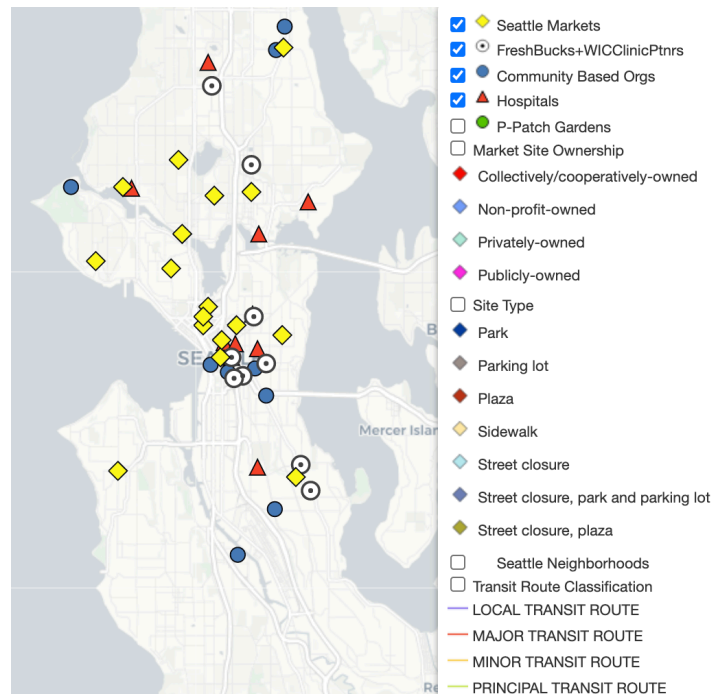


# Using QGIS to Map Survey Results from KoBoToolbox

A Guide Produced by the [Market Cities Initiative](#)



The Market Cities Initiative used QGIS to produce market maps for the pilot projects conducted in Pittsburgh, Toronto, and Seattle. These maps were created after collecting survey data through KoBoToolbox (see accompanying KoBoToolbox guide for more info). This guide serves as an introduction to the process of using QGIS in your own market mapping project—keep in mind that depending on your skill level and comfort, you may need to seek additional learning resources to apply QGIS to your own work.

QGIS is a free and open source geographic information system application that is downloadable from the internet. There are many different mapping platforms and applications available, so this is just one possible option. Depending on your unique project goals and audience, another application may be more suitable. That said, we like QGIS for the following reasons:

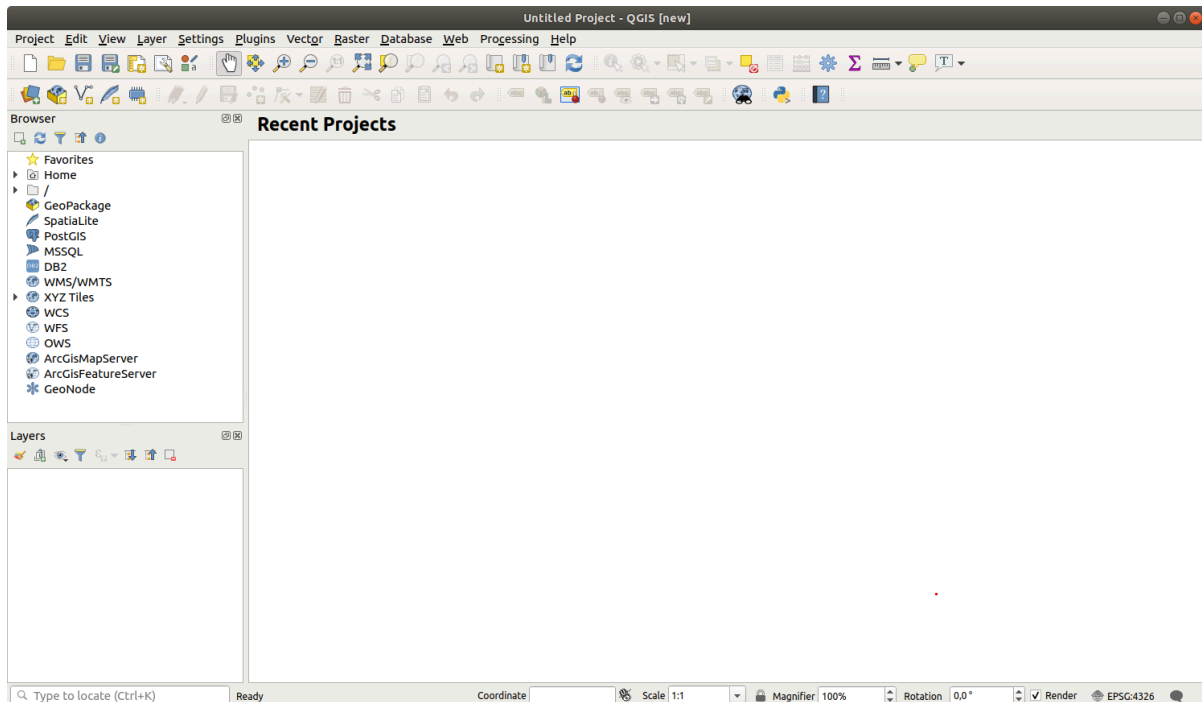
- QGIS is powerful and allows for a lot of map customization.
- QGIS is compatible with many different data types, so you can overlay other data layers onto a map of markets to reveal different geographic relationships.
- There are lots of online resources, forums, and tutorials available for QGIS.
  - This article has some great tips - [www.gislounge.com/free-ways-to-learn-qgis/](http://www.gislounge.com/free-ways-to-learn-qgis/)
  - For absolute QGIS beginners, we highly recommend this intro video - [www.youtube.com/watch?v=kCnNWyl9qSE&t=21s&ab\\_channel=KlasKarlsson](http://www.youtube.com/watch?v=kCnNWyl9qSE&t=21s&ab_channel=KlasKarlsson)
  - And Stack Exchange is a good forum for troubleshooting issues - <https://gis.stackexchange.com/?tags=qgis>

