1C 1A4
416-287-7500
Email | Book an appointment

Map

Positive

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Fines Appeal Form



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MAP AND DATA LIBRARY

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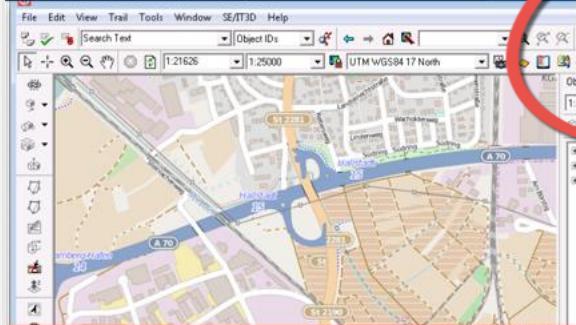
Technology

About

My Account

U of T

Search



Reference area computers

Scanners

GPS units

Our computer lab provides access to a range of GIS software, statistical software and data visualization software. You can also get your own copy of Esri software by requesting a license.

If you're looking to learn how to use a new software program, have a look at our [tutorials](#) section. U of T users also have access to [Esri Virtual Campus courses](#). You can also come and visit our reference area on the 5th floor of Robarts Library, where graduate student employees can help you learn new skills and troubleshoot problems..

If you're working with maps, we have three [scanners](#) available, including a large-format drum scanner.

[GPS units](#) are also available for borrowing.





Technology

GIS software

[Esri software license request](#)[ArcGIS Online](#)[Where can I find computers with GIS software?](#)[Statistical software](#)[Data Visualization Software](#)[NVivo software](#)[Tutorials](#)[Workshops and training](#)[Computer lab](#)[Reference area computers](#)[Scanners](#)[GPS units](#)

GIS software

Esri Software

The University of Toronto has a site license for Esri products, including the ArcGIS suite and CityEngine. Students, faculty, and staff are eligible to install the software on their personal Windows machines. The Advanced version of ArcGIS Desktop is installed on the eight computers in the Map & Data Library reference area, on all 20 computers in the adjoining lab, and on 40 machines in the lab on the 4th floor of Robarts Library. It is also available in select departmental labs on campus.

- [Request a license for ArcGIS Desktop or other Esri software](#)
- [Set up for an ArcGIS Online account](#)

QGIS

All of the workstations in the Map & Data Library reference area and lab are loaded with QGIS, a free, open-source GIS program. It will run on Windows, Mac, and Linux-based machines, and [the latest release can be downloaded here](#).

The screenshot shows a website for the University of Toronto Map and Data Library. The header includes the university's crest and name, followed by "MAP AND DATA LIBRARY". Below the header is a navigation bar with links for Research, Learn, Technology, About, My Account, U of T, and Search. A sidebar on the left under the "Technology" heading lists various software categories, with "ArcGIS Online" currently selected. The main content area features a large heading "Logging in to ArcGIS Online". Below this, a note states: "Please note that this tutorial is intended for U of T users who are using ArcGIS Online for the first time. If you established an Online account before the UTORid system was enabled, please continue to use that username and password; logging in with your UTORid is unnecessary." Another note below says: "This tutorial will take you through two ways of logging in to your ESRI ArcGIS Online account for the first time using your UTORid." A red oval highlights a section of text: "Go directly to the University of Toronto page on ESRI's S in "Using University of Toronto." option (ARCGIS) and log in with your". At the bottom, there is a footer with links for Home, Gallery, Map, Scene, Groups, and a search bar. The URL https://mdl.library.utoronto.ca/technology/tutorials/logging-arcgis-online is visible, along with browser information (Google Chrome 79.0.3945.130 (3945.130)) and a timestamp (February 16, 2020 at 13:38:21).

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Technology

GIS software

Esri software license request

ArcGIS Online

Where can I find computers with GIS software?

Statistical software

Data Visualization Software

NVivo software

Tutorials

Workshops and training

Computer lab

Reference

Spatial analysis

Grassroots mapping

Go directly to the University of Toronto page on ESRI's S in "Using University of Toronto." option (ARCGIS) and log in with your

** If you have an existing account that is not linked to your UTORid, go to the "Log in" link on the ArcGIS Online homepage and log in with your UTORid.

https://mdl.library.utoronto.ca/technology/tutorials/logging-arcgis-online

Google Chrome 79.0.3945.130 (3945.130)

February 16, 2020 at 13:38:21

10.14.6



weblogin idpz



A placeholder image of a login form with fields for "UTORid / JOINid" and "Password", and a "log in" button.

Warning: Your password *may* not be sync'd. Visit our verify password page.

Alert: Completely exit your web browser when you are finished.

Steps you can take to protect your account:

- ✓ Before you begin, make sure this page (URL) starts [https://idpz.utorauth.utoronto.ca/....](https://idpz.utorauth.utoronto.ca/)
- ✓ When using a public computer, [close all windows](#) and exit the browser.
- ✓ Keep your password a secret at all times

Tip: U of T will **never** ask for your password or other personal information by e-mail.

Protect Your Account

[Login Problems](#)

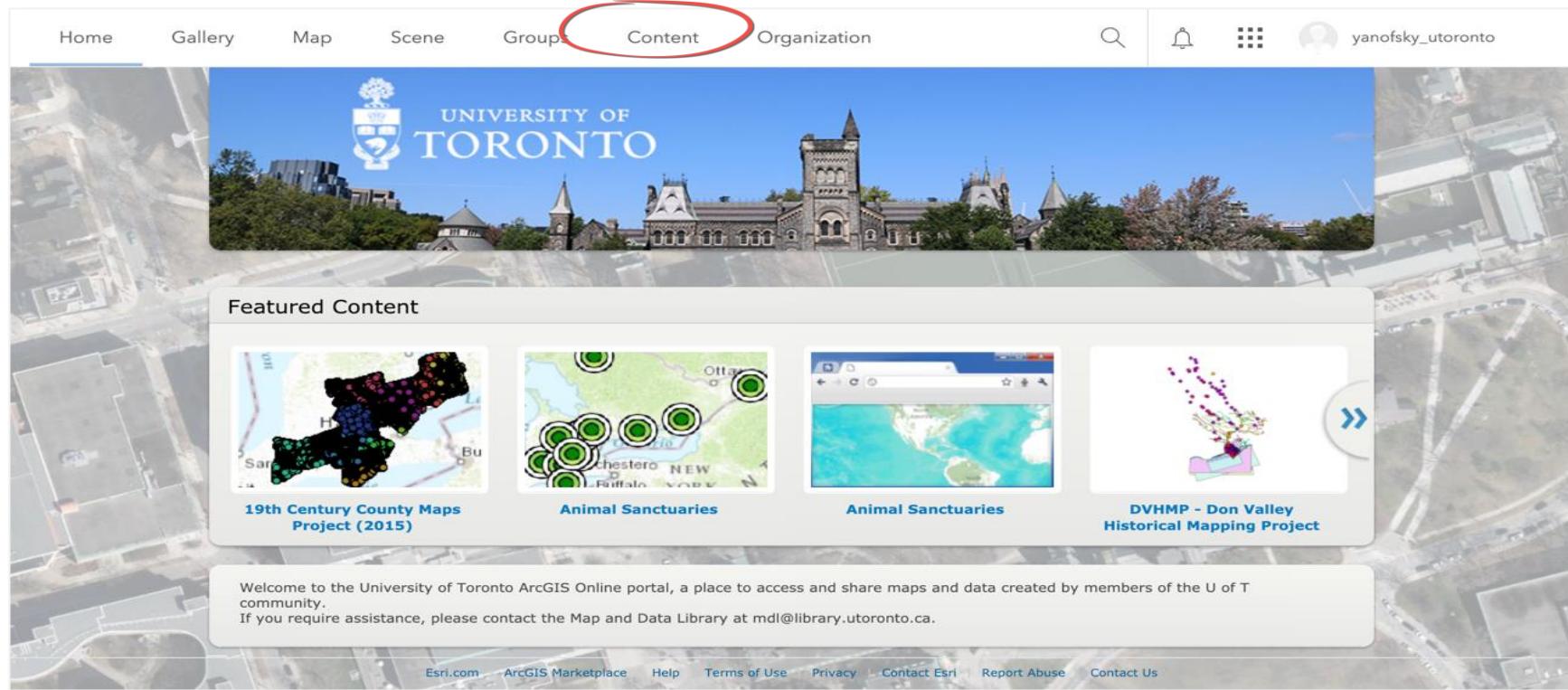
[Forgotten Password](#)

[How to Log Out](#)

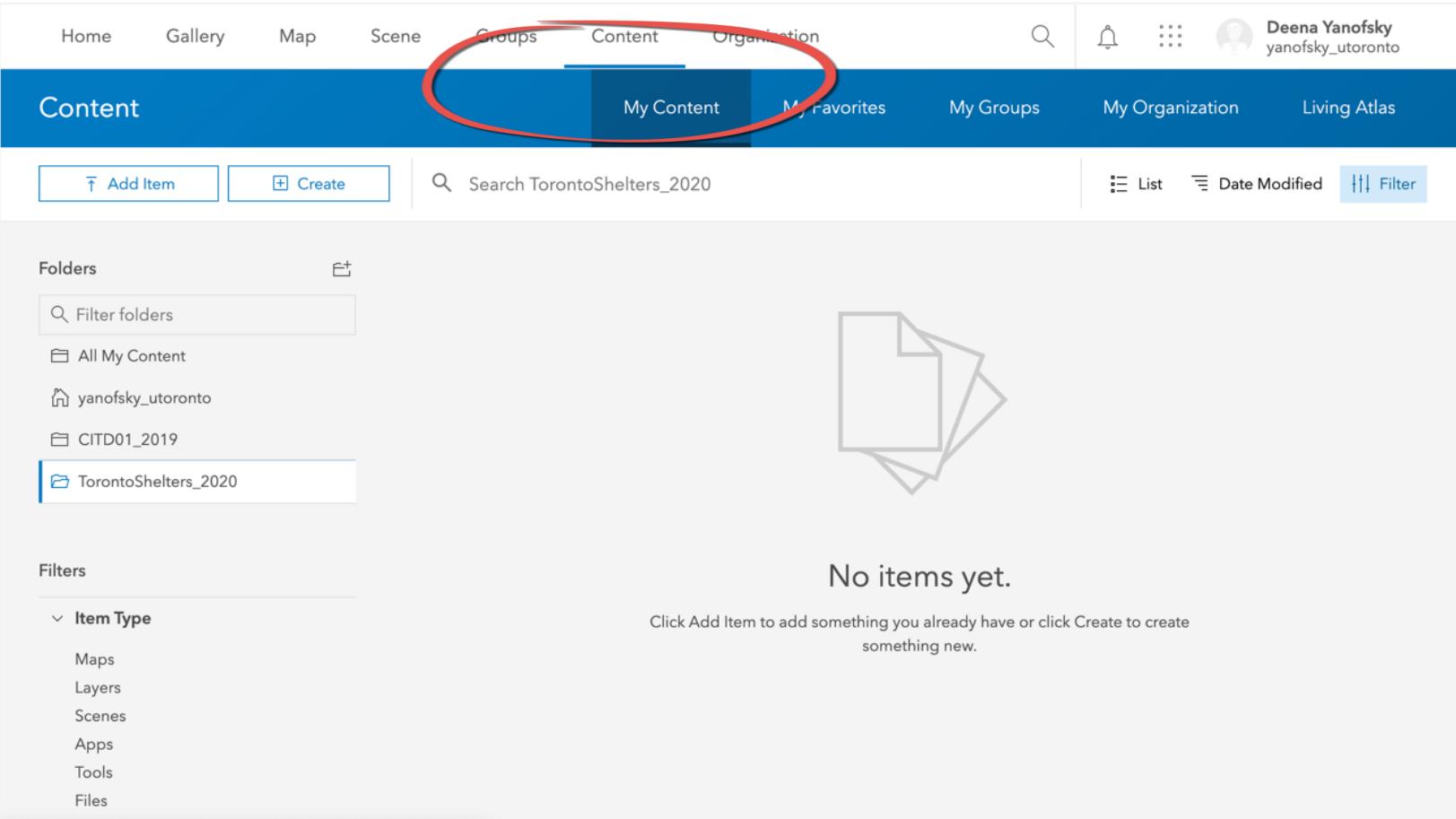
[Finding Help](#)

You should now be brought to your homepage, like below, which indicates you have successfully logged in.

Click on **Content** from the main menu at the top of the screen.



You will now be looking at the **My Content** tab. If this is a new account, you will have no items.



The screenshot shows the ArcGIS interface with the 'Content' tab selected in the top navigation bar. A red oval highlights the 'Content' tab. The main content area displays a folder structure under 'Folders' and a message 'No items yet.' with a 'Create' button.

