



road accidents @ victoria

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project goals

which road safety measures are effective in preventing road incidents?



1

Socio-Economic improvements

Could targeted Government programs reduce road accidents?

2

Speed limit restrictions

Will changing the speed limit reduce road accidents?

3

Road repairs & upgrades

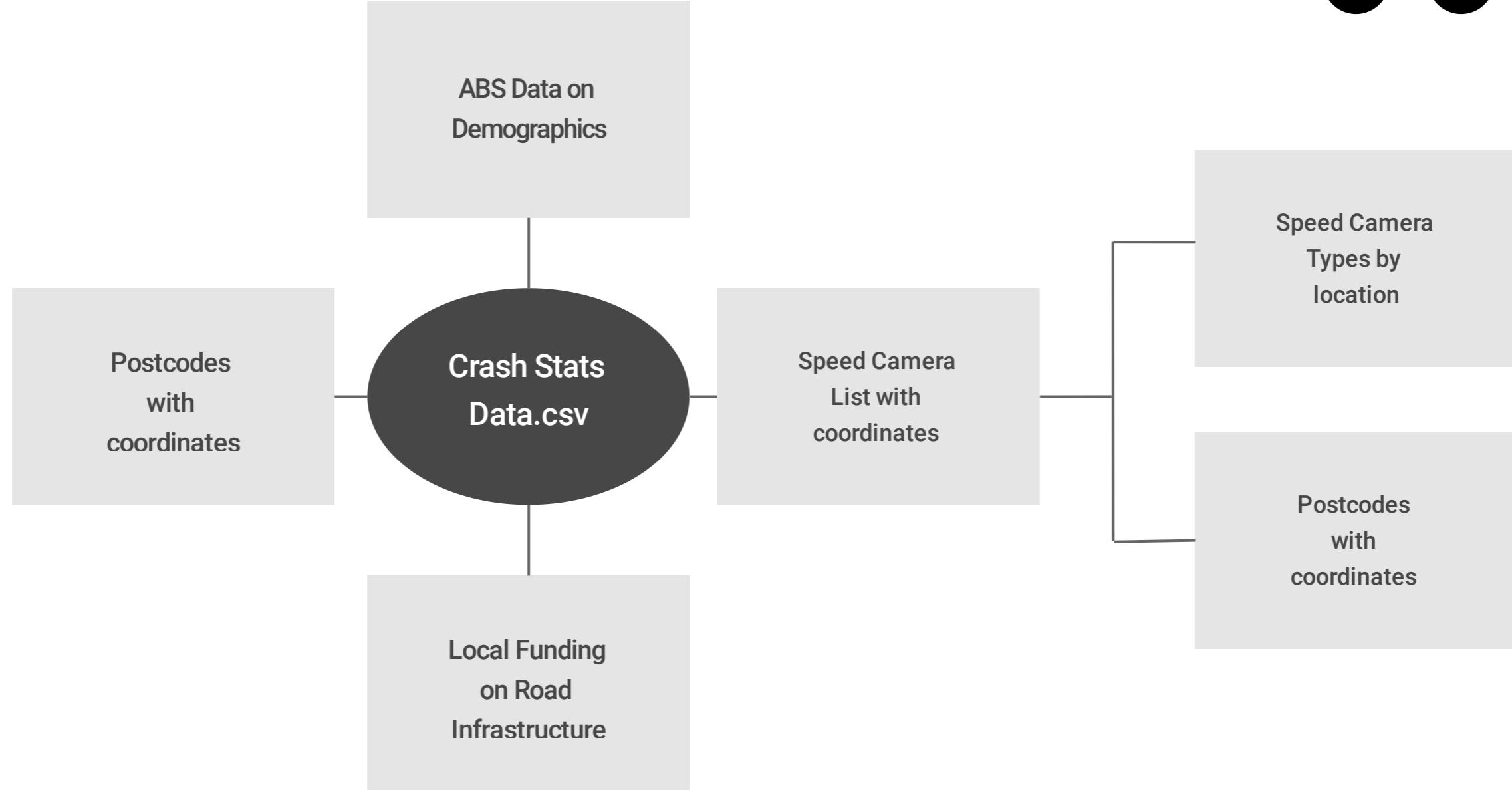
Is road safety impacted by local government spending to improve road conditions?

4

Road safety cameras

Do road safety cameras reduce road fatalities?

data sources



Road crashes in Victoria 2013 – 2019

- As this was in Queensland and our data, this was outside our analysis



Australian man fights off deadly snake that attacked him in his car while he drove down the highway

KELLY MC LAUGHLIN

JUL 8, 2020, 6:57 AM



Queensland Police

Jimmy, who fought off a snake in Queensland.

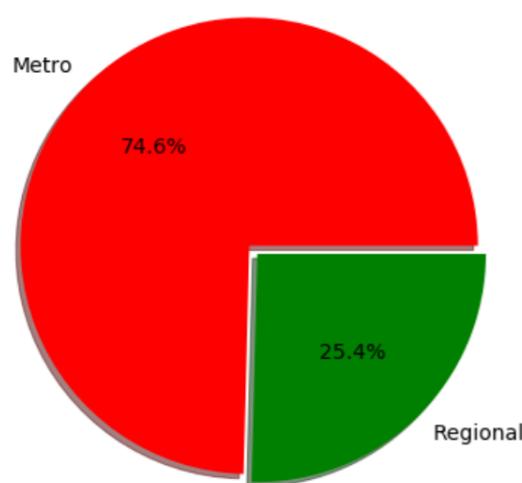
- A man police identified as Jimmy was driving down the highway in Calliope, Australia, on June 15 when he saw a snake at his feet.
- It was an eastern brown snake, one of [Australia's deadliest snake species](#).
- Jimmy was able to kill the snake using a seatbelt and his work knife, but fearing he'd been bit, he sped to a nearby hospital.

