

## Create and share a map with GIScloud.com

**GIS Cloud** is a web based Geographic Information System powered by Cloud Computing and with the full power of desktop GIS. It allows users to create and access your GIS projects from any browser and share them on any web site.

You are going to apply GIS Cloud to build a GIS project. The project shows the proposed routes and stops of the Light Rail Transit (LRT) project in the Region of Waterloo. You will perform a GIS buffer analysis to show area covering a walking distance of 800 meter around each LRT stop. Two dataset are needed to create the map.

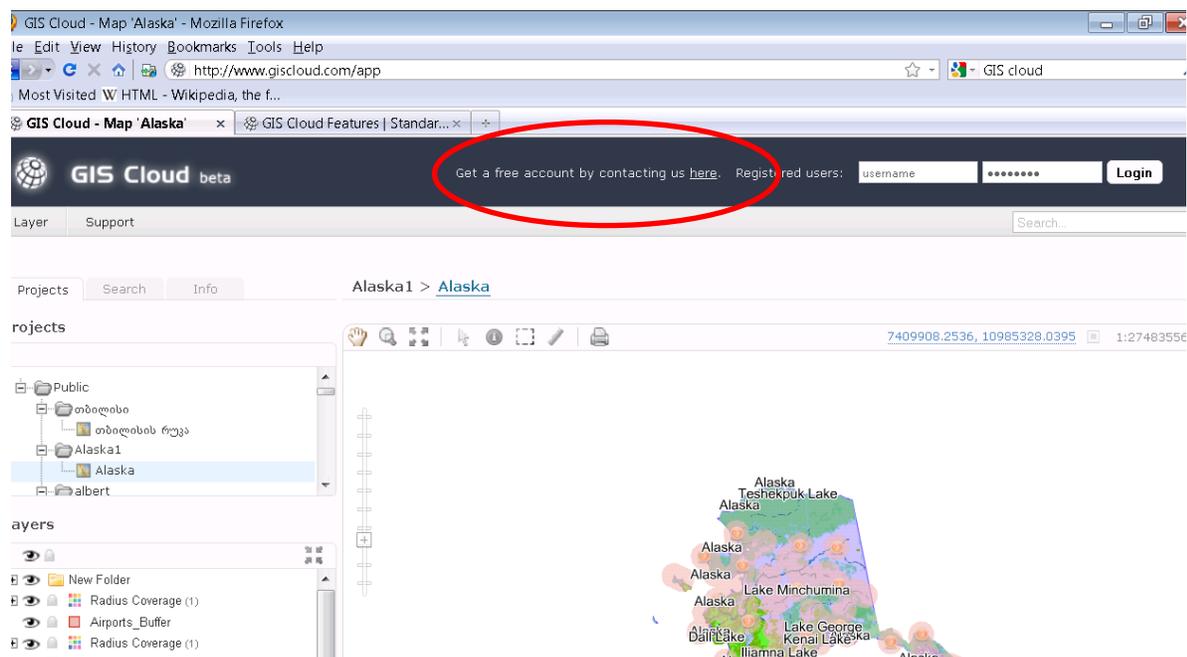
Datasets:

RT\_Route.shp shows LRT routes (Bus and Rail)

RT\_Stops.shp shows all LRT stops

## Sign up an account with giscloud.com

1. Open your browser with IE or Firefox, type in <http://www.giscloud.com/> to access the **GIS Cloud** application.



2. Fill the information to sign up for a free GIS Cloud account (if you already have an account, please skip this step).

## Sign Up

Using the form bellow you can request a free GIS Cloud account:

### Login Information

Email\*:

Password:  Create a random password  
 Let me enter my own password

### Please tell us more about yourself or your company

Contact:

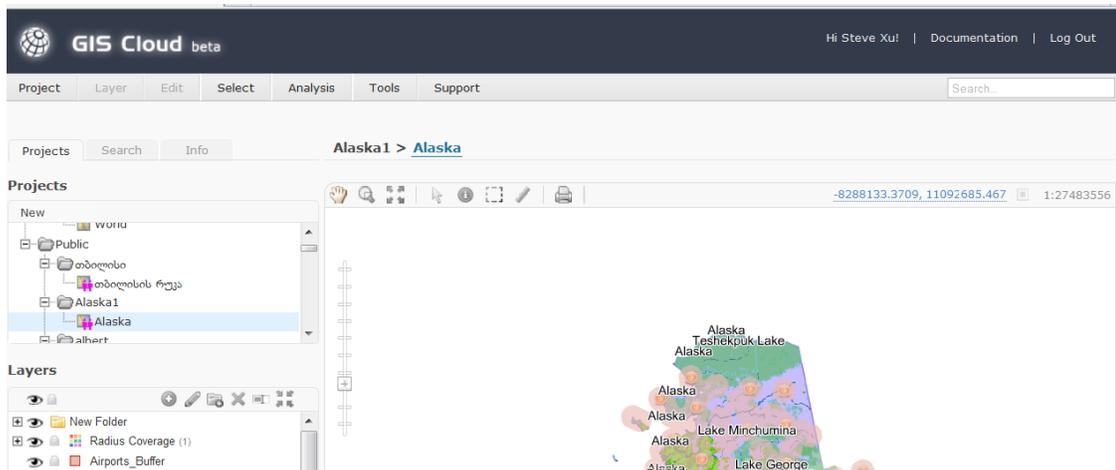
Company:

Web:

Phone/Cell:

Info:

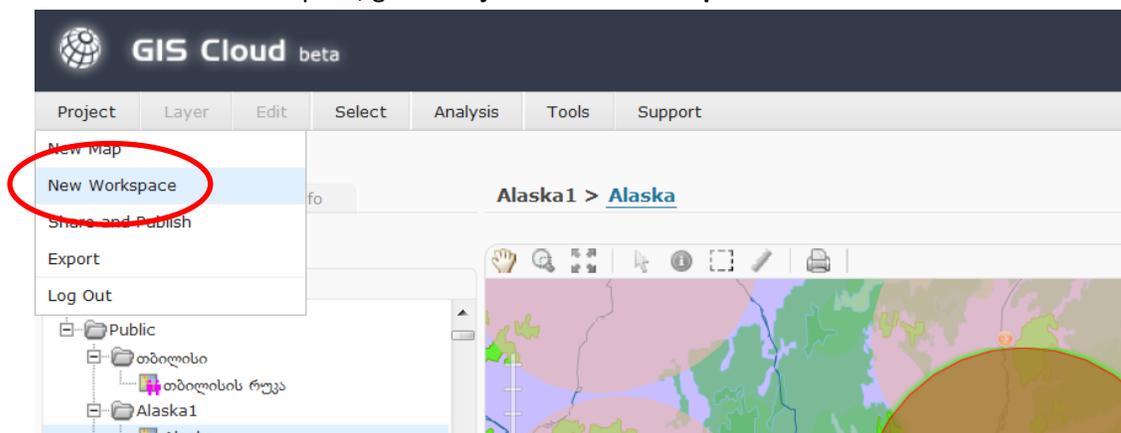
3. Sign into GIS Cloud with your e-mail address and password.



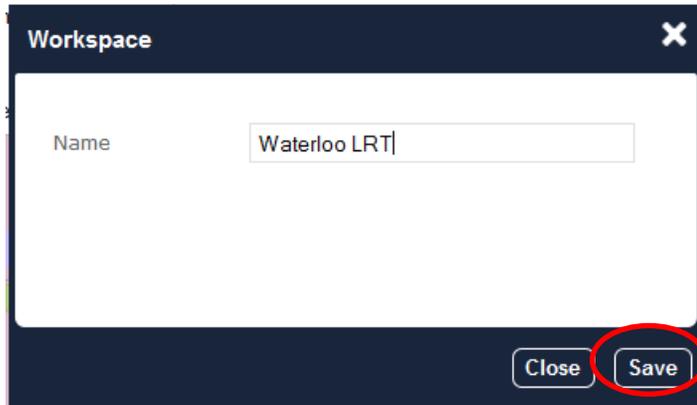
## Build up a project workspace

A project with GIS Cloud is made up of workspaces, maps and layers. A workspace is a container for a map and the first step to creating a GIS project.

4. To create a new workspace, go to **Project -> New Workspace**



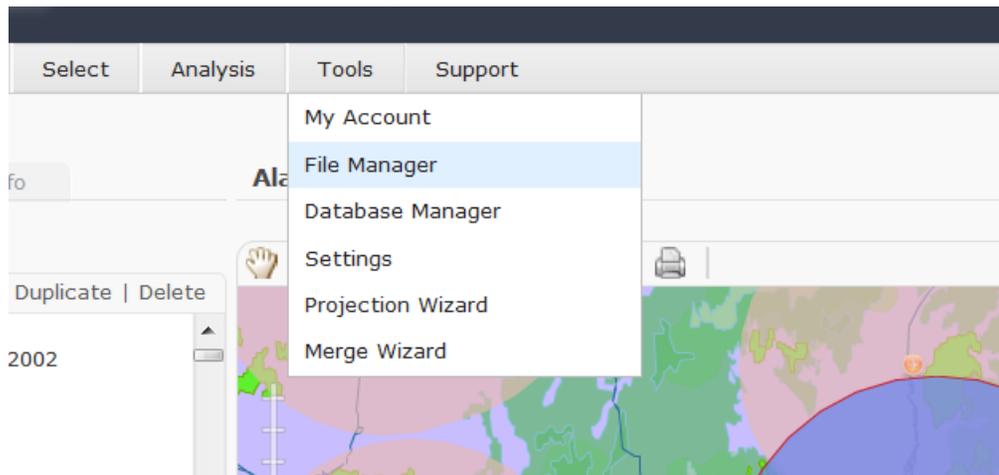
5. Assign a name to the workspace (Waterloo LRT) and click **'Save'**.