Home Gallery Map Scene Groups Content (highlighted) Organization

Deena Yanofsky
yanofsky_utoronto

Content My Content (highlighted) My Favorites My Groups My Organization Living Atlas

Add Item Create Search: Search TorontoShelters_2020 List Date Modified Filter

Folders

- All My Content
- yanofsky_utoronto
- CITD01_2019
- TorontoShelters_2020 (selected)

Filters

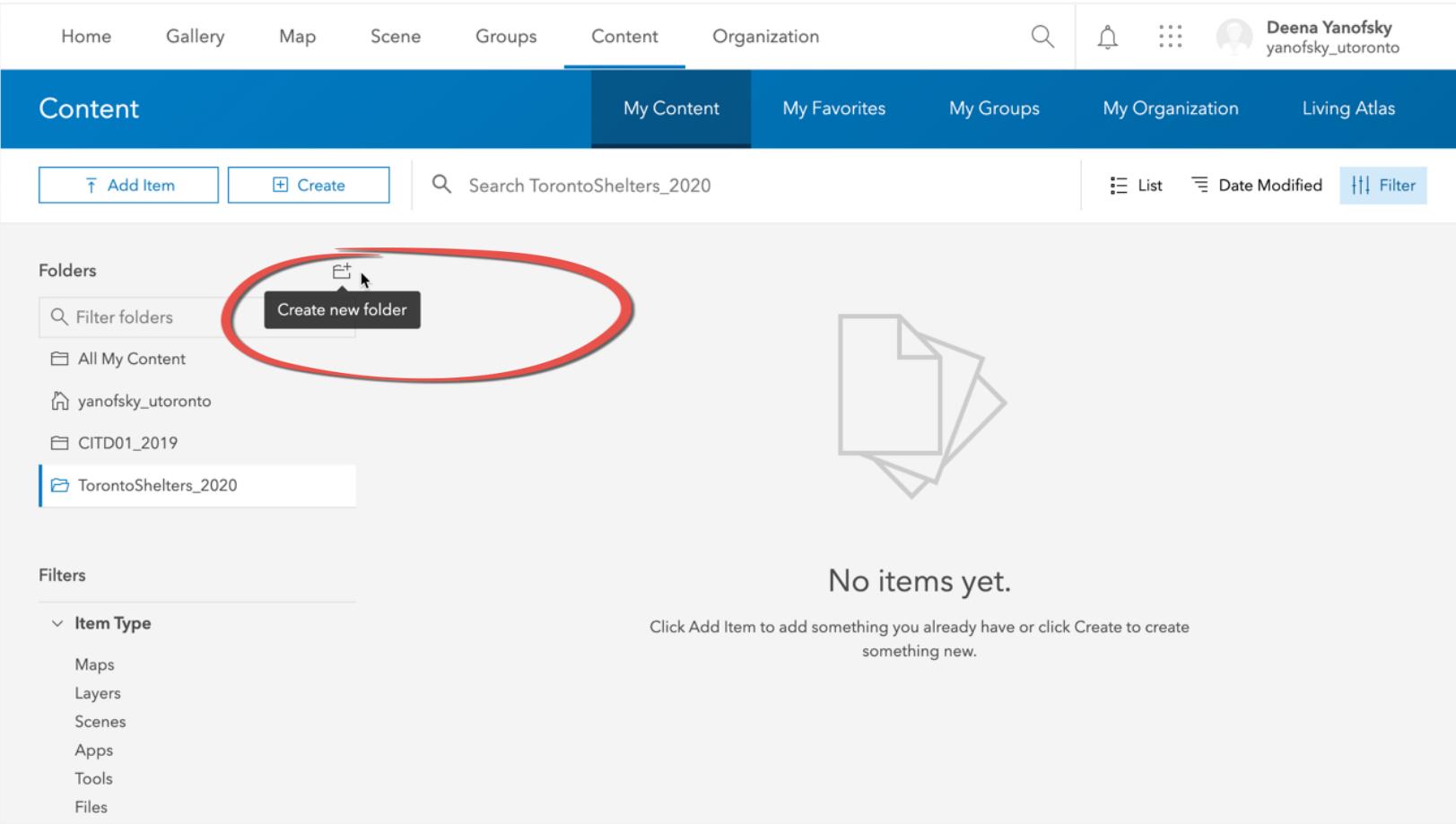
No items yet.

Click Add Item to add something you already have or click Create to create something new.

Item Type

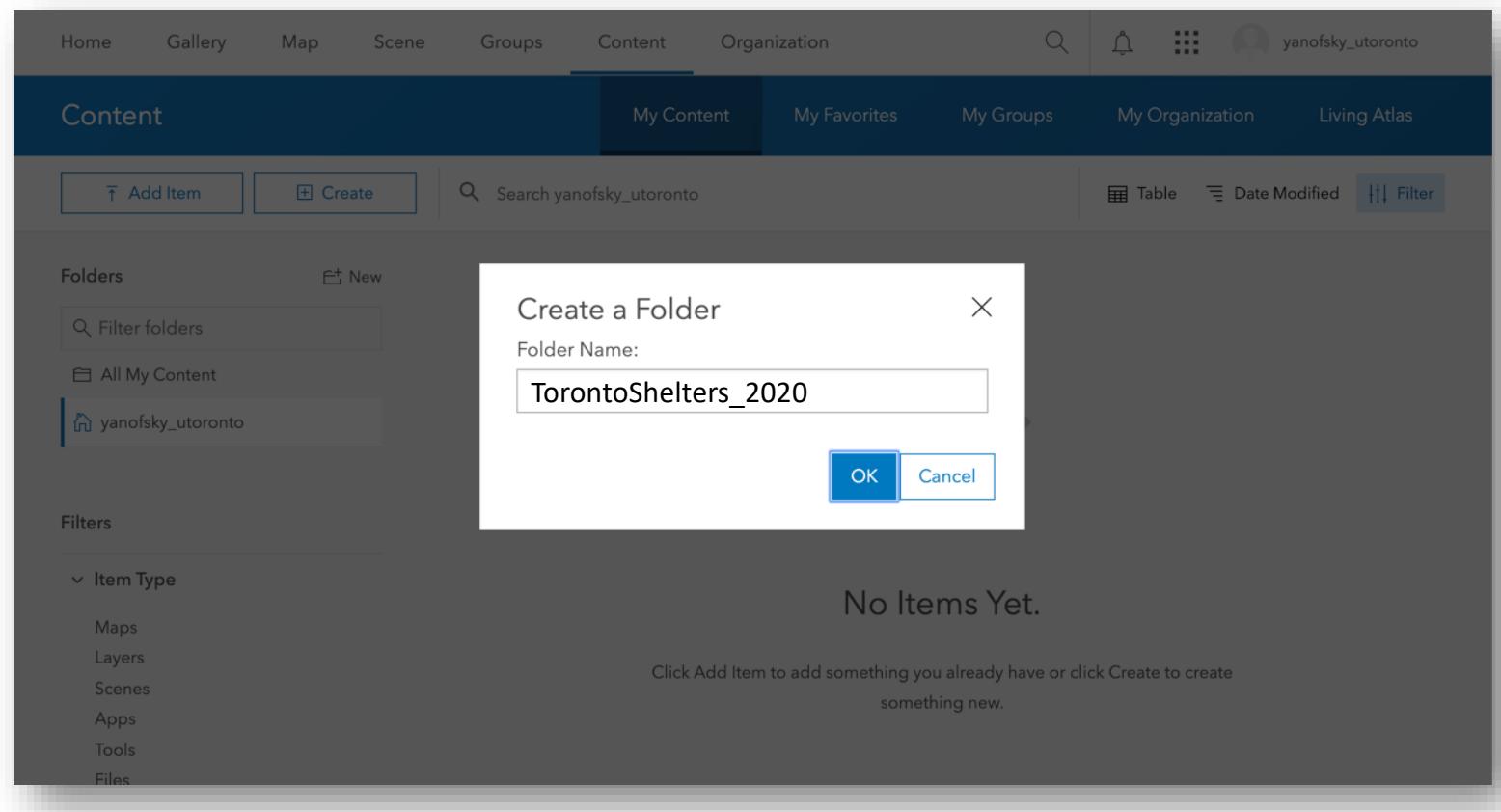
- Maps
- Layers
- Scenes
- Apps
- Tools
- Files

Create a folder where you will save your map, and related data files. In the Folders section, choose **New**.

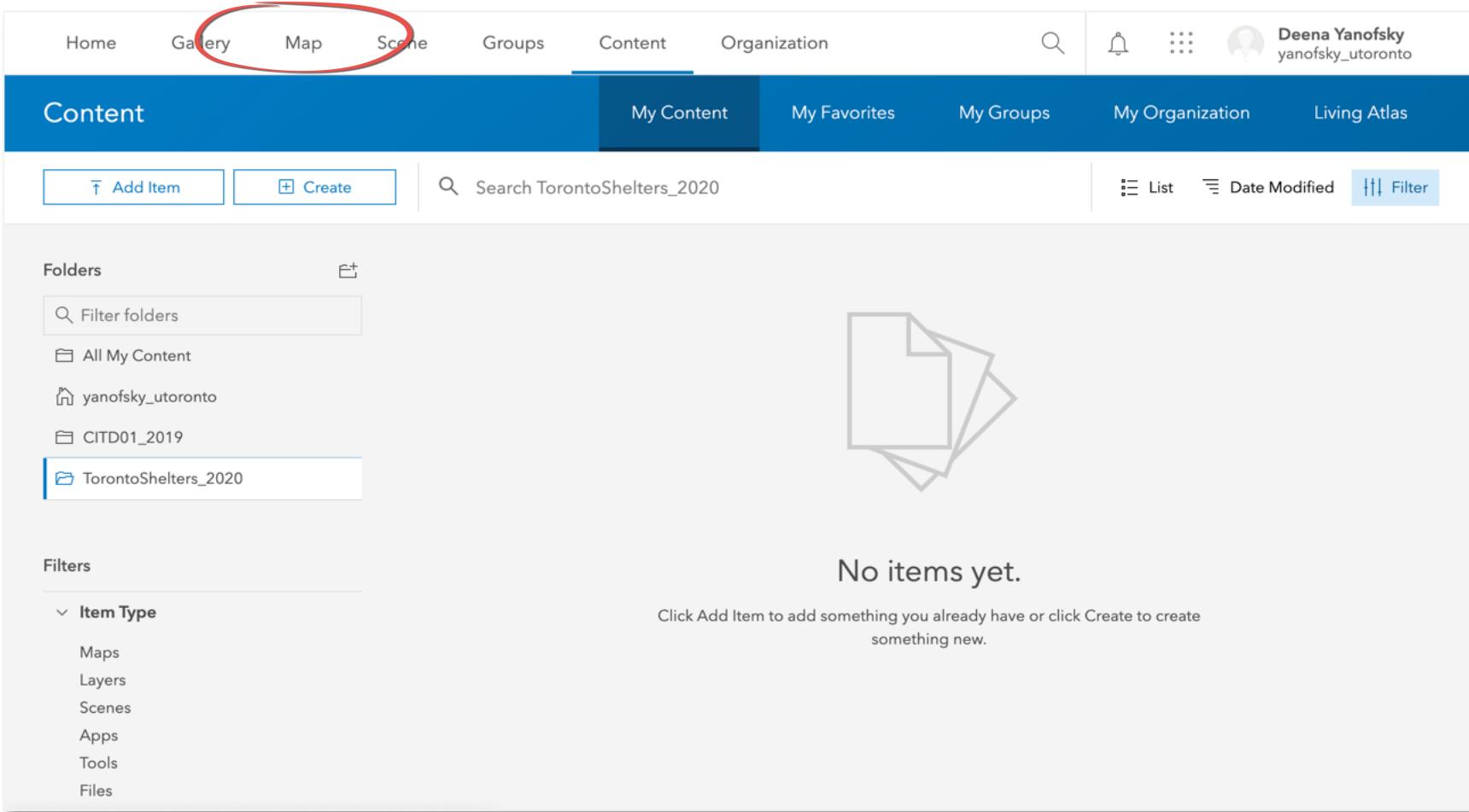


The screenshot shows the ArcGIS Content page interface. At the top, there is a navigation bar with links for Home, Gallery, Map, Scene, Groups, Content (which is underlined), Organization, and a user profile for Deena Yanofsky. Below the navigation bar is a blue header bar with tabs for Content, My Content (which is selected and highlighted in blue), My Favorites, My Groups, My Organization, and Living Atlas. Underneath the header bar are buttons for Add Item, Create, and Search (Search for TorontoShelters_2020). To the right of the search bar are filters for List, Date Modified, and Filter. The main content area is titled "Folders" and contains a "Create new folder" button, which is circled in red. Below this button is a "Filter folders" input field. A list of existing folders is shown, including All My Content, yanofsky_utoronto, CITD01_2019, and a selected folder named "TorontoShelters_2020". On the right side of the content area, there is a placeholder icon of three overlapping rectangles and the text "No items yet." Below the content area, there is a note: "Click Add Item to add something you already have or click Create to create something new."

Name your folder **TorontoShelters_2020**.



Create a new map. On the ribbon, click **Map**.



