# Crash Analysis System (CAS) data – user guide

**For questions, comments or feedback, please contact** [**opendata@nzta.govt.nz**](mailto:opendata@nzta.govt.nz)**.**

The Crash Analysis System (CAS) maps traffic crashes reported to us by the NZ Police and is built on the ArcGIS system. You can also interact with the data as a data table.

The main page of the Crash Analysis System (CAS) features a map and information. The information tab includes the last update dates and links to more information.

**Note: to see crash data, you will need to zoom in quite far – to where Wellington to Whanganui (approximate) fills the screen, for example.**

There are some buttons and information to help with understanding the map:



The top left corner shows the **total number of crash records in the open dataset.**



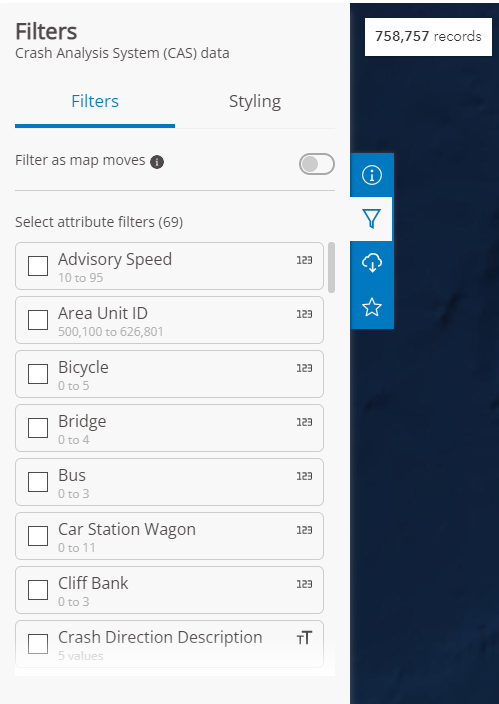
In the top right corner is the **View Table / View Map toggle button**. This switches between the map and table views.

|  |  |
| --- | --- |
| Screenshot of zoom buttons. | In the bottom right corner are the **map view controls**. You can zoom in using the + and zoom out using the - buttons. |
|  |  |
| Screenshot of expand button. | The **expand button** with the 3 horizontal stripes allows you to adjust the map’s styling. |
|  |  |
| Screenshot of search button. | The **search button** allows you to search for an address or place (suburb, city, etc.). Click the **search button** to display the search bar. |
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|  |  |

## Filtering the data

By default, CAS data displays all crashes – reported to us by NZ Police – in New Zealand.

If you want specific types of crashes, you will need to filter the data. To do this, click on the **filter data button** (shown below) to open the **filters section**.



The **filters** tab shows a list of attributes you can use for filtering. You can filter by multiple attributes at a time.

The **filter as map moves** **button**:

* If *off*, filters all data (shown below).



* If *on*, filters only the crashes visible on your screen – data results change as you move the map. Remember that you can zoom in and out too.

### Example: bus-related crashes

Zoom level of map (view range):

* [Whanganui to Wellington (approximate)](https://opendata-nzta.opendata.arcgis.com/datasets/NZTA::crash-analysis-system-cas-data-1/explore?location=-40.725766%2C175.705672%2C9.00).

We’re filtering for crashes involving at least one bus, so:

* tick the box for **Bus**, AND
* move the slider bar to *1*.

Filter as map moves:

* *off* – **12,010 of 758,757 records (i.e., all bus-related crashes in NZ)**
* *on* – **2,465 (relative) of 758,757 records (i.e., only bus-related crashes in the area on screen).**

[**Example of query result for bus-related crashes with filter on**](https://opendata-nzta.opendata.arcgis.com/datasets/NZTA::crash-analysis-system-cas-data-1/explore?filters=eyJidXMiOlsxLDNdfQ%3D%3D&location=-40.718683%2C175.705672%2C9.00)

**Note: Your result for *on* will be different because your screen size is different!**

## Filtering example

This example shows how to filter for all crashes in the Otago region, where:

* they hit at least one post or pole, and
* there was at least one minor injury.

**Note:** your results may be different, as we add to / change crash data.

### Part 1. Filter by region

1. Open the **filters tab**.
2. Tick the **Region** box.
3. In the new box that appears, search for and select *Otago Region*.
4. Move the map to the Otago region, to show the crashes you’ve selected.
   1. [Otago region view.](https://opendata-nzta.opendata.arcgis.com/datasets/NZTA::crash-analysis-system-cas-data-1/explore?filters=eyJyZWdpb24iOlsiT3RhZ28gUmVnaW9uIl0sInBvc3RPclBvbGUiOlsxLDRdfQ%3D%3D&location=-45.816012%2C170.309373%2C9.94)
5. The map should now show all crashes in the Otago region: **41,458** (at time of writing this guide).
6. If the number of records doesn’t update, move the slider bar a few times to refresh things.

