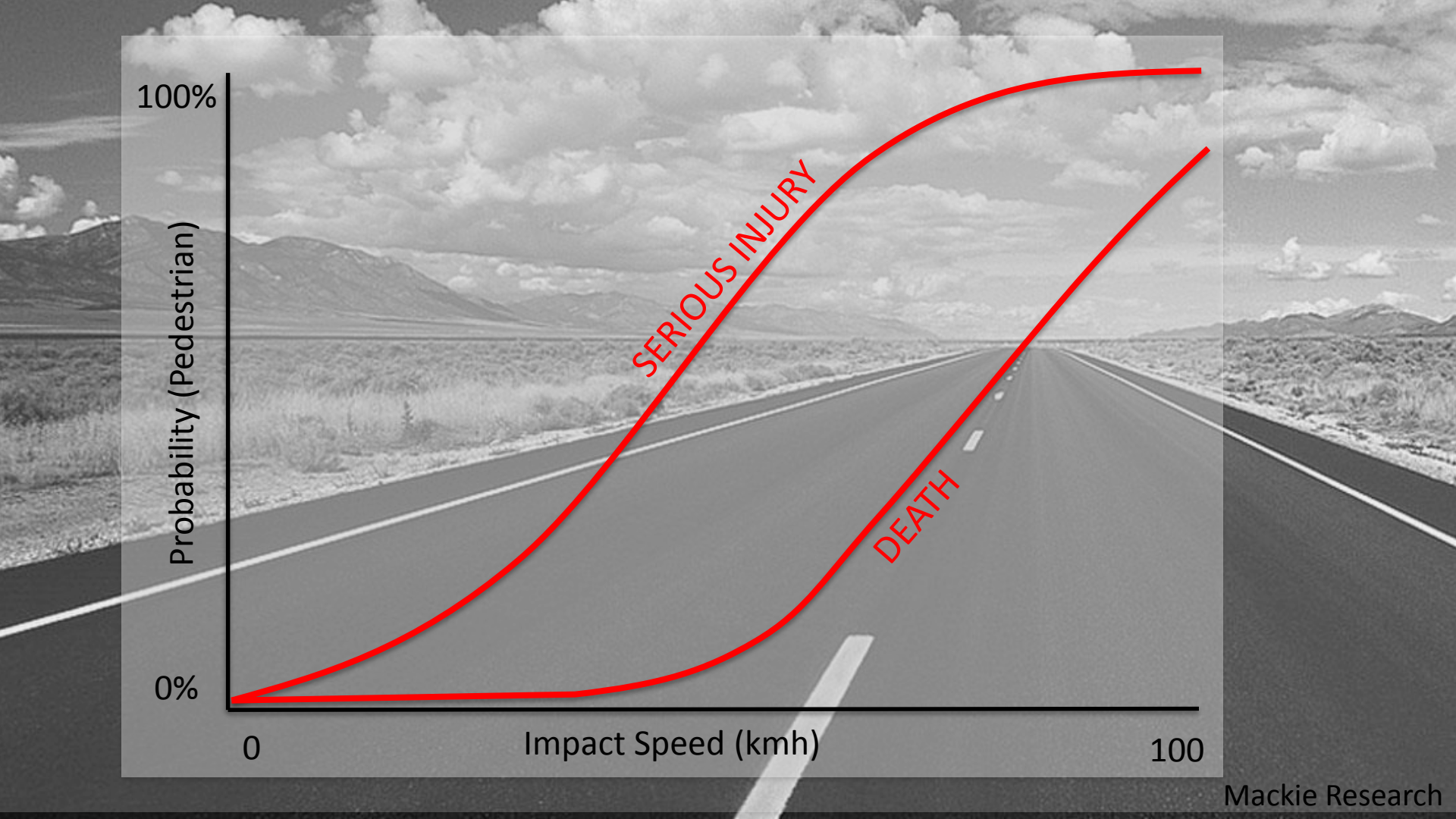

SPEED


100%
0%
Probability (Pedestrian)
SERIOUS INJURY
DEATH
0
Impact Speed (kmh)
100
Mackie Research

