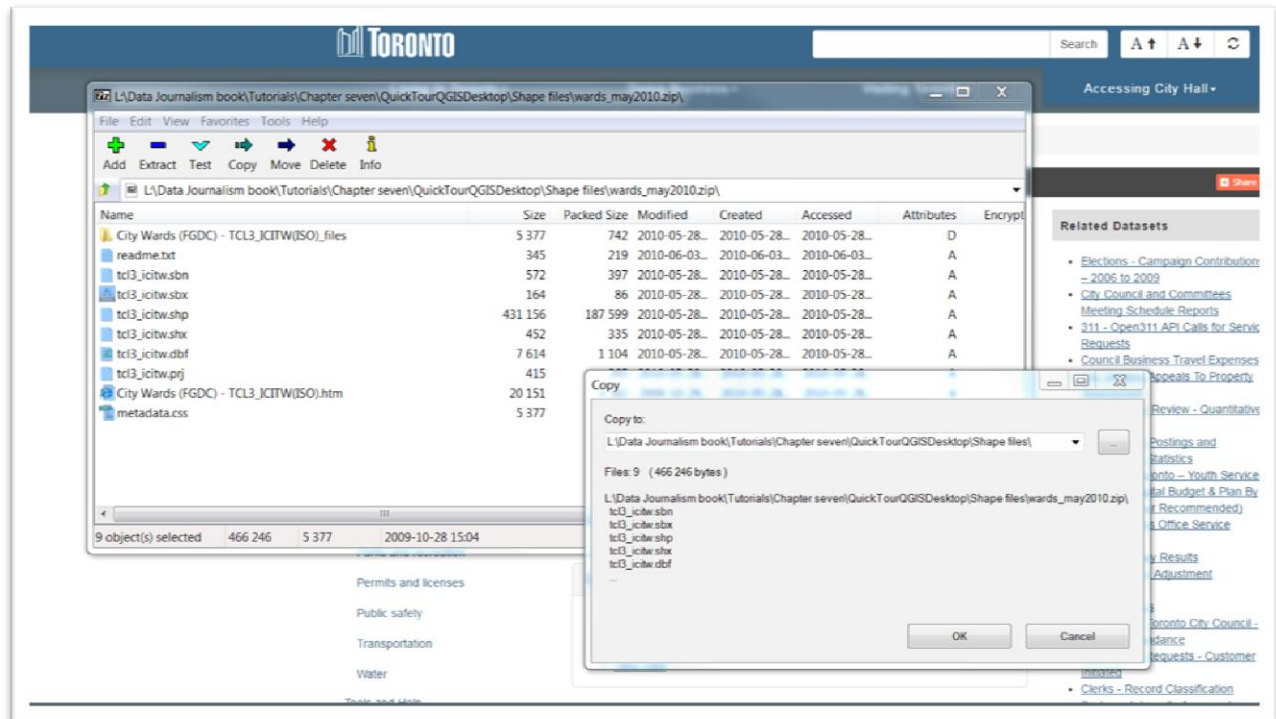# Chapter 7

A Quick Tour of ArcGIS Desktop

This tutorial is intended to get you going using QGIS, the open-source desktop application that has become a alternative to ArcGIS. The QGIS Browser is available as a standalone application and as a panel in QGIS Desktop. The latest version is QGIS Desktop 2.14.8

This tutorial assumes you have followed the steps in [tutorial](#) to install QGIS, and that you are using version 2.14.8. Illustrations in this tutorial depict functionality in QGIS.

Chapter 7 of *The Data Journalist* is an introduction to how journalists use GIS programs, as well as important theoretical background for using any GIS, and it should be read prior to working with this and other tutorials.

Throughout this tutorial, we will use a shapefile of Toronto electoral wards available from the City of Toronto's open data website at [http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=b1533f0aacaaa210Vgn VCM1000006cd60f89RCRD](http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=b1533f0aacaaa210VgnVCM1000006cd60f89RCRD)   We'll use the 2010 ward map, with the NAD27 datum.

Be sure to extract the zip file's contents after downloading, so that QGIS can locate the shape file.


Basic functionality

QGIS can essentially perform all the functions that journalists typically need, as explained in Chapter 7. So rather than be an exhaustive user guide (an impossible task for any tutorial, really), this tutorial is meant to provide basic knowledge about the key features journalists need.