[**Query result for filtering by region**](https://opendata-nzta.opendata.arcgis.com/datasets/NZTA::crash-analysis-system-cas-data-1/explore?filters=eyJyZWdpb24iOlsiT3RhZ28gUmVnaW9uIl19&location=-45.803189%2C170.492117%2C9.00)

### Part 2. Post or pole hit in the Otago region

**Note:** when you filter by any object, for example a fence, you will **only** see crashes where an object was involved (*any type*). This is true even if you have filtered including *0* – the default – for that object.

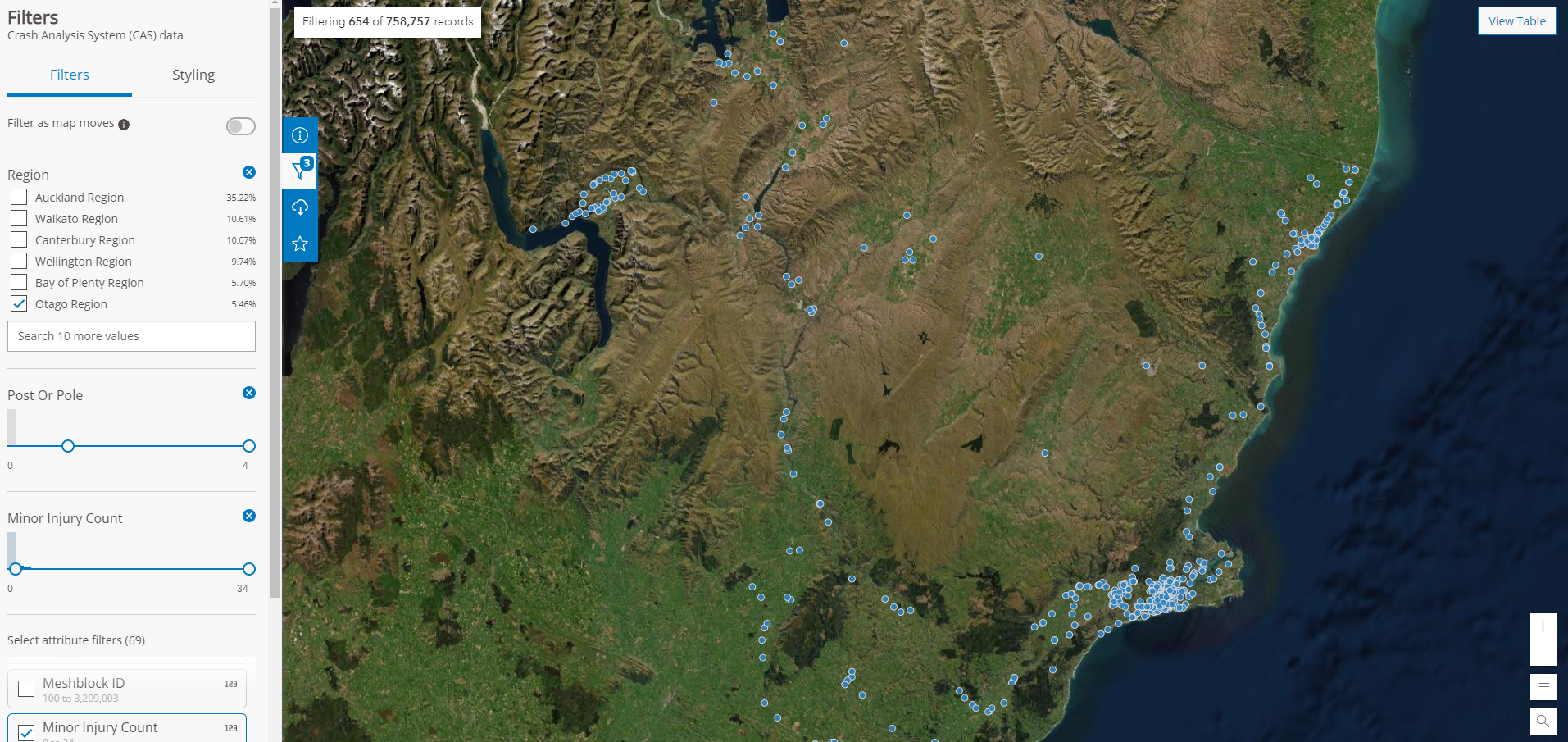
1. With the **filters tab** still open, tick the **Post or Pole** box.
2. Set the slider to 1*.*
3. You will now have crashes in the Otago region where they hit at least one post or pole. **1,816** crashes (at time of writing this guide).