## Mapping Your Market Data:

**Step 1:** Clean your data after downloading your survey result spreadsheet from KoBoToolbox. This might include eliminating unnecessary/empty fields, renaming columns, and fixing typos or other errors. Save it as a CSV file when you are done.

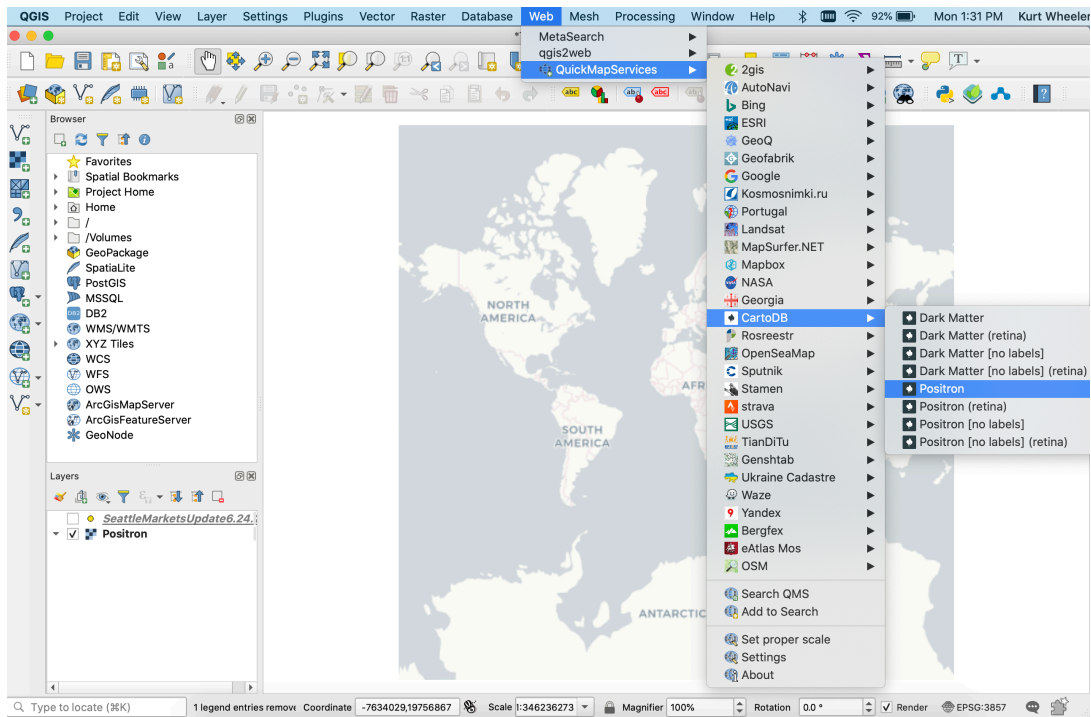
**Step 2:** Download QGIS – visit [www.qgis.org/en/site/forusers/download.html](http://www.qgis.org/en/site/forusers/download.html)