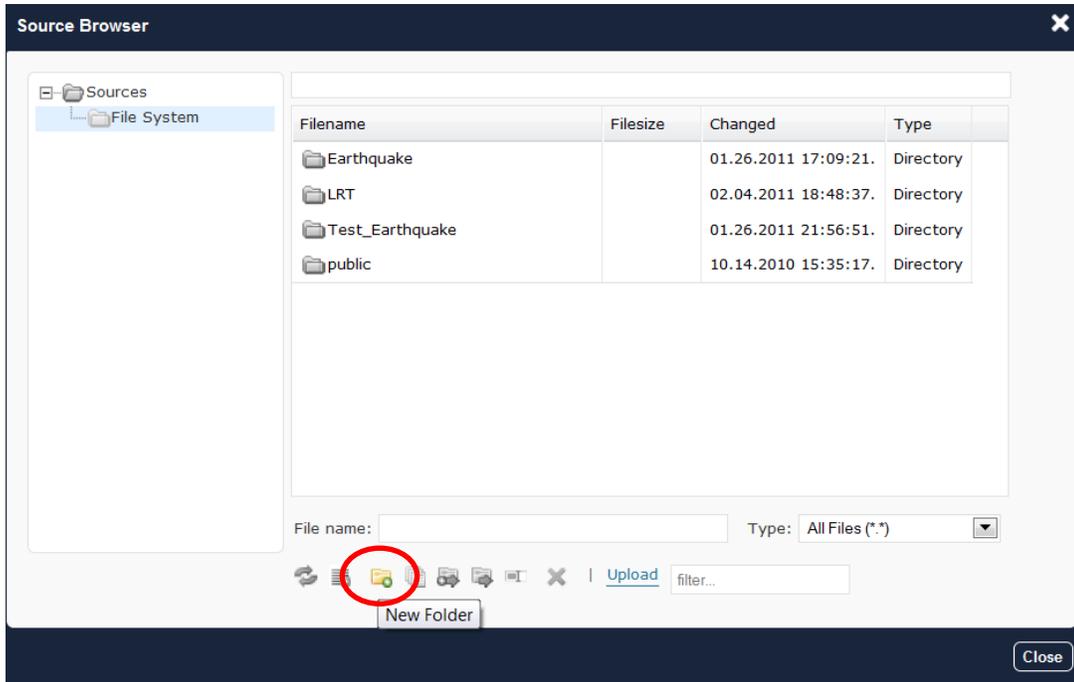
### Data Import into File Manager

Once you build a workspace, you will need to upload your data into it through **File Manager**

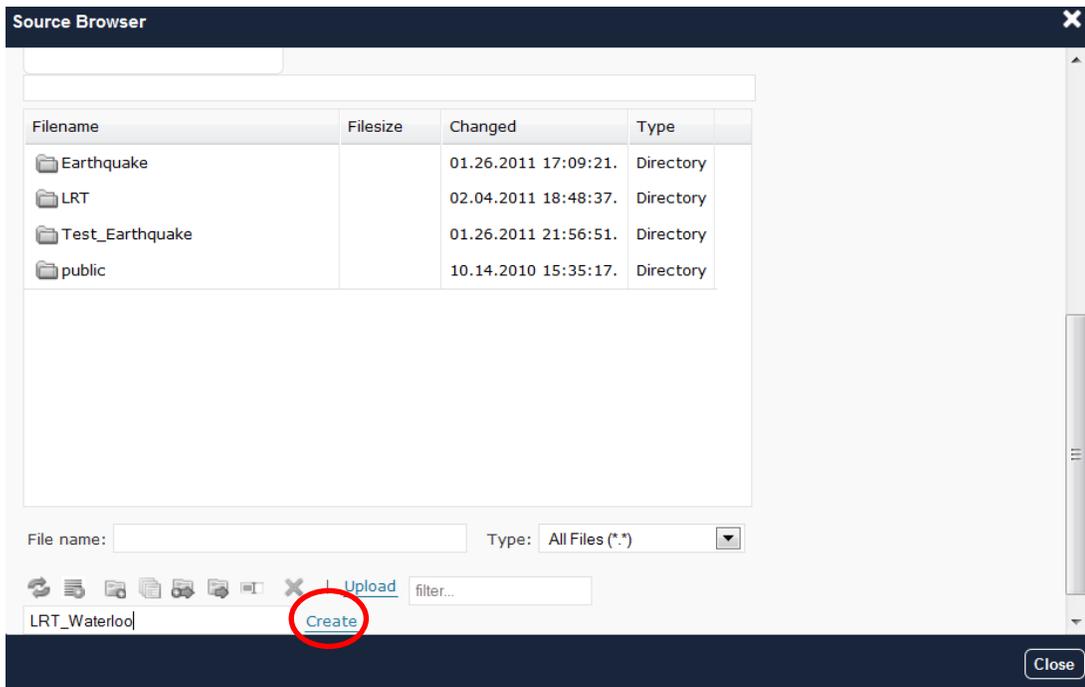
6. Import data into the 'File Manager'. Go to **Tools->File Manager**



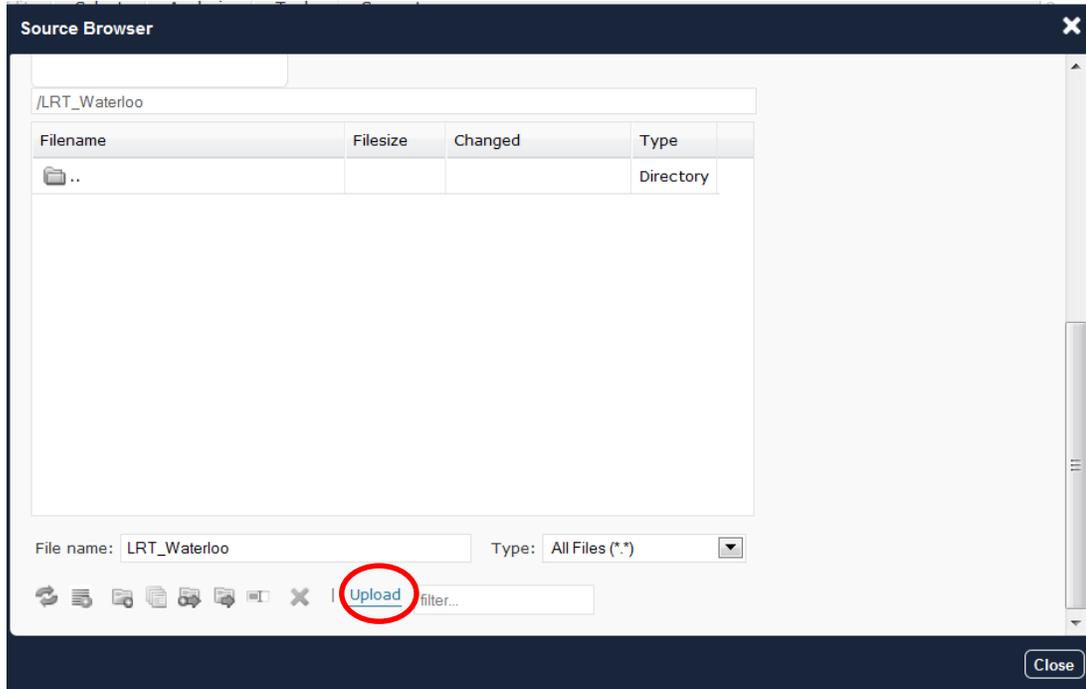
7. Create a **New Folder** in the File System



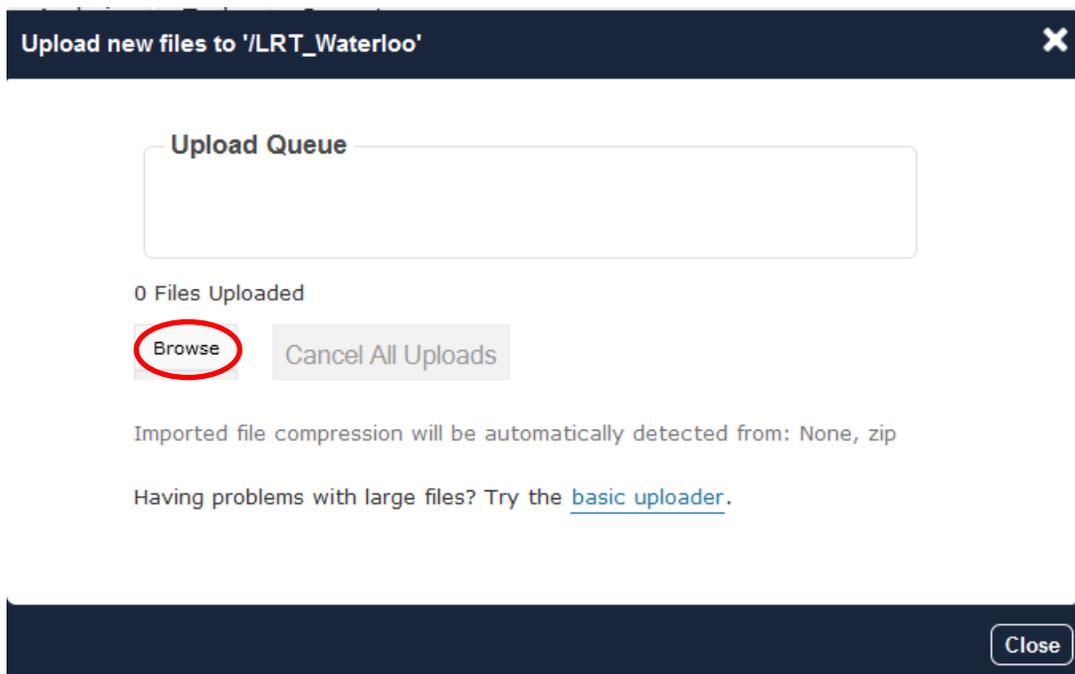
- Assign the name **LRT\_Waterloo** to the new folder and click 'Create'.



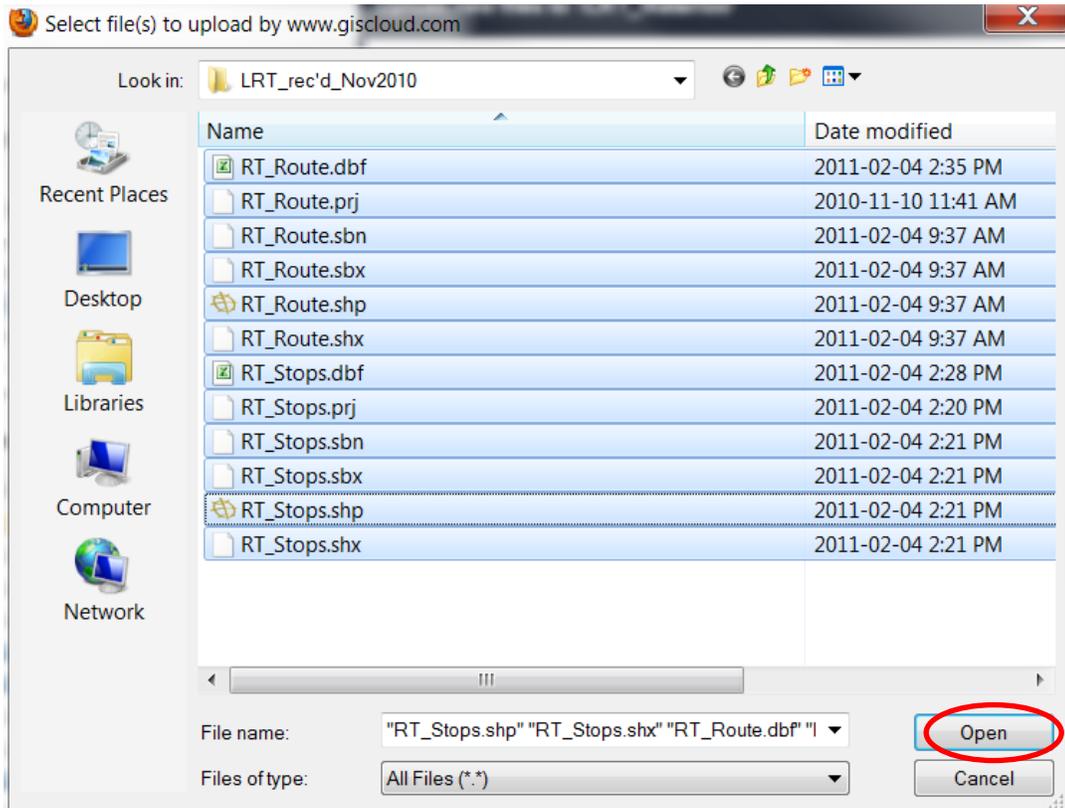
9. Double click the newly created folder (LRT\_Waterloo) and click **Upload**.