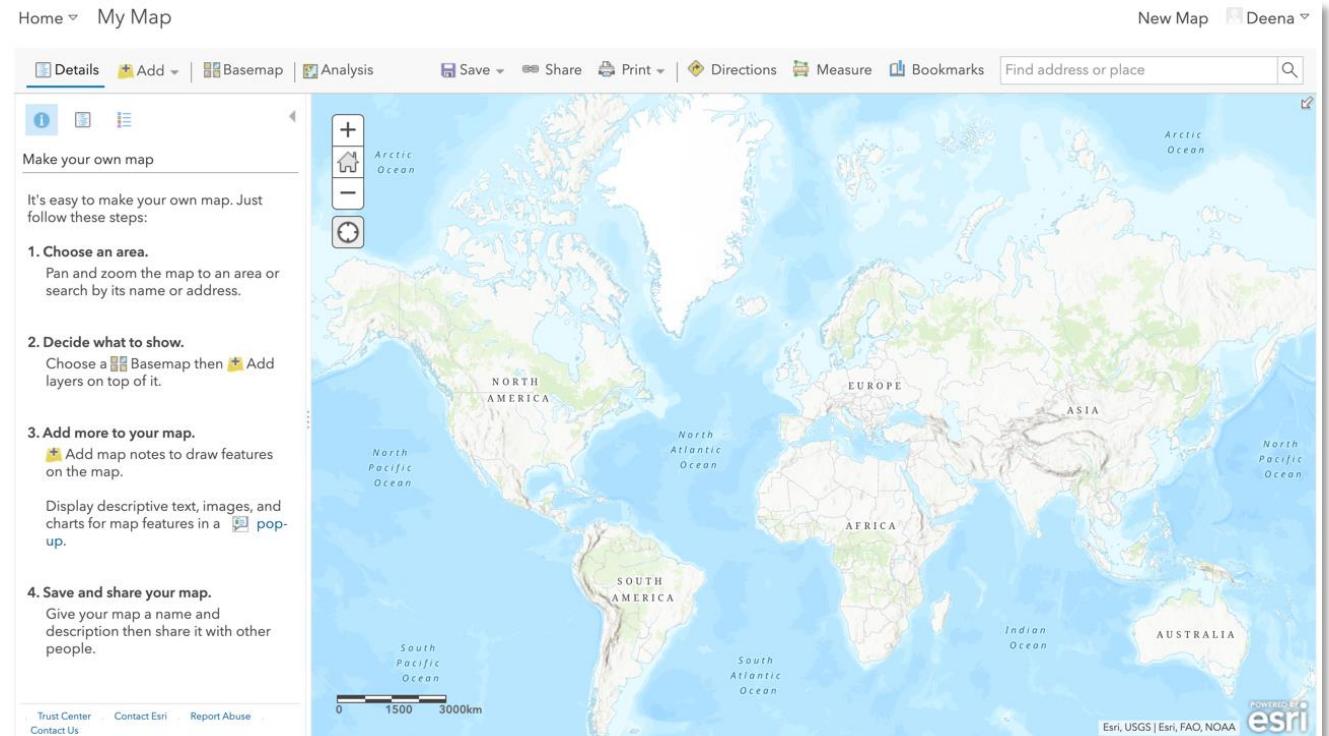
The screenshot shows the ArcGIS ribbon interface. The top navigation bar includes Home, Gallery, Map (which is circled in red), Scene, Groups, Content, and Organization. Below the ribbon is a blue header bar with tabs for Content, My Content (selected), My Favorites, My Groups, My Organization, and Living Atlas. On the left, there's a sidebar for Folders with a search bar for 'Filter folders' and a list of folders: All My Content, yanofsky_utoronto, CITD01_2019, and TorontoShelters_2020 (which is highlighted with a blue border). The main content area displays a message: 'No items yet.' with a note: 'Click Add Item to add something you already have or click Create to create something new.' There are also buttons for 'Add Item' and 'Create'.

A new map opens

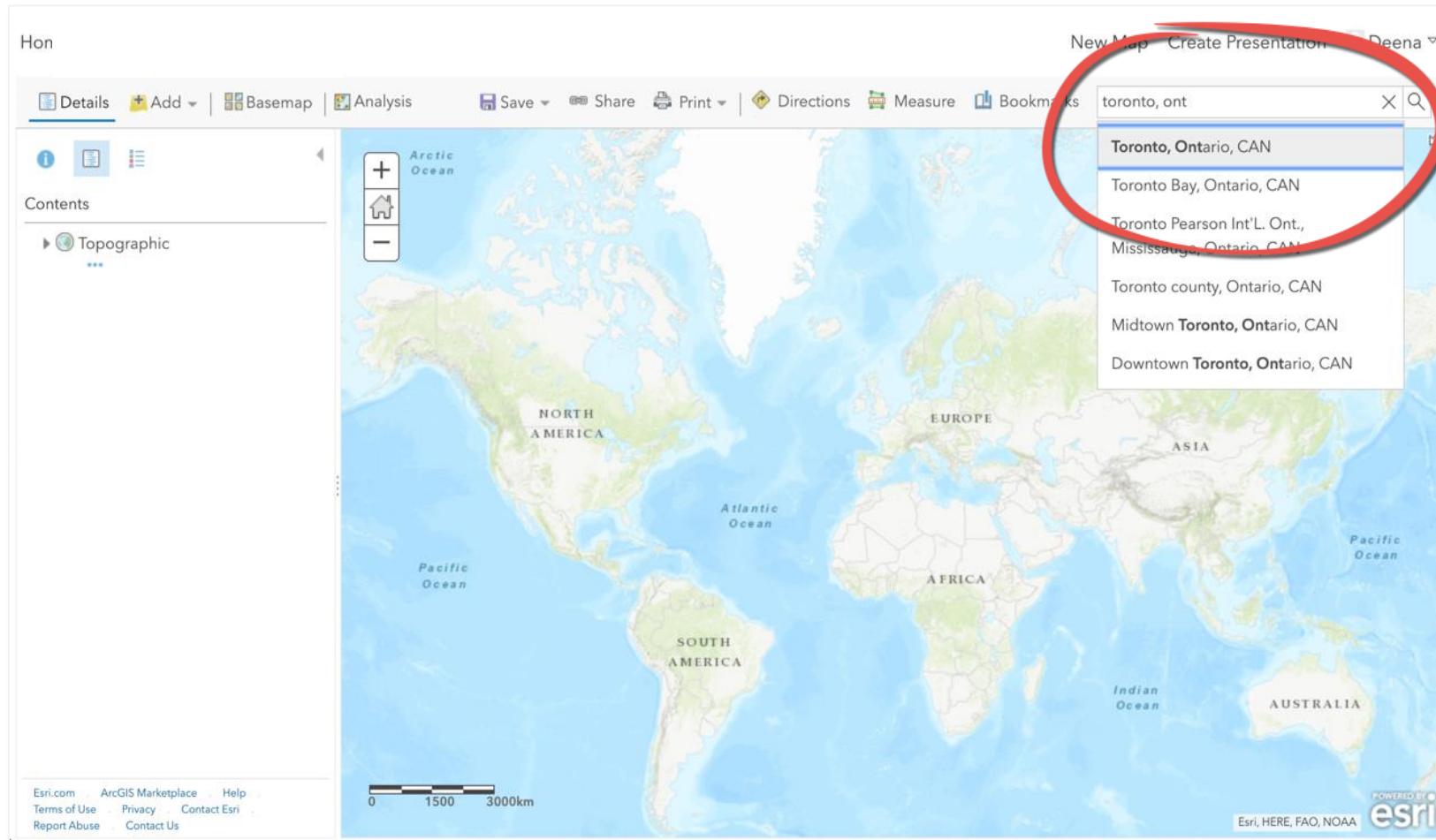
Tip: If you're in a new session, clicking Map will open a new map.

Otherwise, it will open an existing map (the last map you were using).

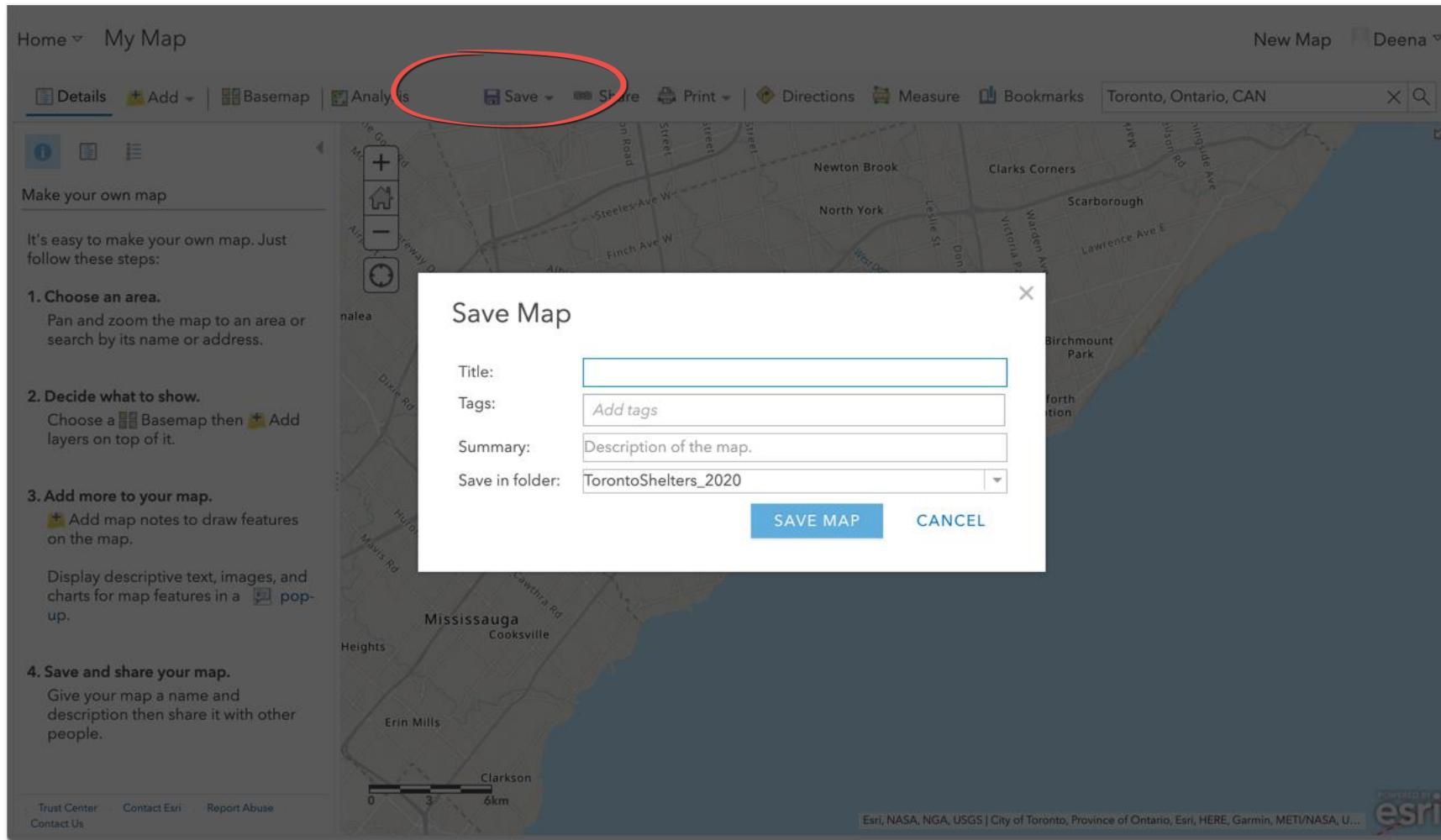
If an existing map opens, click New Map.



On the ribbon menu, in the search box, type "Toronto". In the list of suggested locations, click **Toronto, Ontario, CAN**.



Save your map. Give your map a title, summary, and at least one tag (required).



Add a layer

Next, you'll add a layer to your map that shows the TTC Subway Stations.

1. On the ribbon, click **Add** and choose **Search for Layers**.
2. Make sure that ArcGIS Online is selected from the drop-down menu.
3. In the search box, type: Toronto TTC.

Add a layer

Home ▾ City of Toronto ↗

Details Add Basemap Analysis Save Share Print Directions Measure Bookmarks Find address or place

ArcGIS Online ▾

Search bar: toronto ttc

75 layers

Toronto Subway Stations Ridership
by EsriCanadaEducation
Updated: 5/28/19

Toronto Subway Routes
by EsriCanadaEducation
Updated: 5/28/19

Toronto TTC Routes
by EsriCanadaEducation
Updated: 11/19/18

The map displays the geographic area of the City of Toronto, including neighborhoods like North York, Scarborough, and Etobicoke. It shows major roads such as Steeles Ave W, Finch Ave W, Weston Rd, and Don Mills Rd. The Great Lakes are visible to the east. A legend at the bottom left indicates distances from 0 to 6 km. A scale bar shows 0, 3, and 6 km. The map is powered by Esri.

