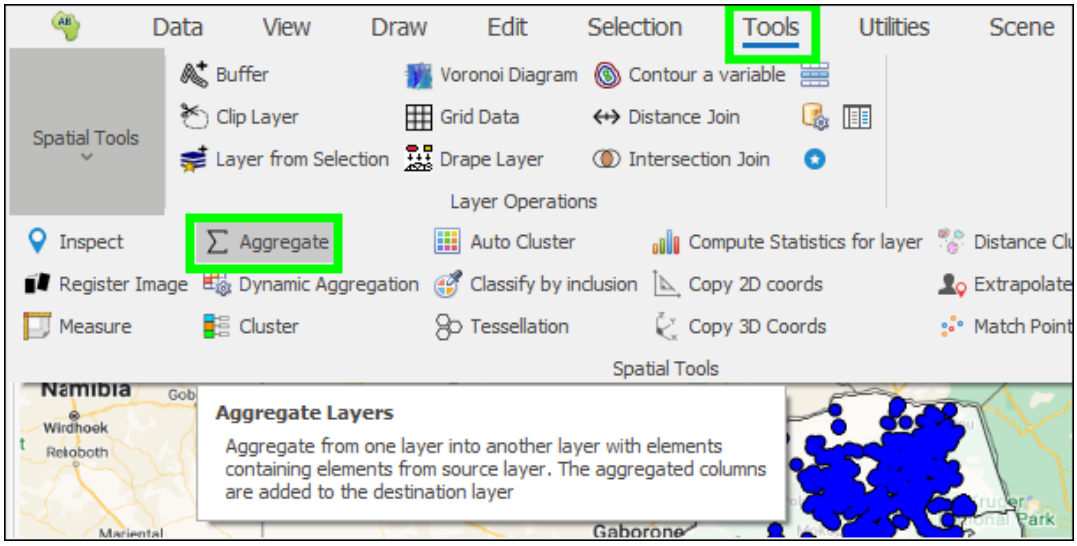
PrimeThought Software Solutions

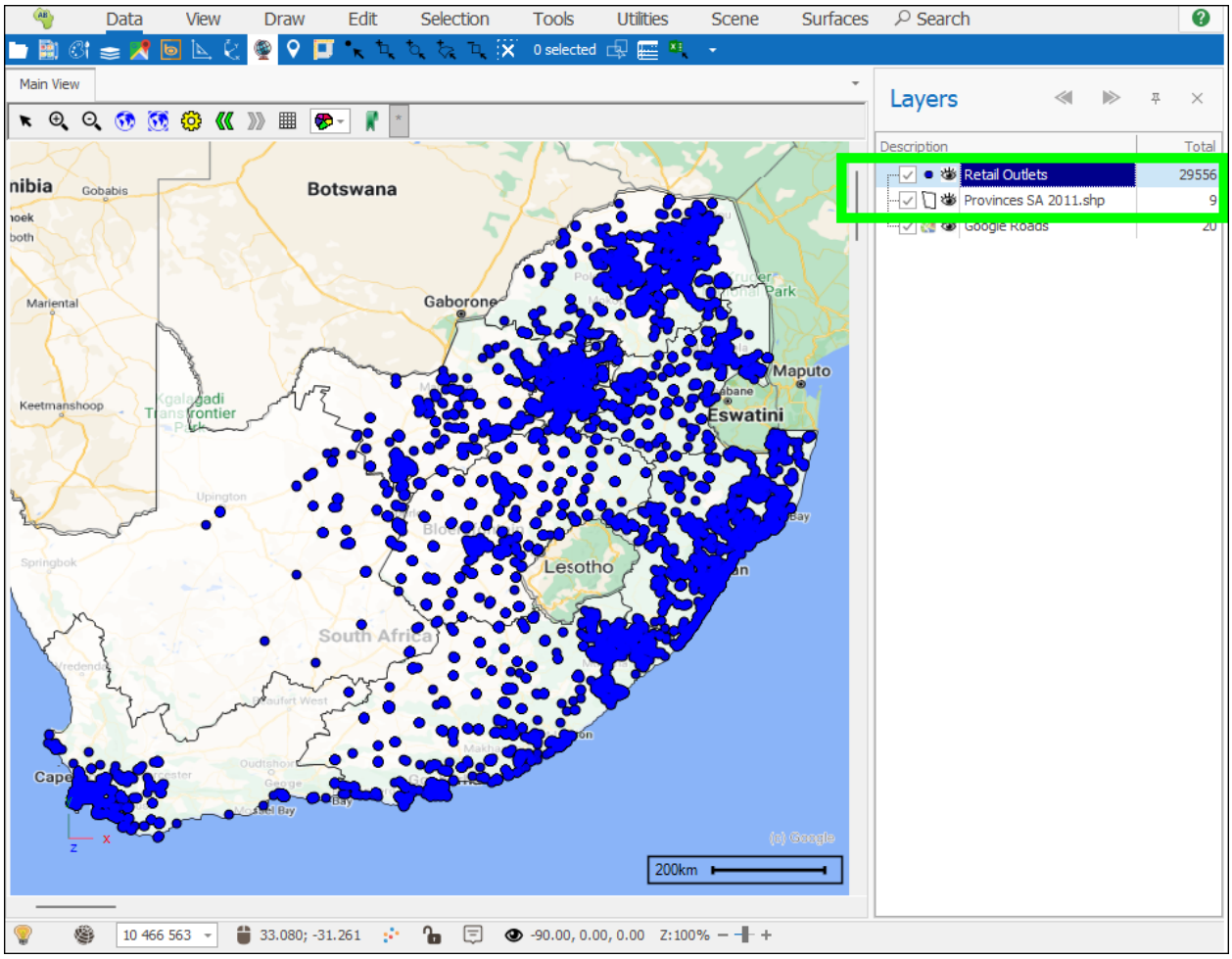
Aggregate Tool User Guide



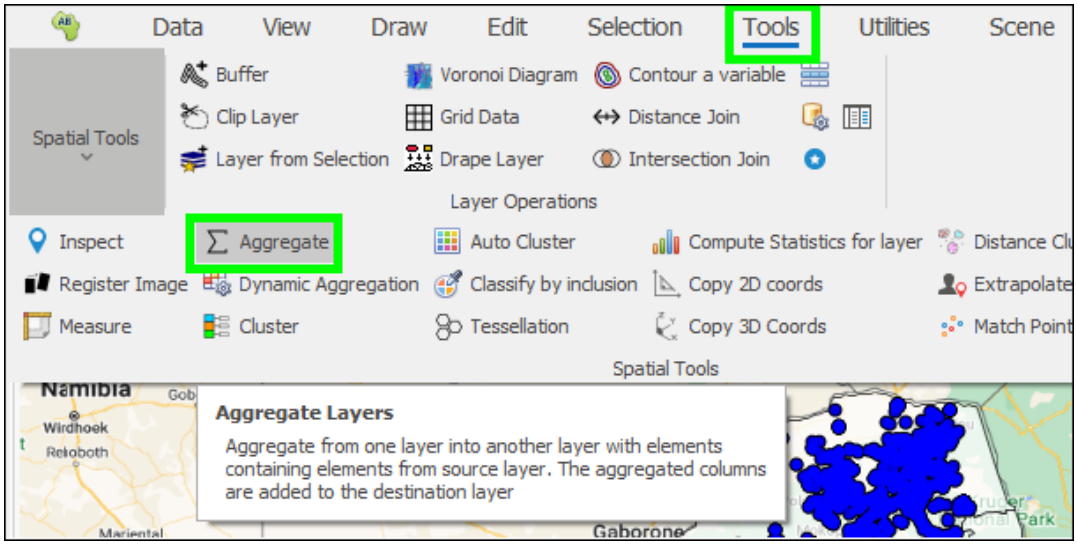
Contents

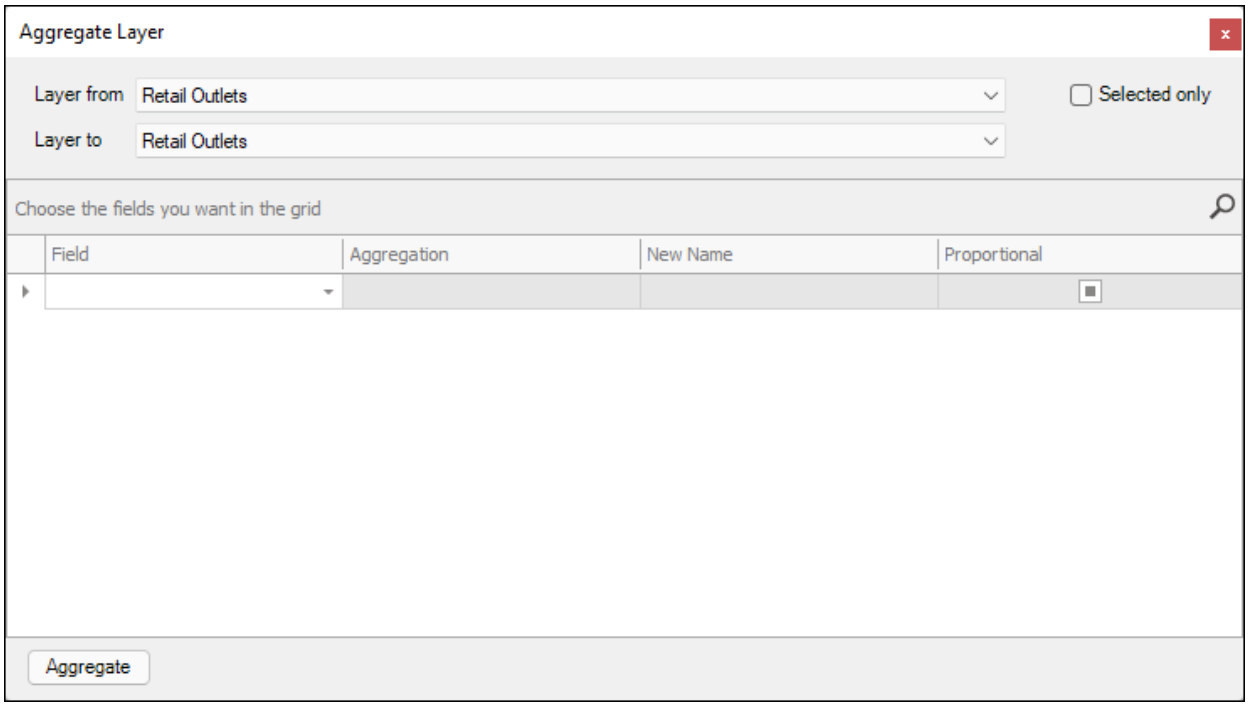
The **Aggregate** tool allows you to aggregate data from one layer into another; usually, from