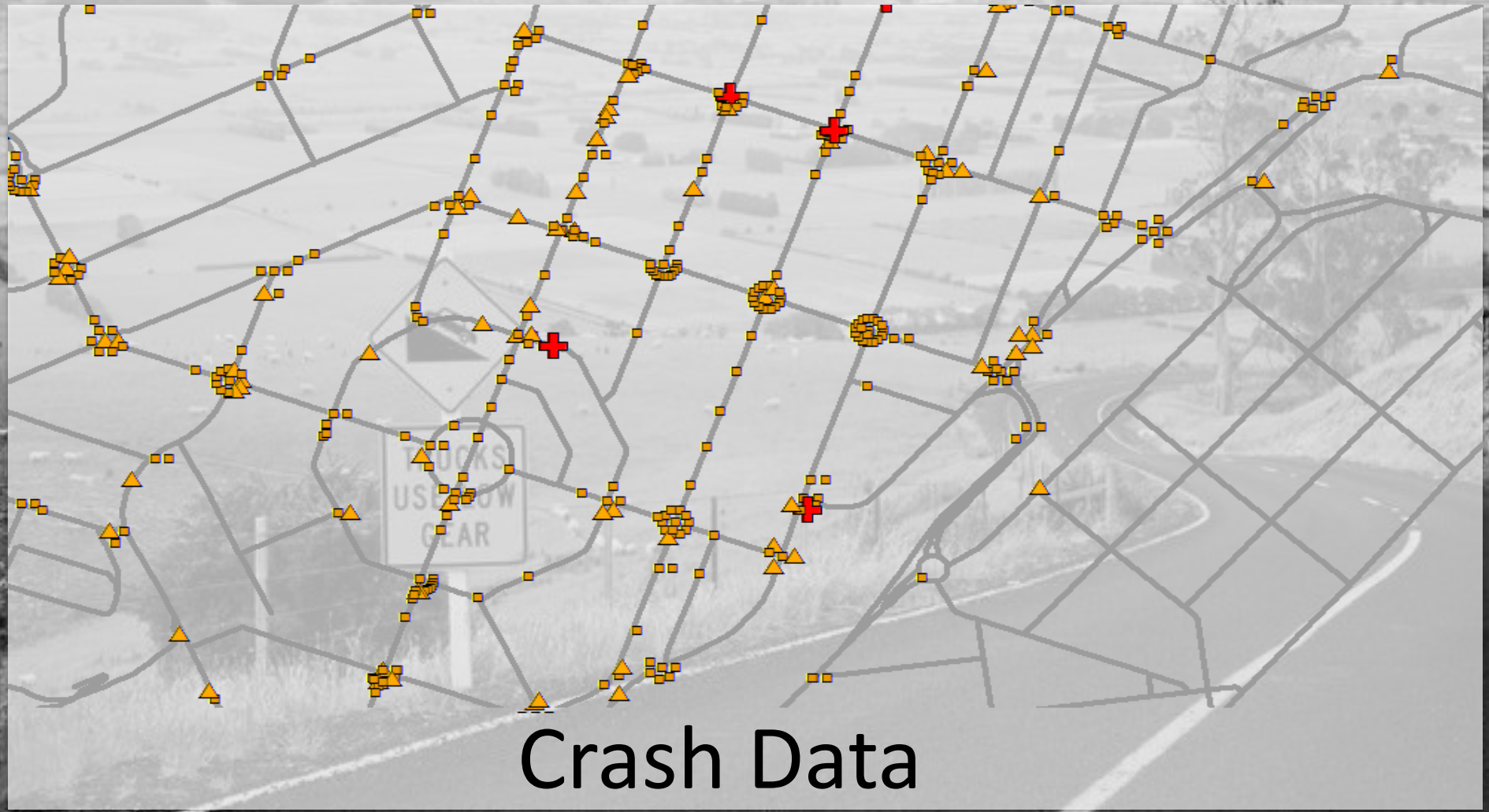
abley transportation consultants

interpret GEOSPATIAL SOLUTIONS

New Zealand POLICE Nga Pirihimana O Aotearoa

NZ TRANSPORT AGENCY WAKA KOTAHI