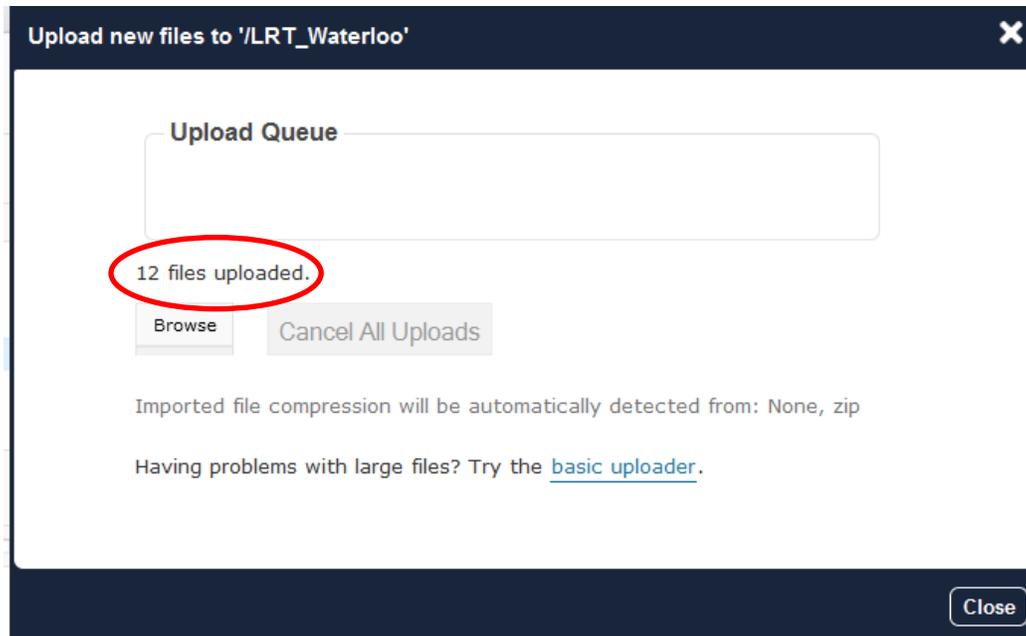
10. Click '**Browse**' to find the shapefiles in your local computer



11. You are going to import two shapefiles from E:\GISCloud. Select all files (.dbf, .prj, .sbn, .sbx, .shp, .shx) and click **Open**.

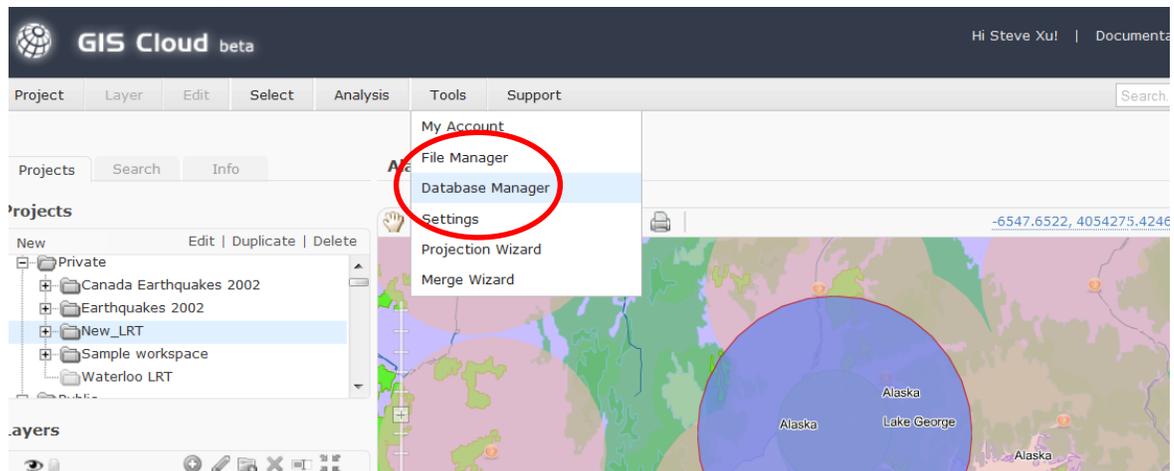


12. Click **Close** when all files are uploaded to your folder in **File Manager**.



### Database Manager

13. To perform a GIS analysis, PostGIS database format is required. You will need to upload files from **File Manager** into **Database Manager**. Next, you are going to upload those two shapefiles into **Database Manager**. This will allow you to perform some GIS analysis. Go to **Tools->Database Manager**



14. In the **Database Manager**, Click **Import**. This will open the **Source Browser**.

Database manager

PostGIS Connection

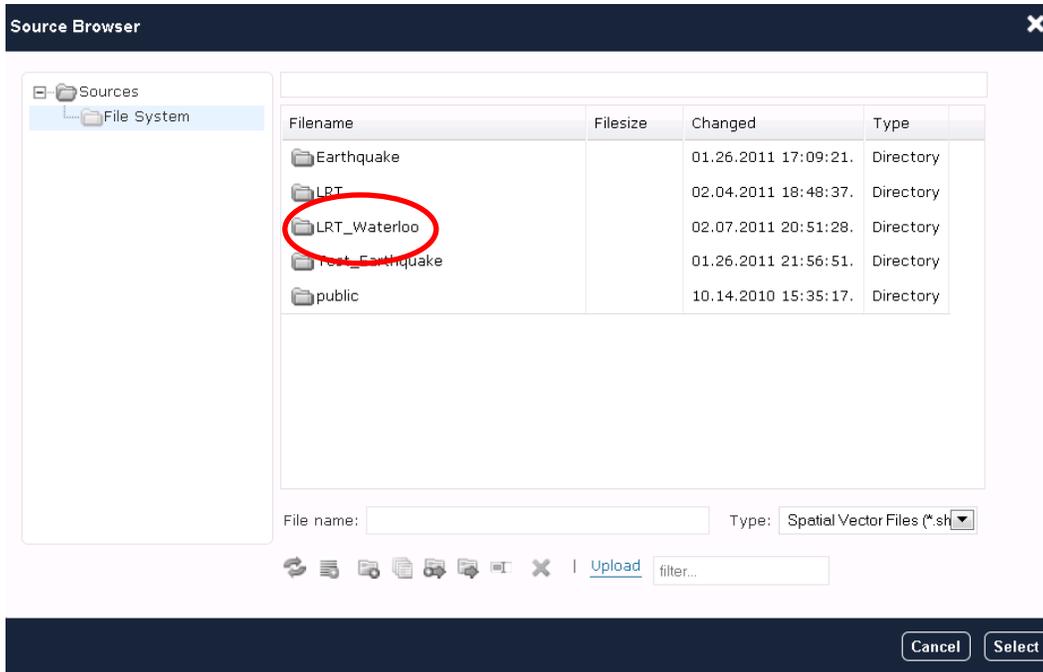
GIS Cloud local [Connect](#) | [New](#) | [Edit](#) | [Delete](#)

Table	Owner	EPSG	Count ~	Modified
buffer_040211_185615	s4xu@uwaterloo.	26917	1	2011-02-04 18:5
buffer_040211_193435	s4xu@uwaterloo.	26917	1	2011-02-04 19:3
buffer_040211_194554	s4xu@uwaterloo.	26917	1	2011-02-04 19:4
buffer_260111_180435	s4xu@uwaterloo.	4326	0	2011-01-26 18:0
buffer_280111_174615	s4xu@uwaterloo.	4326	1	2011-01-28 17:4
quakes2002_m4_wgs84a	s4xu@uwaterloo.	4326	75	2011-01-28 17:1
quakes2002_m4_wgs84a_280111_172203	s4xu@uwaterloo.	4326	10	2011-01-28 17:2
rt_route	s4xu@uwaterloo.	26917	9	2011-02-04 16:2
rt_stations_2009	s4xu@uwaterloo.	26917	22	2011-02-04 16:2
stops	s4xu@uwaterloo.	26917	16	2011-02-04 18:3

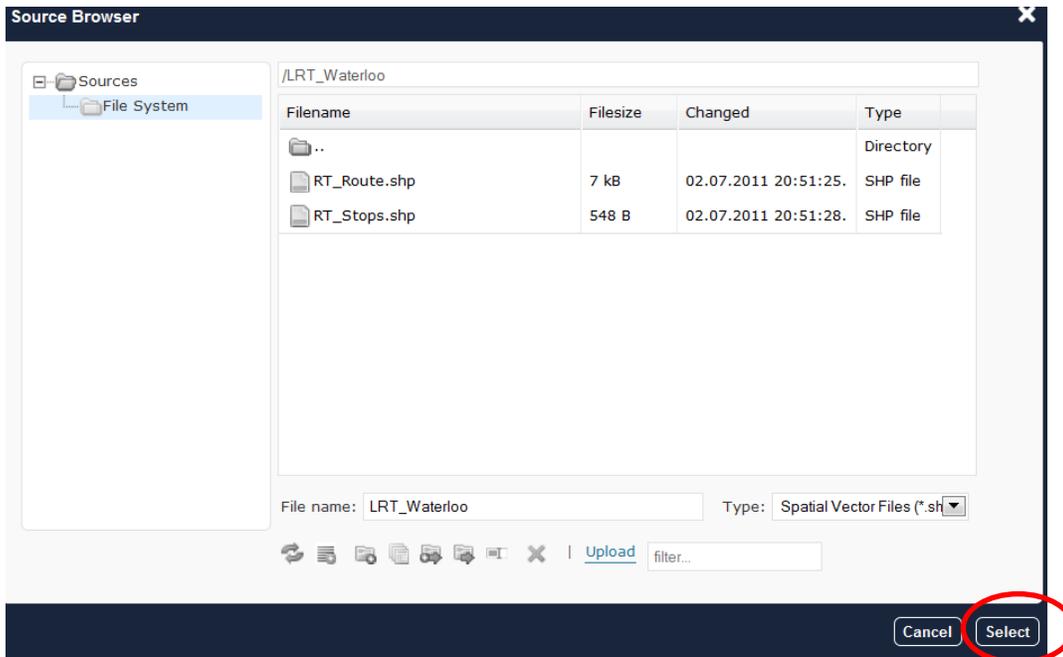
[Import](#) |         

Close

15. You are going to find those two shapefiles. In the Source Browser, find and double click the folder **LRT\_Waterloo**.