If you want to take QGIS to new levels, there are many excellent third-party books, as well as invaluable listservs such as NICAR, where most journalists use QGIS, and are knowledgeable sources for troubleshooting. QGIS also has an excellent User Guide.
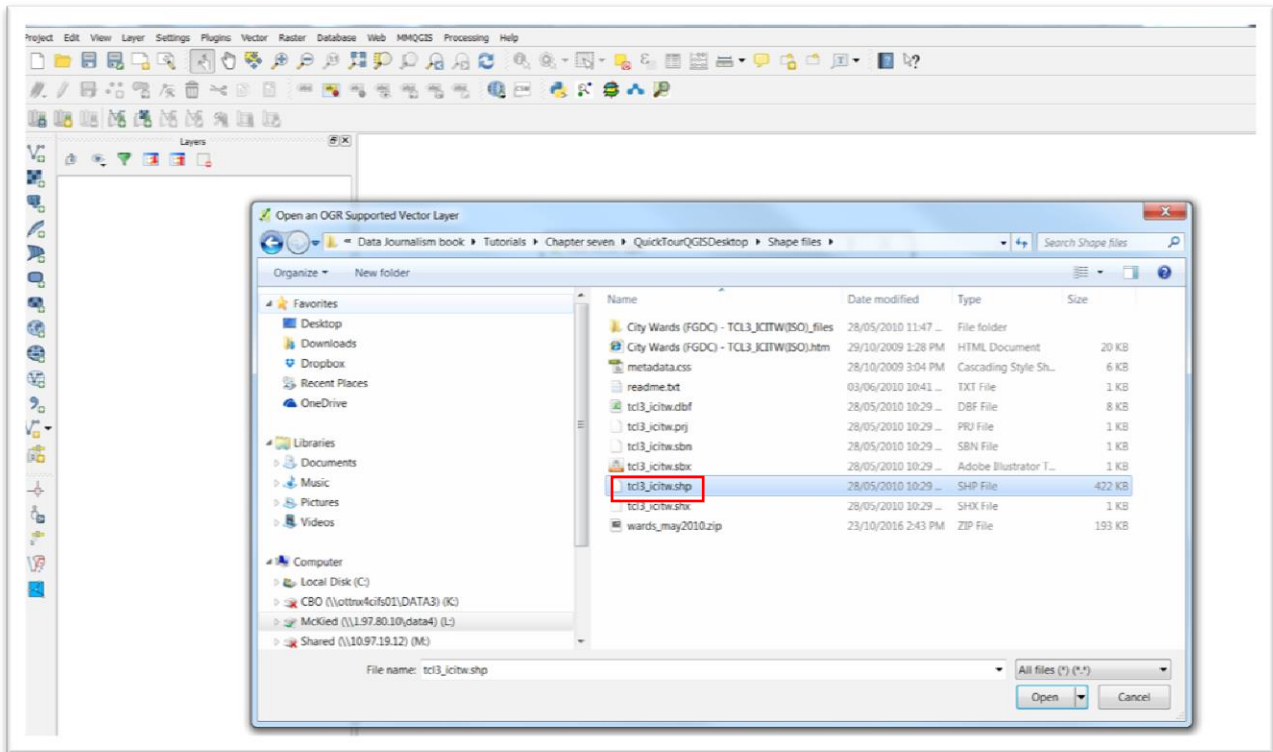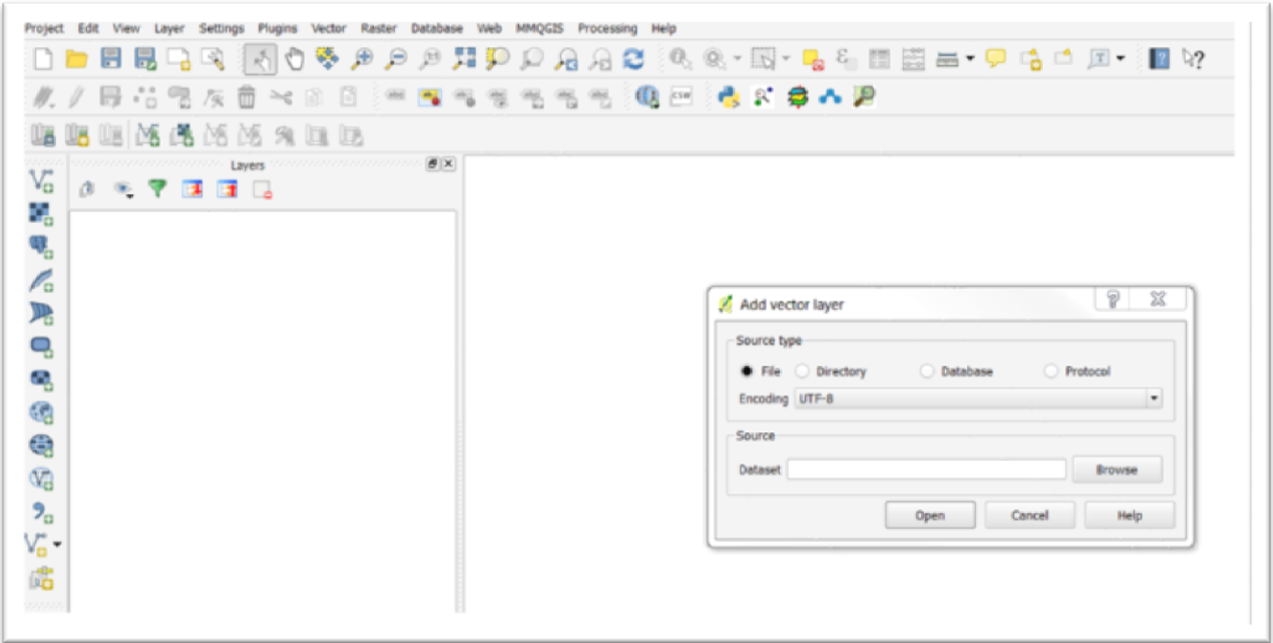