Road crashes in Victoria 2013 – 2019

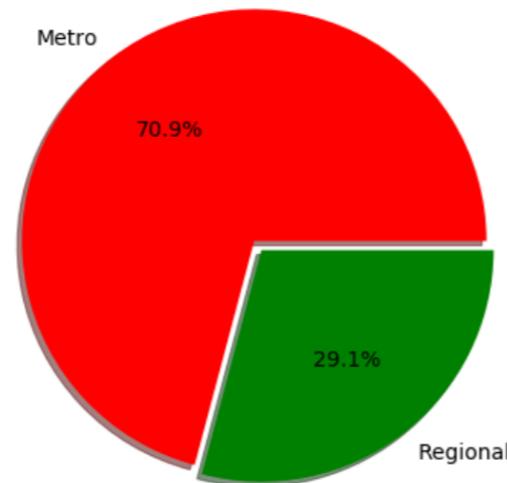
Key headlines:

- Total population at 2016 Census - 5.918m
- There were 63,000 reported crashes
- 80,000 people were seriously injured or lost their life in road accidents
- 1,227 lost their lives , 55% were regional

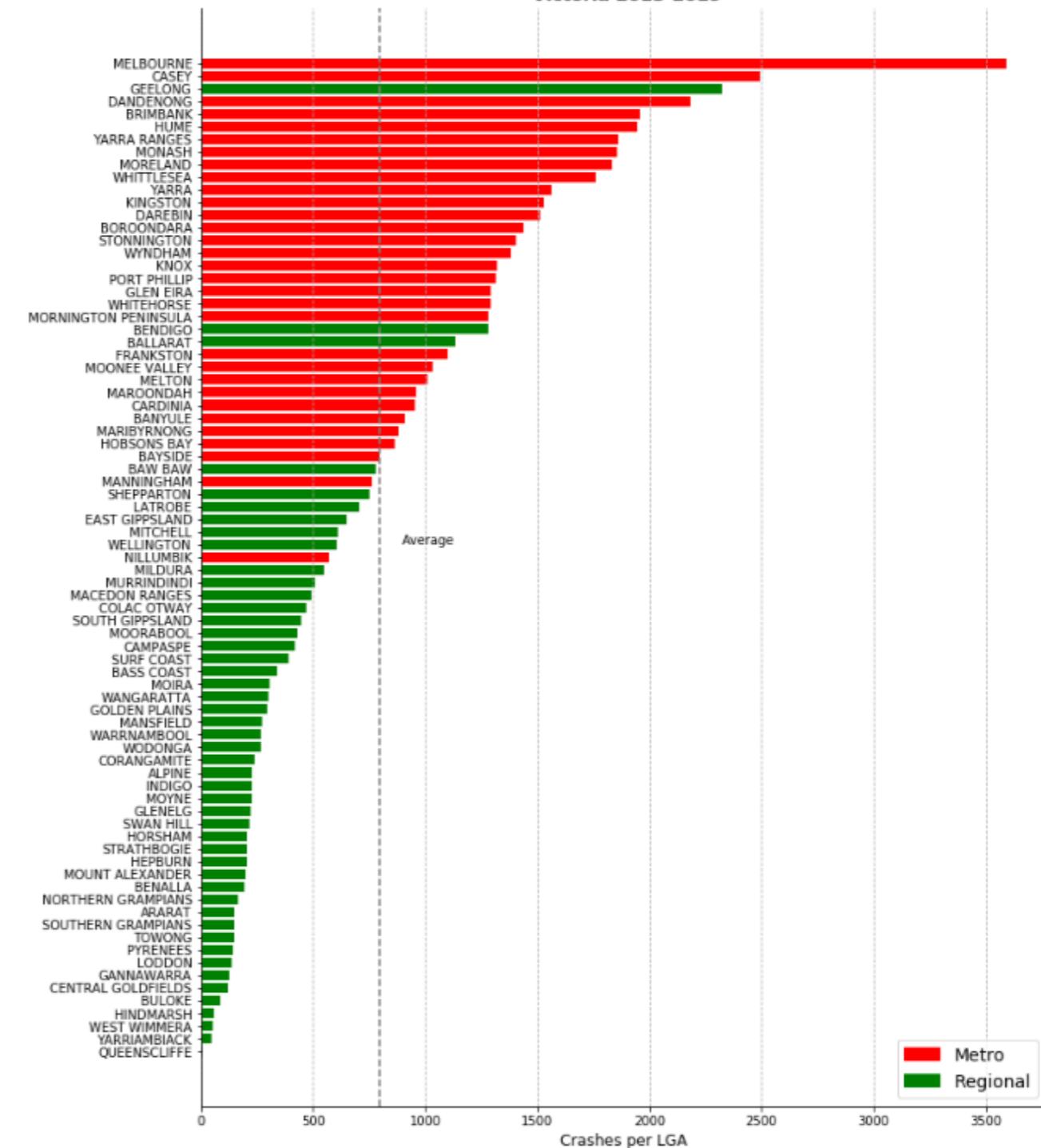
% of Victorian Population Main Residence
Metro or Regional
2016 Australian Census