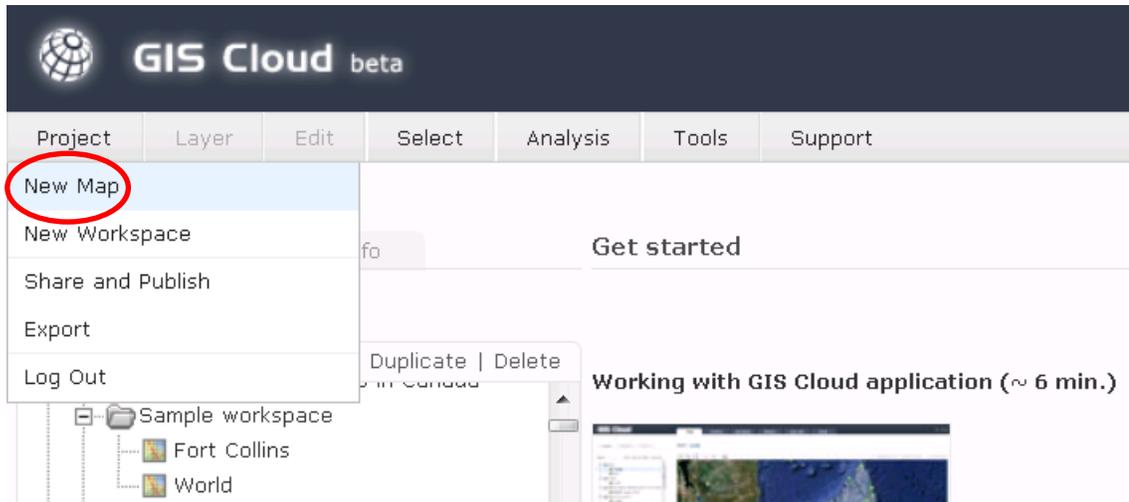


16. Select the two shapefiles and click **Select**.



## Creating a map and add layers

17. Now we are going to create a new map using the layers created from the uploaded data. Go to **Project-> New Map**.



20. You are going to assign the new map a name **Light Rail Transit at Waterloo Region**. Make sure you set the workspace as **Waterloo LRT**. Accept all the other default settings and click **Save**.

**New map**
✕

Name

Workspace  ▼

Copyright

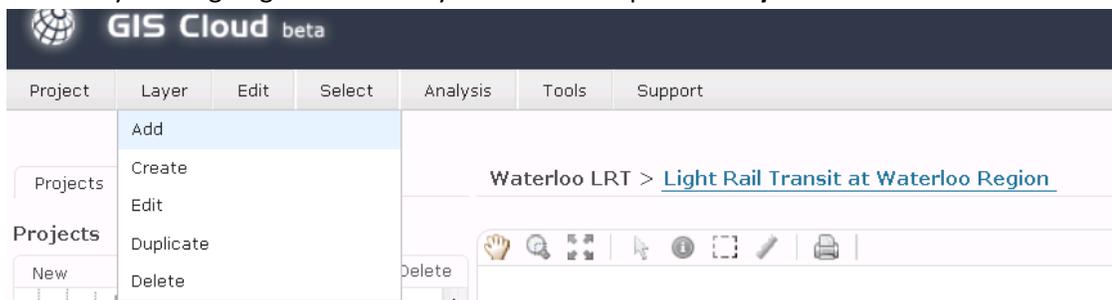
Projection  [Change](#) [Clear](#)

Unit  ▼

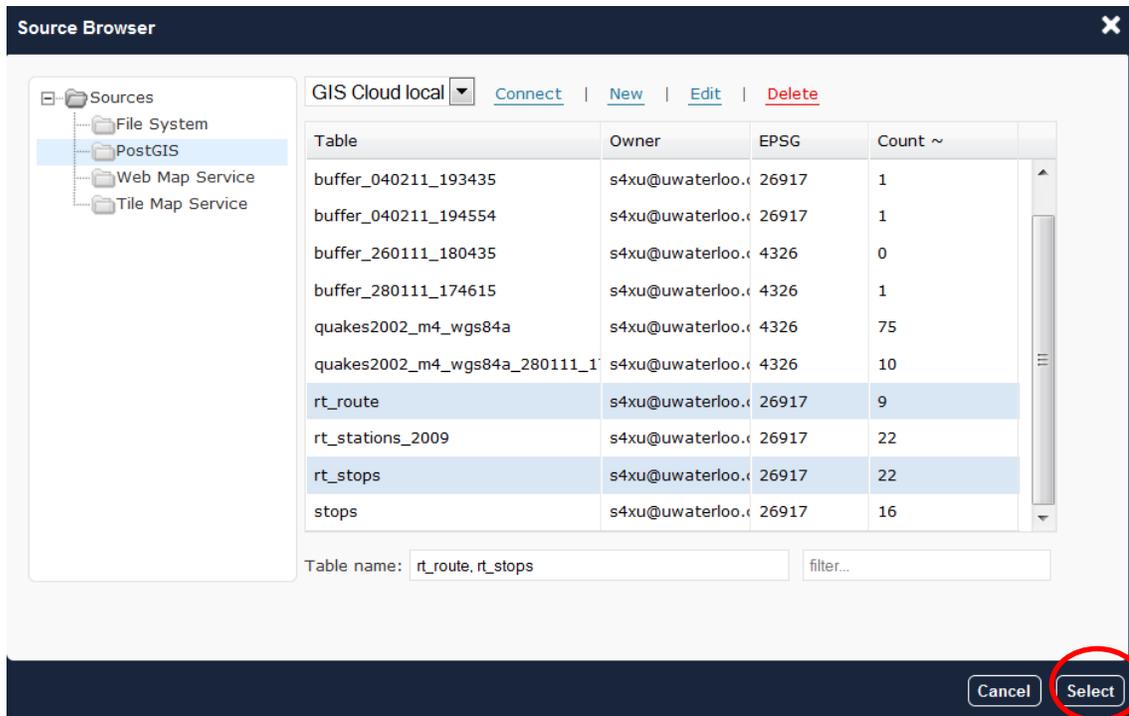
Max zoom 1 :  Background color

Close
Save

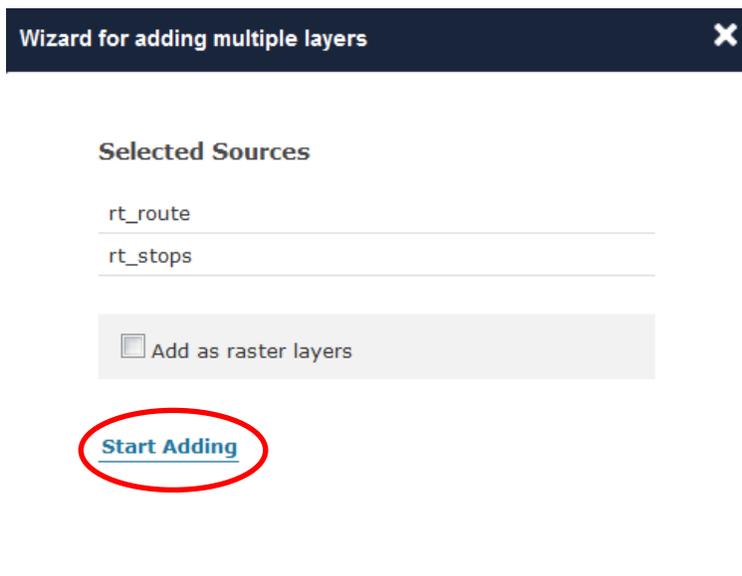
21. Next you are going to add two layers into the map. Go to **Layer->Add**.



22. In the Source Browser, select the **Sources** as **PostGIS** and you will see a list of tables. Select table **rt\_route** and **rt\_stops** and then click **Select**.

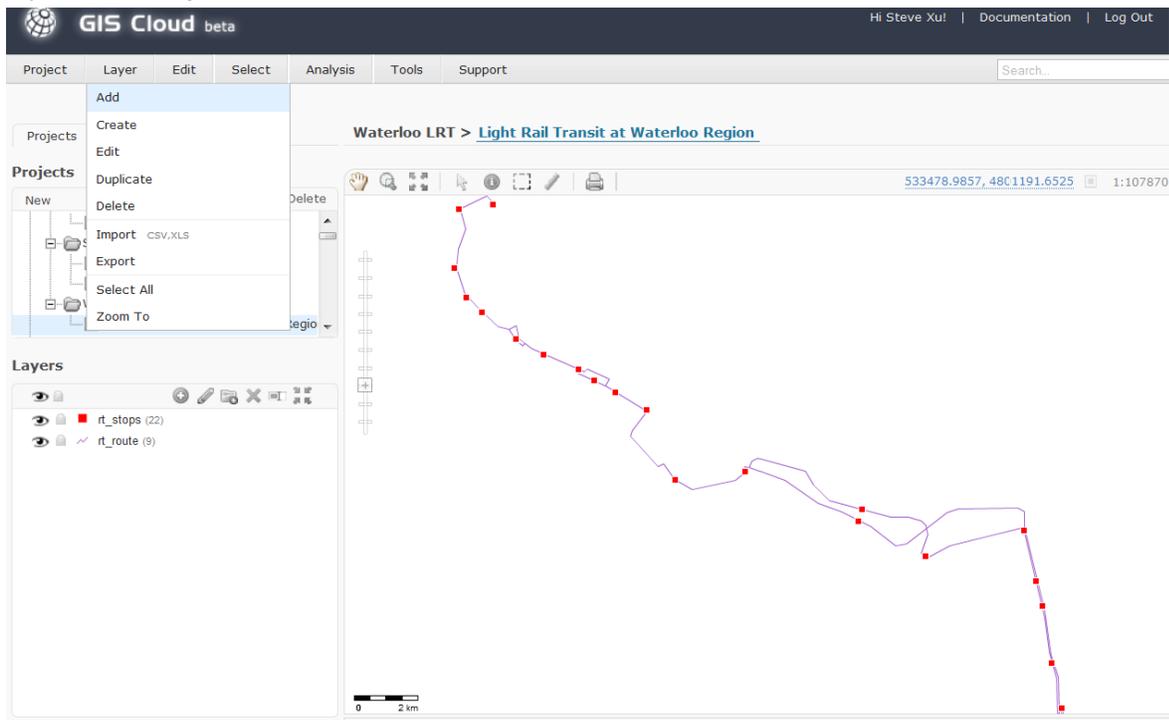


23. You will see a wizard for adding multiple layers. Click **Start Adding**.

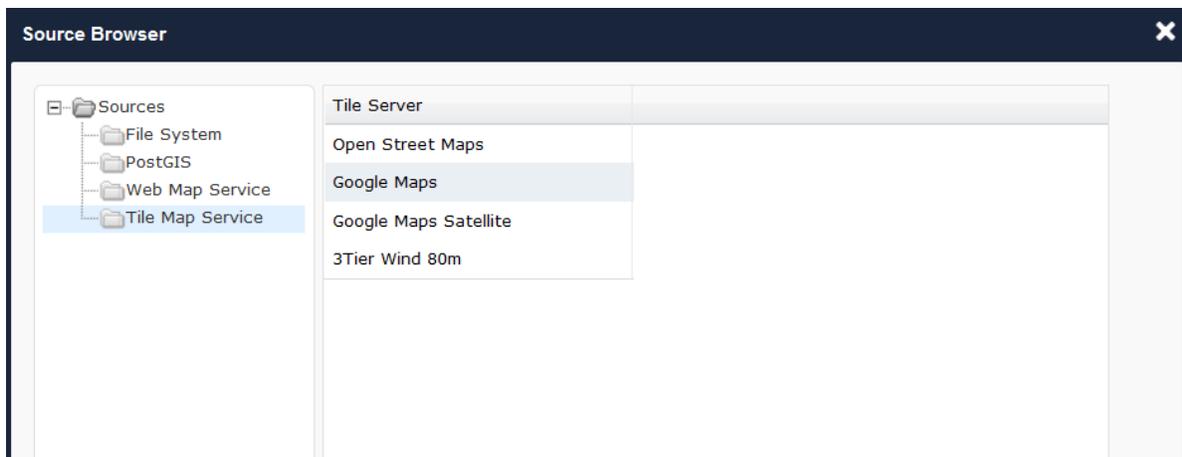


**Add Google Maps as basemap**

24. The map has two layers but doesn't show you the exact location. Add Google Map as the basemap layer. Go to **Layer-> Add**.