When you first open QGIS, your interface should look something like this, depending on the version you're using.
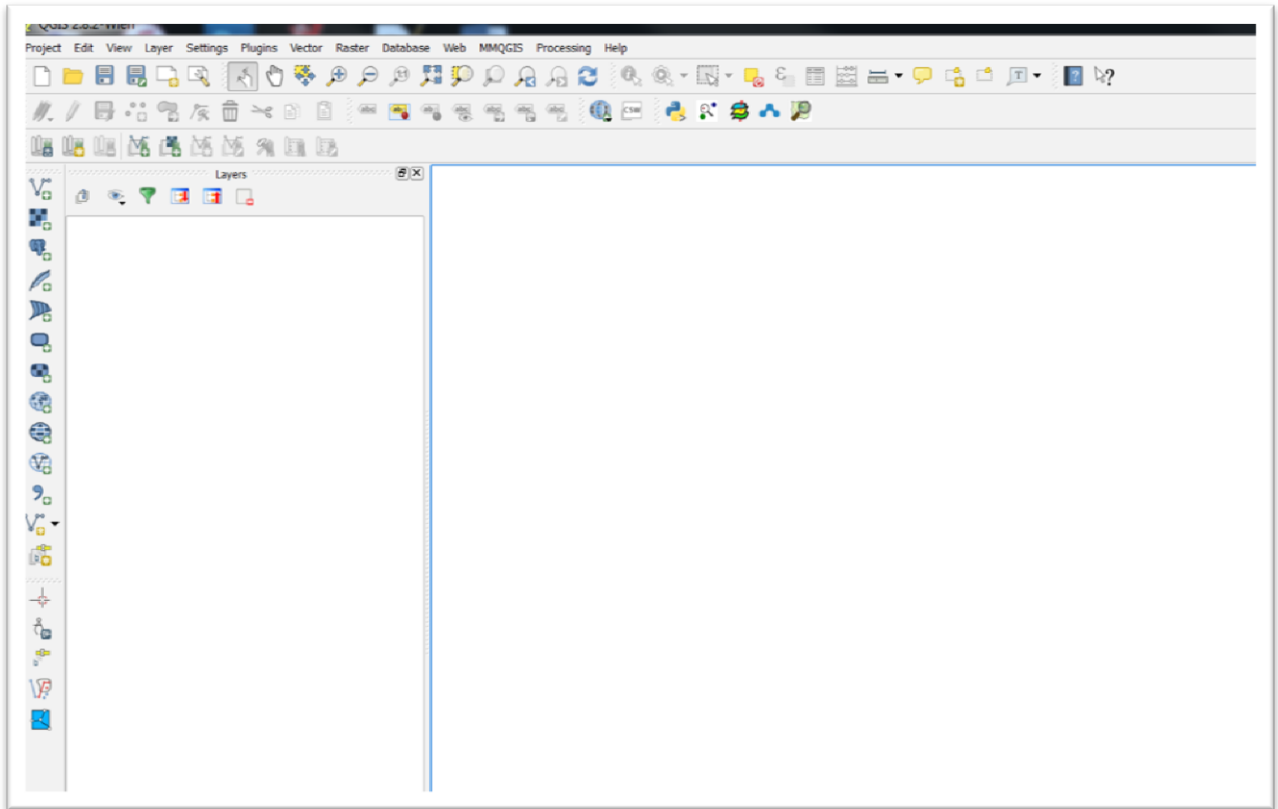
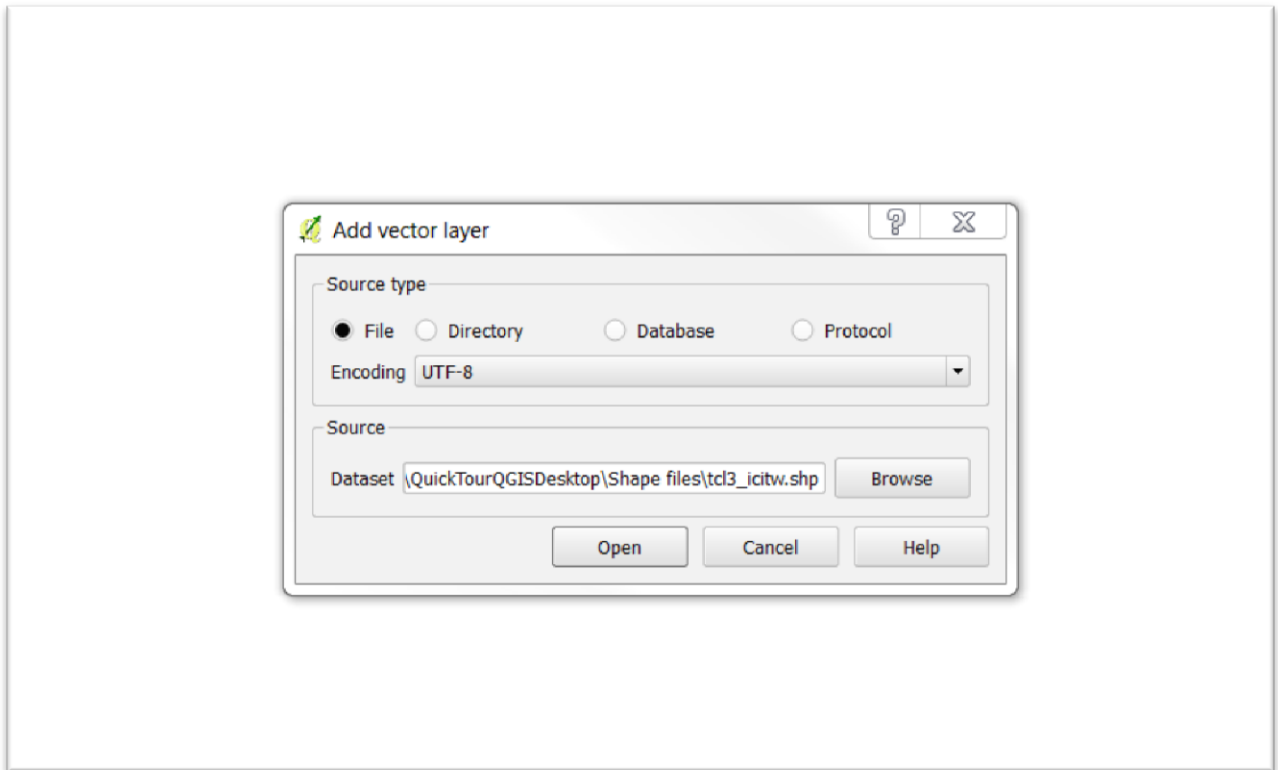To import the map, we use the "Add Vector Layer" icon, which you can see in the screen shot below.
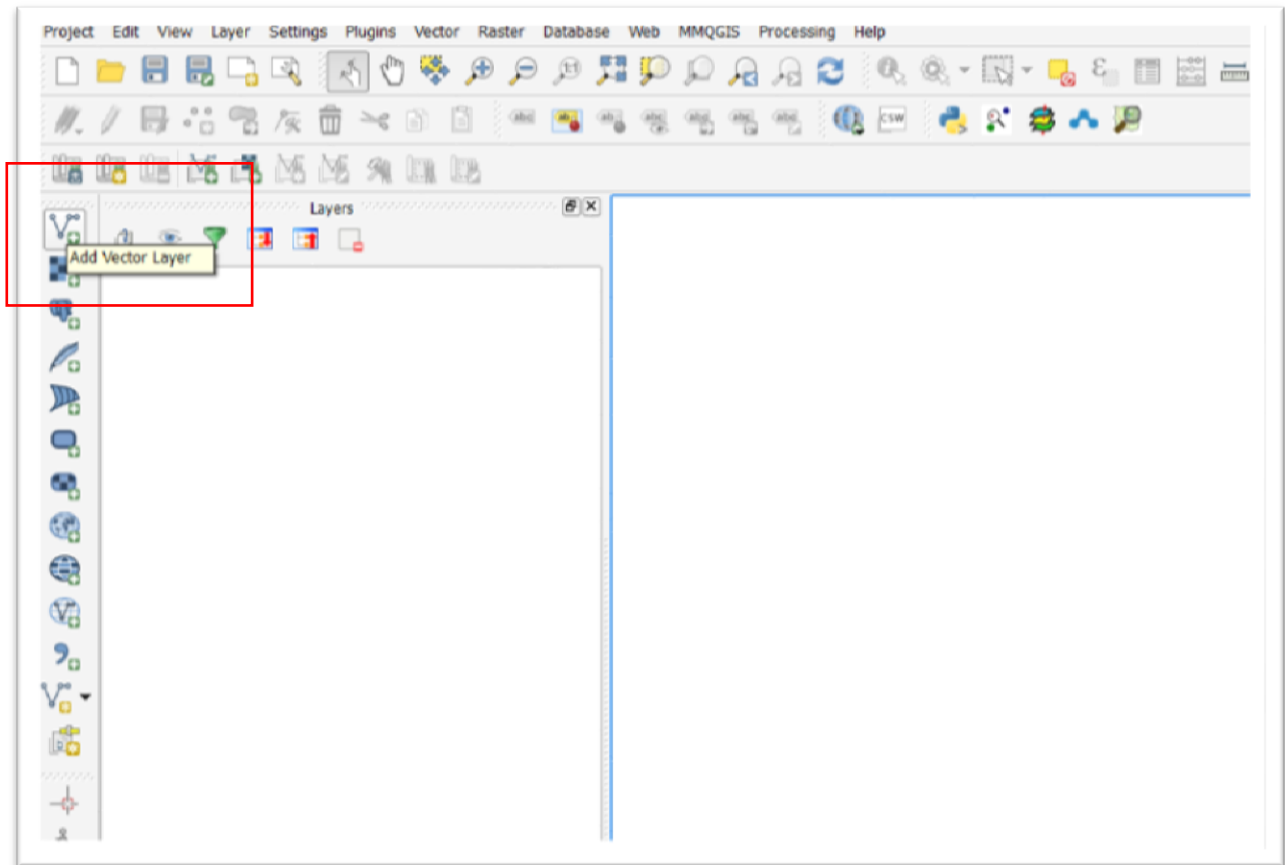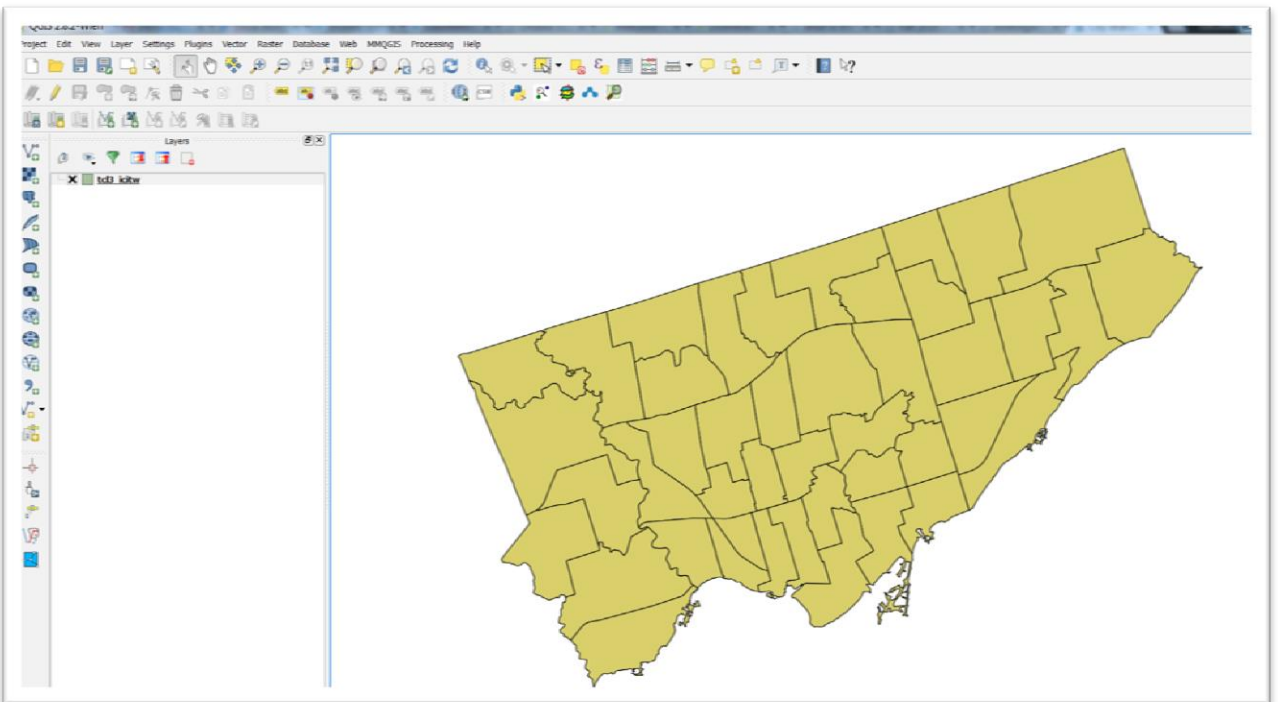