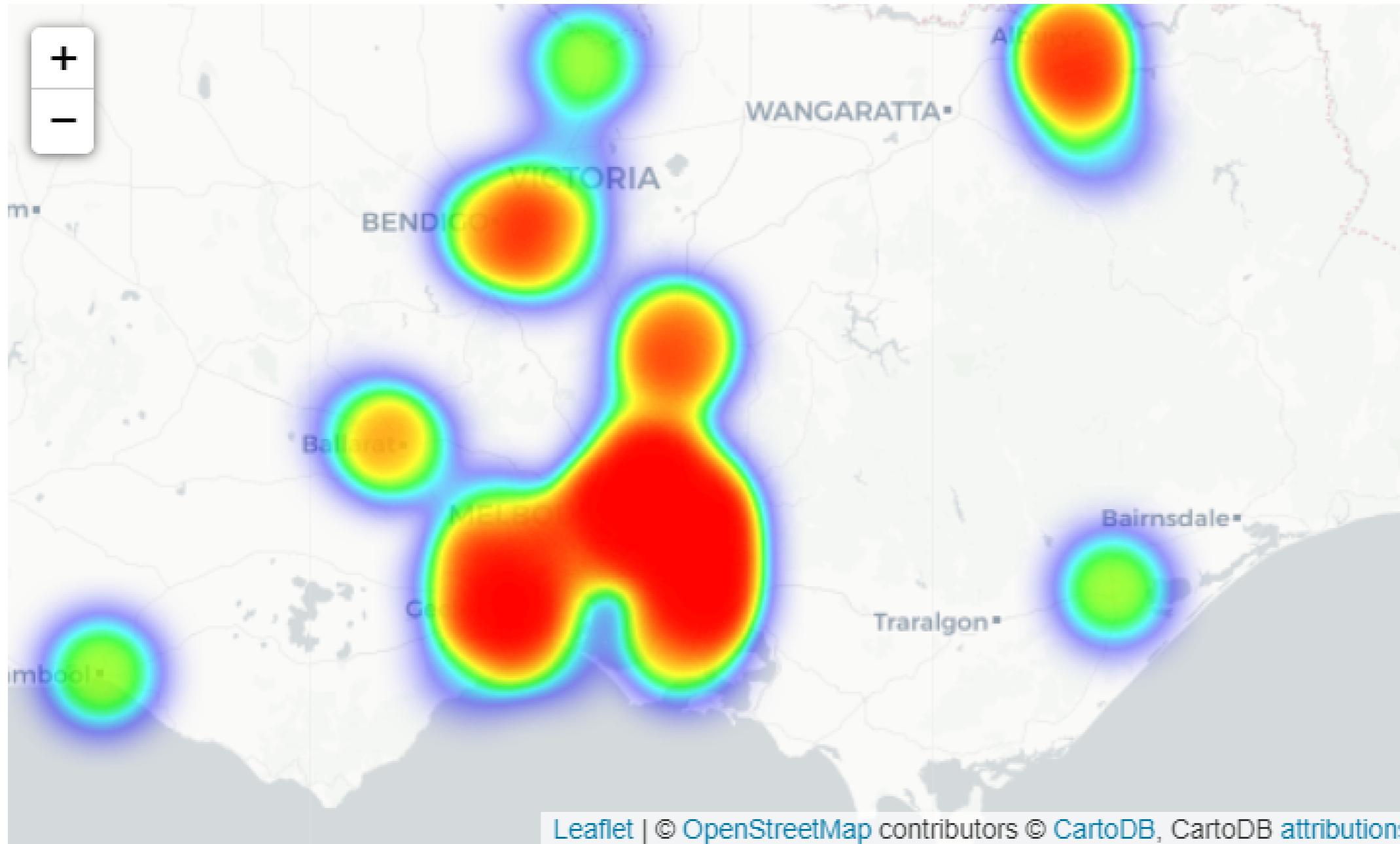
% of Accidents in Victoria
Metro or Regional
2013-2019



Total Crashes per Local Government Authority (LGA)
Victoria 2013-2019



Heatmap of Crash Sites



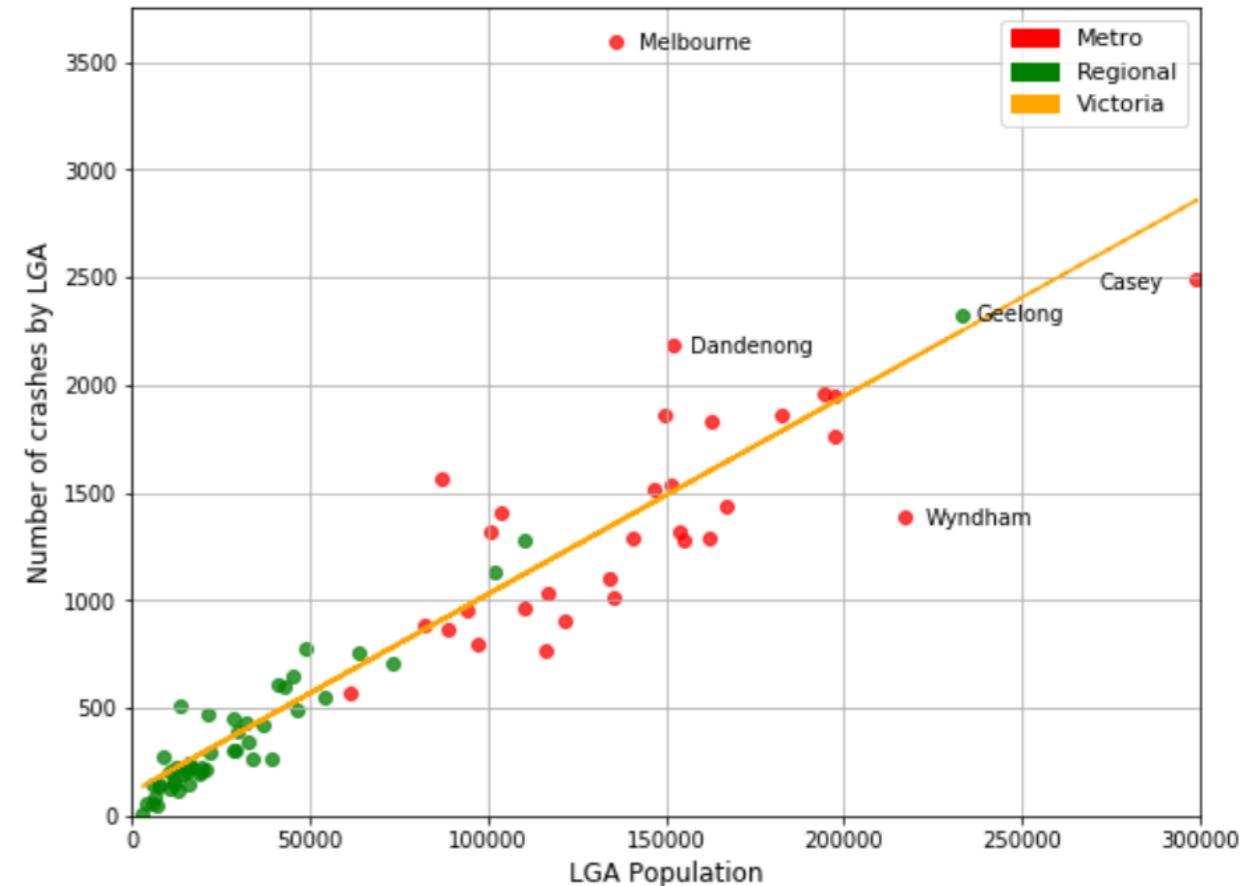
Leaflet | © OpenStreetMap contributors © CartoDB, CartoDB attributions

Road crashes by Local Government Authority



- Generally consistent across each LGA's population
- Melbourne is the significant outlier - increased traffic flow

Road crashes by population of Local Government Authority Victoria (2013 - 2019)