25. In the Source Brower, Click **Tile Map Services** and in the Tile Server, select **Google Maps**.



26. In the layer properties window, you are going to accept the default setting by clicking **Save**.

### Layer properties

General | Display | Label | Rendering

#### General layer information

Name:

Type:

Source:  [Browse](#)

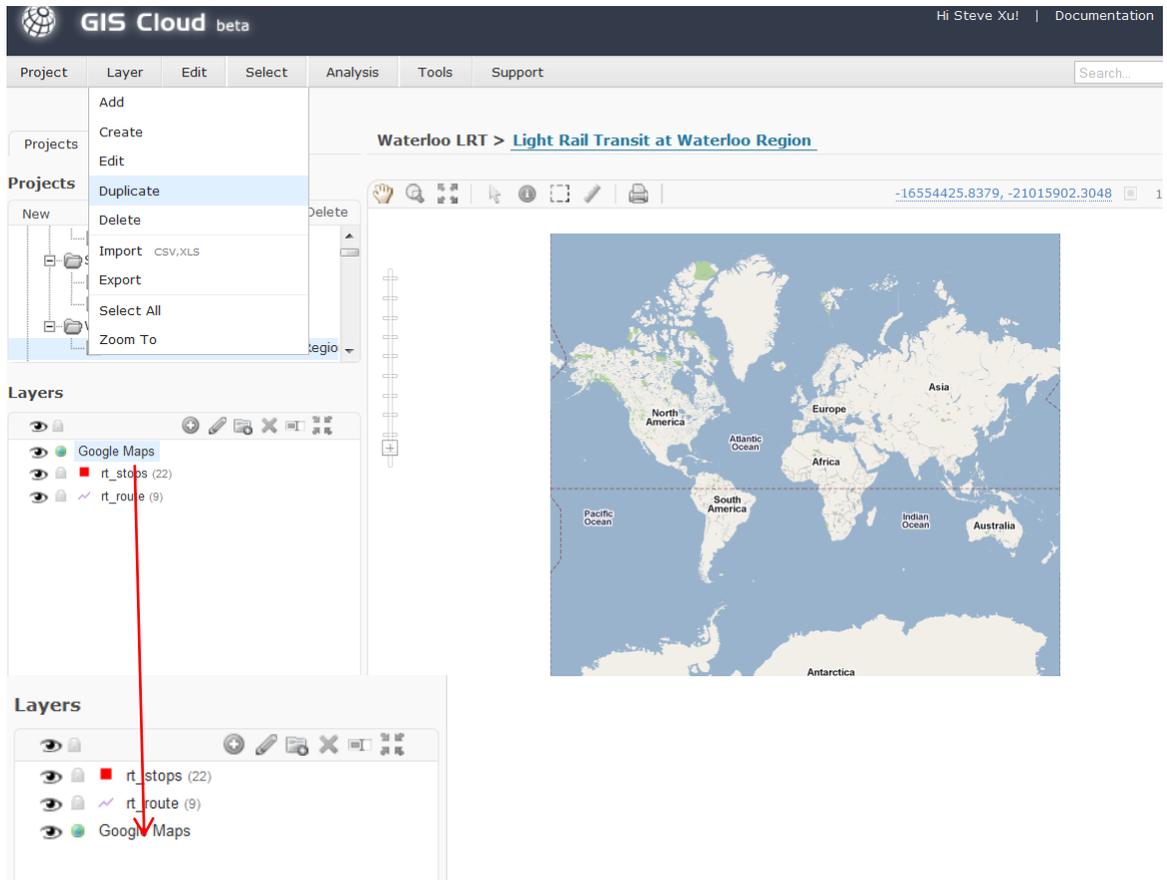
#### Appearance

[Wizard](#) | [Clear](#)

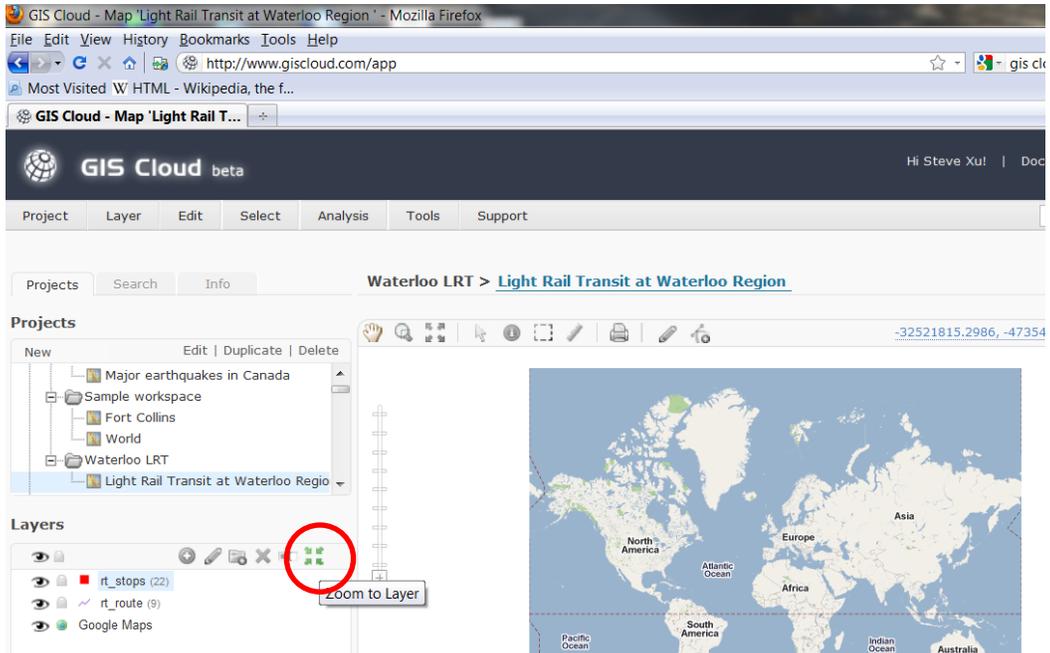
Expression:  Appearance:   

27. The Google Maps layer is sitting on top of all the layers now, so you are going to have to move the map to the bottom. Right click on the **'Google Maps'** Layer and, hold the mouse, drag the layer to the bottom and release the mouse.

### Adjust layer sequence and extent

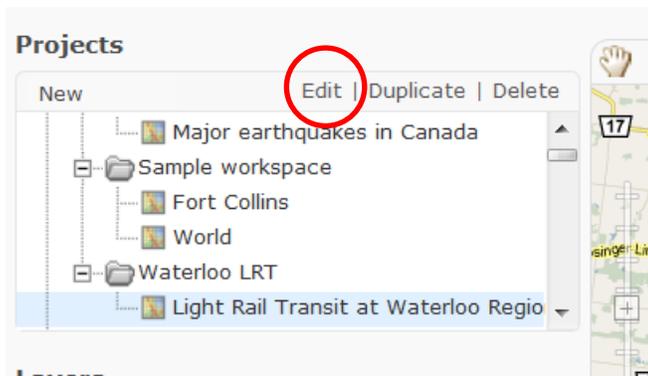


28. By default, the map shows the spatial extent of Google Maps (which is the world). To change it to the spatial extent of LRT project in Waterloo Region, click the **rt\_stops** layer and them **Zoom to Layer**.



## Adjust map extent

29. Now you are going to set the map extent to the same as the spatial extent of `rt_stops`. Click **'Edit'** under the Projects window



30. In the **Edit map** window, click **Bound**. This will expand the window and show X Y min and max values.

**Edit map** ✕

Name

[Share and Publish](#)

Workspace

Copyright

Projection  [Change](#) [Clear](#)

Unit

Max zoom 1 :  Background color

**Bound** ▶

31. Click **Get current view** and **Save** to close the window. You will get a notice that the **Map successfully updated**.

**Edit map** ✕

Name

[Share and Publish](#)

Workspace

Copyright

Projection  [Change](#) [Clear](#)

Unit

Max zoom 1 :  Background color

**Bound** ▼

[Get current view](#) [Clear](#)