a points layer e.g Stores to an area layer e.g Suburbs.

Make sure the layers are ticked on in the Layers Description box:

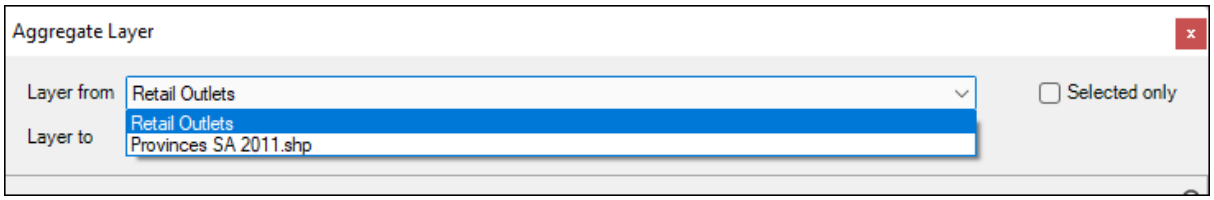


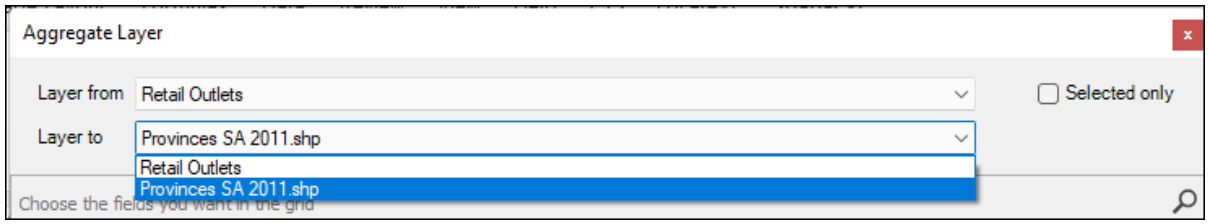
Click on the **Aggregate** tool in the **Tools** tab, this will bring up the Aggregate Layer dialogue:





The **Layer from** will be the layer you will aggregate data from, in this case it is my Retail Outlets layer, and the **Layer to** is the area layer you will be aggregating to, which in this case is my Provinces layer:



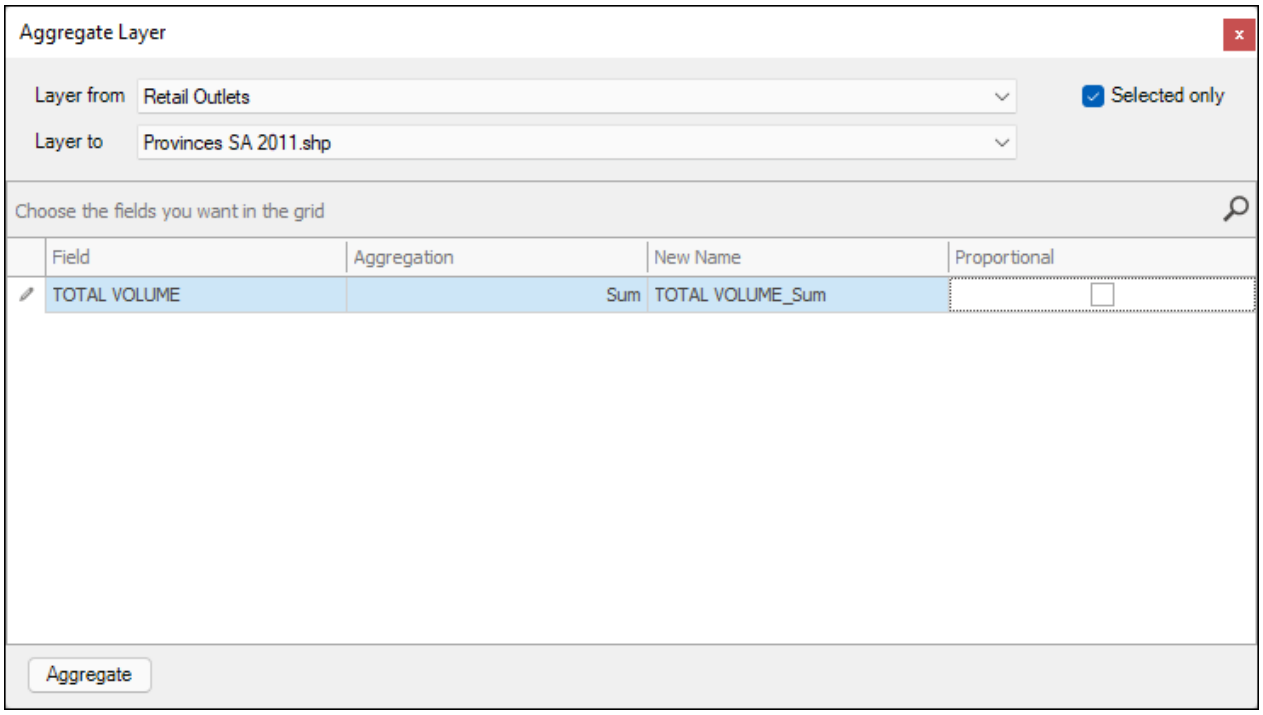


Next, in the grid below under **Field** you will choose the fields in the points layer that you want aggregated, I just want the TOTAL VOLUME field so I will choose this.

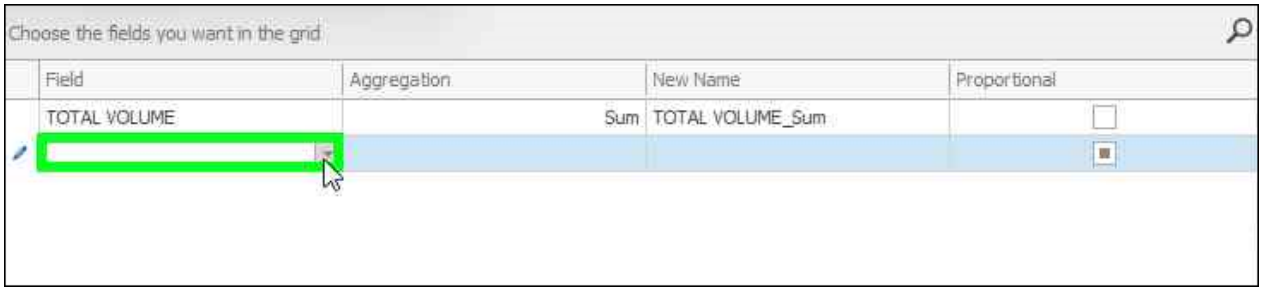
Then choose your **Aggregation** type, which will be **Sum** in this case.

Then under **New Name** you can specify the name of the new column that will be added to the data grid of the area layer you are aggregating to. This column will contain your aggregated values.