**Step 3:** Once installed, open QGIS to create a new, blank map.

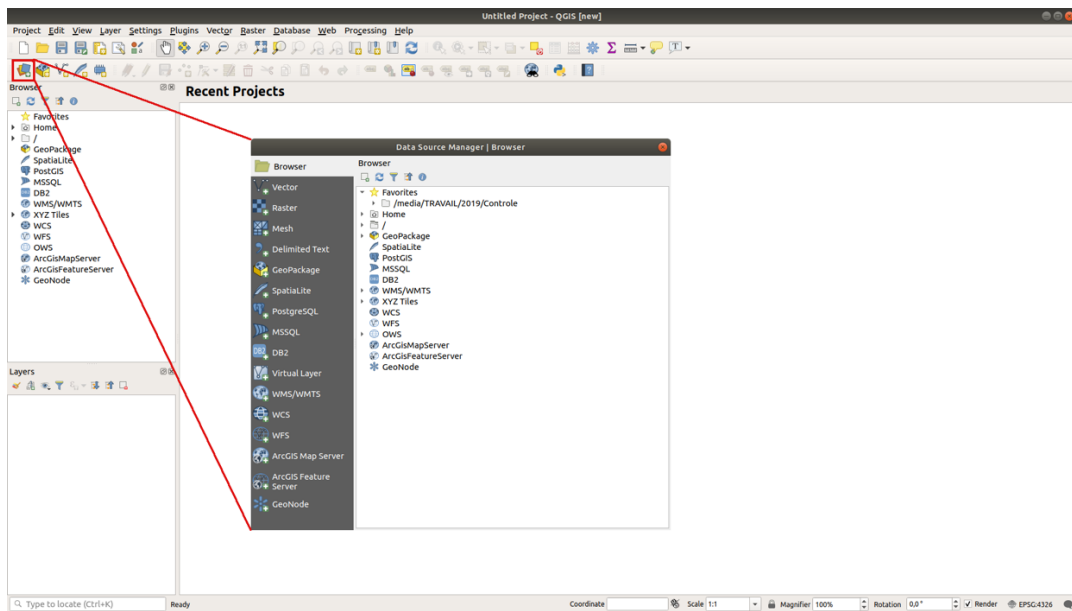


**Step 4:** Add the “QuickMapServices” plugin, so you can add a basemap. Follow instructions for loading the plugin here - <https://opengislab.com/blog/2018/4/15/add-basemaps-in-qgis-30>