[**Query result for post or pole hit**](https://opendata-nzta.opendata.arcgis.com/datasets/NZTA::crash-analysis-system-cas-data-1/explore?filters=eyJyZWdpb24iOlsiT3RhZ28gUmVnaW9uIl0sInBvc3RPclBvbGUiOlsxLDRdfQ%3D%3D&location=-45.592699%2C170.321829%2C9.00)

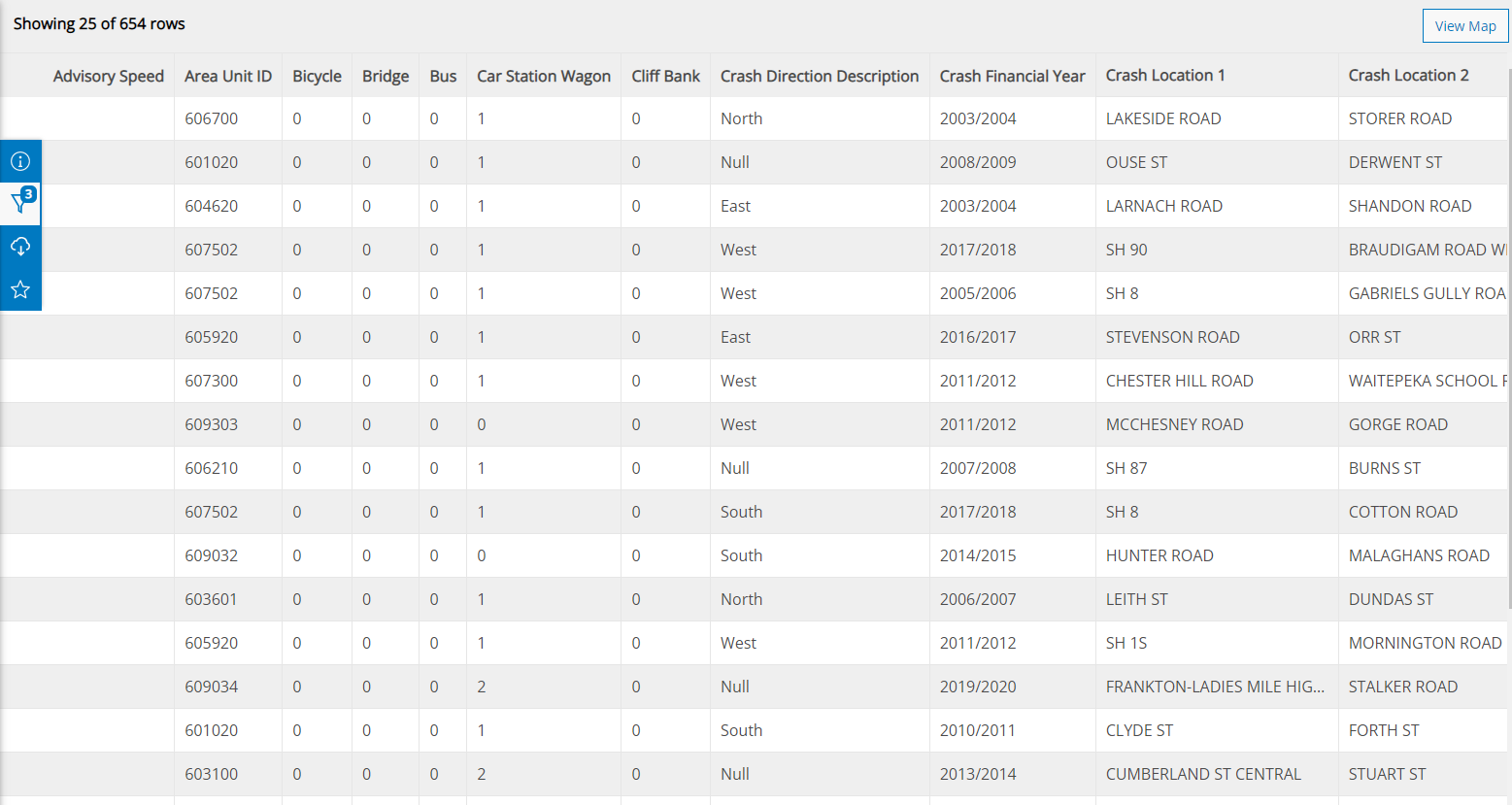
### Part 3. Post or pole hit, in the Otago region, with 2 to 3 minor injuries

1. With the **filters tab** still open, tick the **Minor injury count** box.
2. Set the slider from *2* (lower limit) to *3* (higher limit).
3. You will now have crashes in the Otago region where they hit at least one post or pole and there was at least one minor injury. **117** crashes (at time of writing this guide).