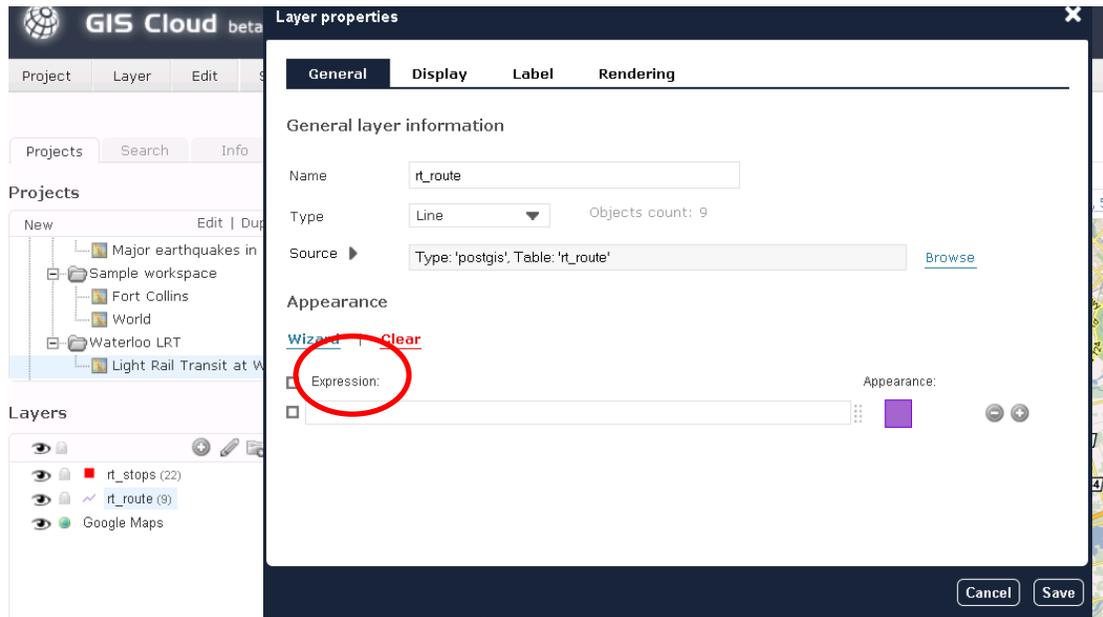
xMin  yMin

xMax  yMax

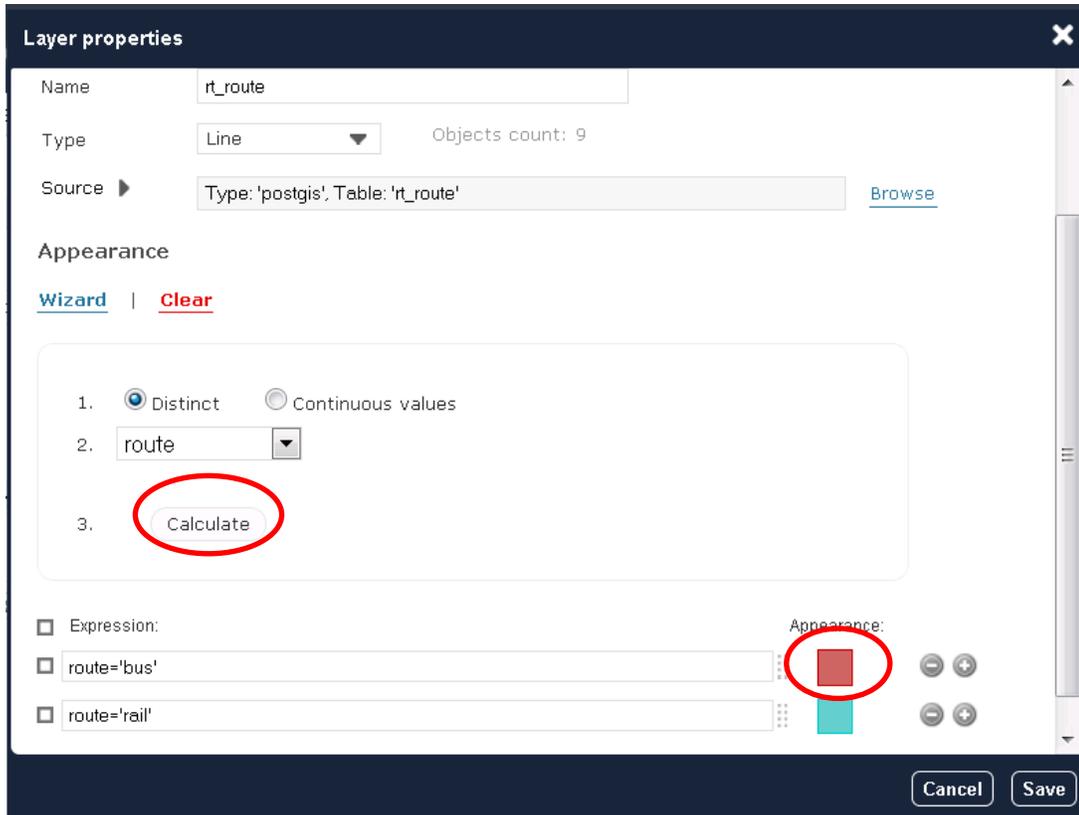
Cache [Clear map tiles](#)

**Change LRT route appearance**

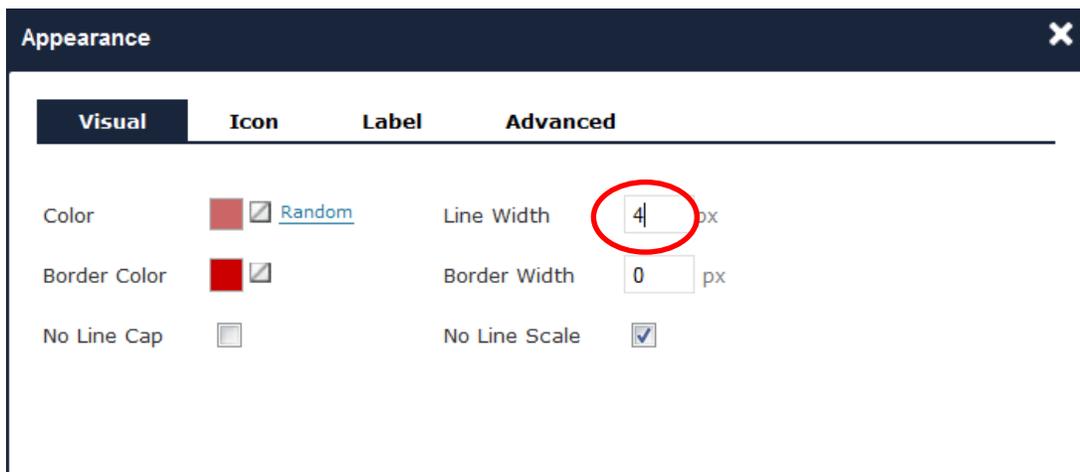
31. The proposed LRT project has two types of routes, bus and rail. You are going to change their appearances. Double click the **rt\_route** layer. This will bring out a layer properties window. You will then click on the **Wizard** under **Appearance**.



32. Set the column as **route** and click **Calculate**. This will create two expressions: route = 'bus' and route = 'rail'.

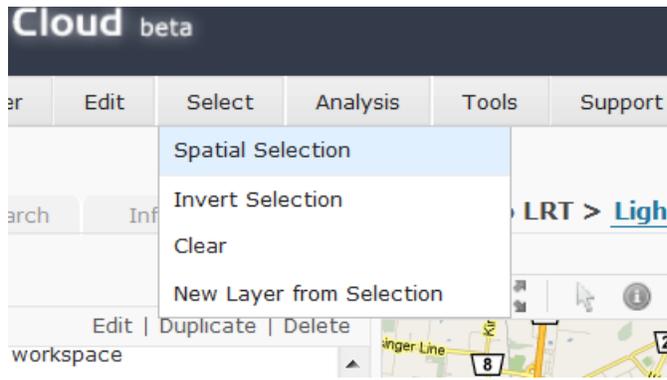


33. Now you are going to change both route appearances. Double click the line width of the bus route from 2 to 4. Click **OK** to save the change. Repeat the same procedure for rail route.



Select LRT route by attribute or keyword

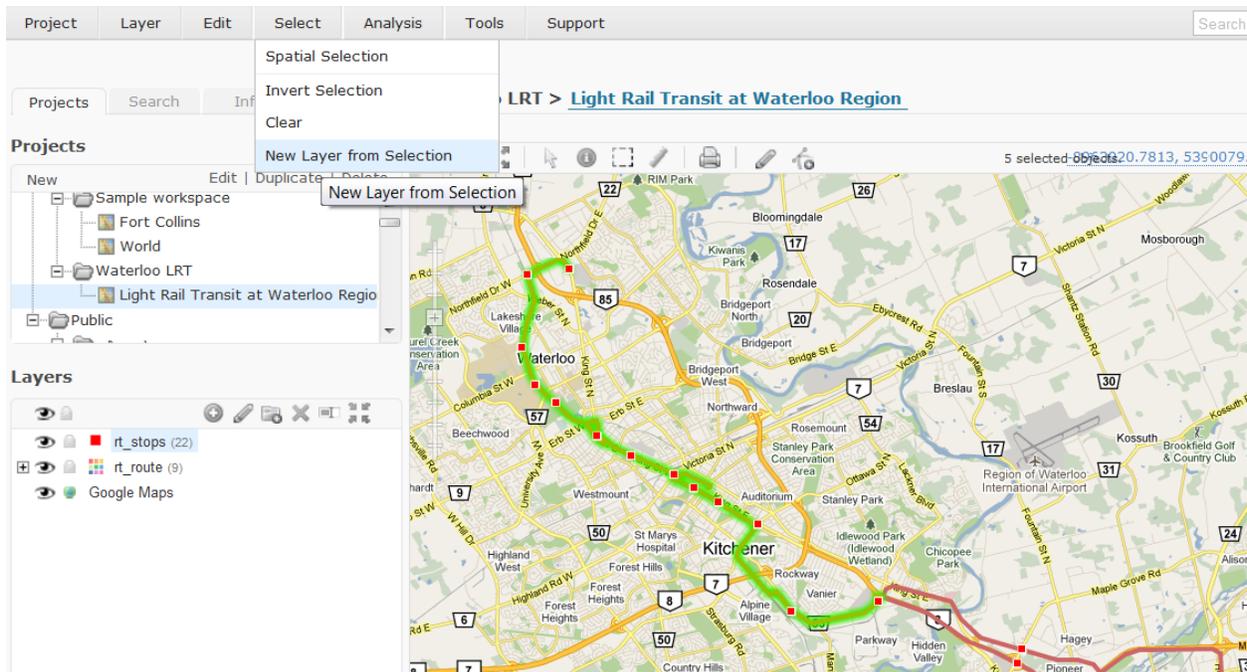
34. Next you will create a spatial selection showing only the rail route. Go to **Select->Spatial Selection**.



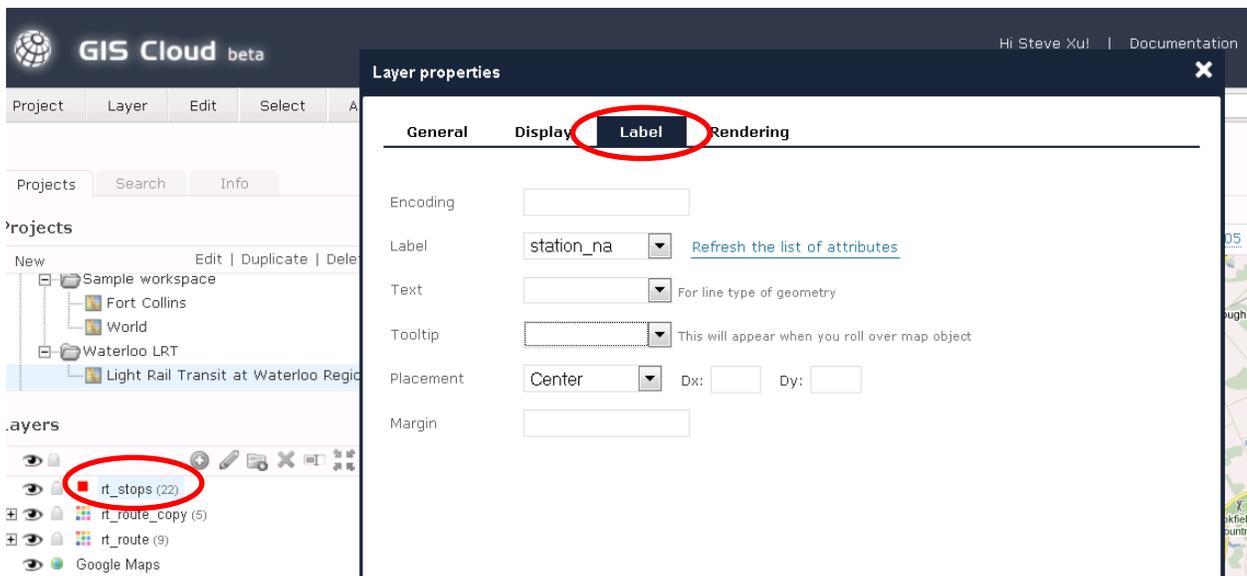
35. Set the table as **rt\_route**, column as **route** and **condition as = 'rail'**. Click **Select** to confirm the selection and **Close** to close the window.