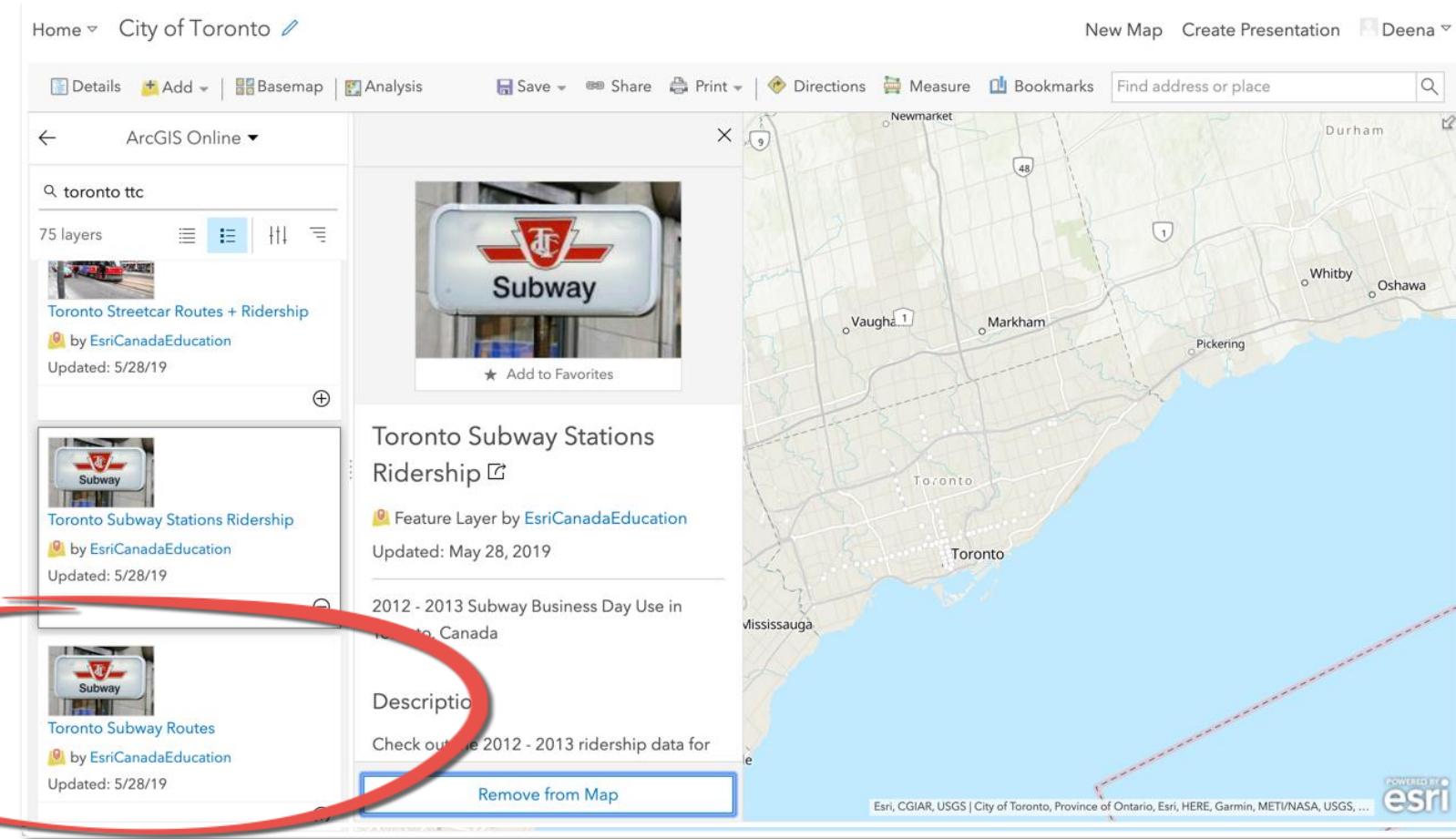
Add a layer

Click the +

The screenshot shows the ArcGIS Online interface for the City of Toronto. At the top, there's a navigation bar with links for Home, City of Toronto, Details, Add, Basemap, Analysis, Save, Share, Print, Directions, Measure, Bookmarks, and a search bar. Below the navigation bar is a map of the Greater Toronto Area and surrounding regions, including Mississauga and Etobicoke. On the left side, there's a sidebar titled 'ArcGIS Online' showing search results for 'toronto ttc'. The first result is 'Toronto Subway Stations Ridership' by EsriCanadaEducation, updated on 5/28/19. The second result is 'Toronto Subway Routes' by EsriCanadaEducation, updated on 5/28/19. The third result is 'Toronto TTC Routes' by EsriCanadaEducation, updated on 11/19/18. A large red circle highlights the '+' icon next to the 'Add' button in the search bar.

Add a layer

Click the 

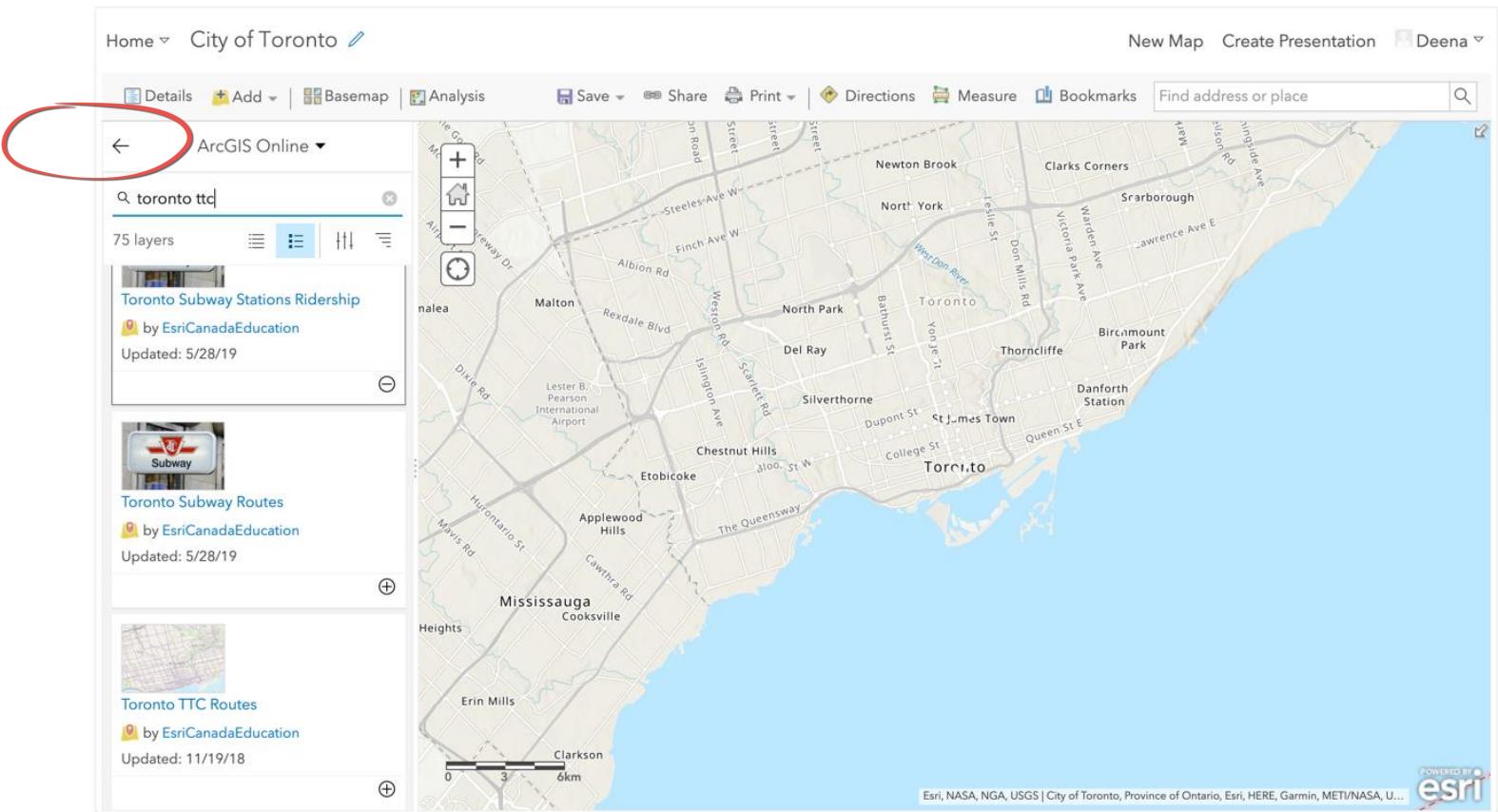


The screenshot shows the ArcGIS Online interface for the City of Toronto. The search bar at the top contains "toronto ttc". The main content area displays three layers related to the TTC:

- Toronto Streetcar Routes + Ridership**: Feature Layer by EsriCanadaEducation, Updated: 5/28/19. It includes a thumbnail image of a streetcar and a "Add to Favorites" button.
- Toronto Subway Stations Ridership**: Feature Layer by EsriCanadaEducation, Updated: May 28, 2019. It includes a thumbnail image of a subway station sign and a "Add to Favorites" button.
- Toronto Subway Routes**: Feature Layer by EsriCanadaEducation, Updated: 5/28/19. It includes a thumbnail image of a subway station sign and a "Add to Favorites" button.

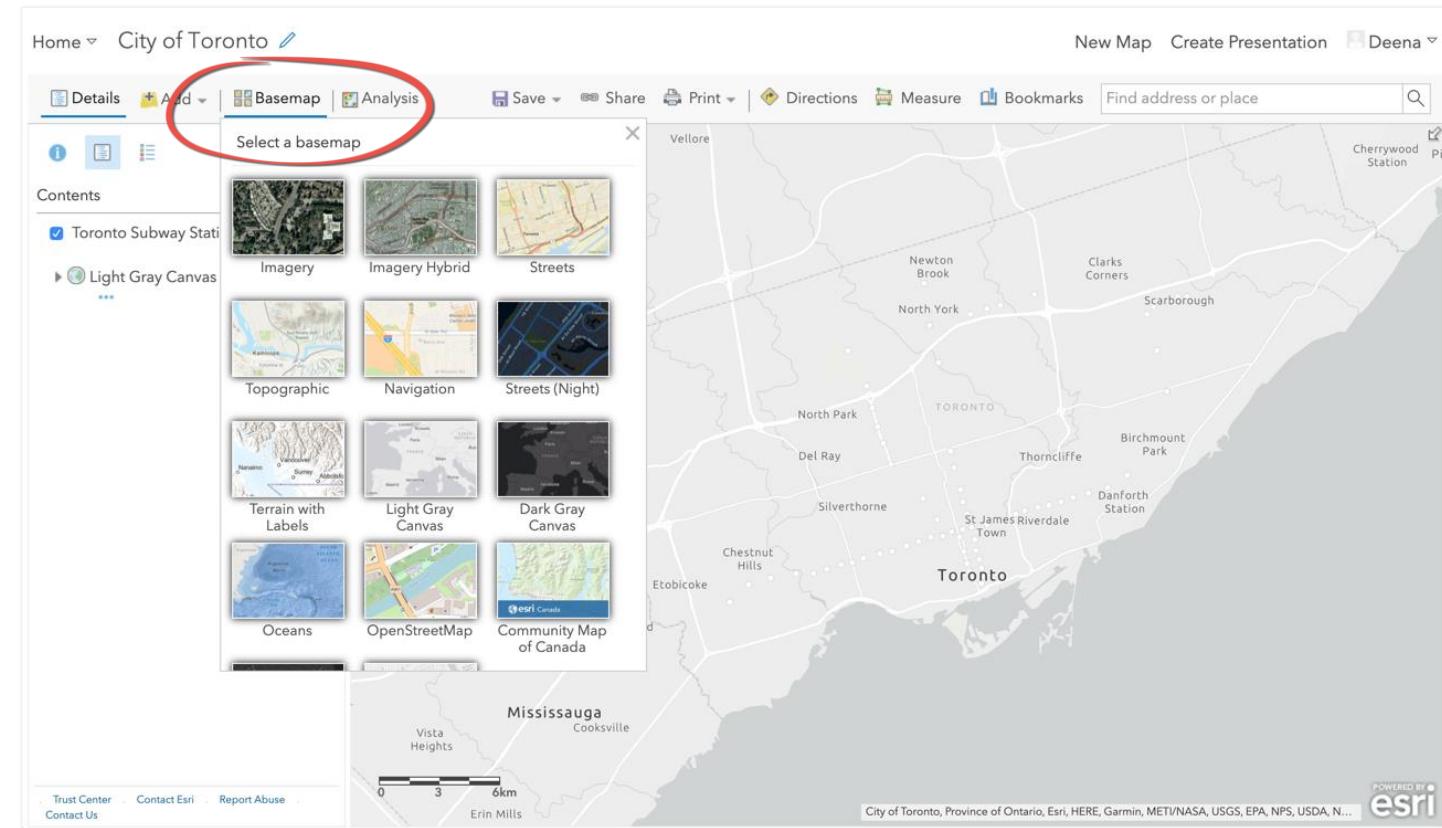
A red circle highlights the "Add to Favorites" button for the "Toronto Subway Stations Ridership" layer. To the right of the layers, a map of the Greater Toronto Area and surrounding regions is visible, showing major roads like Highway 401 and 403, and various municipalities like Newmarket, Markham, Pickering, Whitby, Oshawa, and Mississauga.

1. Click the Back button
2. Click the show Contents of map button.



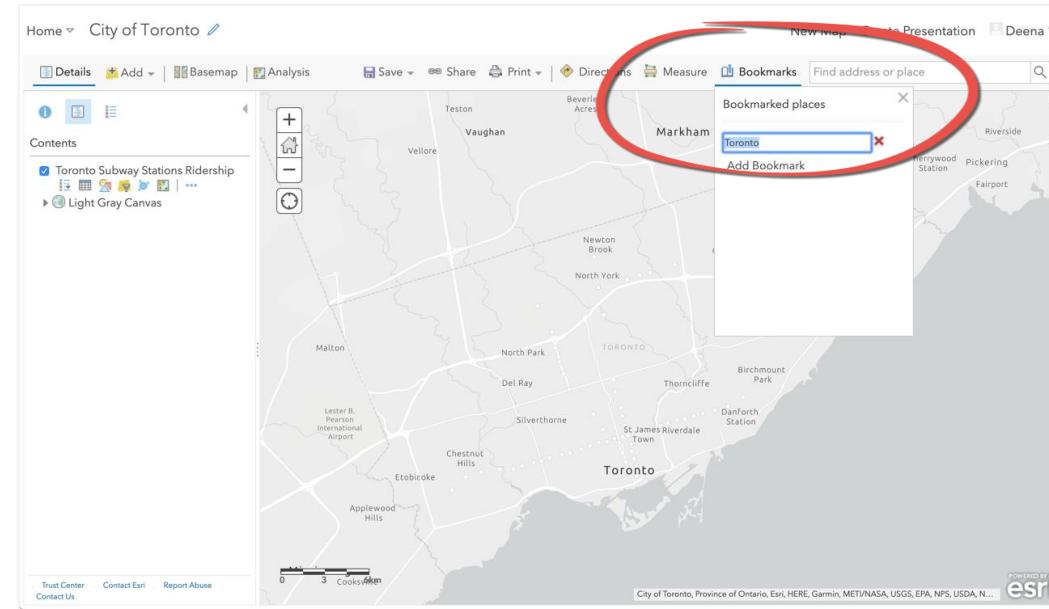
The **Contents** pane appears. It lists all layers on the map, including the basemap.