The "Add vector layer" dialogue box allows you to browse for your shape file on your hard drive.

Select the shape file.

Open the layer.

The data frame

In QGIS, the map on which you are working appears in what is called the data frame, by default positioned to the right of the screen. The various layers that make up the map are listed in the table of contents, which is by default to the left. The table of contents can be moved to either side of the window, or the top or bottom.

In the screen grab above, the data frame shows a map of Toronto's municipal electoral districts, obtained from the city's open data site.

The map layer appears in the data frame, while it is listed in the table of contents. If you can right-click on the layer in the table of contents to obtain a short-cut menu.
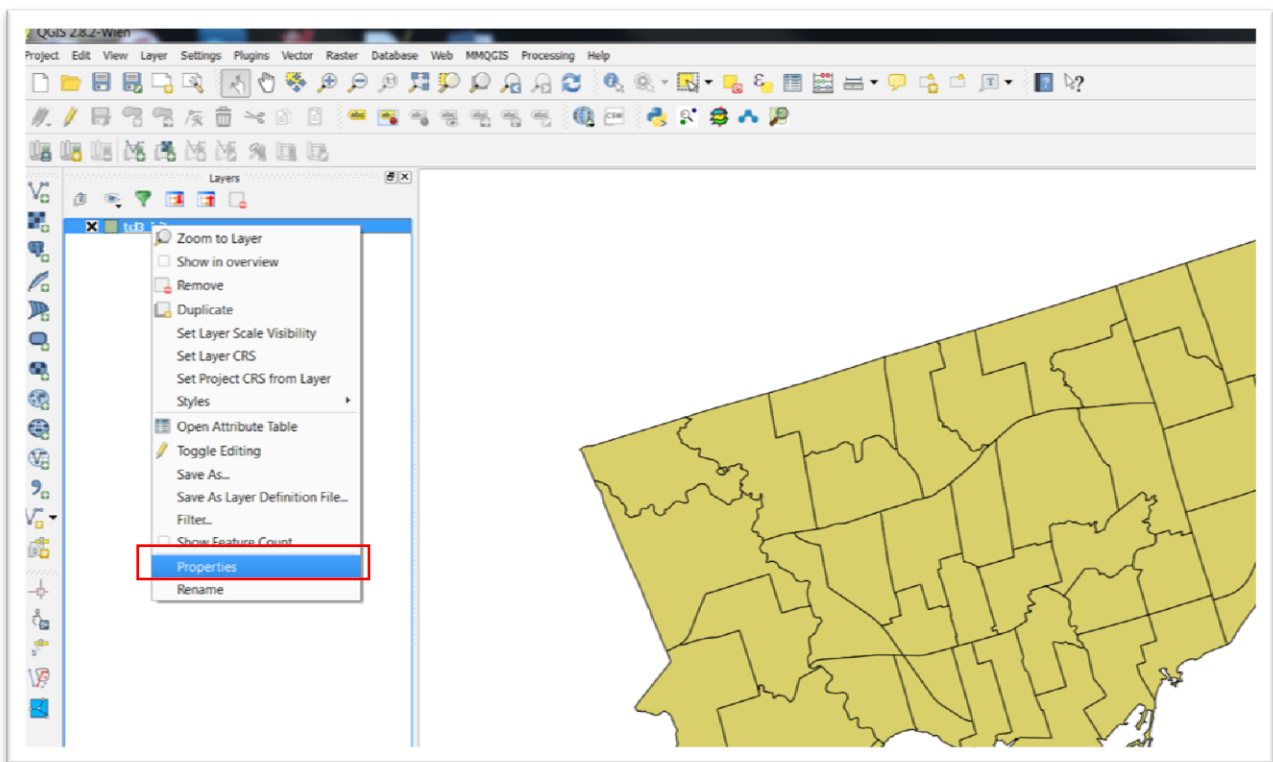
Clicking on the properties produces "Layer Properties" dialogue box.
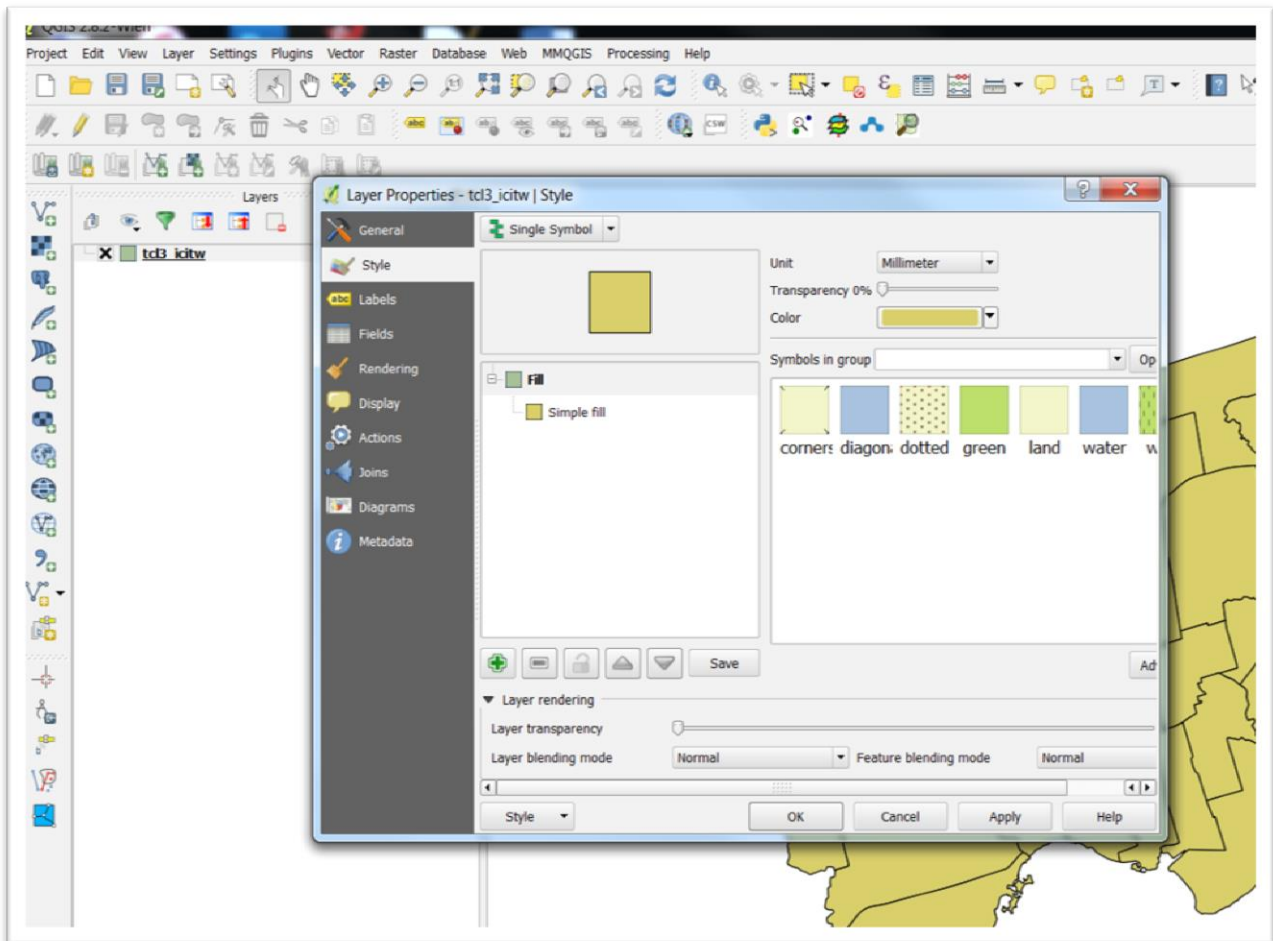
This is the dialogue box that we will use frequently to perform a variety of functions such as colour-coding our map, giving it labels, and joining tables to create new layers. For this layer, you can change the colour used to fill the polygons, as well as the width of the boundaries between the polygons.