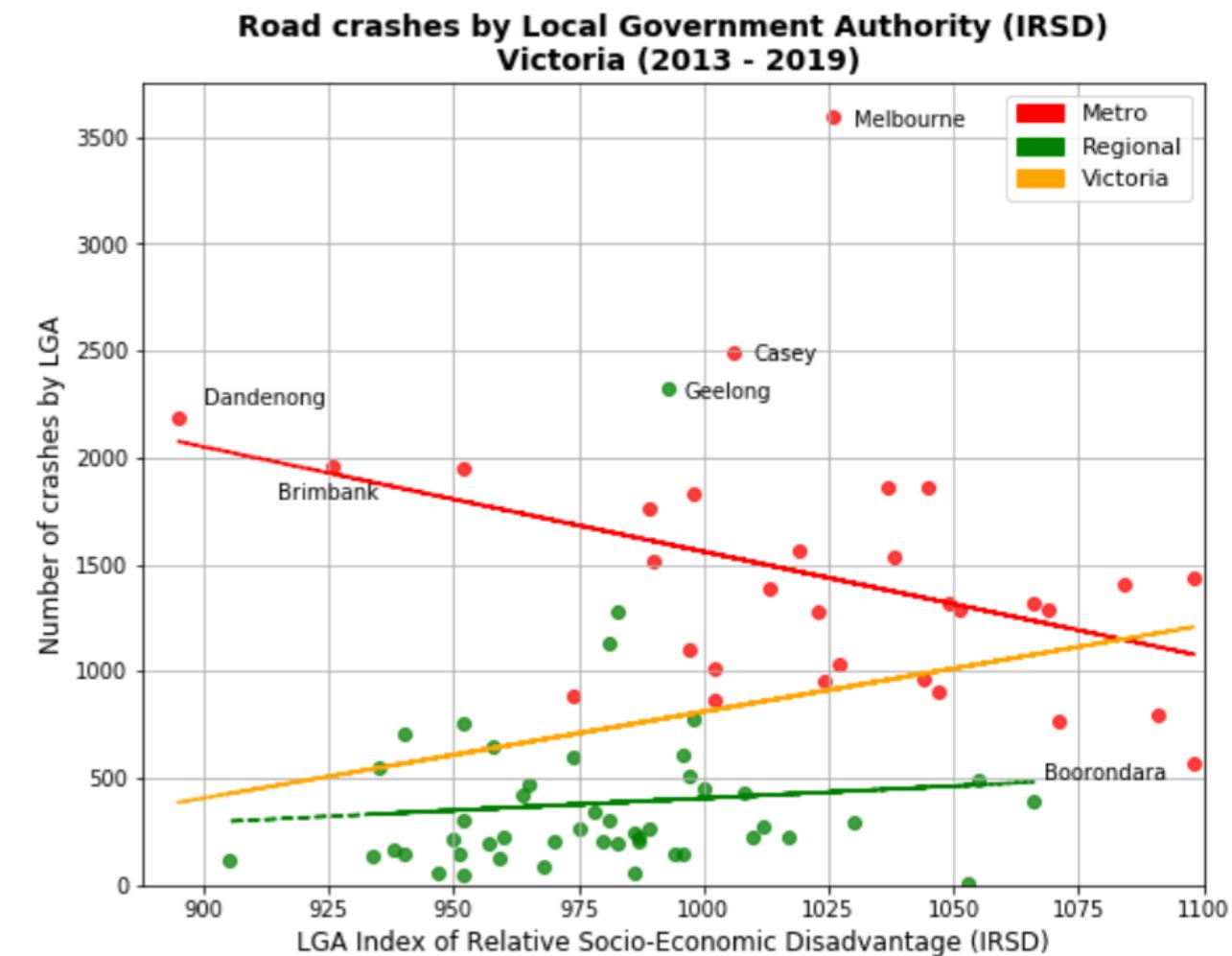


Sources: ABS Census Data, Victorian Dep't of Health, VicRoads

Can socio-economic improvements reduce road incidents?



- In metro , there is a correlation
- In regional , not very much of a correlation, but the larger regional towns in Geelong, Bendigo and Ballarat are higher