[**Query result for post or pole hit in the Otago region with multiple minor injuries**](https://opendata-nzta.opendata.arcgis.com/datasets/crash-analysis-system-cas-data-1/explore?filters=eyJyZWdpb24iOlsiT3RhZ28gUmVnaW9uIl0sInBvc3RPclBvbGUiOlsxLDRdLCJtaW5vckluanVyeUNvdW50IjpbMiwzXX0%3D&location=-45.871253%2C170.428490%2C11.32)



**Map view**



**Table view**

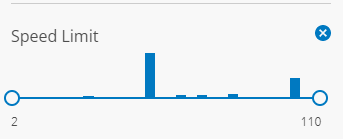
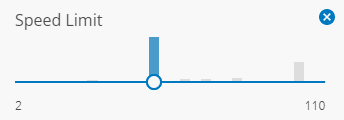
## More advanced examples

### Part 1. Filter by speed limit and temporary speed limit

Here, we will filter for all crashes with:

* a normal speed limit of 50, AND
* a temporary speed limit of 30.

1. With the **filters** **tab** open, clear any existing filters.
2. Tick the **Speed limit** box.
3. Initially, the speed limit will cover the whole range. Drag both sides of the range to meet at *50*. This way, we will only capture crashes with a speed limit of 50.

**Before After**

1. Next, tick the **Temporary speed limit** box.
2. Drag the slider bar so both sides meet at *30*.
3. Now, we have all crashes with a speed limit of 50, and a temporary speed limit of 30. **1,994** crashes filtered (at time of writing this guide).

[**Query result for filtering by speed limits**](https://opendata-nzta.opendata.arcgis.com/datasets/NZTA::crash-analysis-system-cas-data-1/explore?filters=eyJzcGVlZExpbWl0IjpbNTAsNTBdLCJ0ZW1wb3JhcnlTcGVlZExpbWl0IjpbMzAsMzBdfQ%3D%3D&location=-39.372579%2C174.877594%2C9.00)

### Part 2*.* Filter by speed limit, temporary speed limit in the North Island

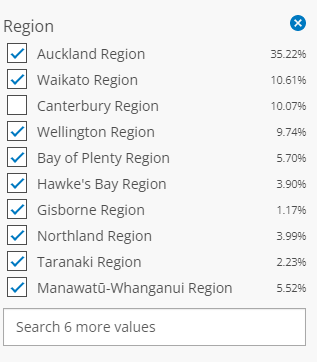
Here, we will filter for all crashes:

* on the north island
* with a normal speed limit of 50, AND
* and a temporary speed limit of 30.

The fastest way of to do this is to select **Region** and then select all regions in the North Island.

[Regions of New Zealand (Wikipedia)](https://en.wikipedia.org/wiki/Regions_of_New_Zealand)

1. With the **filters** **tab** still open, tick the **Region** box.
2. Select all the *North Island regions* from the checklist. **1,473** crashes filtered (at time of writing this guide).

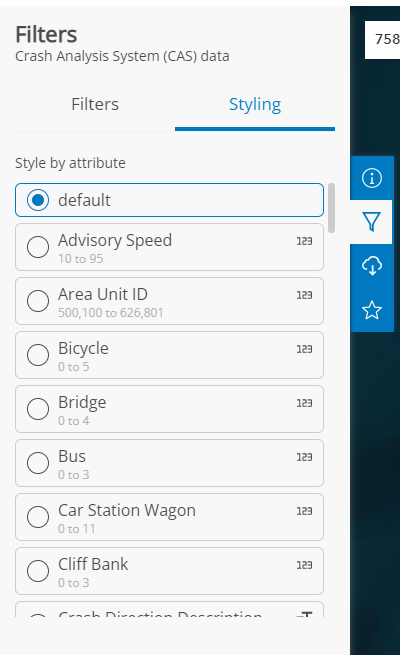


[**Query result for filtering by speed limits and region**](https://opendata-nzta.opendata.arcgis.com/datasets/NZTA::crash-analysis-system-cas-data-1/explore?filters=eyJyZWdpb24iOlsiQXVja2xhbmQgUmVnaW9uIiwiV2Fpa2F0byBSZWdpb24iLCJXZWxsaW5ndG9uIFJlZ2lvbiIsIkJheSBvZiBQbGVudHkgUmVnaW9uIiwiSGF3a2UncyBCYXkgUmVnaW9uIiwiR2lzYm9ybmUgUmVnaW9uIiwiTm9ydGhsYW5kIFJlZ2lvbiIsIlRhcmFuYWtpIFJlZ2lvbiJdLCJzcGVlZExpbWl0IjpbNTAsNTBdLCJ0ZW1wb3JhcnlTcGVlZExpbWl0IjpbMzAsMzBdfQ%3D%3D&location=-37.317345%2C175.878478%2C9.00)

## Styling

Styling allows you to change how your map looks. As a default, all data points (crashes) are blue.