On the ribbon menu,
click **Basemap**
and
choose Light
Gray Canvas.

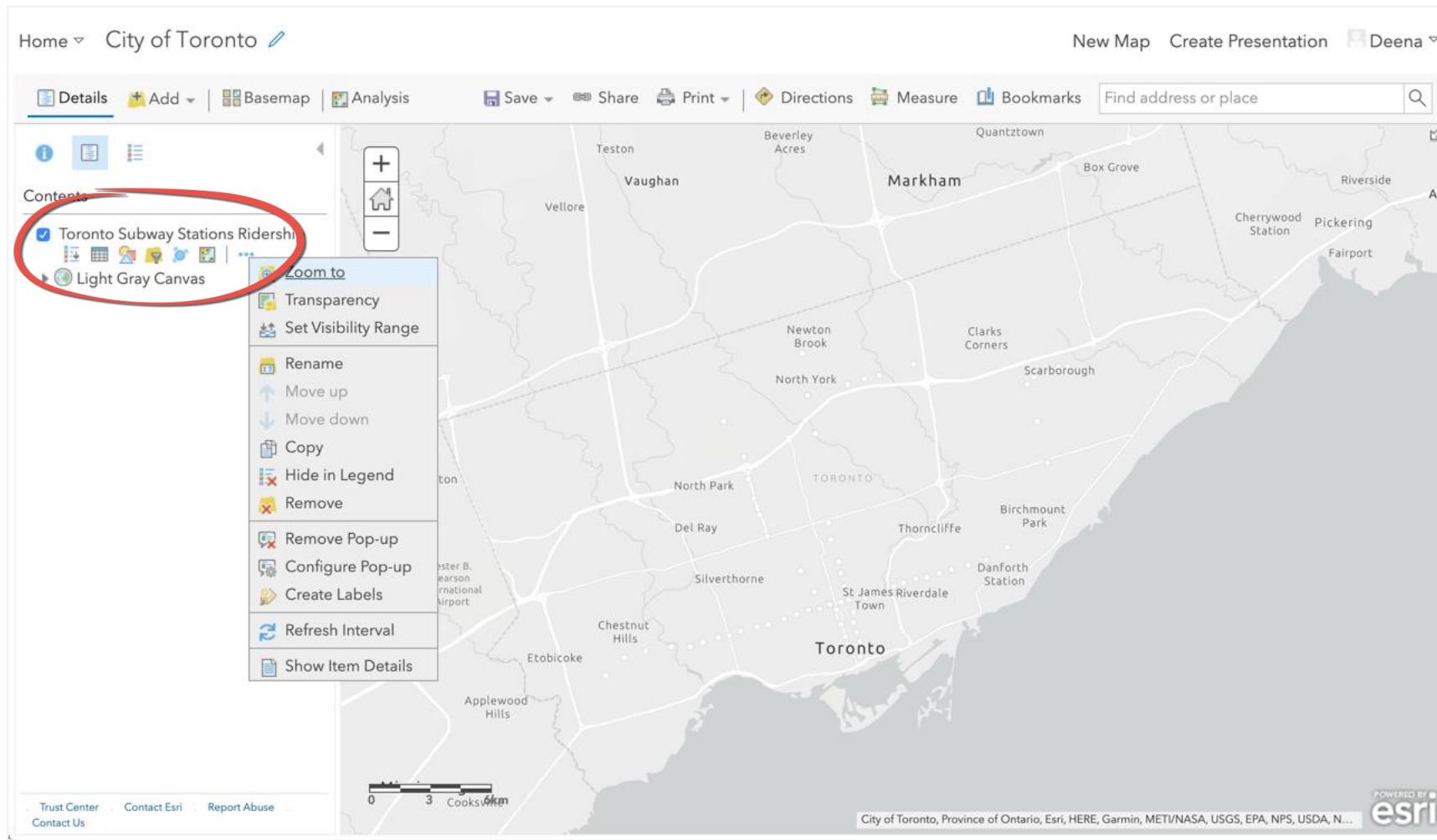


Add a bookmark for the current map extent.

1. On the ribbon, click **Bookmarks** and choose **Add Bookmark**.
2. Name the bookmark Toronto.
3. On the ribbon, click Bookmarks and choose Toronto. The map zooms to its original extent.



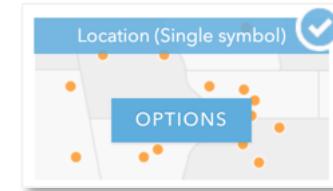
Change the style



1. In the **Contents** pane, point to the Toronto Subway Stations Ridership layer and click the **Change Style**  button.



2. For **Location (Single symbol)**, click **Options**.

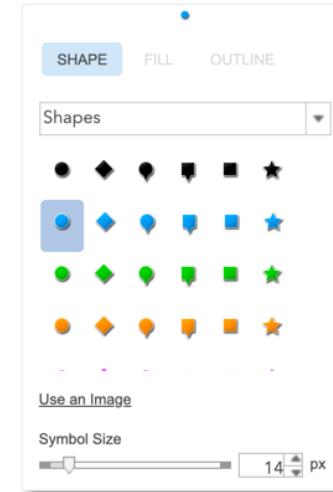


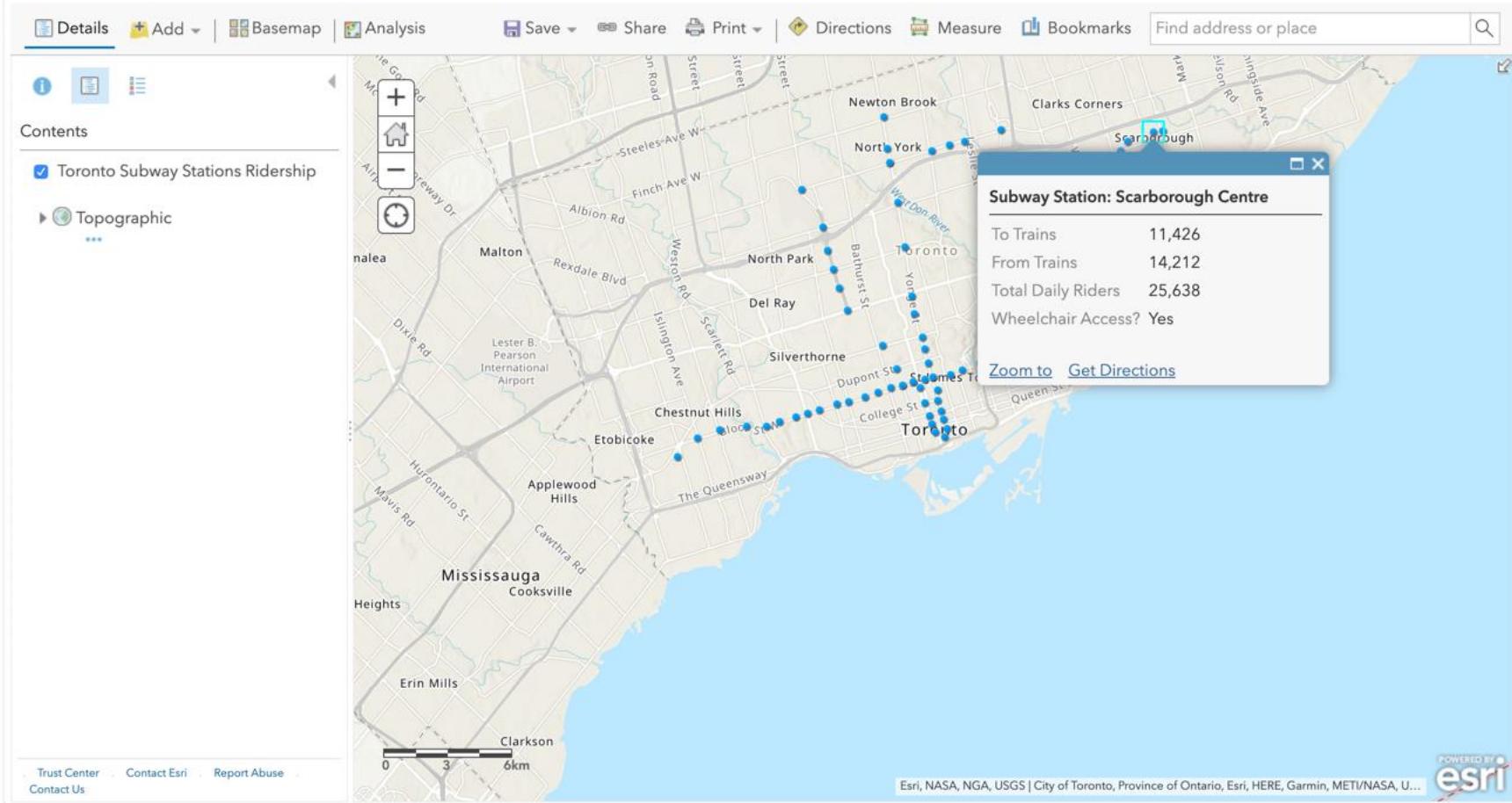
3. Click **Symbols**. A window appears with a color palette and other options.

4. On the color palette, choose a blue circle symbol.

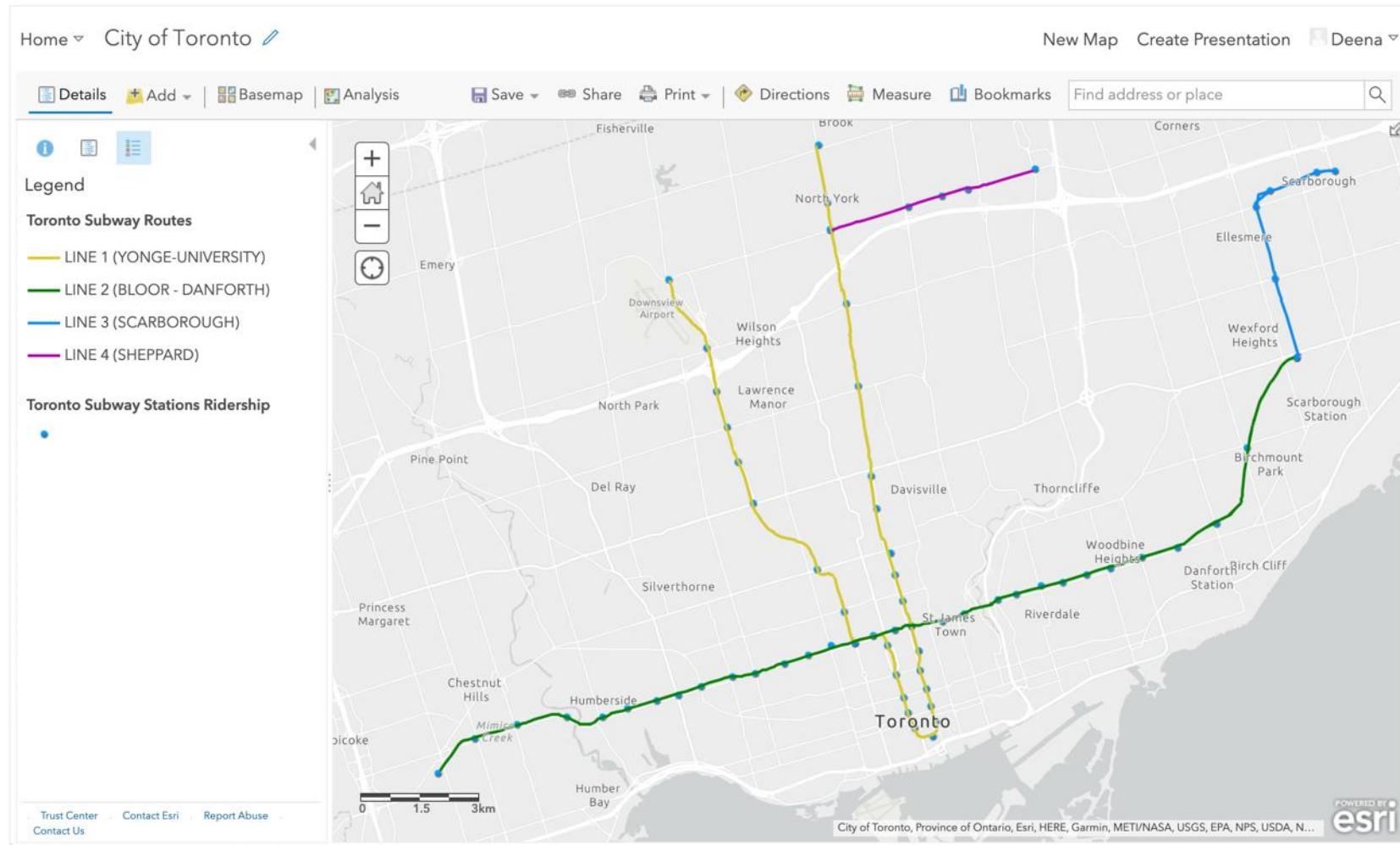
5. For **Symbol Size**, choose **14 px**.

6. In the **Change Style** pane, click **OK**. Then, click **Done**.





Add another layer



Add socio-demographic data

The screenshot shows the City of Toronto Open Data Portal. The top navigation bar includes links for OPEN DATA, Data Catalogue, Knowledge Centre, About, Gallery, Contact, a search bar, and a 'SEARCH' button. Below the navigation, the URL is https://open.toronto.ca/dataset/daily-shelter-occupancy/. The main content area displays the 'About Daily Shelter Occupancy' page for this dataset. On the left, there's a sidebar with dataset details: Data quality score (Silver, beta), Data last refreshed (Feb 16, 2020), Refreshed (Daily), Data type (Table), Civic issues (Affordable housing, Poverty reduction), Topics (City government, Community services, Health, Public safety), More information (External Link), and License (Open Government License - Toronto). The main content area includes a description of the dataset, a note about removing Violence Against Women shelters, and a sidebar with links for DATA PREVIEW, DATA FEATURES, DOWNLOAD DATA, EXPLORE DATA, and FOR DEVELOPERS.