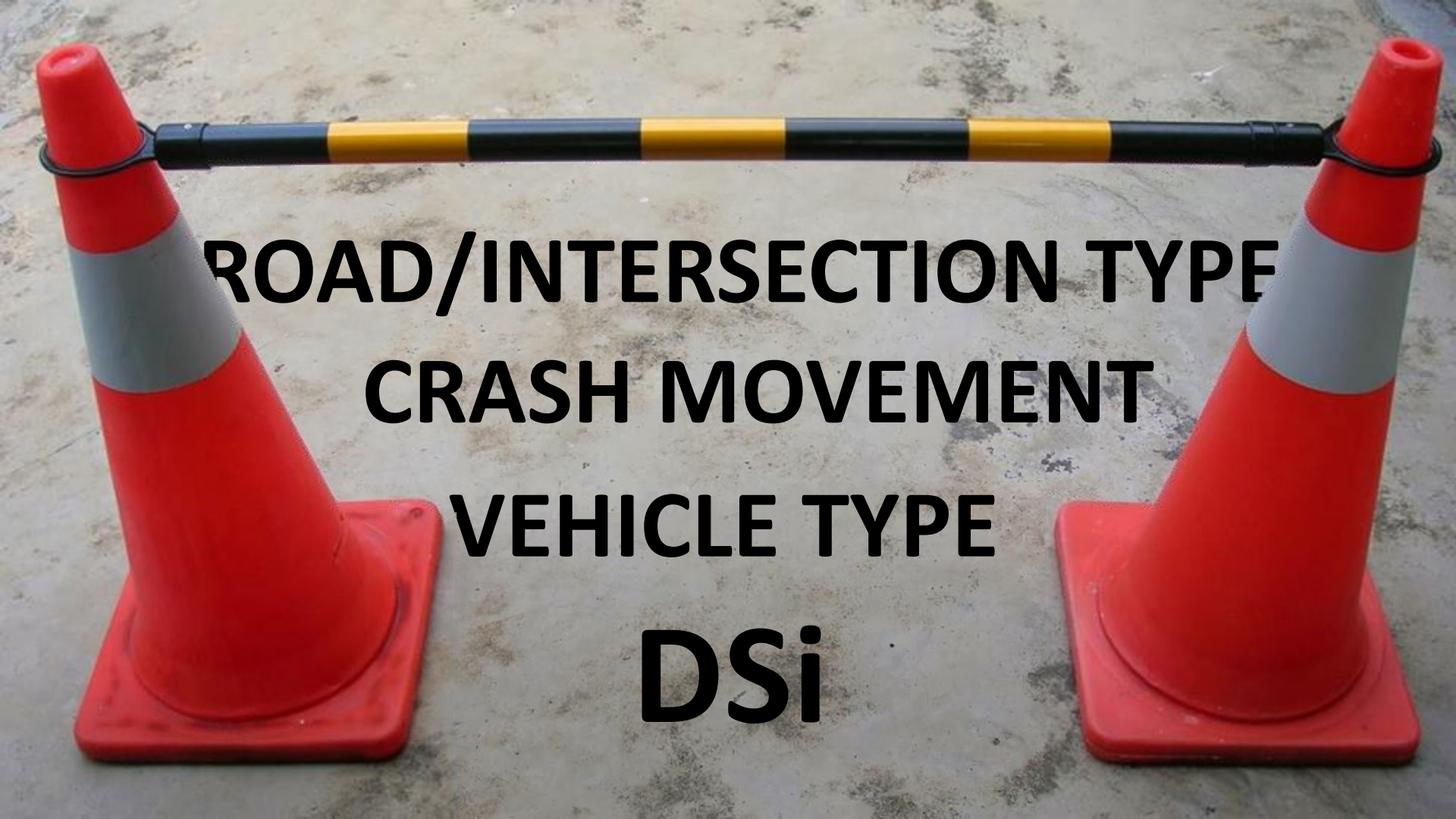

CRASH INFORMATION
ACCIDENT
POLICE
POLICE
POLICE

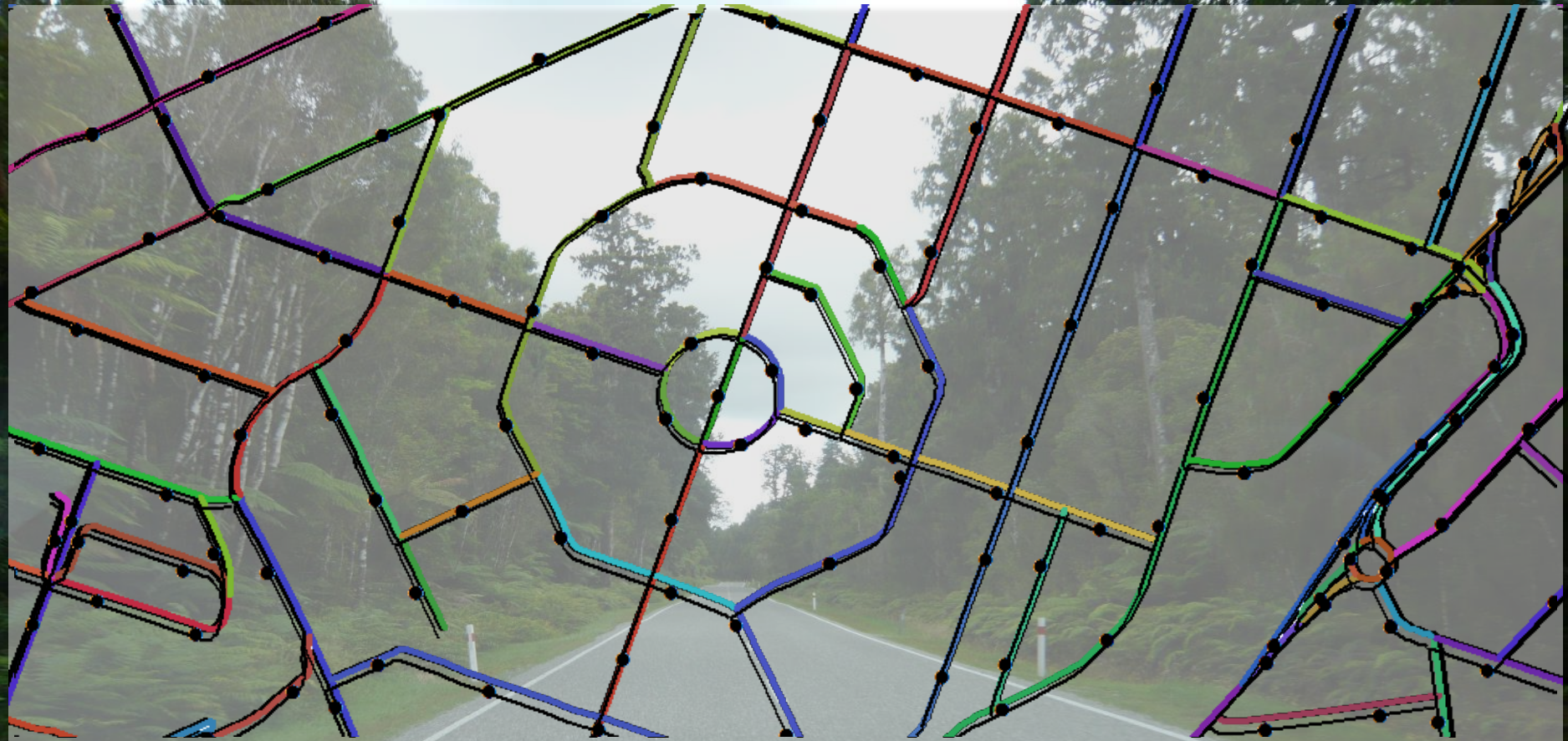


Crash Data

Crashes:

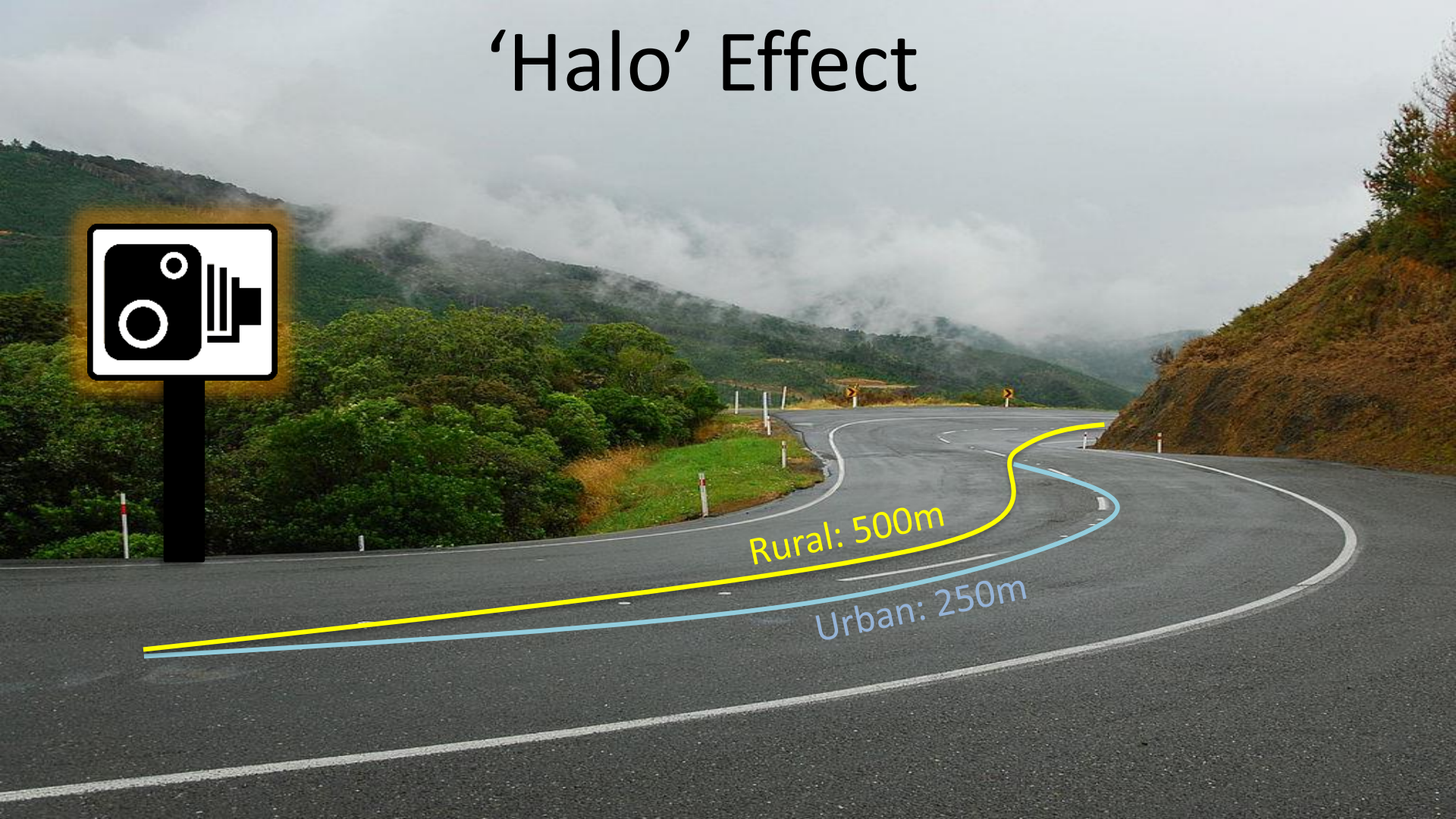
- Fatal & Serious
- Speed Related
- DSi


ROAD/INTERSECTION TYPE
CRASH MOVEMENT
VEHICLE TYPE
DSi



Roads → Links → Segments

‘Halo’ Effect



$$SS = (SR * 0.4) + (DSi * 0.4) + (FS * 0.2)$$

Where:

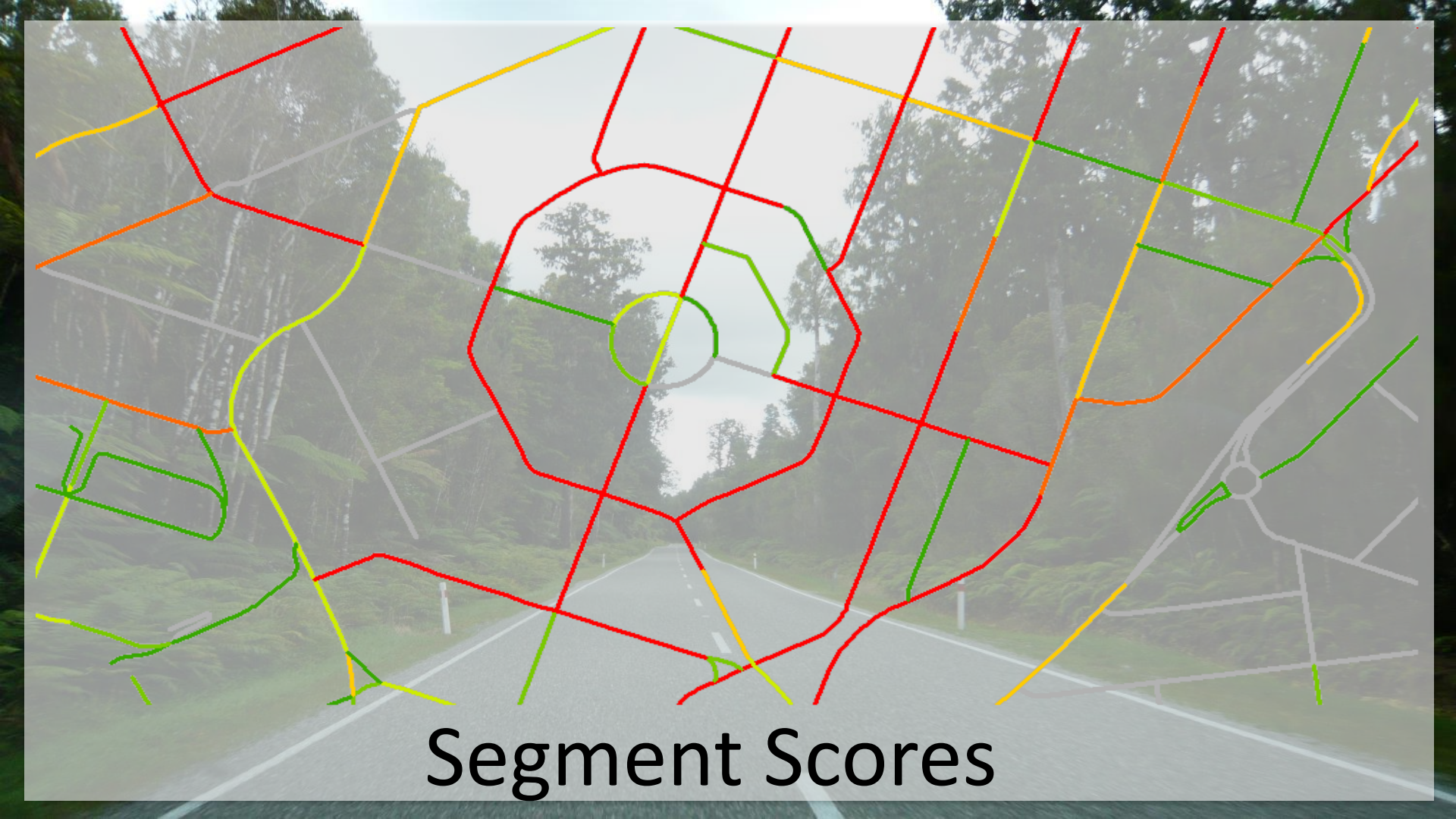
SS = Segment Score

SR = Count of speed related crashes

DSi = Sum of weighted crash DSi equivalents

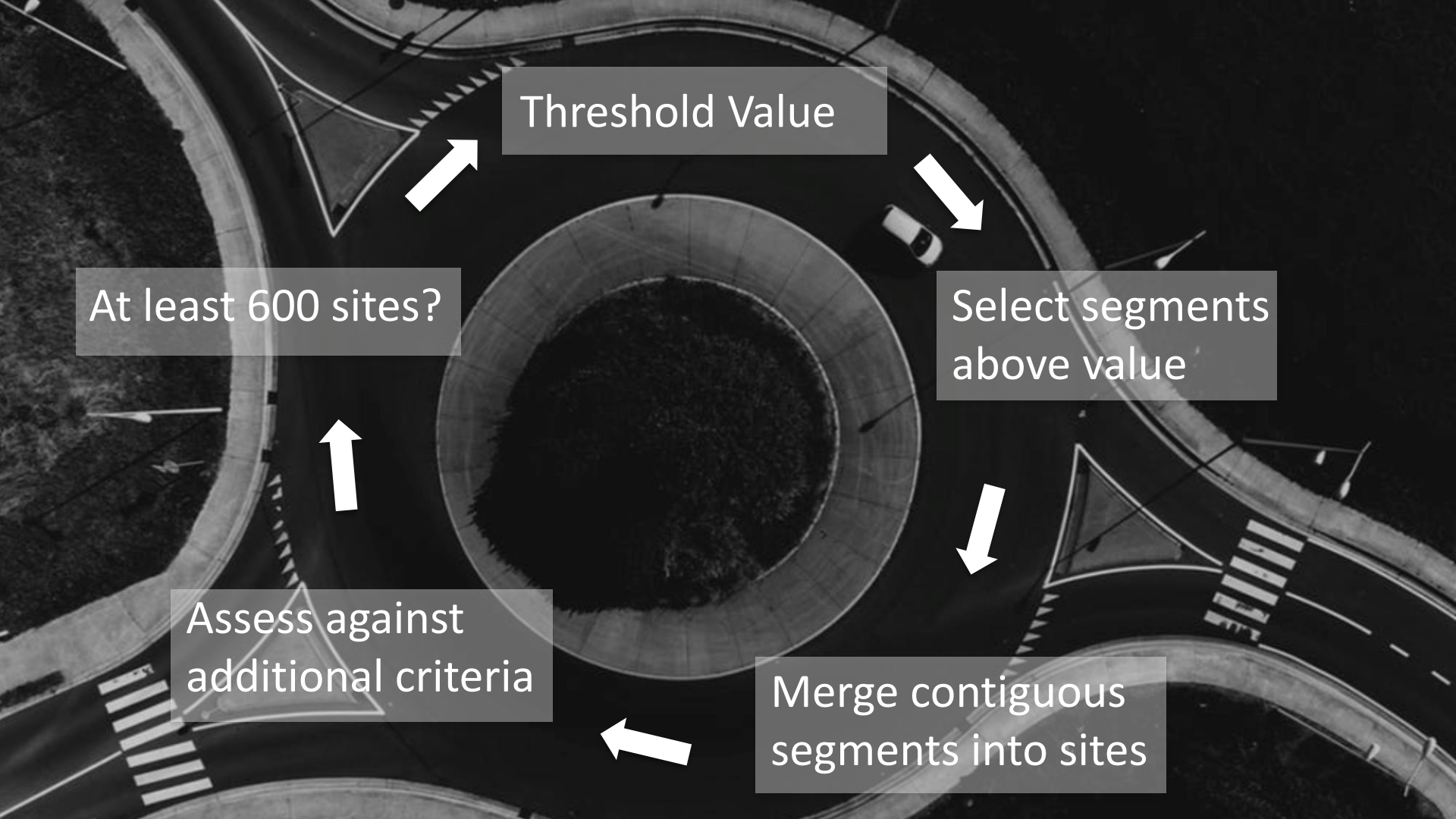
FS = Count of fatal and serious crashes

Segment Score


Segment Scores

Requirements

- Approx. 600 sites
- At least 300m long
- Not too curved
- At least 25% of crashes are speed related
- Less than 75% of crashes occurred at an intersection


Threshold Value
Select segments above value
Merge contiguous segments into sites
Assess against additional criteria
At least 600 sites?

Social Co$t

CAMERA SITES

http://demos.interpret.co.nz/storymaps/police

New Zealand Police