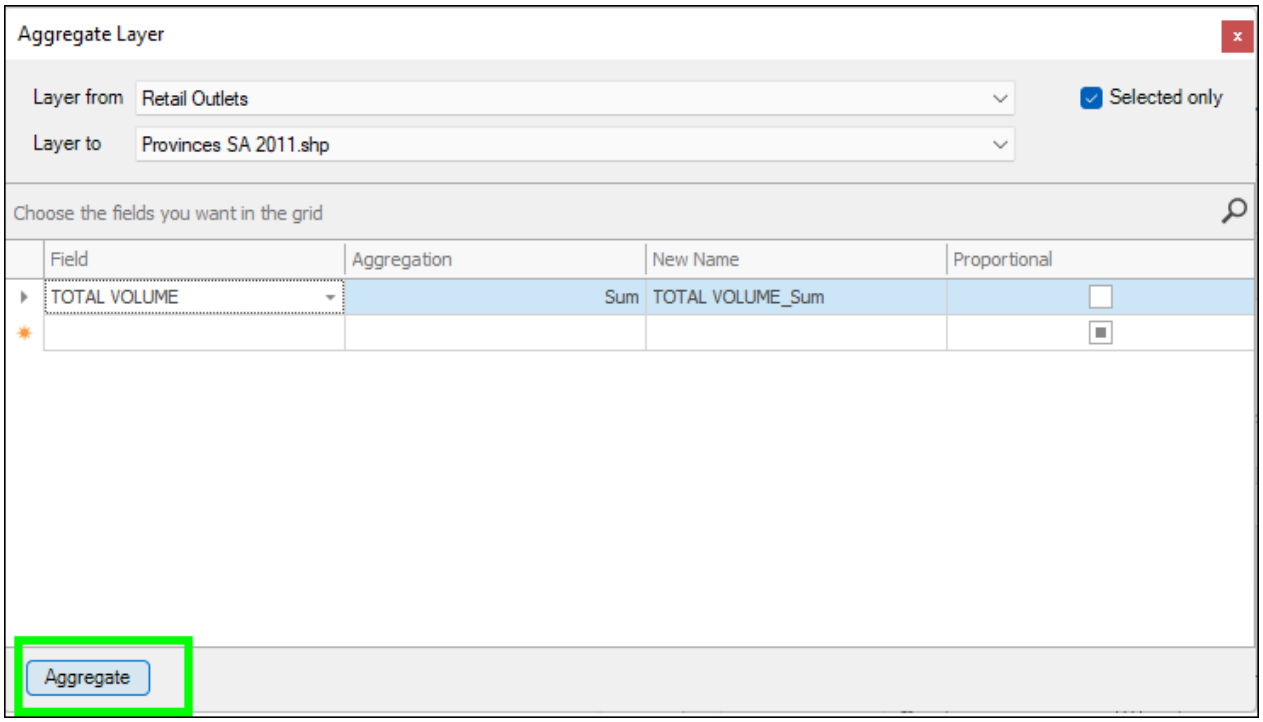
Finally, you have an option to do a **Proportional** aggregation, which will only aggregate the exact part of the element that falls within the area layer, in this case it won't apply because we are aggregating points, but if we were aggregating other areas into the area layer, then it would only aggregate the exact part that falls within the area.

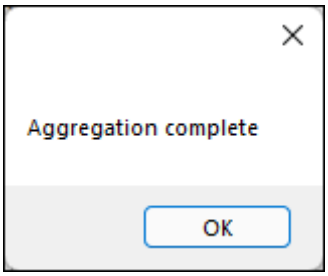


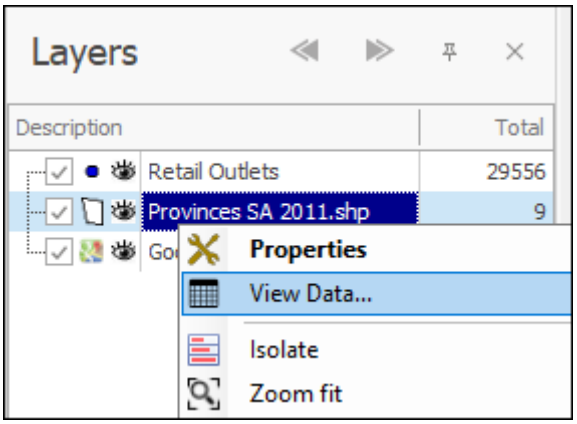
To add more aggregations just click below the row in the grid and choose the field etc.:

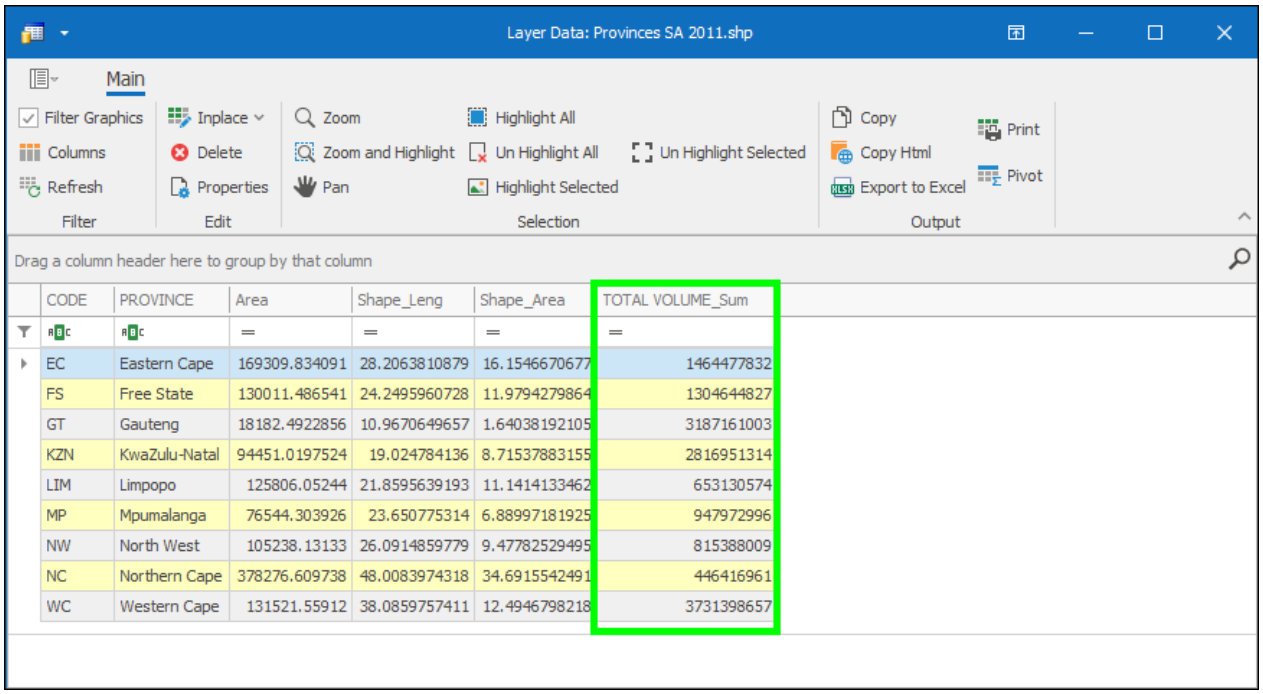


When you are done click **Aggregate** and the data will be aggregated for you and added as a new column in the Layer Data Grid of the area layer, which in this case is my Provinces layer:





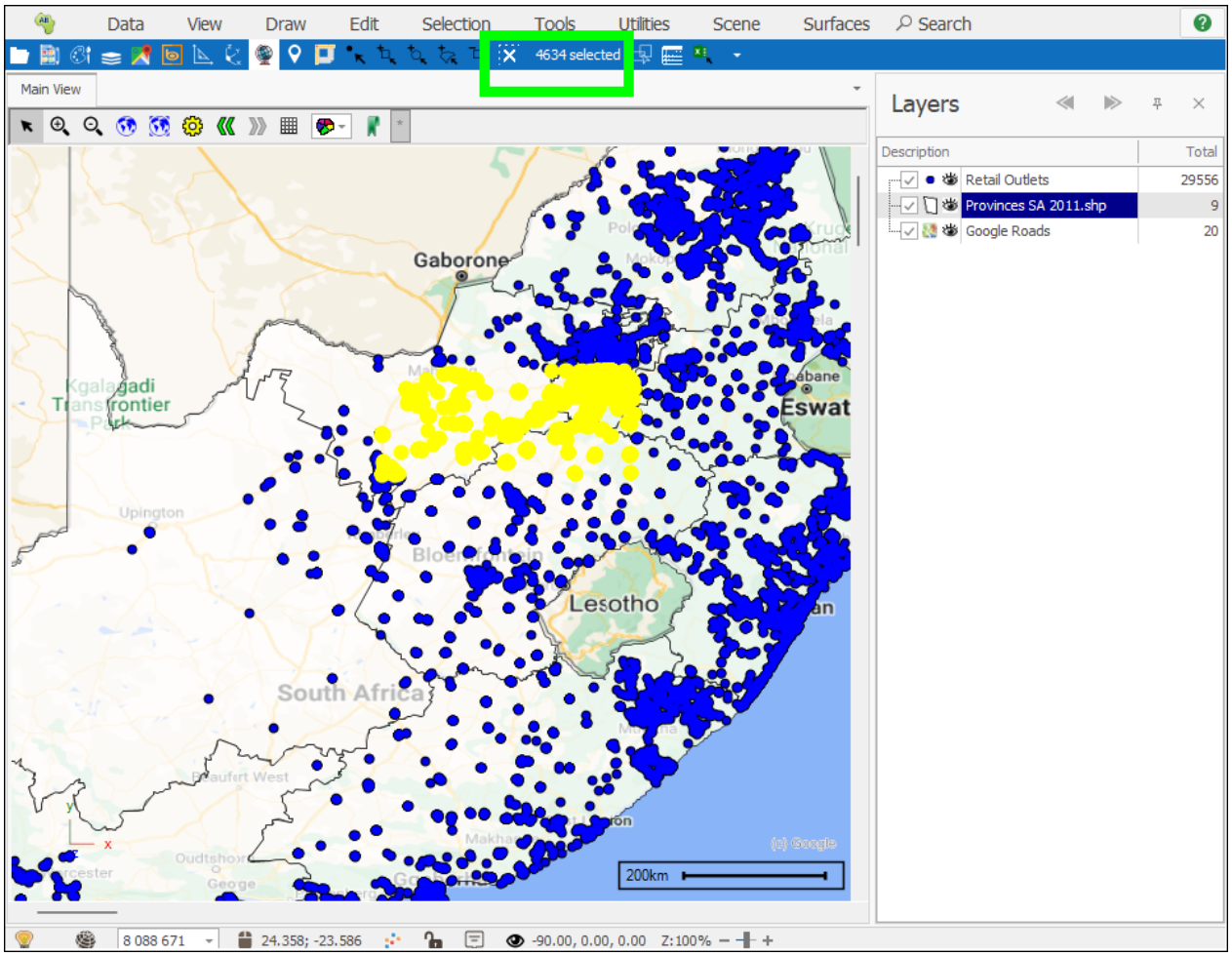


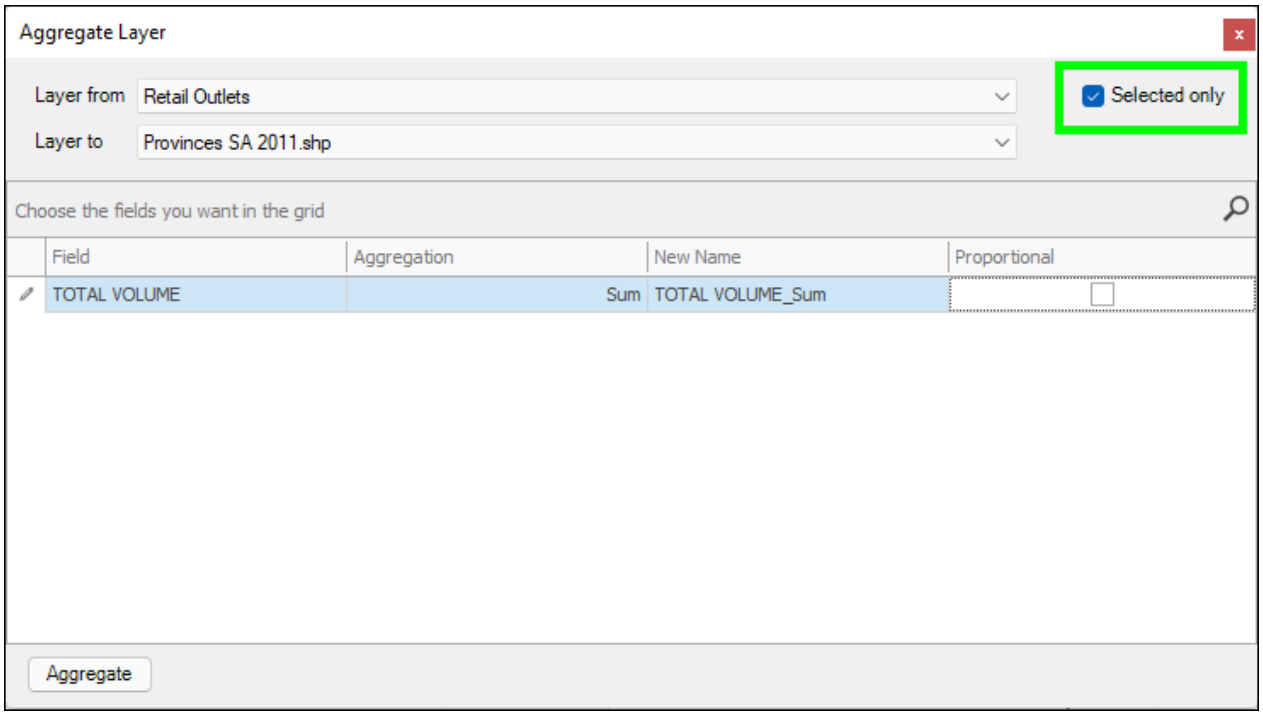


CODE	PROVINCE	Area	Shape_Leng	Shape_Area	TOTAL VOLUME_Sum
EC	Eastern Cape	169309.834091	28.2063810879	16.1546670677	1464477832
FS	Free State	130011.486541	24.2495960728	11.9794279864	1304644827
GT	Gauteng	18182.4922856	10.9670649657	1.64038192105	3187161003
KZN	KwaZulu-Natal	94451.0197524	19.024784136	8.71537883155	2816951314
LIM	Limpopo	125806.05244	21.8595639193	11.1414133462	653130574
MP	Mpumalanga	76544.303926	23.650775314	6.88997181925	947972996
NW	North West	105238.13133	26.0914859779	9.47782529495	815388009