The table contents also contains other handy tools. For instance, "Zoom to Layer" is first on the list.
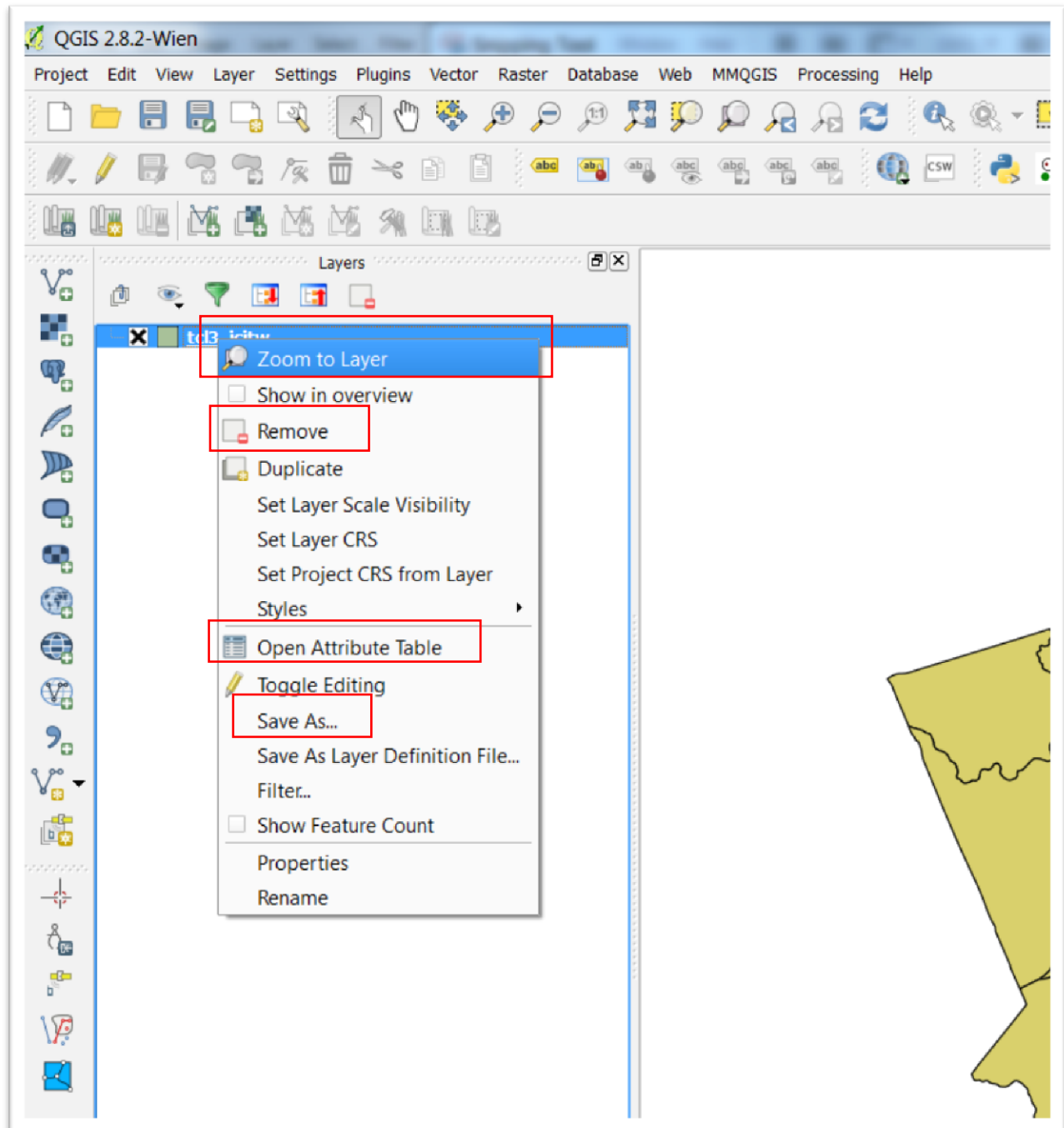
The menu's contain many options that can be explored on QGIS' website. For now, we'll focus on the key options you'll need to get started.

Clicking on "Zoom to Layer" resizes the map to the proportions it contained when you first imported it. "Remove" allows you to delete the layer from the menu, though it's important to note that the original file still remains on your hard drive.

"Open Attribute Table" is another key one, which allows you to see the data that QGIS is using to place the map in the data frame. The attribute table, which opens in a separate window, contains all the data. See pages 148-9 on Chapter 7 of *The Data Journalist* for a full discussion of attribute tables and the nature of map layers as data tables.