OPEN DATA Data Catalogue Knowledge Centre About Gallery Contact

Search **SEARCH**

OPEN DATA PORTAL HOME / OPEN DATA CATALOGUE / DAILY SHELTER OCCUPANCY

Details

Data quality score beta
Silver

Data last refreshed
Feb 16, 2020

Refreshed
Daily

Data type
Table

Civic issues
Affordable housing, Poverty reduction

Topics
City government, Community services, Health, Public safety

More information
[External Link](#)

License
Open Government License -
Toronto

About Daily Shelter Occupancy

The data set provides a listing of all the active shelters serving the City of Toronto area. Included in the dataset is the name of the shelter, program name, sector served (i.e. men, women, youth, families) addresses, the space capacity (i.e. beds or cots available) and the number of people that occupied those spaces at 4:00 AM the next morning.

For example, the occupancy count of January 1st would be taken on January 2nd at 4 AM.

Note : For reasons of confidentiality, information regarding Violence Against Women shelters are removed from the dataset.

DATA PREVIEW

DATA FEATURES

DOWNLOAD DATA

EXPLORE DATA

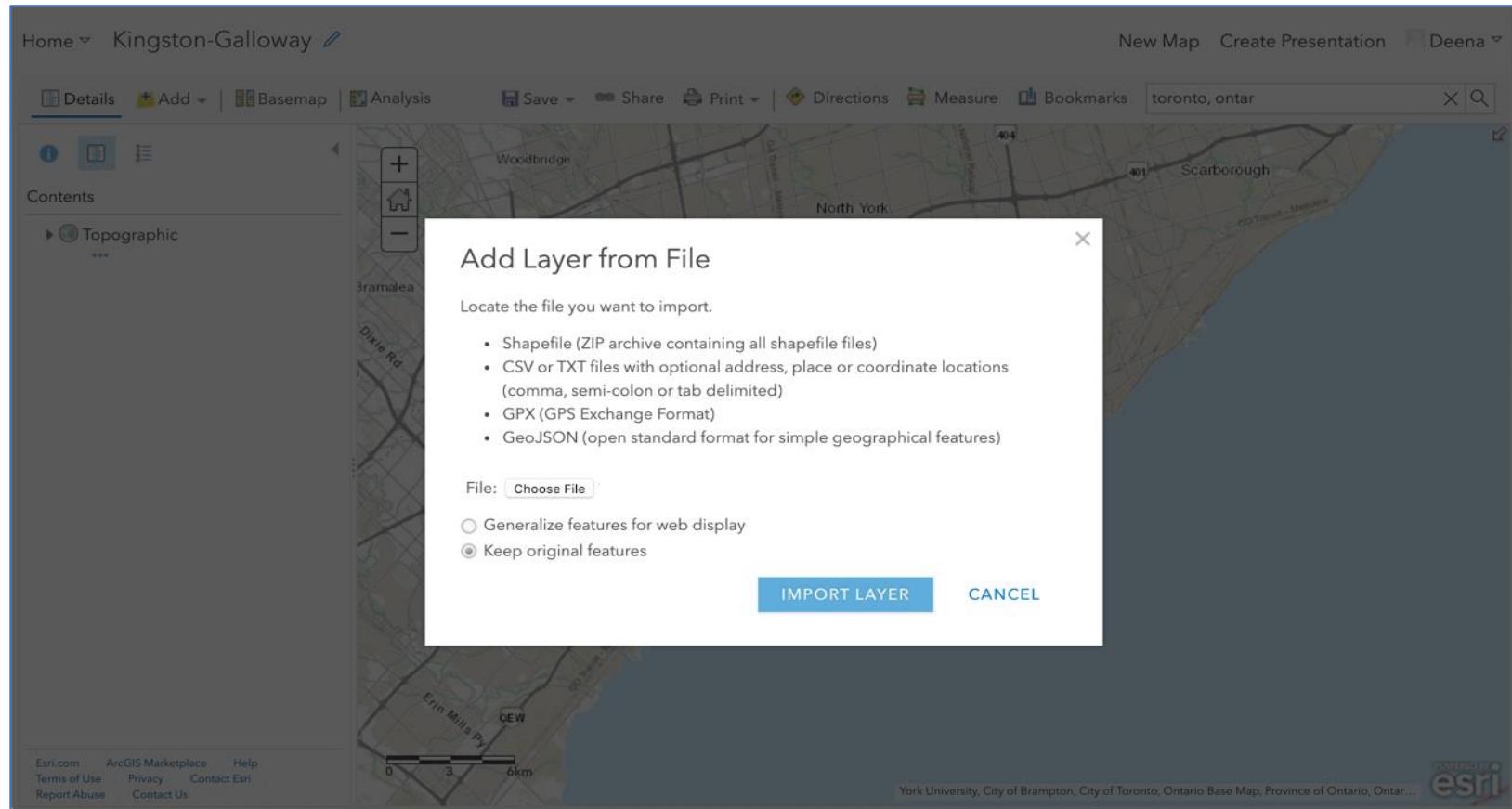
FOR DEVELOPERS

<https://open.toronto.ca/dataset/daily-shelter-occupancy/>

Add Layer from File

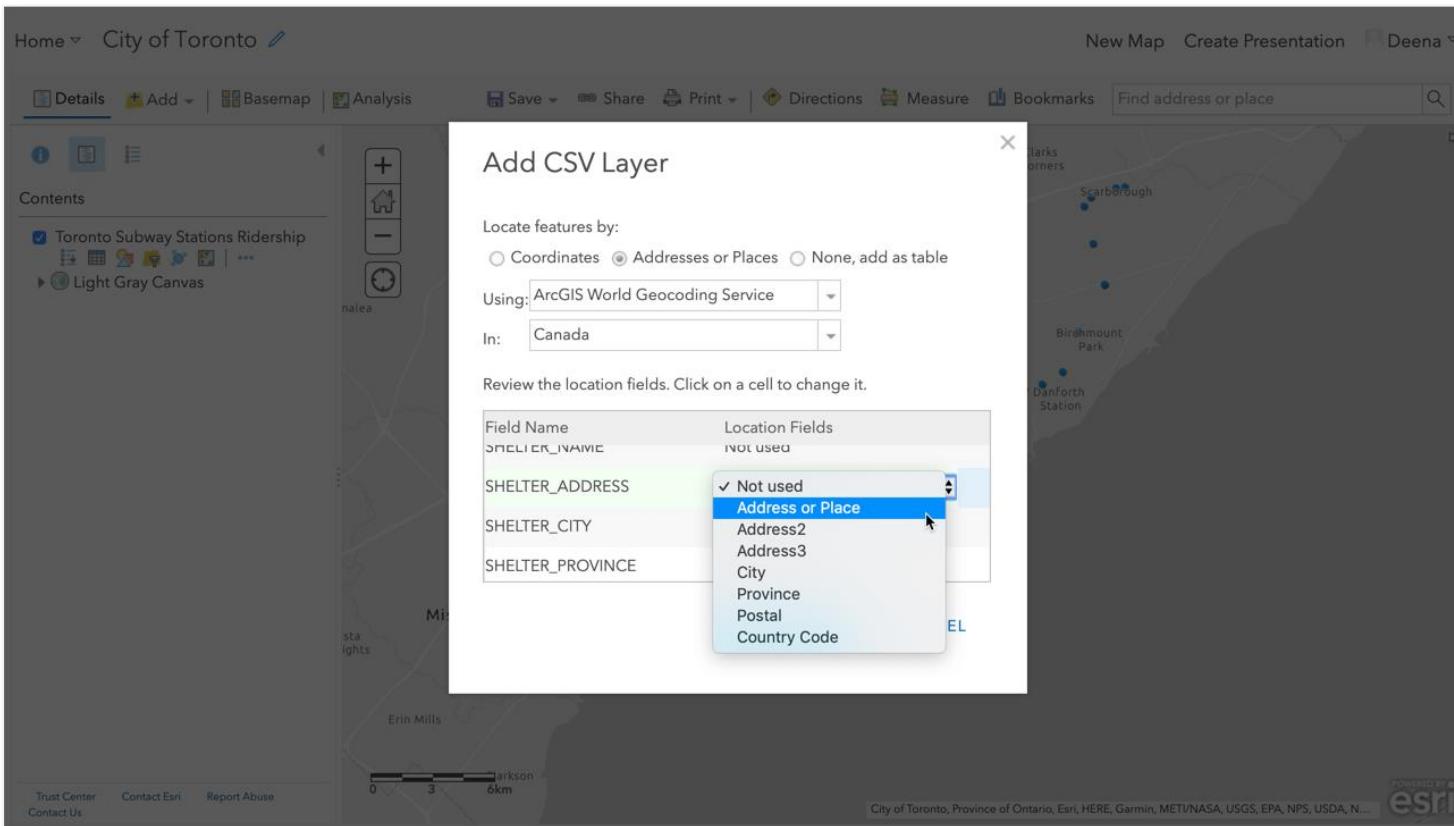
Next, you'll add a layer to your map that shows all the active shelters serving the City of Toronto area.

1. On the ribbon, click **Add** and choose **Add Layer from File**.
2. Click **Choose file** and select the **toronto_monthly_shelter_occupation_2019.csv** from the location where it is saved on your computer.
3. Click **Open**.
4. Next, click **Import Layer**.



Next

1. Locate features by: **Addresses or Places**
2. Review the location fields. Click on a cell to change it.



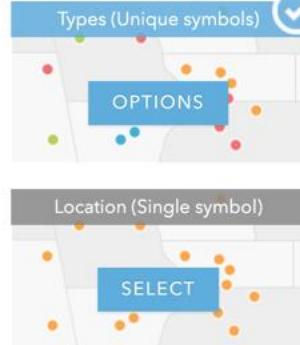
Home ▾ City of Toronto 

New Map Create Presentation Deena ▾

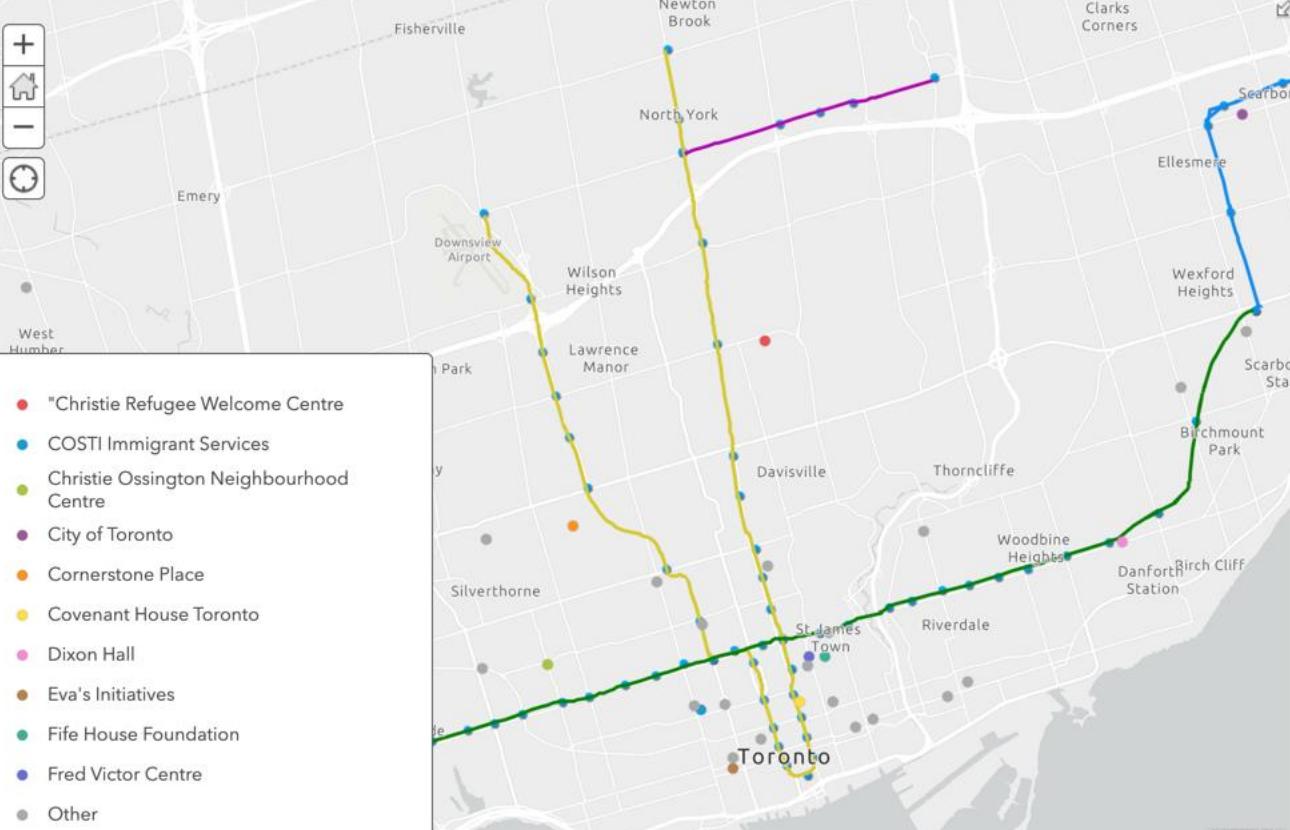
Details Add ▾ | Edit Basemap Analysis Save ▾ Share Print ▾ | Directions Measure Bookmarks Find address or place 

Change Style
toronto monthly shelter occupancy 2019

1 Choose an attribute to show
ORGANIZATION_NA... ▾
Add attribute

2 Select a drawing style
Types (Unique symbols) 
Location (Single symbol)


DONE **CANCEL**



POWERED BY 

City of Toronto, Province of Ontario, Esri, HERE, Garmin, METI/NASA, USGS, EPA, NPS, USDA, N...