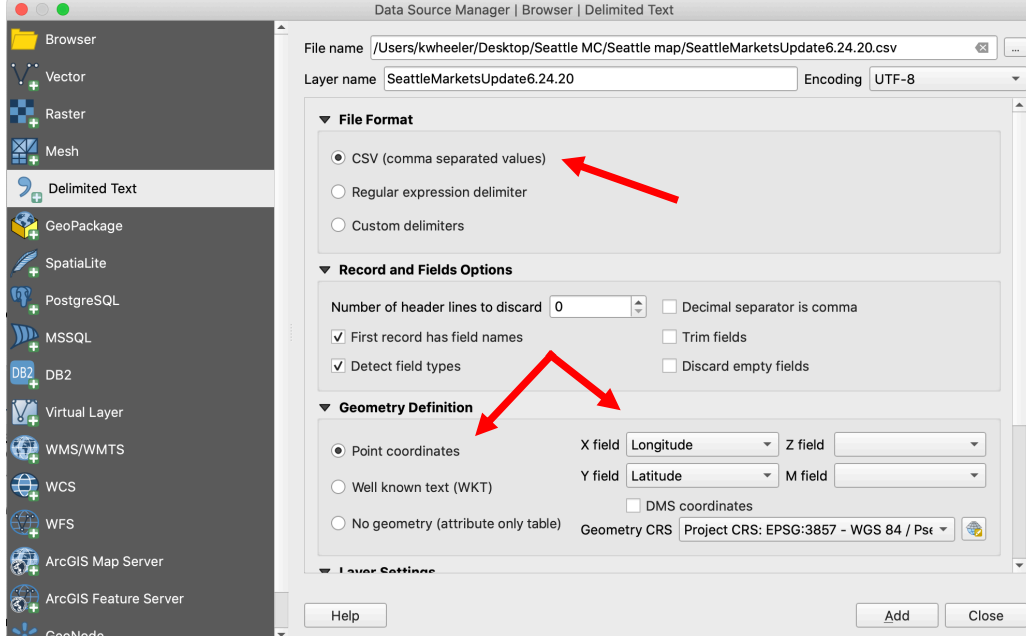
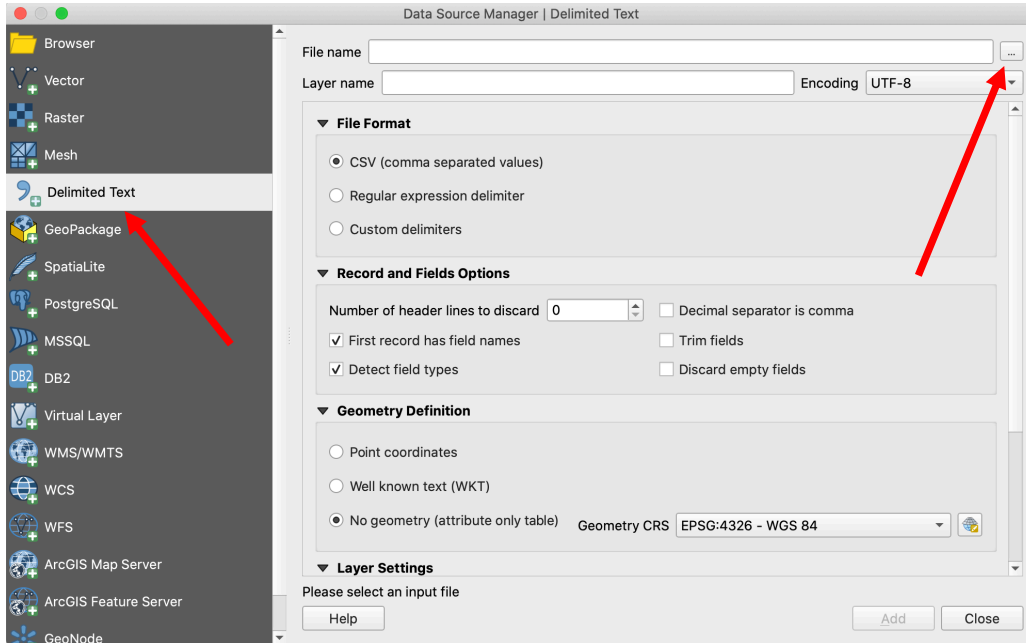
**Step 5:** Load a basemap of your choosing by double clicking in the toolbar at the top of the page. \*Note: You may need to consider the Coordinate Reference System (CRS) of your basemap so it aligns with the data from the area or country you are focusing on. Learn more here - [https://www.youtube.com/watch?v=8UmmEN5Og4Y&ab\\_channel=burdGIS](https://www.youtube.com/watch?v=8UmmEN5Og4Y&ab_channel=burdGIS)