Attribute table - tcl3_icitw :: Features total: 44, filtered: 44, selected: 0

|	GEO_ID	CREATE_ID	NAME	SCODE_NAME	LCODE_NAME	TYPE_DESC	TYPE_CODE	OBJECTID	SHAPE_AREA	SHAPE_LEN
0	14630026	63519	Scarborough-...	41	EA41	Ward	CITW	1	0.00000000000	0.00000000000
1	14630028	63519	Scarborough ...	44	EA44	Ward	CITW	2	0.00000000000	0.00000000000
2	14630024	63519	Scarborough-...	42	EA42	Ward	CITW	3	0.00000000000	0.00000000000
3	14630027	63519	Scarborough-...	39	EA39	Ward	CITW	4	0.00000000000	0.00000000000
4	14630035	63519	Willowdale (24)	24	NO24	Ward	CITW	5	0.00000000000	0.00000000000
5	14630029	63519	Scarborough-...	40	EA40	Ward	CITW	6	0.00000000000	0.00000000000
6	14630036	63519	Don Valley Ea...	33	NO33	Ward	CITW	7	0.00000000000	0.00000000000
7	14630037	63519	Willowdale (23)	23	NO23	Ward	CITW	8	0.00000000000	0.00000000000
8	14630039	63519	York West (8)	08	NO08	Ward	CITW	9	0.00000000000	0.00000000000
9	14630031	63519	Scarborough ...	38	EA38	Ward	CITW	10	0.00000000000	0.00000000000
10	14630040	63519	York West (7)	07	WE07	Ward	CITW	11	0.00000000000	0.00000000000
11	14630041	63519	Don Valley Ea...	34	NO34	Ward	CITW	12	0.00000000000	0.00000000000
12	14630010	63519	Don Valley We...	25	NO25	Ward	CITW	13	0.00000000000	0.00000000000
13	14630030	63519	Scarborough ...	43	EA43	Ward	CITW	14	0.00000000000	0.00000000000
14	14630038	63519	York Centre (...	10	NO10	Ward	CITW	15	0.00000000000	0.00000000000
15	14630043	63519	York Centre (9)	09	NO09	Ward	CITW	16	0.00000000000	0.00000000000
16	14630033	63519	Scarborough ...	36	EA36	Ward	CITW	17	0.00000000000	0.00000000000
17	14630032	63519	Scarborough ...	37	EA37	Ward	CITW	18	0.00000000000	0.00000000000
18	14630044	63519	Etobicoke Nor...	01	WE01	Ward	CITW	19	0.00000000000	0.00000000000
19	14630019	63519	Eglinton-Lawr...	15	NO15	Ward	CITW	21	0.00000000000	0.00000000000
20	14630034	63519	Scarborough ...	35	EA35	Ward	CITW	22	0.00000000000	0.00000000000
21	14630012	63519	Don Valley We...	26	NO26	Ward	CITW	23	0.00000000000	0.00000000000
22	14630017	63519	York South-W...	11	WE11	Ward	CITW	24	0.00000000000	0.00000000000
23	14630045	63519	Etobicoke Nor...	02	WE02	Ward	CITW	25	0.00000000000	0.00000000000
24	14630015	63519	Toronto-Danfo...	29	SO29	Ward	CITW	26	0.00000000000	0.00000000000
25	14630021	63519	York South-W...	12	WE12	Ward	CITW	28	0.00000000000	0.00000000000
26	14630016	63519	Beaches-East ...	32	SO32	Ward	CITW	29	0.00000000000	0.00000000000
27	14630013	63519	Beaches-East ...	31	SO31	Ward	CITW	30	0.00000000000	0.00000000000
28	14630050	63519	St. Paul's (22)	22	SO22	Ward	CITW	31	0.00000000000	0.00000000000
29	14630020	63519	St. Paul's (21)	21	SO21	Ward	CITW	32	0.00000000000	0.00000000000
30	14630052	63519	Toronto-Danfo...	30	SO30	Ward	CITW	33	0.00000000000	0.00000000000
31	14630046	63519	Etobicoke Cen...	04	WE04	Ward	CITW	34	0.00000000000	0.00000000000
32	14630051	63519	Toronto Centr...	27	SO27	Ward	CITW	35	0.00000000000	0.00000000000
33	14630056	63519	Davenport (18)	18	SO18	Ward	CITW	36	0.00000000000	0.00000000000
34	14630047	63519	Etobicoke Cen...	03	WE03	Ward	CITW	38	0.00000000000	0.00000000000
35	14630054	63519	Toronto Centr...	28	SO28	Ward	CITW	39	0.00000000000	0.00000000000
36	14630053	63519	Trinity-Spadin...	20	SO20	Ward	CITW	40	0.00000000000	0.00000000000
37	14630048	63519	Etobicoke-Lak...	05	WE05	Ward	CITW	43	0.00000000000	0.00000000000
38	14630049	63519	Etobicoke-Lak...	06	WE06	Ward	CITW	44	0.00000000000	0.00000000000
39	14630042	63519	Eglinton-Lawr...	16	NO16	Ward	CITW	20	0.00000000000	0.00000000000
40	14652634	66086	Parkdale-High...	14	SO14	Ward	CITW	329	0.00000000000	0.00000000000
41	14630023	66052	Parkdale-High...	13	WE13	Ward	CITW	325	0.00000000000	0.00000000000
42	14630055	66047	Trinity-Spadin...	19	SO19	Ward	CITW	321	0.00000000000	0.00000000000
43	14653066	66055	Davenport (17)	17	WE17	Ward	CITW	326	0.00000000000	0.00000000000

In this case, the name of the wards, and the two geographic columns to the far right. To make the table disappear, simply click on the "X" at the top right hand corner of the dialogue box.

The next key option is the "Save As", which allows you to save the layer as a shape file, or a different one, such as a KML file that you might want to export to display on a Google Fusion Tables, for instance.

We've already covered "Properties". "Rename" allows us to give the layer a label that makes a bit more sense than the original titles.