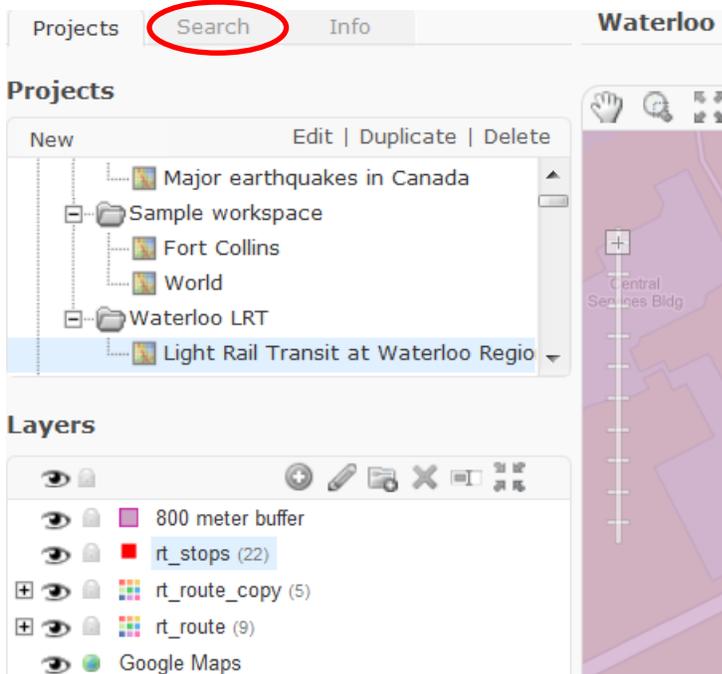
36. The selected rail route is highlighted in the map. You can create a new layer from the selection. Go to **Select-> New Layer from Selection**.



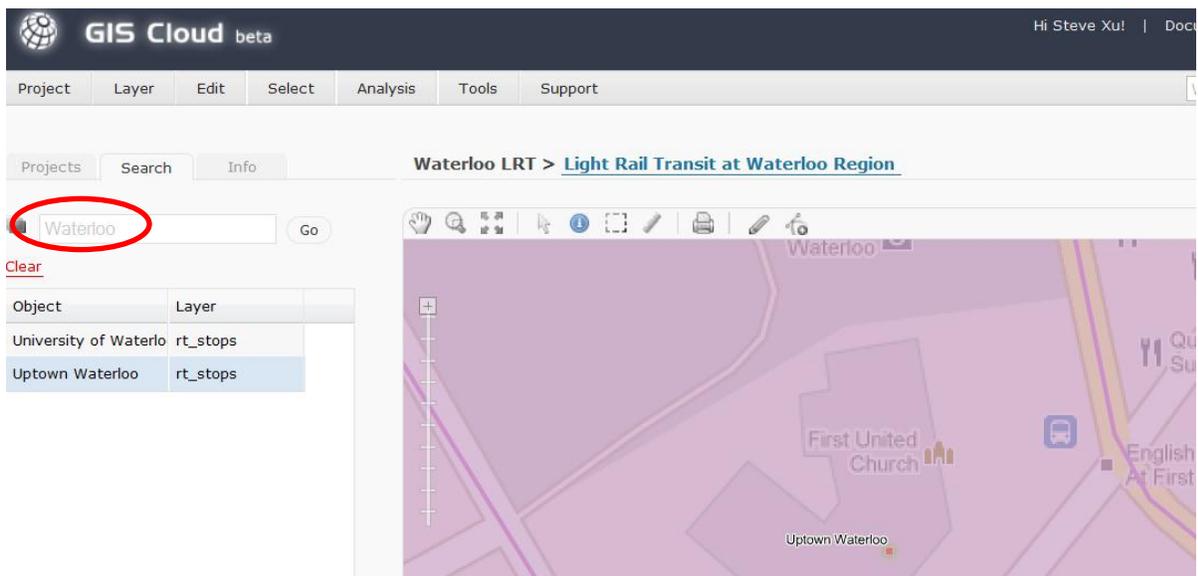
37. Now you are going to assign a label to each LRT stop. Double click the **rt\_stops** layer. This will bring in **Layer Properties** window. Click **Label** and set the label as **station\_na** (station name). Click **Save** to confirm the change.



38. You can search for a particular feature within a layer. Select **rt\_stops** layer and click **Search**.

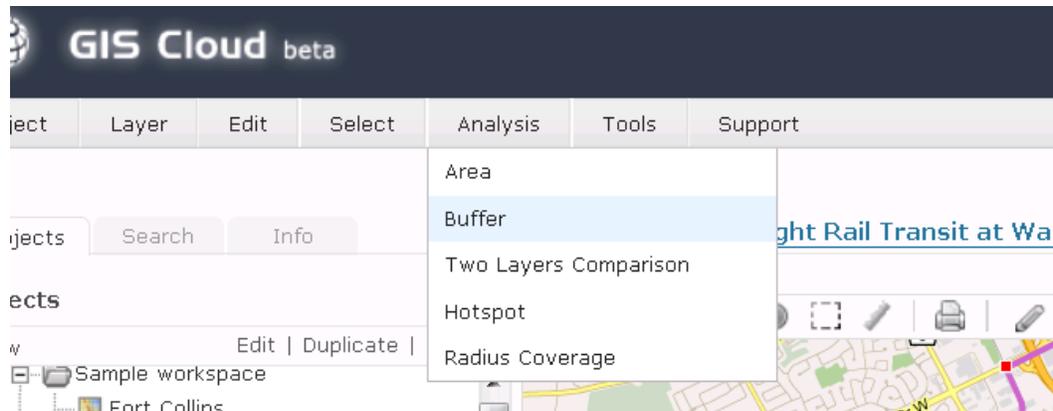


39. Enter **Waterloo** in the search box and click **Go**. Two objects (LRT stop) will appear. Double clicking **Uptown Waterloo** will bring you to the proposed LRT stop location.



### Perform a GIS buffer analysis

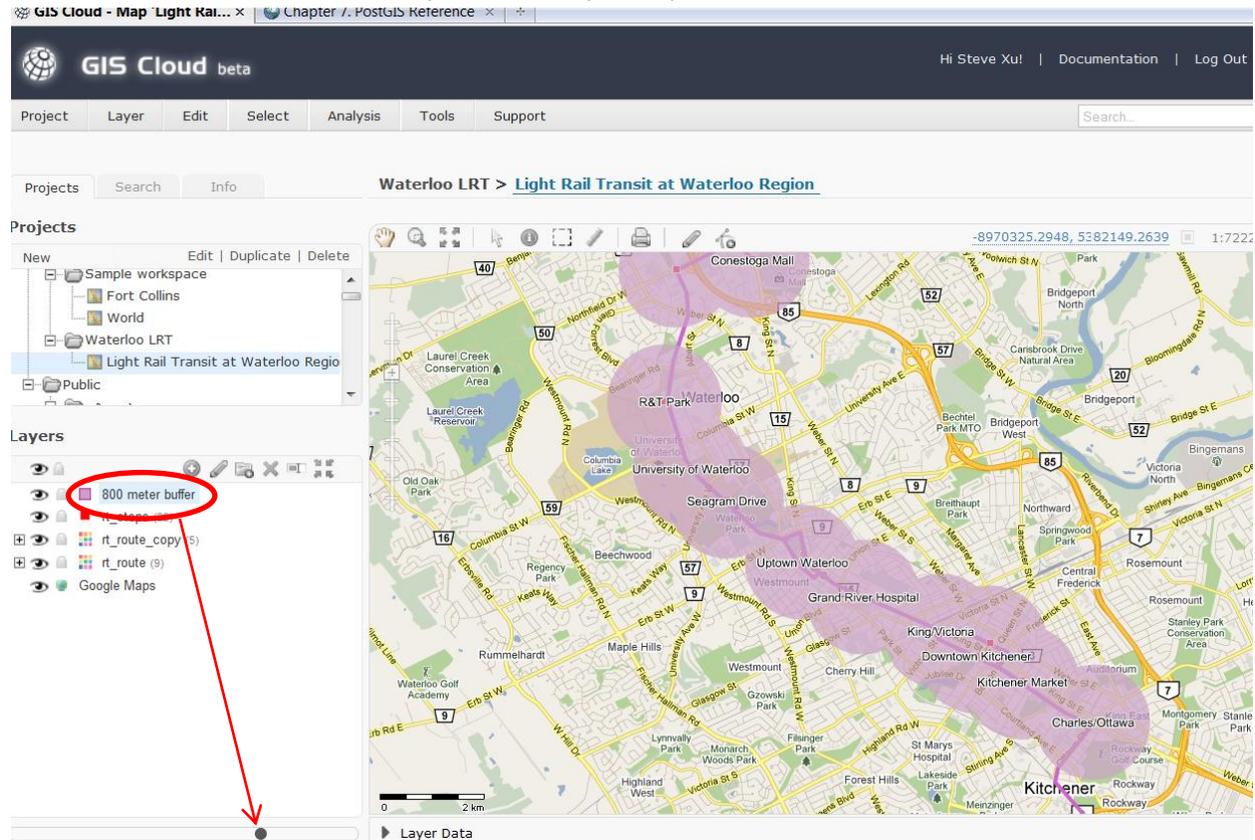
40. Now you are going to create a 800 meter buffer zone around each LRT stop. Go to **Analysis->Buffer**.



41. In the **Buffer Analysis** window, set the layer as **rt\_stops**, an Analysis name as **800 meter buffer** and **Distance** as **800 meter**. You may change the **Fill color**. Click **Show Buffer** when finished.