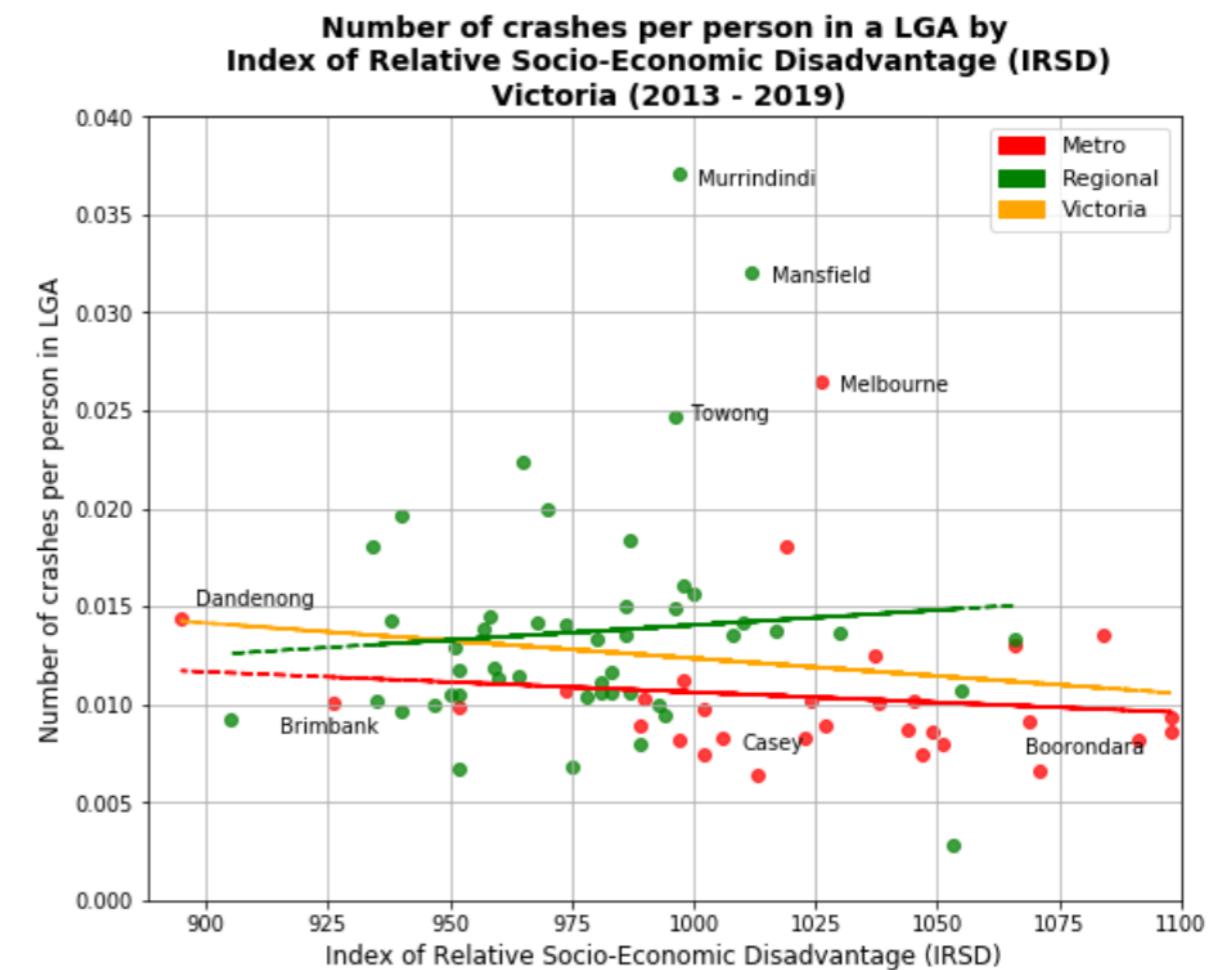


Sources: ABS Census Data, Victorian Dep't of Health, VicRoads

Can socio-economic improvements reduce road incidents?



- Number of crashes per person, regional LGA areas have a higher number accidents per person
- When converted to number of crashes per person, different outliers, especially regional (Hume Region)

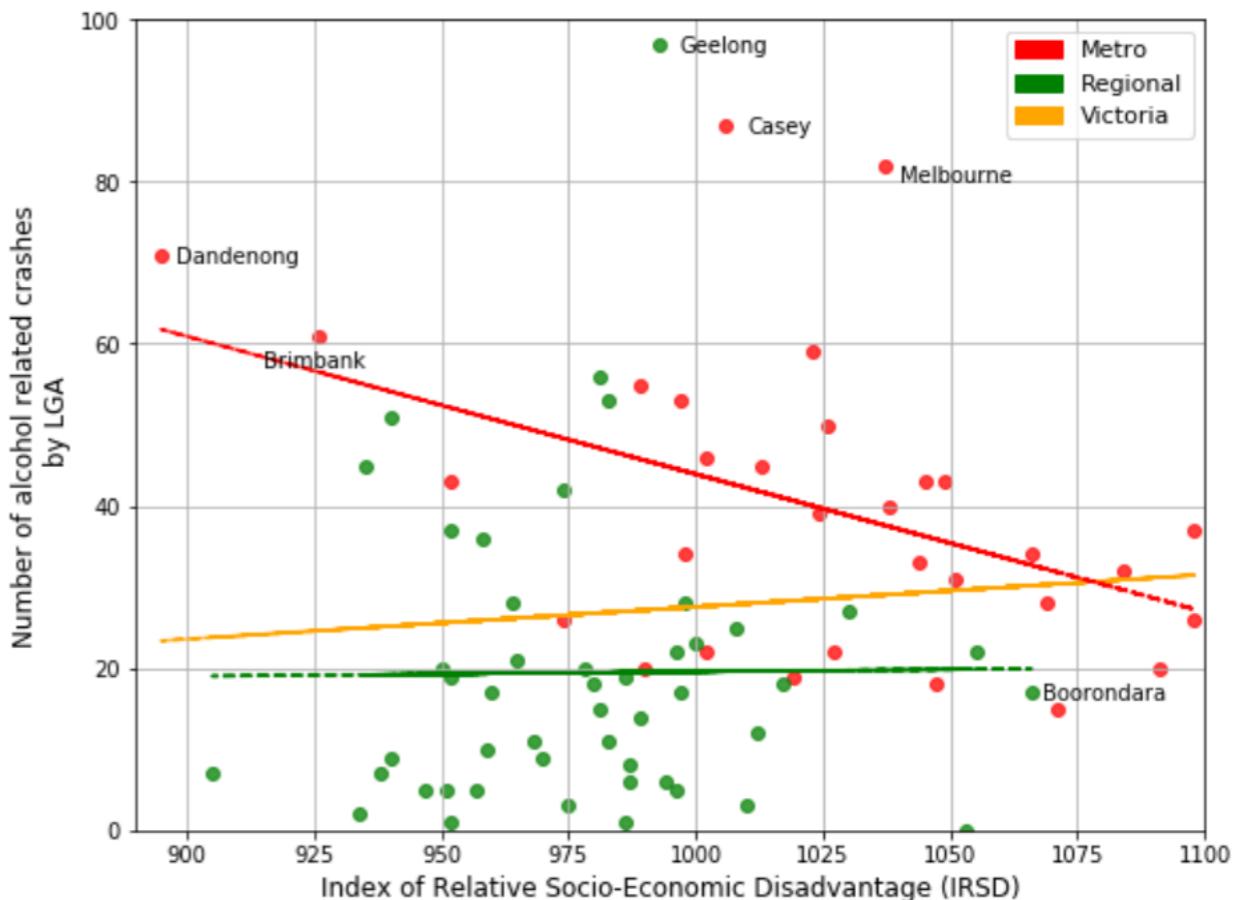


Sources: ABS Census Data, Victorian Dep't of Health, VicRoads

Can socio-economic improvements reduce road incidents?

- Alcohol related incidents in city decrease as IRSD increases, except in Casey & Melbourne
- Low correlation in regional, but Geelong is the standout - further analysis would be required

Alcohol Related Road Crashes by Local Government Authority (IRSD) - Victoria (2013 - 2019)