Toolbars

Like ArcGIS, QGIS has specialized toolbars, which are located across the top and down the side.
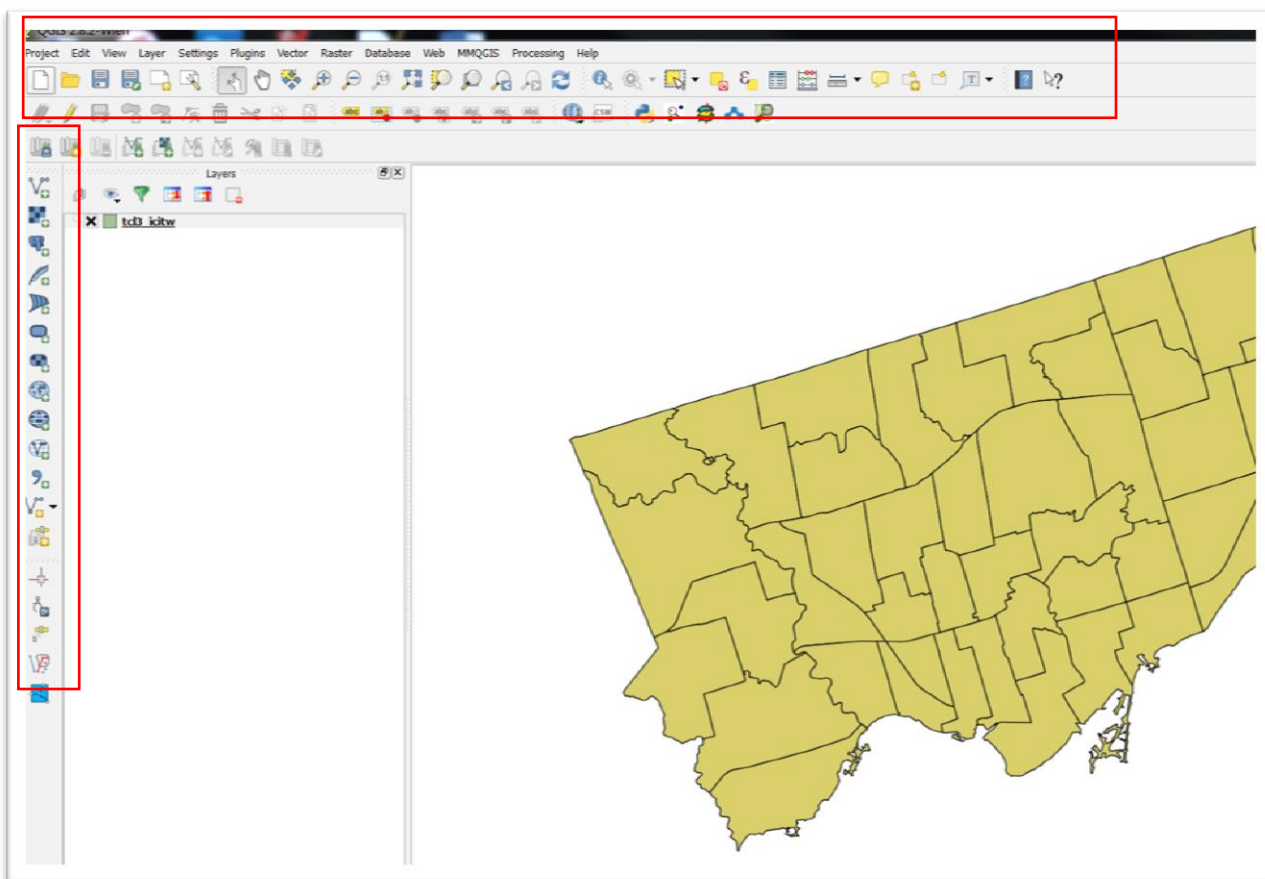

Hovering your cursor over them produces a label that explains what they do. The same goes for the vertical menu. As mentioned before, we'll just focus on some key ones for now, leaving the rest for our remaining QGIS tutorials.

The key ones for journalists are the "Add Vector Layer" the first icon in the vertical menu that we saw a bit earlier.
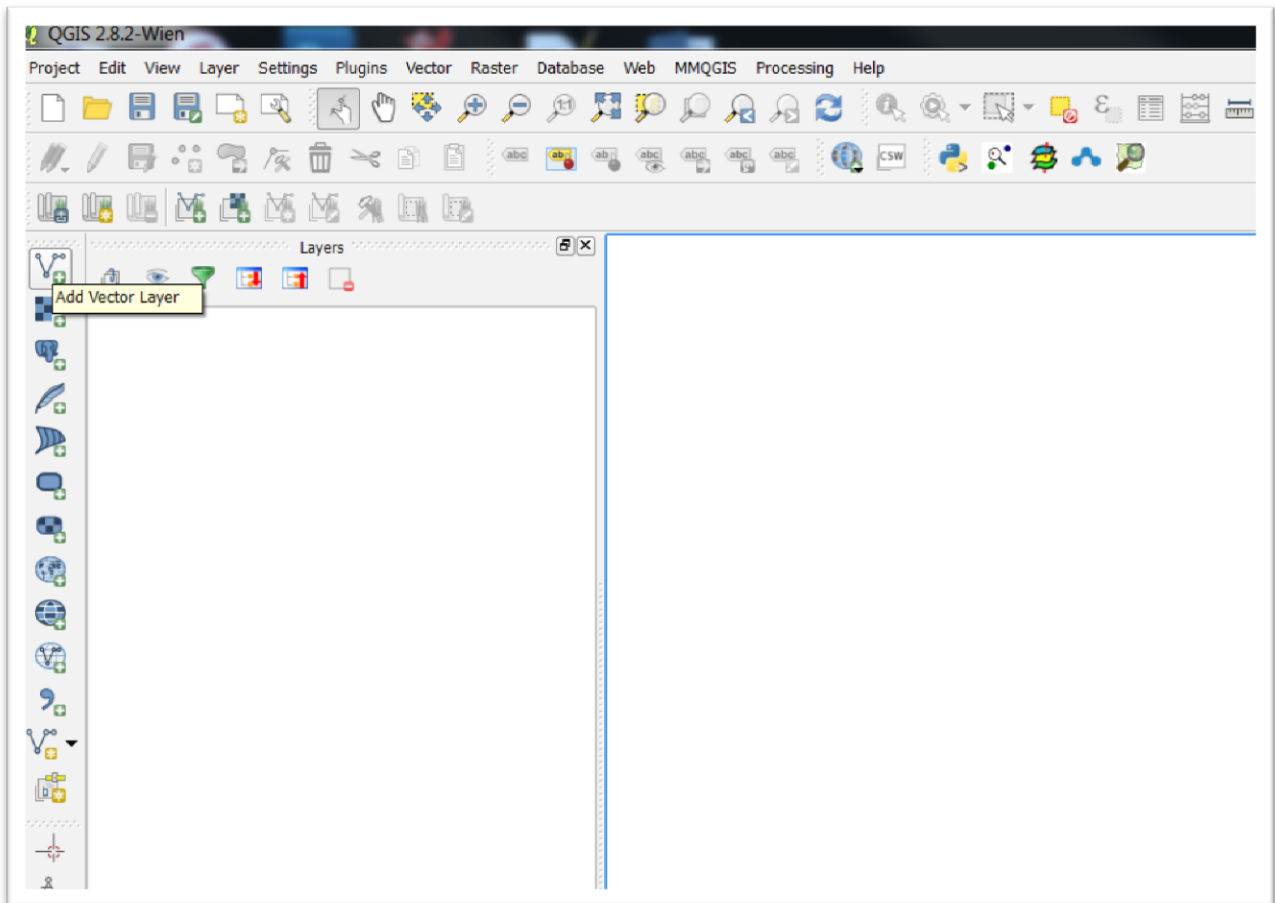
The other one that's key for importing the csv files that we'll link to the shape file is the "Add Delimited Text Layer" icon, seventh from the bottom of the vertical menu.
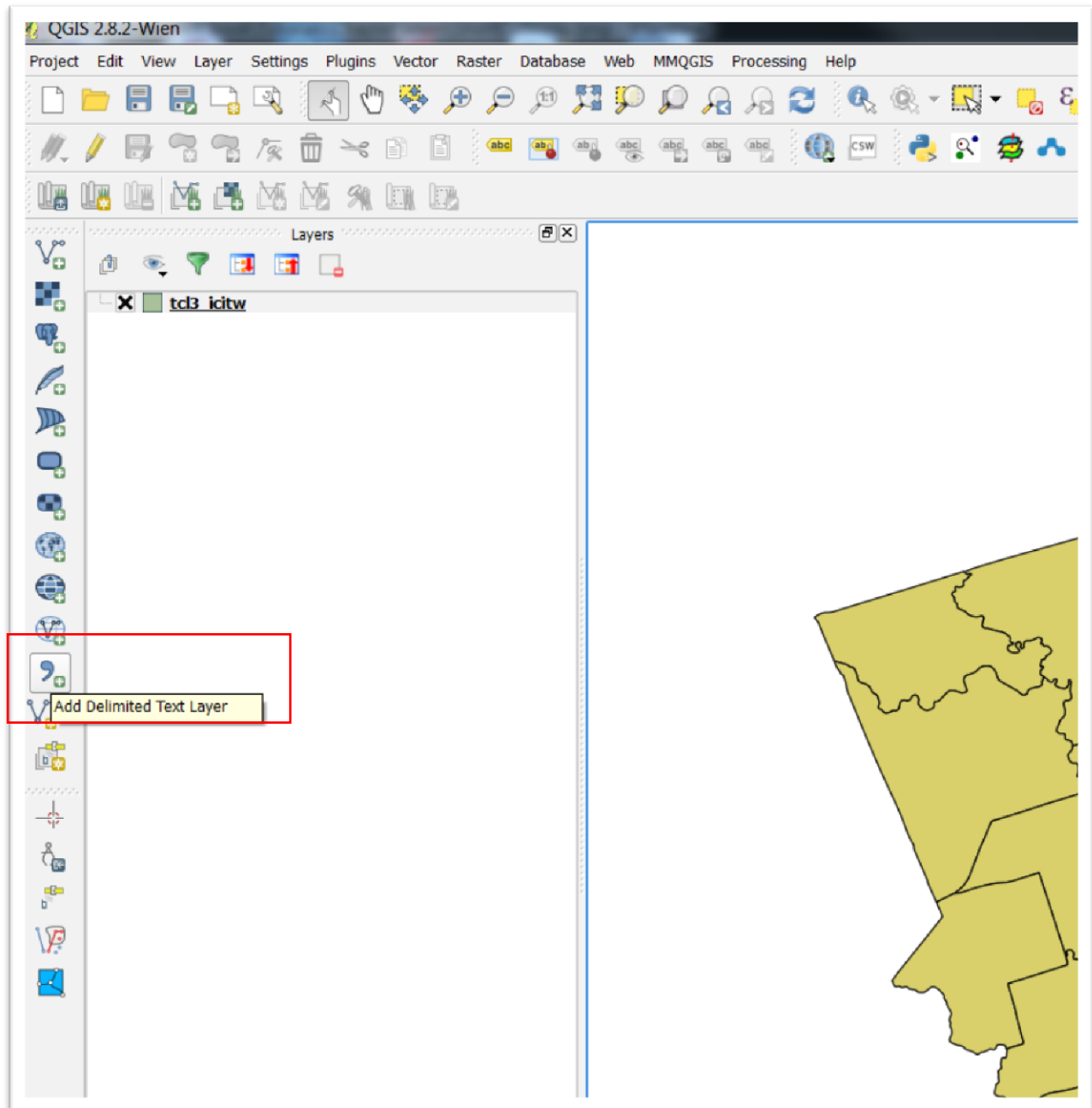
As is the case with the horizontal menu, you can find out what the other icons do by hovering your mouse over them.