NC	Northern Cape	378276.609738	48.0083974318	34.6915542491	446416961
WC	Western Cape	131521.55912	38.0859757411	12.4946798218	3731398657

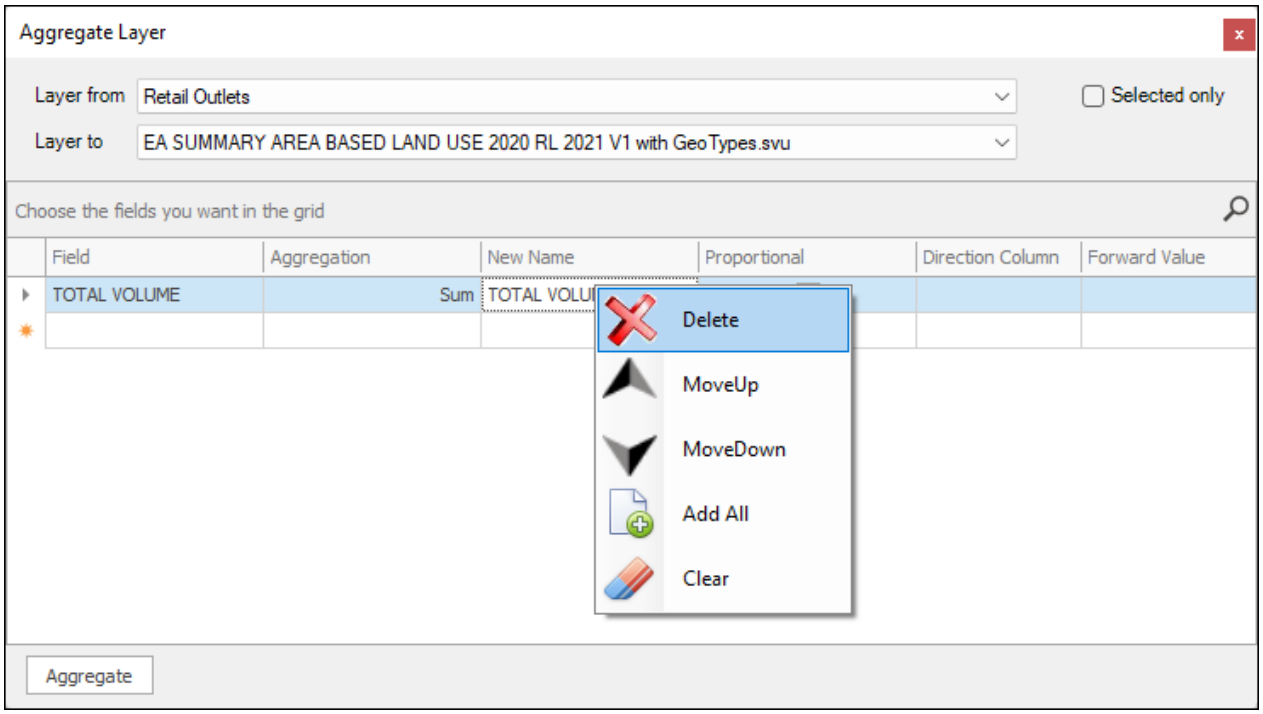
The Total Volume of all the outlets in my Retail Outlets layer that fall within each province in my Provinces layer is populated in this new column.

If you only want to aggregate selected elements, then you would select them in the scene first with one of the selection tools and then tick on **Selected only** in the Aggregate tool before running the aggregation:

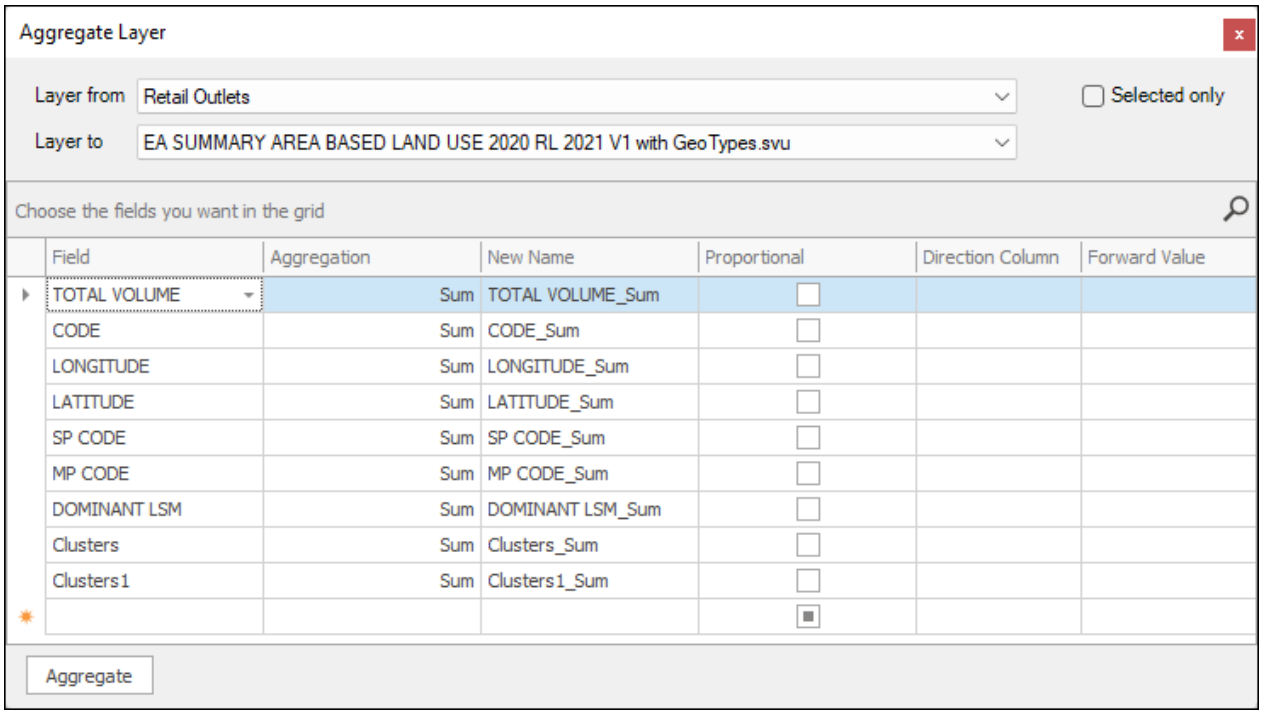

Data
View
Draw
Edit
Selection
Tools
Utilities
Scene
Surfaces
Search
4634 selected
Main View
Layers
Description
Total
Retail Outlets
29556
Provinces SA 2011.shp
9
Google Roads
20
Gaborone
Kgalagadi Transfrontier Park
Eswatini
Lesotho
South Africa
Upington
Beaufort West
Oudtshoorn
George
200km
8 088 671
24.358; -23.586
-90.00, 0.00, 0.00
Z:100%


Aggregate Layer
Layer from
Retail Outlets
Layer to
Provinces SA 2011.shp
Selected only
Choose the fields you want in the grid
Field
Aggregation
New Name
Proportional
TOTAL VOLUME
Sum
TOTAL VOLUME_Sum
Aggregate

When right clicking in the Aggregate tool dialogue a context menu comes up that allows you to **Delete** an aggregation field row, **Move** it **Up** or **Down**, and it also allows you to **Add All**; what this will do is add all the rest of the fields in your data in one shot based on the same way you chose to add the first field with the same aggregation type etc.:



This is what happens when I choose to Add All in this example:



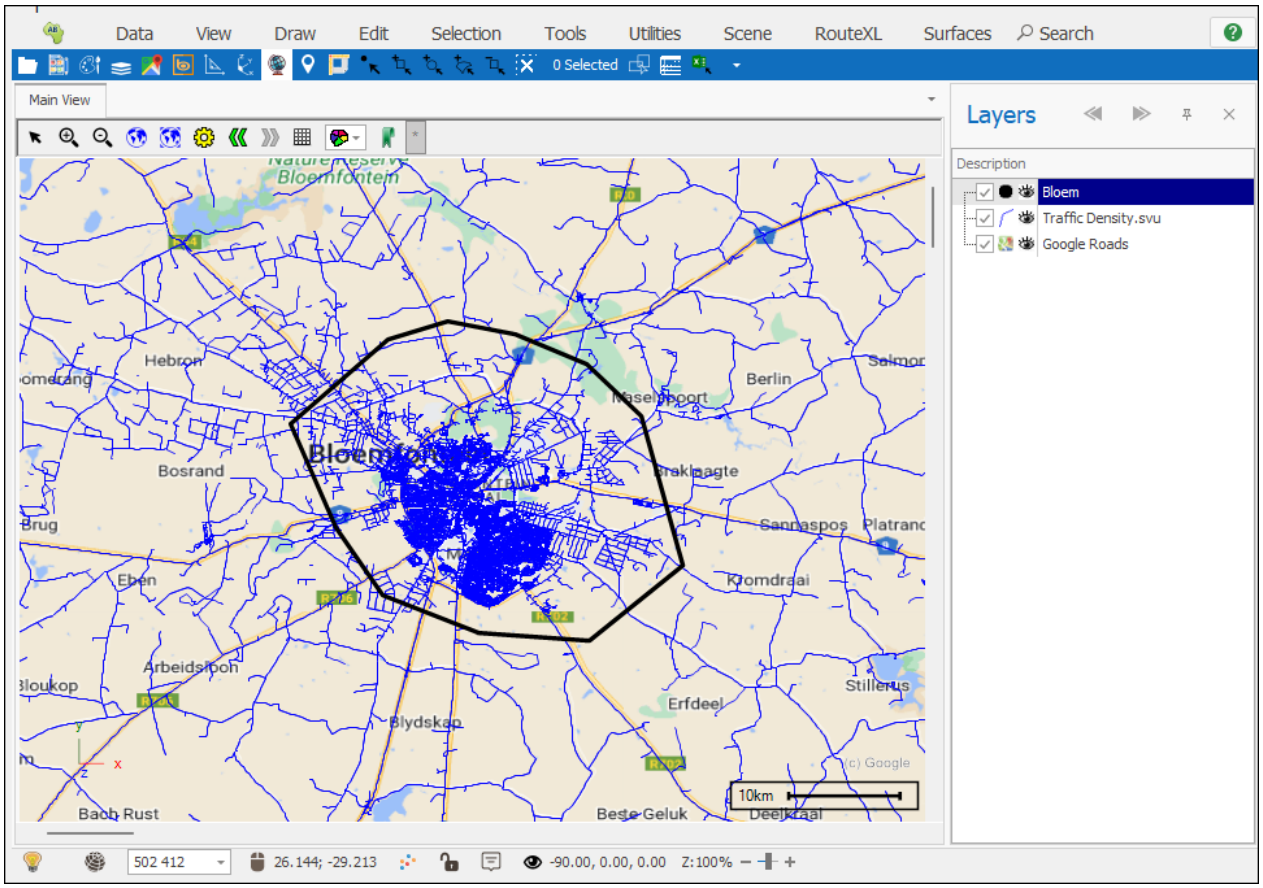
It automatically adds the rest of the number fields in my data with a Sum aggregation based on how I added the first Total Volume field (The fields added in this example are not really ones I would aggregate but it illustrates the point).