Sources: ABS Census Data, Victorian Dep't of Health, VicRoads

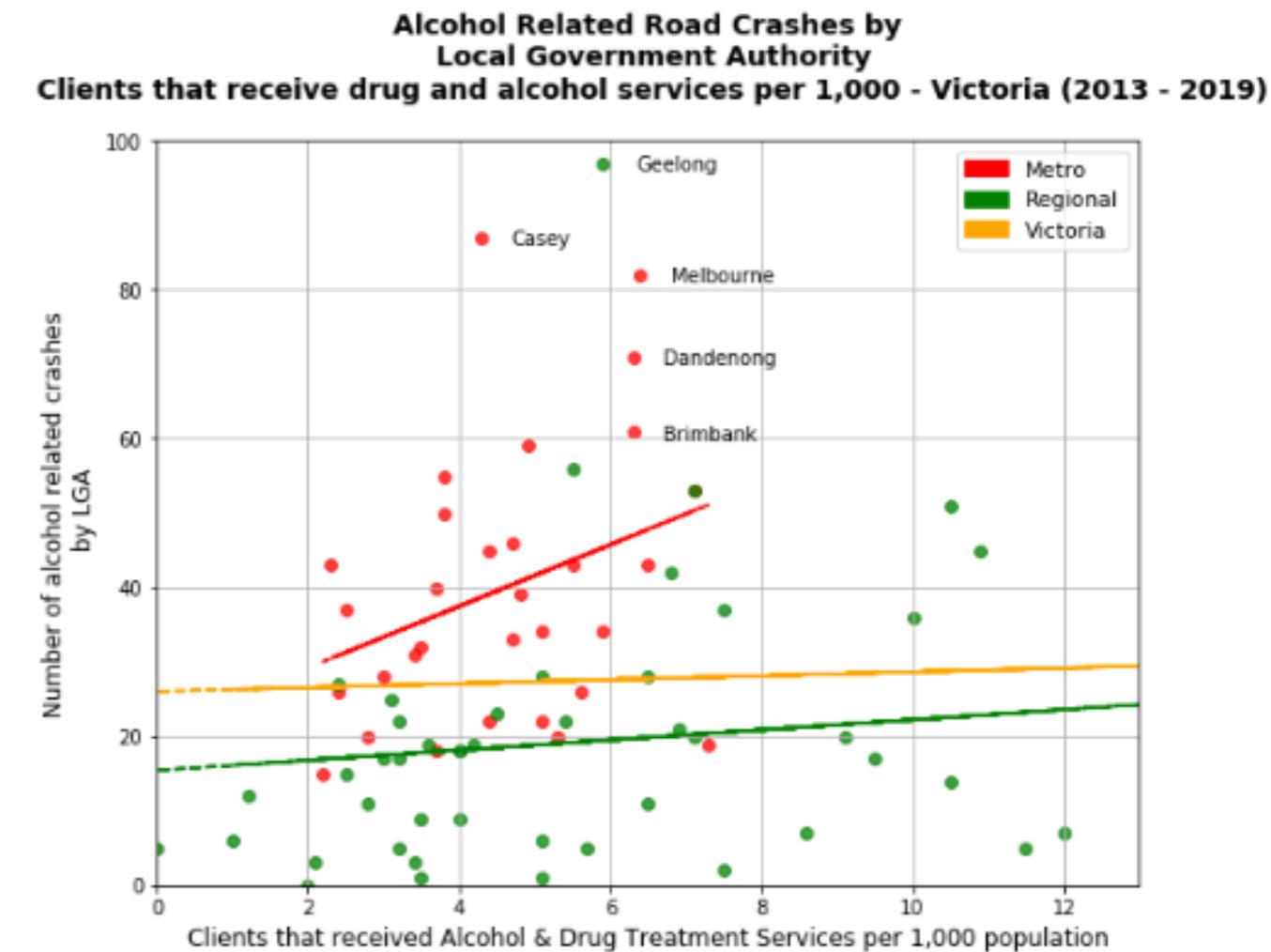
Can socio-economic improvements reduce road incidents?



- Alcohol and drug problems have a strong influence on the number of incidents per person in metro
- Not as strong correlation for regional LGA's, higher proportion receive drug & alcohol treatment in regional areas.

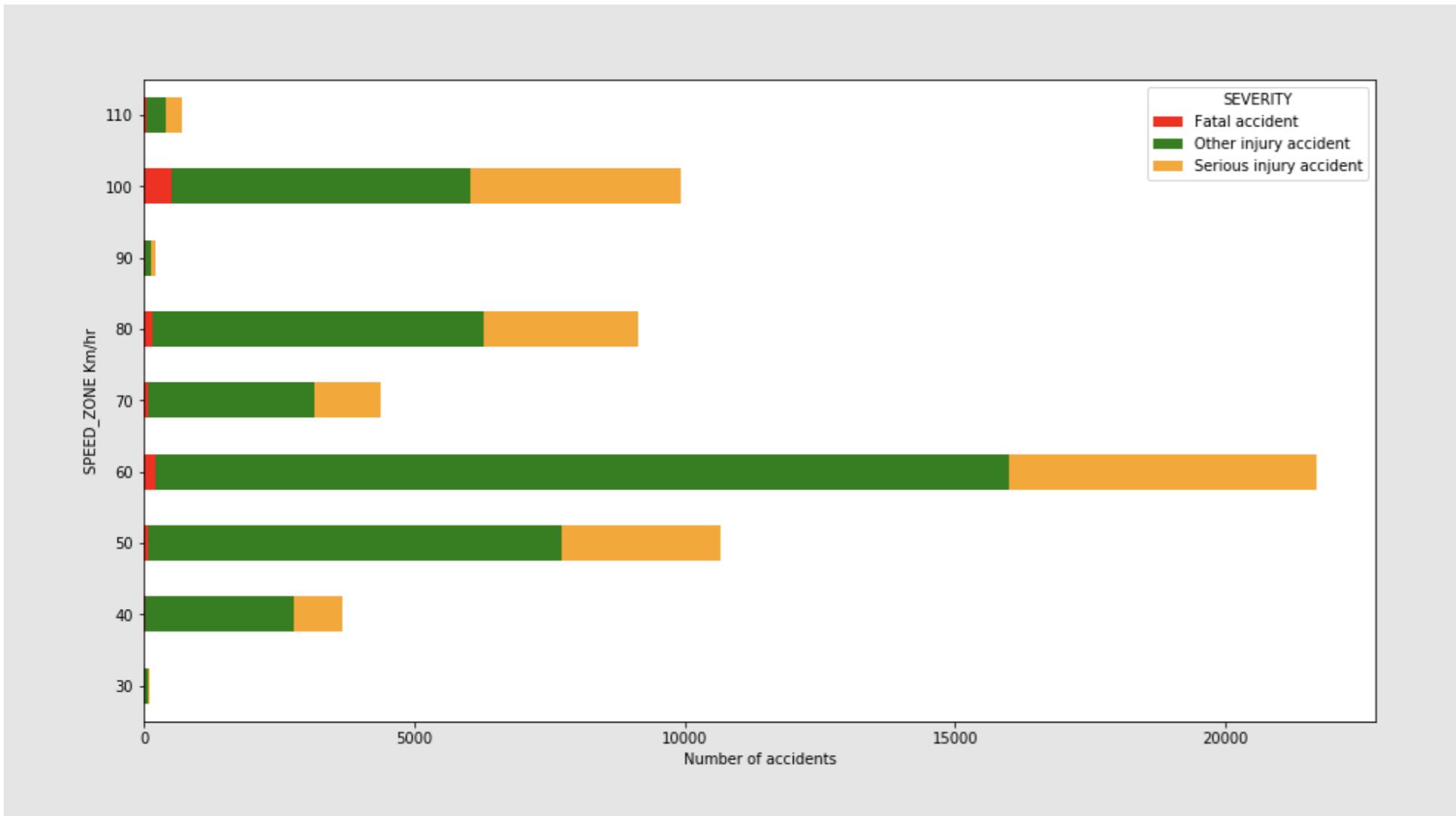
CONCLUSION:

- Socio-Economic factors do effect the number of incidents
- Could targeted programs decrease crashes



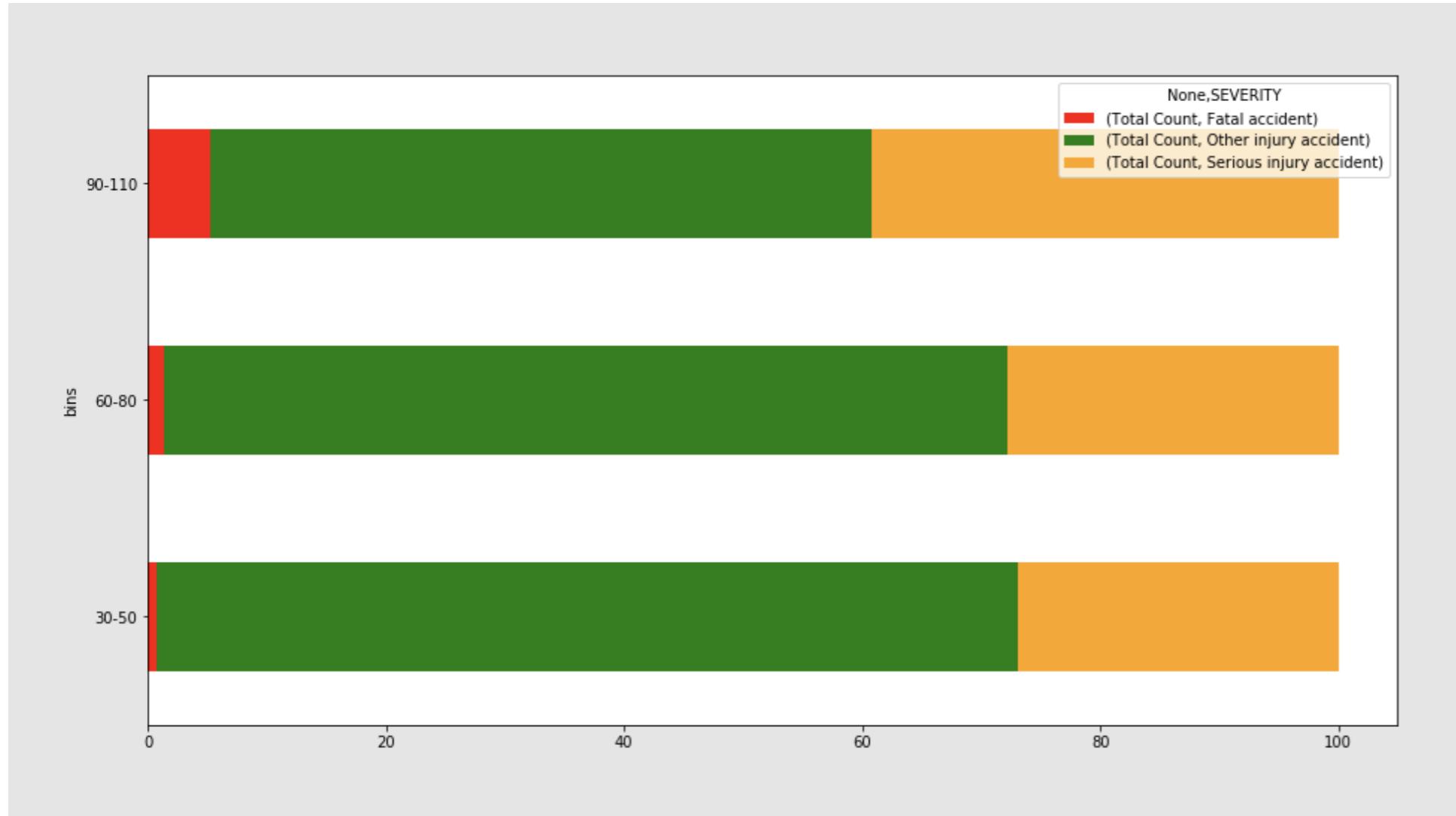
Sources: ABS Census Data, Victorian Dep't of Health, VicRoads

Number of accidents per speed limit



Most accidents occur at speed limit 60 km/hr owing to, the fact that this speed limit covers a large proportion of roads in Victoria.