Right click on anywhere on the grey bands that contain the vertical and horizontal produces menus that allow you to turn certain options on or off.
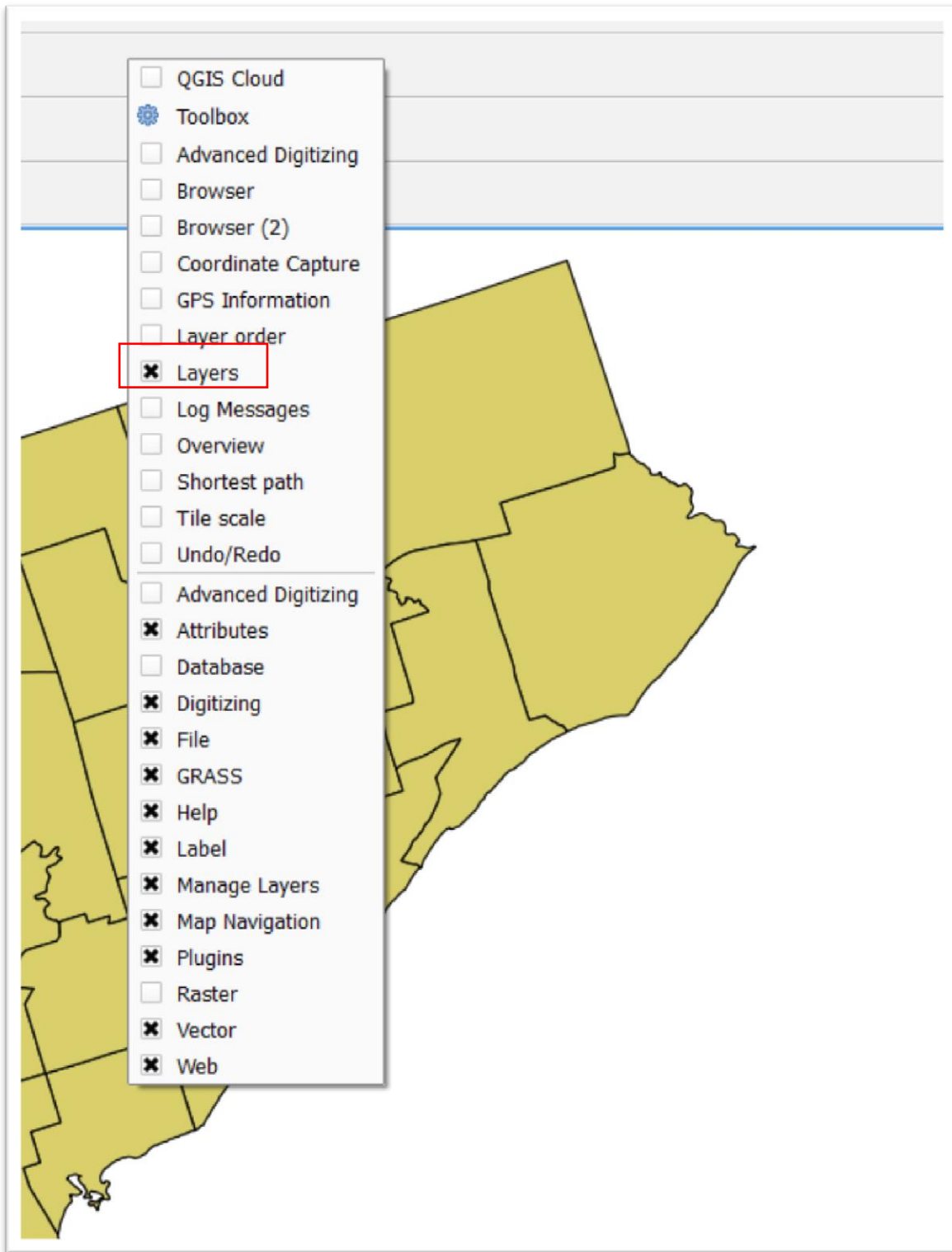
For instance, if for some reason you didn't want the layer section on the left-hand side, you could de-select the "Layers" option. Conversely, if your Layers section inexplicably disappeared, you could use this short-cut menu to get it back.

Now you know enough to get started in QGIS.