Trust Center Contact Esri Report Abuse Contact Us

Change the style of your map

Have a look at your map. By default, ArcGIS Online has attempted to display the shelters by organization name (SHELTER_NAME).

Click on [Location \(Single Symbol\)](#) to change the symbols to better see the shelters, as distinguished from the TTC Subway stations.

Home ▾ City of Toronto 

New Map Create Presentation  Deena ▾

Details Add ▾ | Edit Basemap Analysis Save ▾ Share Print ▾ | Directions Measure Bookmarks Find address or place 

Change Style
toronto monthly shelter occupancy
2019

Showing Location Only

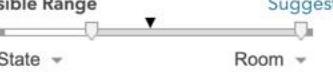
Symbols 

Rotate symbols (degrees)

Transparency

Overall 

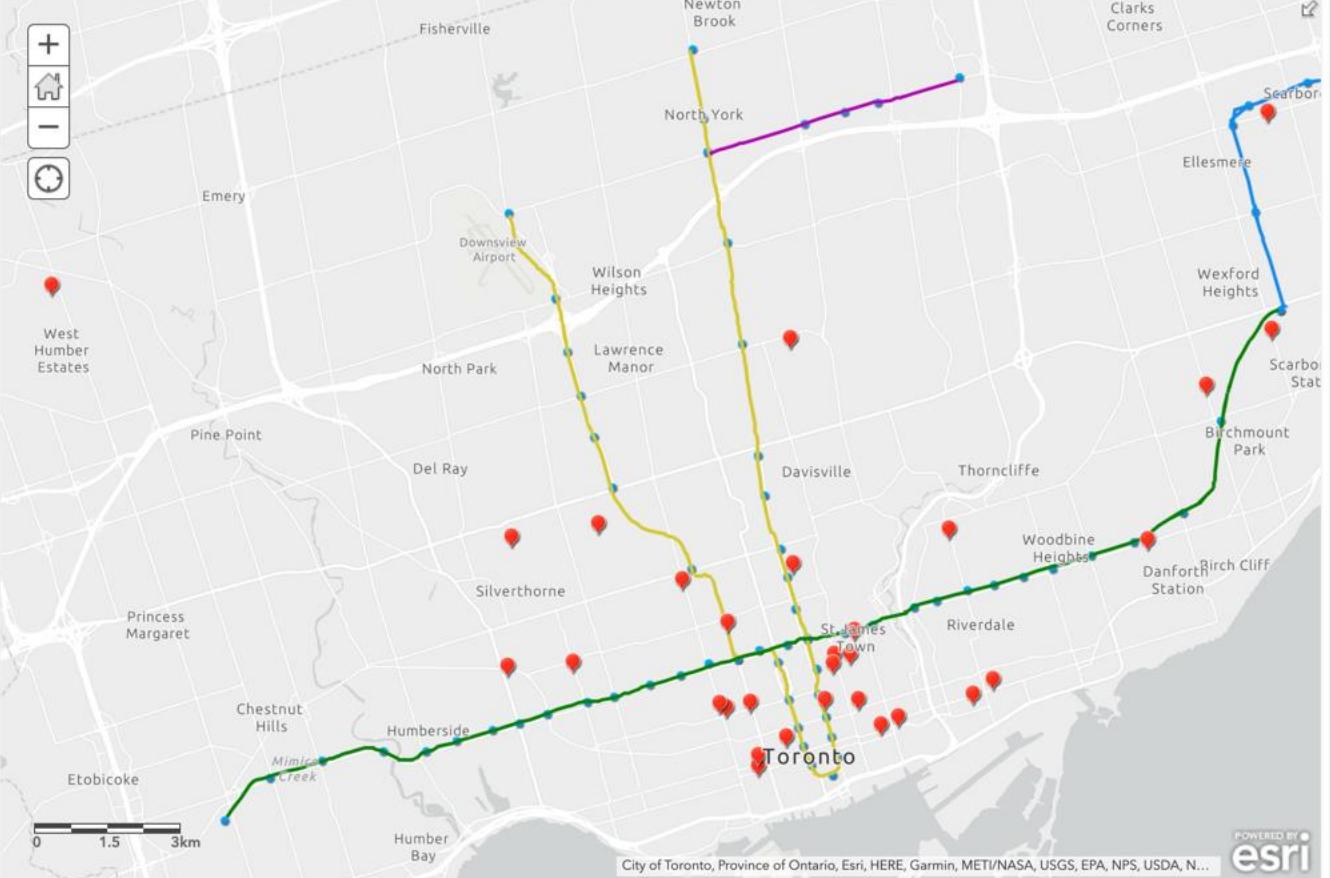
Per feature Set from Attribute Values

Visible Range  Suggest

State ▾ Room ▾

OK **CANCEL**

Trust Center Contact Esri Report Abuse Contact Us



City of Toronto, Province of Ontario, Esri, HERE, Garmin, METI/NASA, USGS, EPA, NPS, USDA, N... 

Change the style of your map

Next, we'll look at the layer's attributes.

Every layer has a table that contains all attribute data about the geographic features in the layer.

- In the **Contents** pane, point to the **Toronto Monthly Shelter Occupation 2019** layer and click the **Show Table** button.
- The layer's attribute table opens. Each row in the table represents a feature (in this case, a shelter). The columns, or fields, provide different types of information about the shelter features.

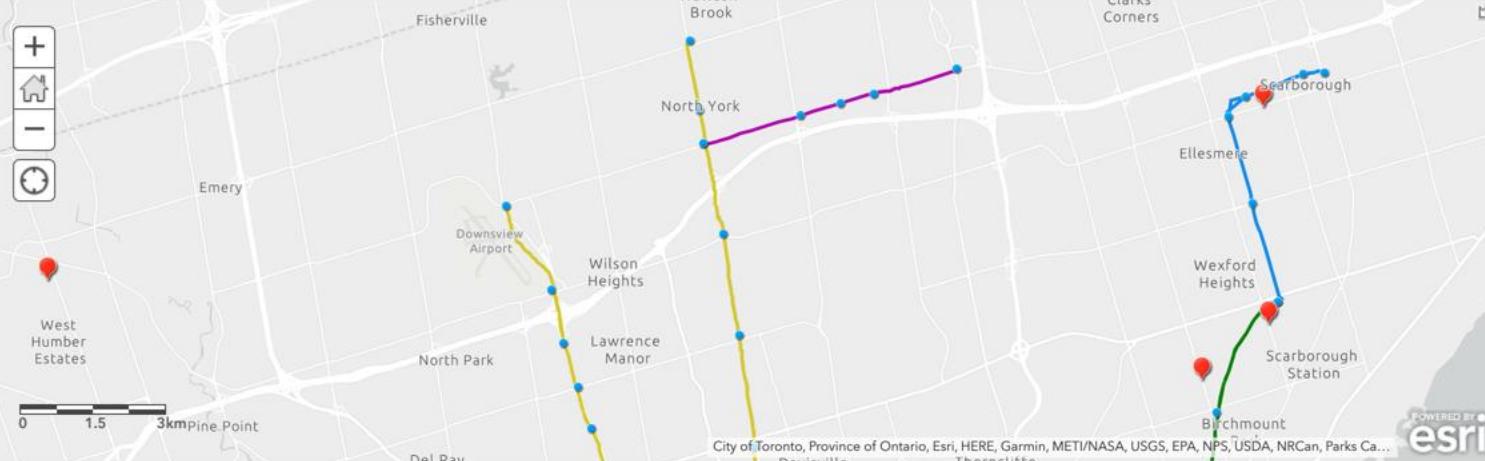
Home ▾ City of Toronto 

New Map Create Presentation  Deena ▾

[Details](#) [Add](#) [Edit](#) [Basemap](#) [Analysis](#) [Save](#) [Share](#) [Print](#) [Directions](#) [Measure](#) [Bookmarks](#) 

Contents

- toronto monthly shelter occupancy 2019
- Toronto Subway Stations Ridership
- Toronto Subway Routes
- Light Gray Canvas
- ...



0 1.5 3km Pine Point

City of Toronto, Province of Ontario, Esri, HERE, Garmin, METI/NASA, USGS, EPA, NPS, USDA, NRCan, Parks Ca... 

toronto monthly shelter occupancy 2019 (Features: 30, Selected: 0)							
SHELTER_NAME	SHELTER_ADDRESS	SHELTER_CITY	SHELTER_PROVINCE	SHELTER_POSTAL_CODE	PROGRAM_NAME	SECTOR	CAPACITY
Christie Ossington Men's Hostel	973 Lansdowne Avenue	Toronto	ON	M6H 3Z5	Christie Ossington Men's Hostel	Men	82
Christie Refugee Welcome Centre	43 Christie Street	Toronto	ON	M6G 3B1	Christie Refugee Welcome Ctr - Settlement and Support	Families	76
Birkdale Residence	1229 Ellesmere Road	Toronto	ON	M1P 4V8	Birkdale Residence - Bedded Program	Families	160
Cornerstone Place	616 Vaughan Road Toronto	Toronto	ON	M6C 1C2	Cornerstone Place	Men	56
COSTI Reception Centre	100 Lippincott Street	Toronto	ON	M5S 2P1	COSTI Edward Hotel Refugee Family	Families	628

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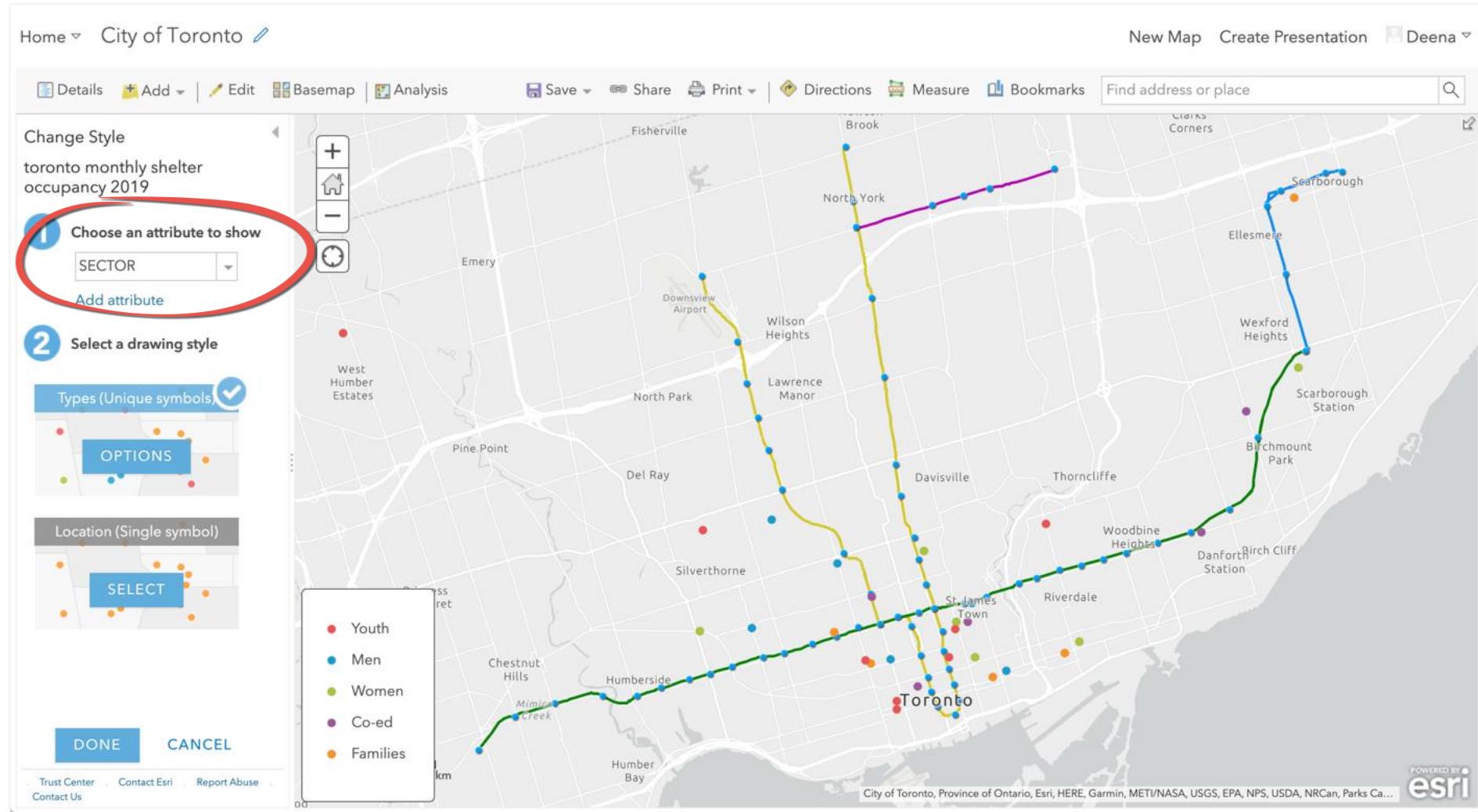
Change the style of your map

1. Locate the **SECTOR** field.

This field shows categories of homeless shelters based on the gender, age and household size of the client group(s) served at the shelter location. There are currently five shelter sectors in Toronto: adult men, adult women, mixed adult (co-ed or all gender), youth and family.