**Step 6:** Now click on the “Data Source Manager” dialog button in the upper left to load your market data file.

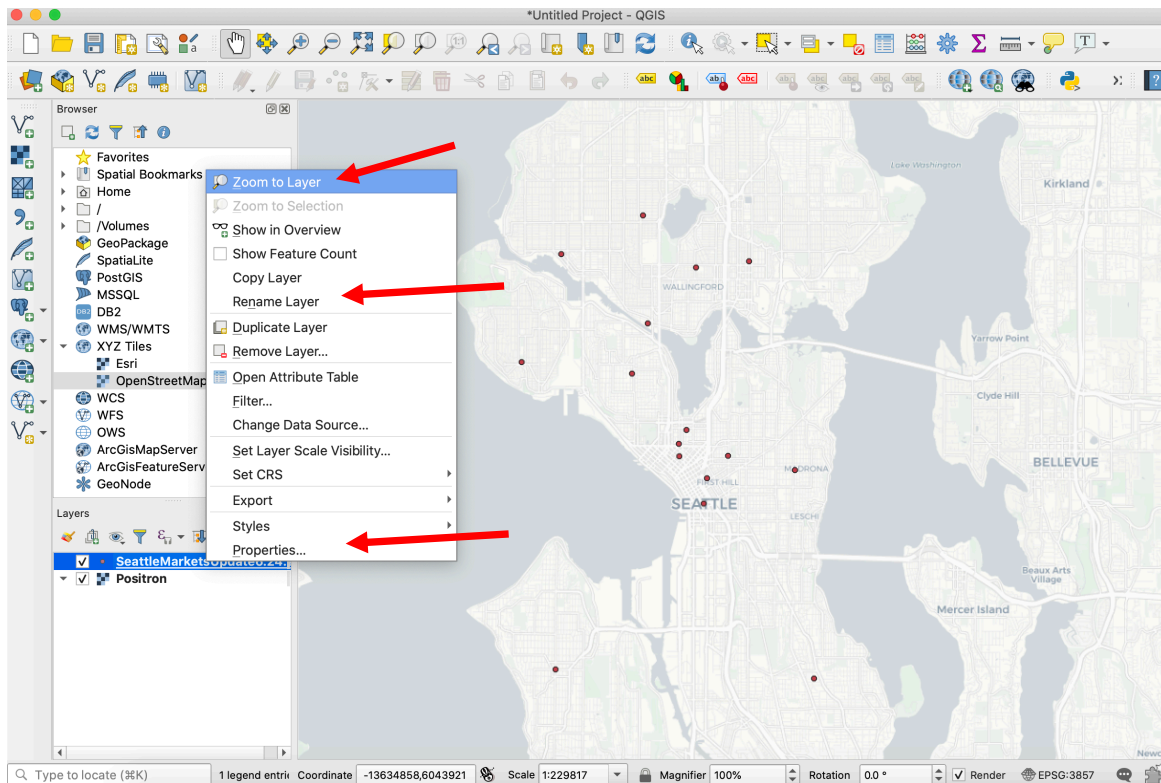


**Step 7:** a) Be sure to select “Delimited Text” file in the menu on the left (which is the format of your CSV data file) b) and click on the ellipses in the upper right to add your (cleaned) data file on your computer. Click “Open.”



**Step 8:** Select “CSV” as your file format and turn on “Point Coordinates” for your Geometry Definition. Be sure Longitude and Latitude are selected for your X and Y fields. Then click “Add” and “Close.”

If everything went right, your market locations should show up on your base map. If you can't see anything added to the map, right click on the data layer just added in the Layers Panel on the left and select “Zoom to layer.”



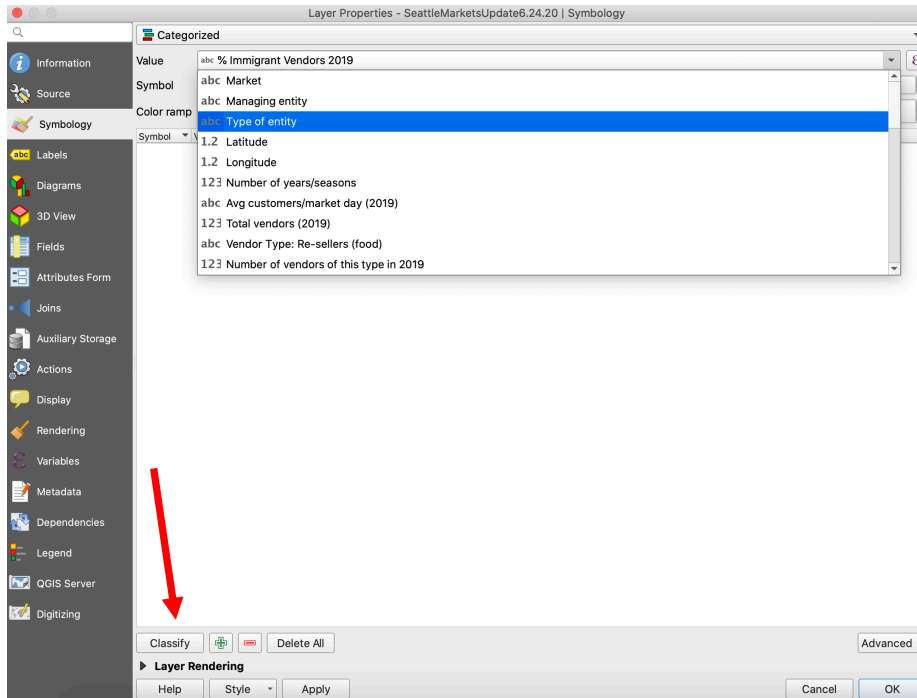
When you right click on the markets layer in the Layers Panel on the left, you can also rename the layer (something like “Seattle Markets” might make sense) and open the “Properties” to adjust the point size, shape, and color under “Symbology.”