Speed Camera Site Selection

Segment Scores

Each link was then further broken down into segments approximately 100m long. All the crashes that were within the halo distance* of an segment and in the same corridor were assigned to the segment.

Speed cameras need to be placed in sites that have a high risk of injury and a high number of speed-related crashes. All other things being equal, they should be placed at sites with a historically high number of fatal and serious crashes.

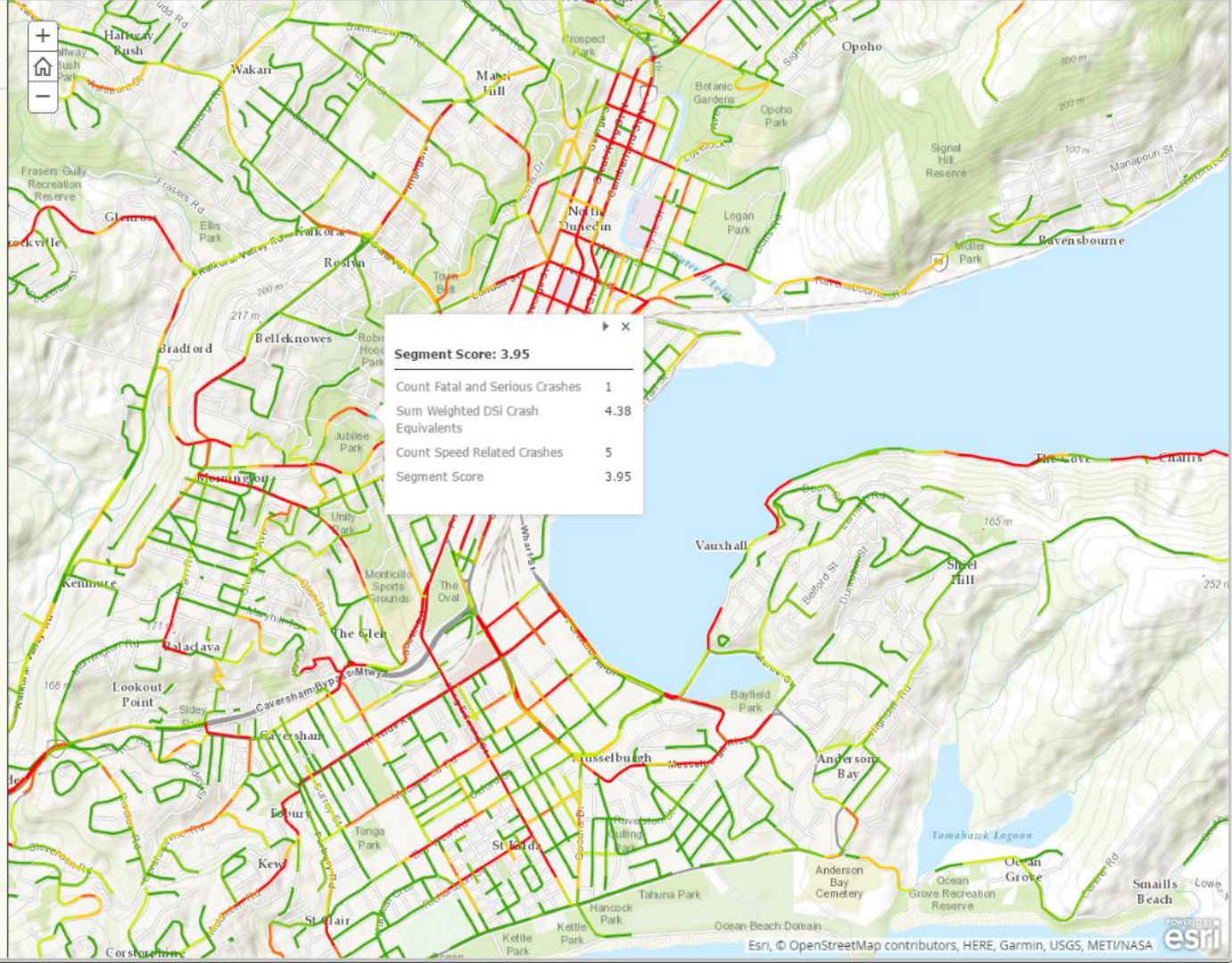
To combine these characteristics, each segment calcaulted a segment score using all the crashes that were assigned to it, as follows:

SS = (SR * 0.4) + (DSi * 0.4) + (FS * 0.2)

Where:
SS = Segment Score
SR = Count of speed related crashes
DSi = Sum of weighted crash DSi equivalents
FS = Count of fatal and serious crashes

This results in a single value that can be used to compare segments. Click on a segment to view its crash data and segment score.

*Halo distance is the distance a hypothetical speed camera would influence. This is 250m in urban speed environments (<= 70kph) and 500m in rural speed environments (> 70kph).



New Zealand Police

Speed Camera Site Selection

Social Cost

To work out the optimal location for a speed camera, a 'virtual camera' was placed every 100m along each site. These cameras were assigned all the crashes that occurred within the halo distance of the camera.

Crashes that occurred within the last 5 years have a social cost calculated, based on movement type and crash environment. Older crashes were not included in the social cost calculations.

The total social cost is the sum of these values. This total social cost was annualised by dividing it by 5. This represents the total annual social cost of crashes within the halo of the virtual camera.

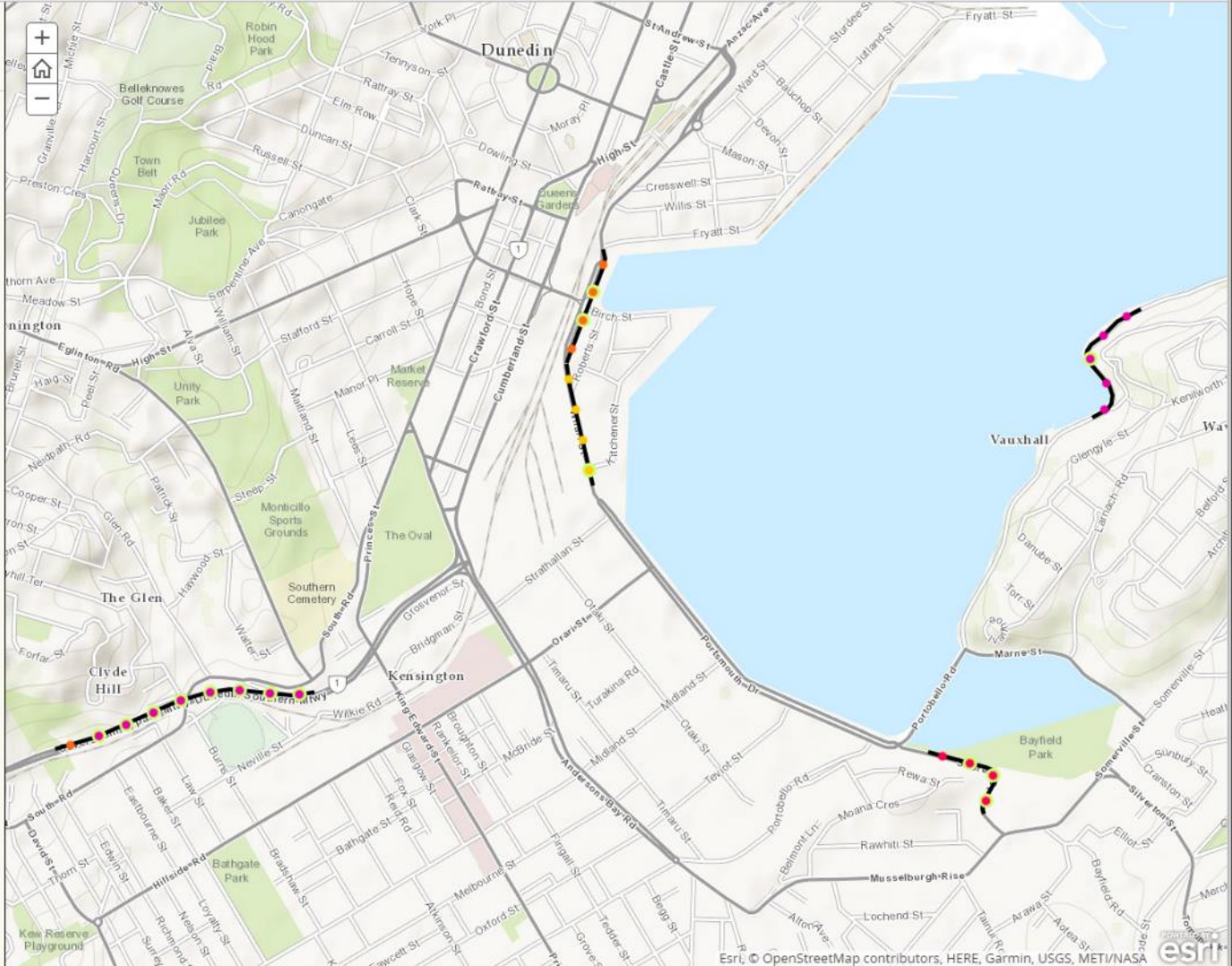
Click on a red virtual camera to see the annualised social cost.