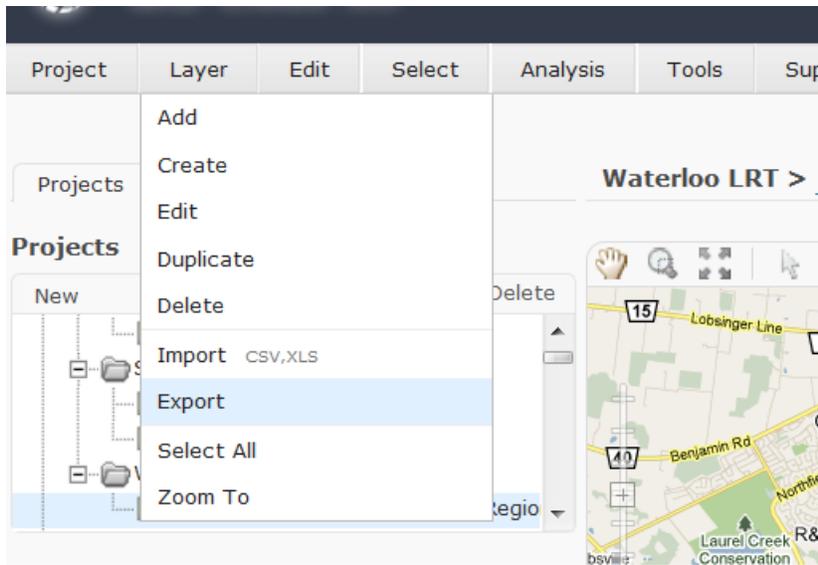
A screenshot of the 'Buffer Analysis' configuration window. The window has a dark header with the title 'Buffer Analysis' and a close button. The configuration fields are: 'Analysis name:' with a text input containing '800 meter buffer'; 'Layer:' with a dropdown menu showing 'rt\_stops' and a note 'Only PostGIS layers'; 'Distance:' with a text input containing '800' and a unit dropdown showing 'meters'; 'Group geometry:' with a checked checkbox; 'Fill color:' with a purple color swatch; and 'Border color:' with a magenta color swatch. At the bottom right, there are two buttons: 'Cancel' and 'Show Buffer', with the 'Show Buffer' button circled in red.

42. You are going to adjust the layer transparency. Click the **800 meter buffer** layer and then drag the black circle at the bottom left to adjust the transparency.

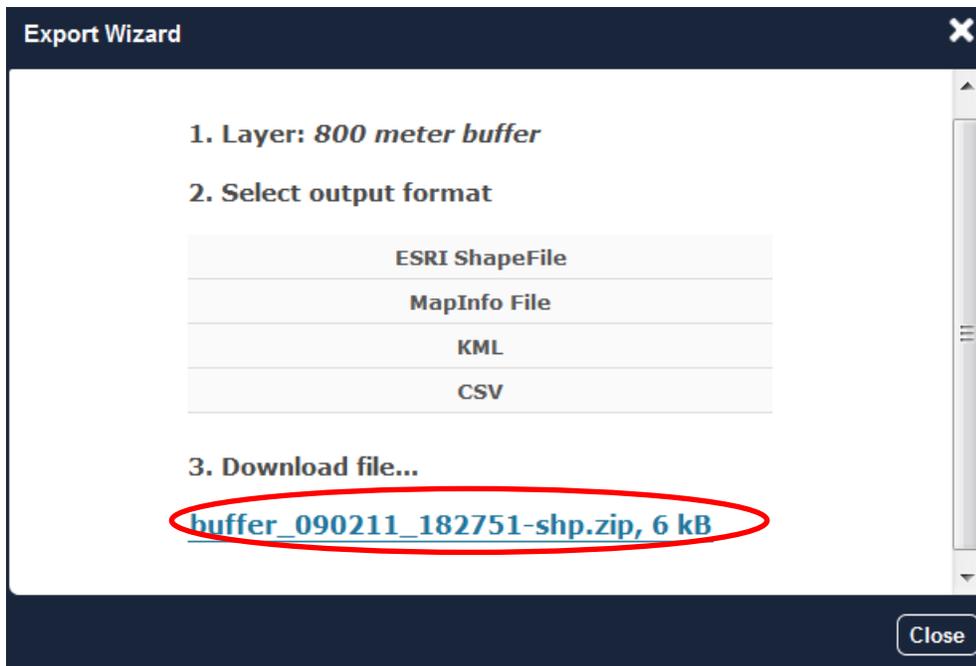


## Data export

43. GIS cloud allows you to export your layer. Select **800 meter buffer** layer again. Go to **Layer-> Export**.

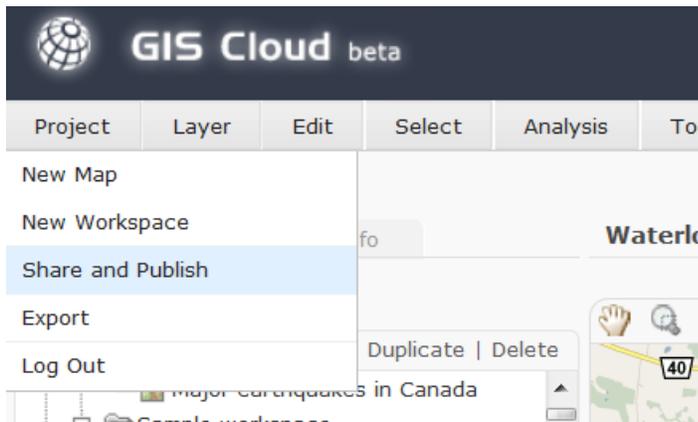


44. This will bring out an 'Export Wizard'. Select the output format as **ESRI shapefile** and wait until the link is available. Click the **Download file** link to download the shapefile.

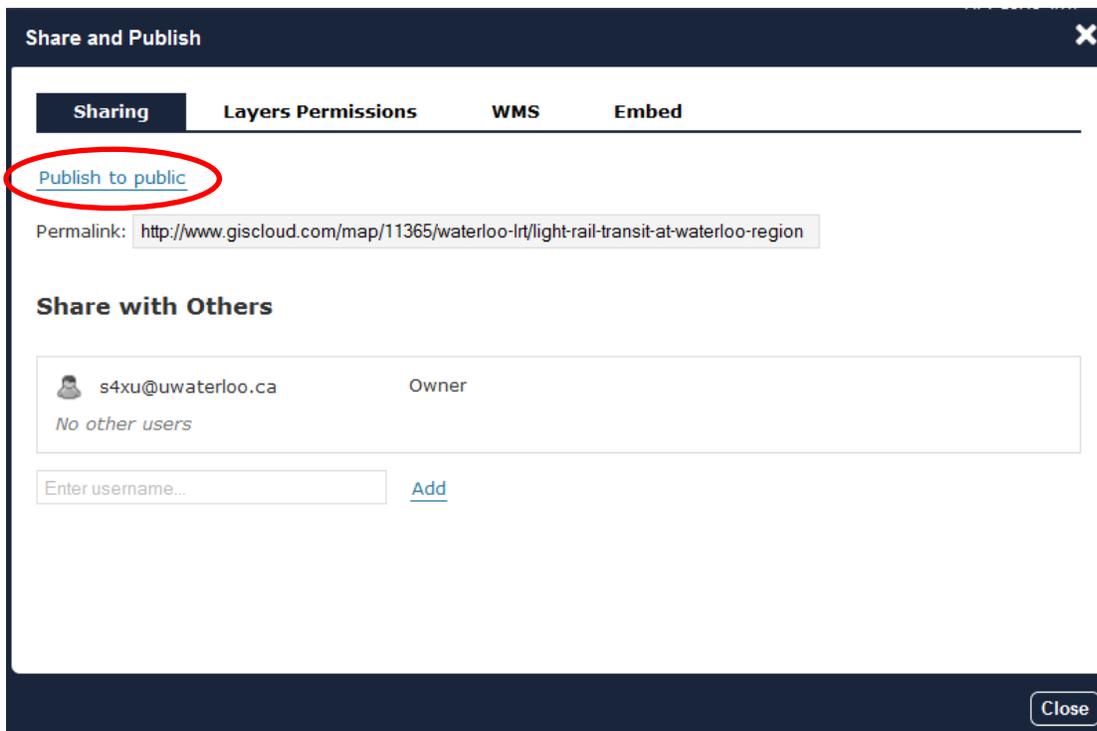


## Publish map and share data

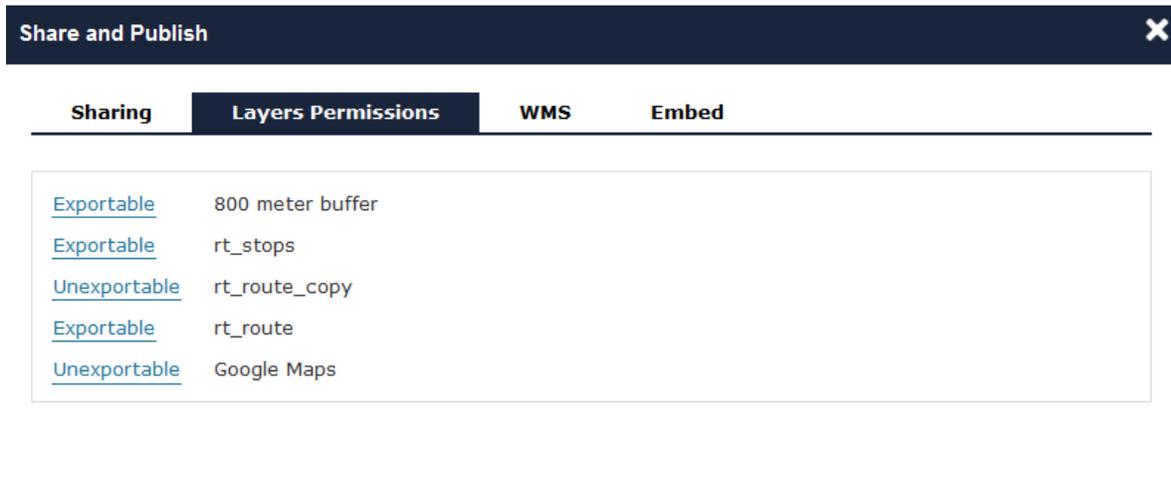
45. You can share the map out with the public or others. Go to **Project ->Share and Publish**.



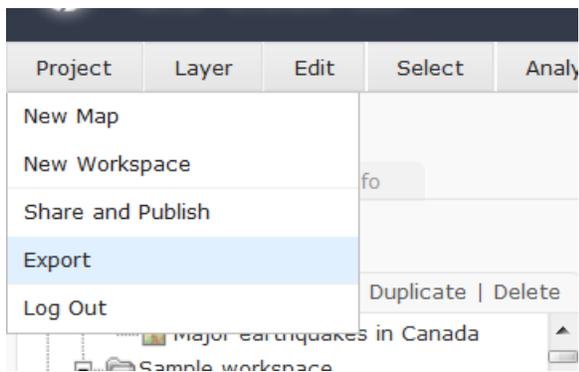
46. In the **Share and Publish** window, click **Publish to public** and copy the **Permalink** and paste it into a web browser (e.g. IE or Firefox). You have the option of sharing the map with others by adding another registered user of GIS Cloud.



47. You can control whether map layer is **Exportable** or **Unexportable** not by clicking **Layers Permissions**. Click **Close** to close the window.



48. You can export the map out as an image. Go to **Project ->Export**.



49. In the **Export map** window, accept all the default setting and click **Generate Image**.

**Export map** ✕

Image title

Dimension  x  px

Output format   [Legend](#)

Bound ▶

Steve Xu

February, 2011