2. In the **Contents** pane, point to the **Toronto Monthly Shelter Occupancy 2019** layer and click the **Change Style** button.

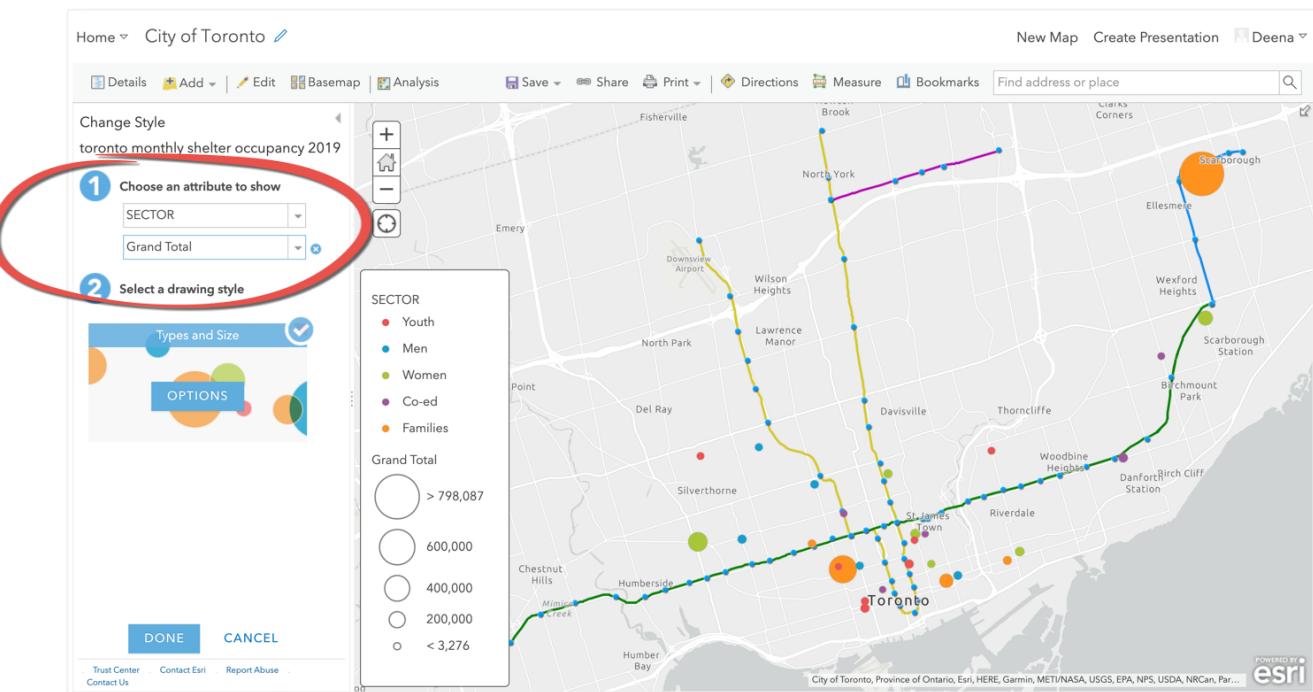
The **Change Style** pane appears. When we styled a layer previously, we styled subway stations (points) with a single symbol based on location. This time, we'll choose an attribute (SECTOR) and style it with multiple symbols.

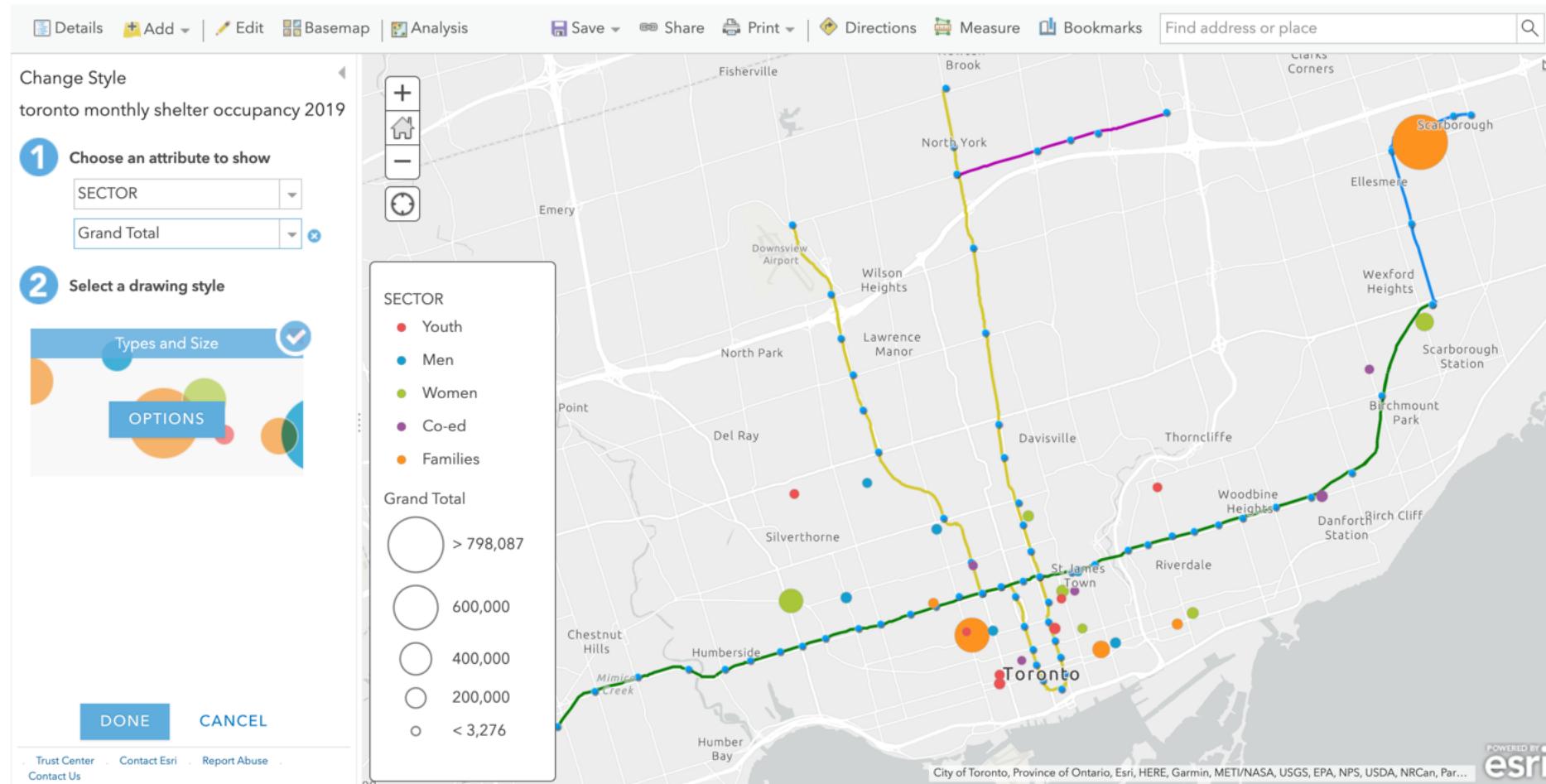


The first attribute we chose categorizes our data based on the unique values found, and uses color to distinguish them on the map.

The second attribute uses different symbol sizes to represent our numerical or ranked data.

1. Choose **Grand Total** to show total occupancy for each shelter





Configure Pop-ups

Enter a title for your pop-up.

1. Use the [+] button to select fields from your data.
2. Optionally enter static text instead of or in addition to your field values.

Total Occupancy in 2019 = {Grand_Total}

Logging in to ArcGIS Online | M X City of Toronto X horizons for youth toronto - Go X Configure pop-ups—ArcGIS O X +

← → C 🔒 utoronto.maps.arcgis.com/home/webmap/viewer.html?webmap=233c527f0337439b84de9ab453fb6a0e

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Home ▾ City of Toronto

New Map Create Presentation Deena ▾

Details Add Edit Basemap Analysis Save Share Print Directions Measure Bookmarks Find address or place

Configure Pop-up

Toronto Shelter Occupancy

Show Pop-ups

Pop-up Title

Total Occupancy in 2019 = {Grand_Total}

Pop-up Contents

Display: A list of field attributes

These field attributes will display:

SHELTER_NAME (SHELTER_NAME)
SHELTER_ADDRESS (SHELTER_ADDRESS)
SECTOR (SECTOR)
January (January)

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.

OK CANCEL

Lawrence Manor

Silverthorne

Toronto

Total Occupancy in 2019 = 49,468

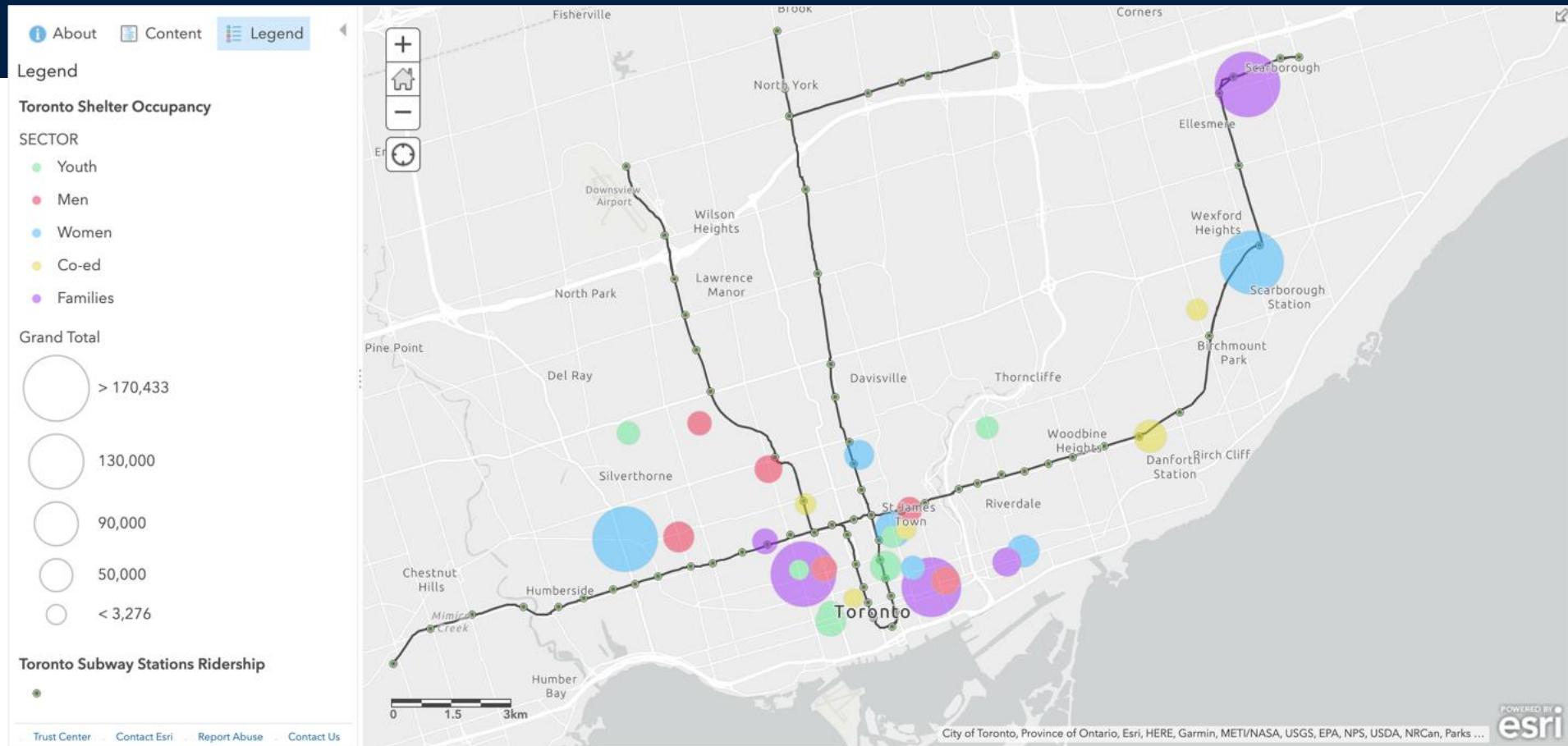
SHELTER_NAME	SHELTER_ADDRESS	SECTOR
SVDP - Amelie House	126 Pape Avenue	Women
January	4,205	
February	3,786	
March	4,188	
April	4,065	
May	4,193	
June	4,061	
July	4,214	
August	4,208	
September	4,069	

Zoom to Edit Get Directions

0 0.5 1km

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Save and share the map

Next, we'll save our Shelter Occupancy map and assign it a title, tags, and a summary to make it easy to find and identify later. Then, we'll share the map to make it accessible.

1. On the ribbon, click the **Save** button and click **Save As**.
2. For Title, type Toronto Shelter Occupancy Map 2019.
3. For Tags, type each of the following tags, clicking **Enter** after each one:
 - Shelters
 - TTC
 - Subway Routes
 - Toronto

Save and share the map

The summary appears on the map's details page and should provide information so users better understand the purpose of the map.

1. Click **Save Map**.

The map is saved. It now appears in your account's content. You can access your content by clicking **ArcGIS** (public account) or **Home** (organizational account) and choosing **Content**. For now, you'll set the sharing permissions.

2. On the ribbon, click the **Share** button.
3. In the **Share** window, check **Everyone (public)**.
4. Click **Done**.

I welcome your opinion! Please take a moment to fill out this short feedback form:

<https://uoft.me/feedbackW2020>

For more information, questions, or comments, please contact me at:

deena.yanofsky@utoronto.ca