The camera with the green halo is the best-performing camera in the site. Sometimes multiple cameras perform equally well, so there may be multiple sites with green halos.

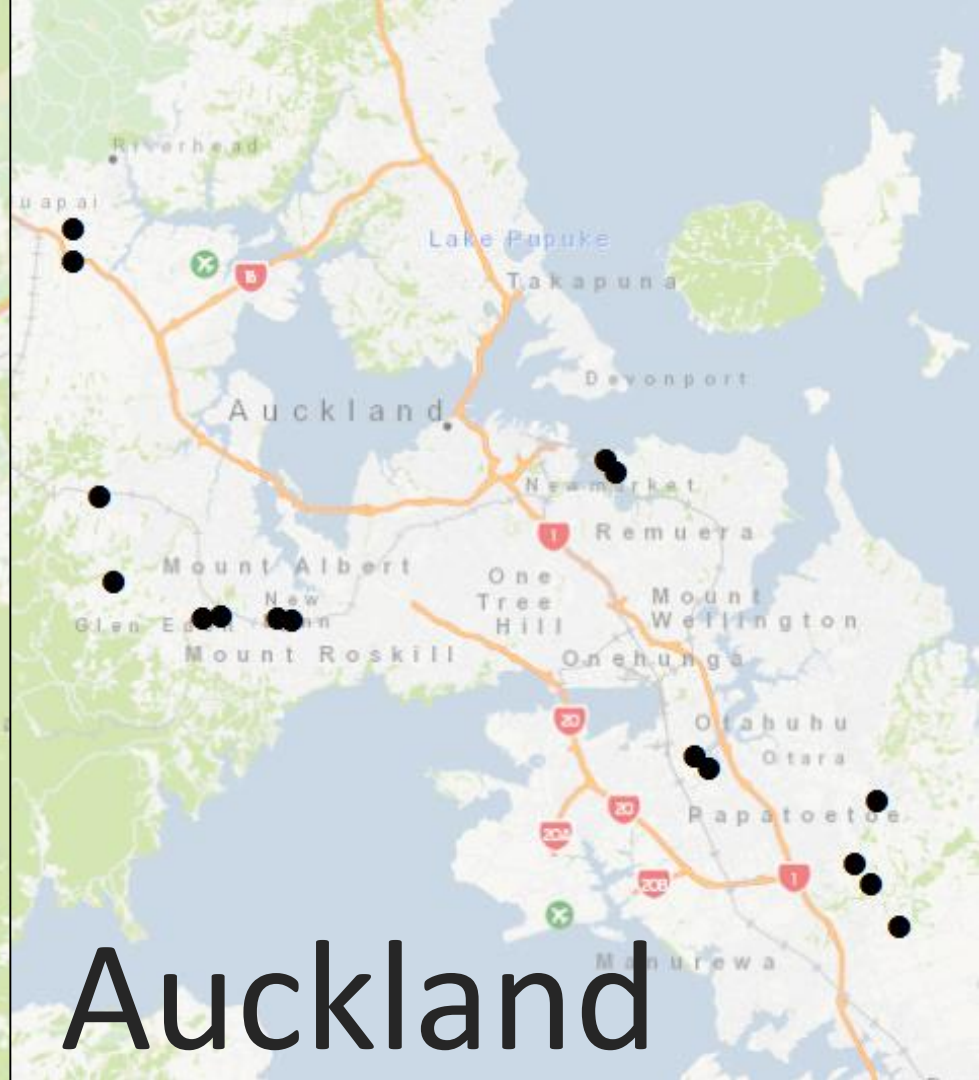
Note that speed cameras do not stop all crashes within their halos. Typically cameras will stop between 20% and 42% of injury crashes from occurring.

The social costs described here are in no way related to the fines incurred by speeding drivers once cameras are installed.

What now?



Wellington



Auckland

Questions?

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References

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