Styling is a sub-section under the **filters** **section**. Instead of the **filters** **tab**, choose the **styling tab** (see below).



From here, you can choose any attribute you want. Each attribute changes the look of the map and the data uniquely. You can only style by one attribute at a time.

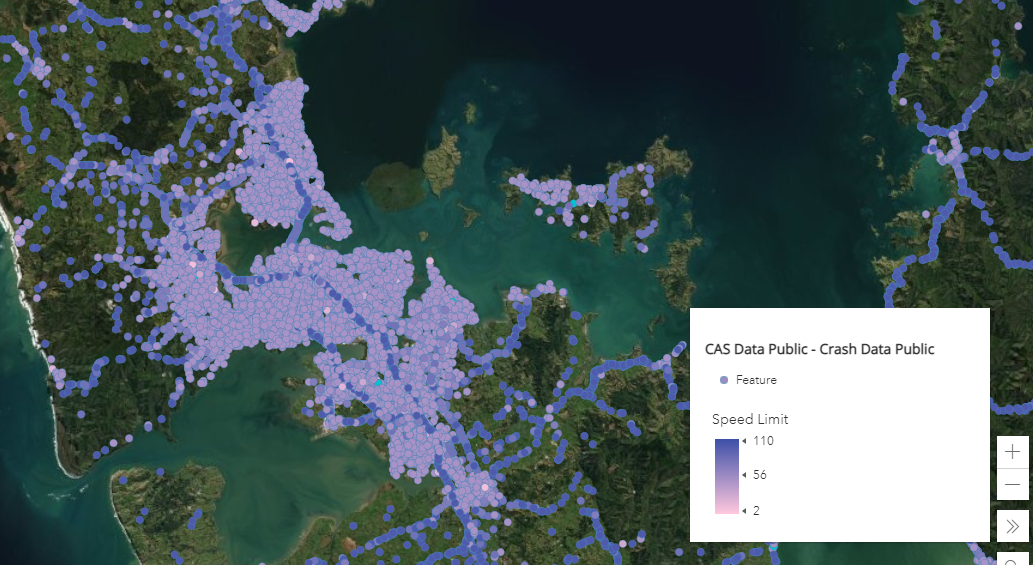
### Example: styling the map by speed limit

1. In the **styling tab**, tick the **Speed limit** box.
2. Sometimes styling will take a few seconds to update. Zooming in and out of the map may help.

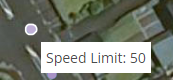
[**Example of styling result**](https://opendata-nzta.opendata.arcgis.com/datasets/NZTA::crash-analysis-system-cas-data-1/explore?location=-37.317345%2C175.878478%2C9.00&style=speedLimit)

To show the current style, click on the **expand button** with 3 horizontal stripes at the bottom right of the map. If it says, *no legend*, you need to zoom in more to view. This is the **styling legend**.

The **styling legend** shows how to interpret the map data. The lighter the data point, the lower the speed limit was for that crash. The range of speed limits in the data is from 2km/h to 110km/h.

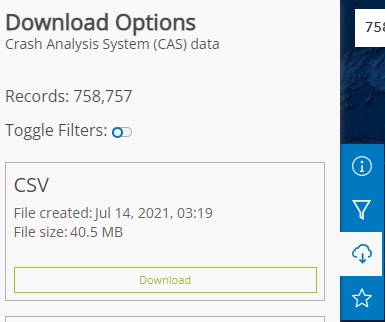


In this view you can also hover over any crash data point to view the speed limit for the road it happened on.



## Downloading the data

Click on the **download** **button** (underneath the **filter** **button**) to open the **downloading section**.



The **toggle filters** **button**:

* If *off*, downloads all data (shown below).

Screenshot of toggle filters button.

* If *on*, downloads only filtered data (i.e., data you have selected).

The **download** **buttons** under each file type export the data as a:

* **CSV** – Good for viewing in a spreadsheet viewer e.g., Excel.
* **KML** – For viewing in Google Earth or similar products.
* **Shapefile** – For viewing in Geographic Information Systems (GIS) software.
* **GeoJSON** - Converts to a JSON format that can be viewed using any GeoJSON viewer.