Network Flow Aggregations

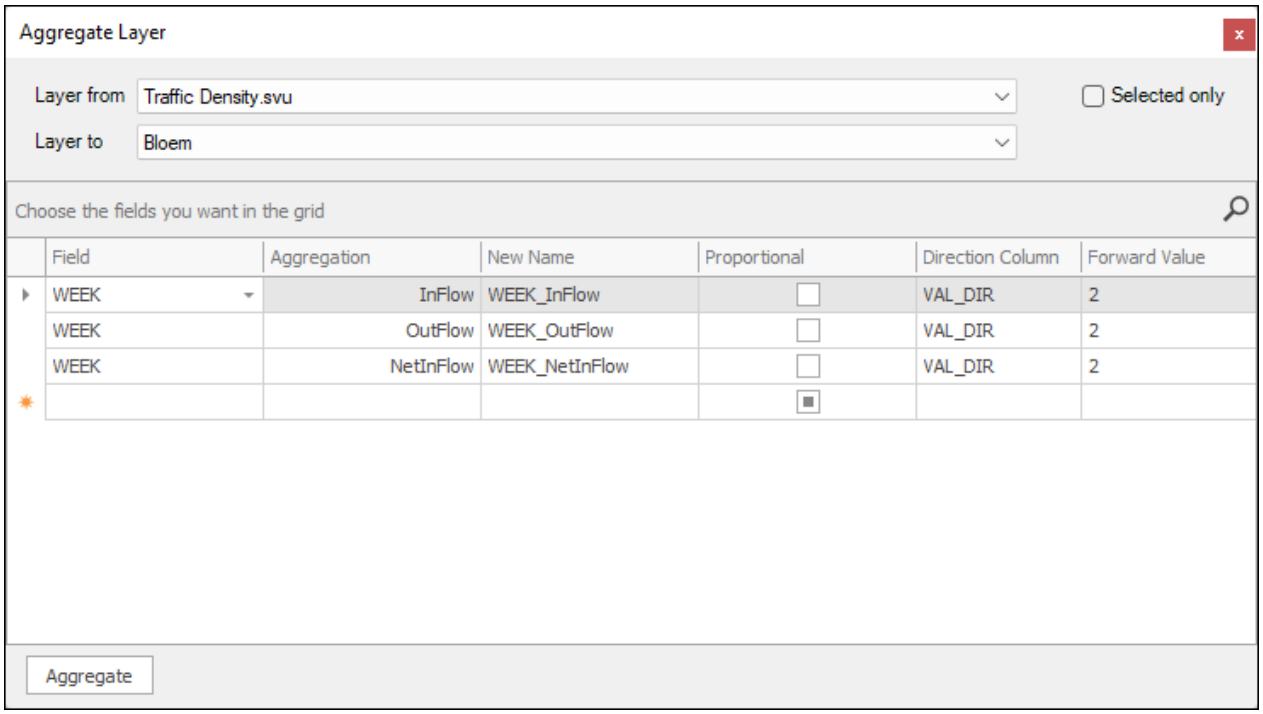
The Aggregate tool has the ability to do aggregations from road segments (linestrings) in a road network into a polygon area; if these road segments have attribute data such as traffic flow, this data can then be aggregated into an area to get total inflow, outflow and retained traffic of the area.

An example illustrates this below:

I want to aggregate the traffic flows into and out of Bloemfontein from the road network; a polygon has been drawn around this area:



I will open the Aggregate Tool and set the following parameters to do the aggregation with:



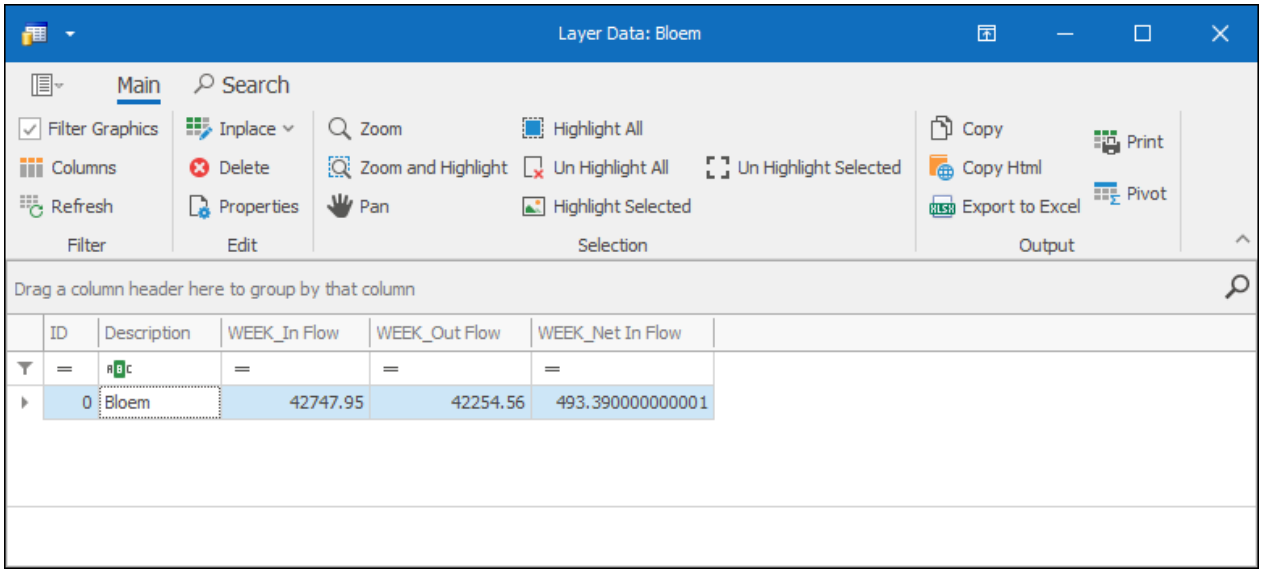
In the **Field** column I chose the field in the road network layer (called Traffic Density) that has the average amount of traffic per week for the road segments (WEEK).

Before we get into the aggregation types I specified, we must first choose the column in the data that indicates what direction the traffic is flowing under the **Direction Column** field; in this example the column is called VAL_DIR.

Then under the **Forward Value** field we must specify the value in the direction column that indicates forward flow, in this case that value is 2.

Finally, we specify the different types of aggregations we would like to do. First, we do an **InFlow**, which will aggregate the total flow of traffic into the polygon area; next we do an **OutFlow** aggregation which will calculate the total flow of traffic out of the polygon area. Finally, we do a **NetInflow** aggregation which will calculate the total retained traffic, which will be the difference between the total inflow and outflow, this way we will see how many people are staying in or leaving the area.

Then we click Aggregate and the result will be populated in the polygon layer:



Here we can see there is a total of 42 747 cars coming into Bloemfontein per week. A total of 42 254 going out per week. And finally, a retained amount of 493.

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