**Step 9:** After you have made some initial edits and adjustments, you can start exploring different geographic relationships by categorizing the data in different ways. The best way to do this is to duplicate the original markets layer so you can play freely with the data while preserving the original base layer of data. Open the layer’s “Properties” and select “Duplicate Layer.”

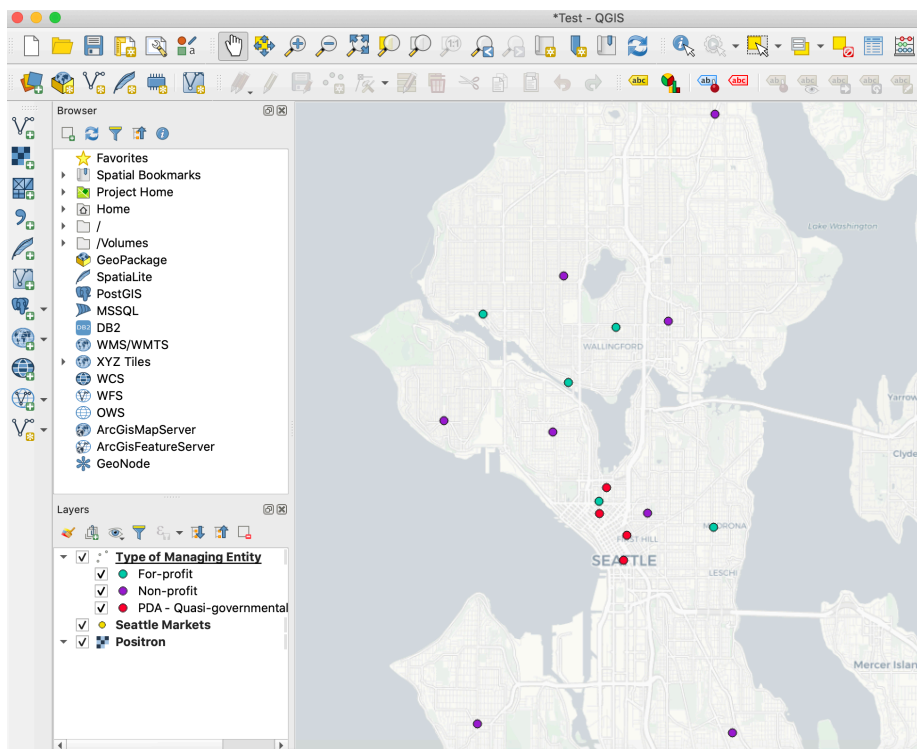
**Step 10:** Open the “Properties” menu of the duplicated layer and select “Symbology” on the left. At the top of this dialog box, click the dropdown menu that says “Single Symbol” to see the different ways you can categorize different data fields.

In the example below, I selected “Categorized,” which then creates a “Value” dropdown menu to select the field you want to categorize. In this case, I selected “Type of entity” or the type of

management entity that runs the market. I also selected “Random colors” for the color ramp. Click “Classify” and then “OK” when you are done.



This should color code each point according to the managing entity of the market. You will see the legend of the layer on the left and you can rename the layer accordingly.



Depending on your dataset, you can continue creating duplicate layers and categorizing fields in different ways to show other relationships and facets of the data.

\*Note: Click the check box to the left of each layer to turn it on or off. Keep in mind that the topmost layer in the Layer panel will block layers underneath if its check box is clicked on.

**Step 11:** Upload additional data layers from other sources. Some cities and municipalities have open data portals where you can easily download data for free, but it depends on your location. Other data to consider include demographics (Race/Ethnicity, equity and health indices, Area Median Income, etc.), as well as other relevant points of interest, such as clinics, grocery stores, and transit stations.

**Another step to consider:** After creating your map, you may want to share it with a URL or upload it to your website. You can create a web map using the plugin called QGIS2Web. A step-by-step guide for using QGIS2Web to create a web map can be found here - [https://www.qgistutorials.com/en/docs/web\\_mapping\\_with\\_qgis2web.html](https://www.qgistutorials.com/en/docs/web_mapping_with_qgis2web.html)

Remember that the process of mapping is analysis in itself that can help uncover interesting or unexpected geographic relationships. It may lead to more questions than answers, but that is why it is such a great place to begin when initiating a Market City process.