Percentage of accidents per speed limit



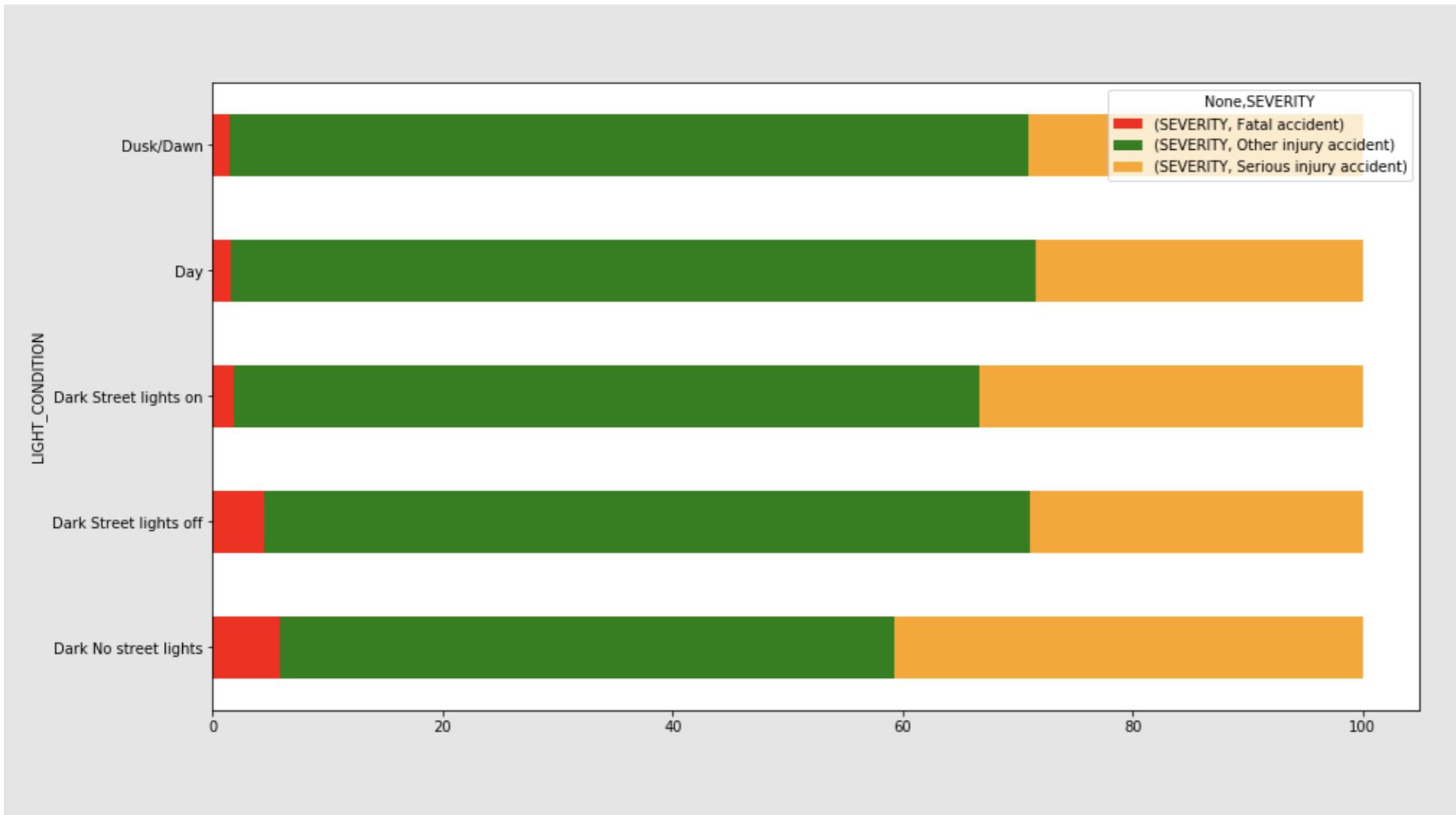
Even though we would have loved to prove otherwise; yet, the higher the speed limit the greater the possibility of a fatal accident occurring.

An aerial photograph of a city street at night. The scene is illuminated by streetlights, casting long shadows. Several cars are parked along the curb, and a few are in motion. Pedestrians are visible walking on the sidewalks. The overall atmosphere is dark and moody.

Every speed has a consequence.

Pothink speed

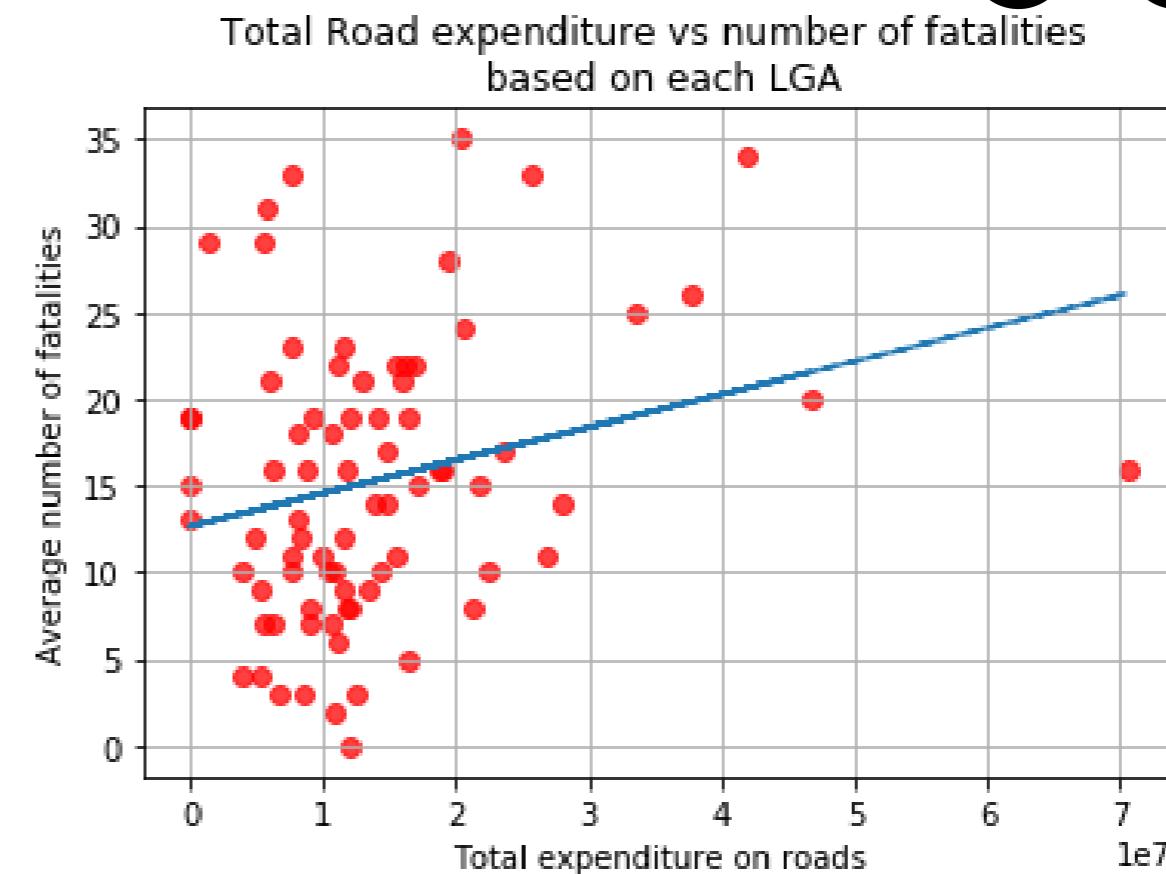
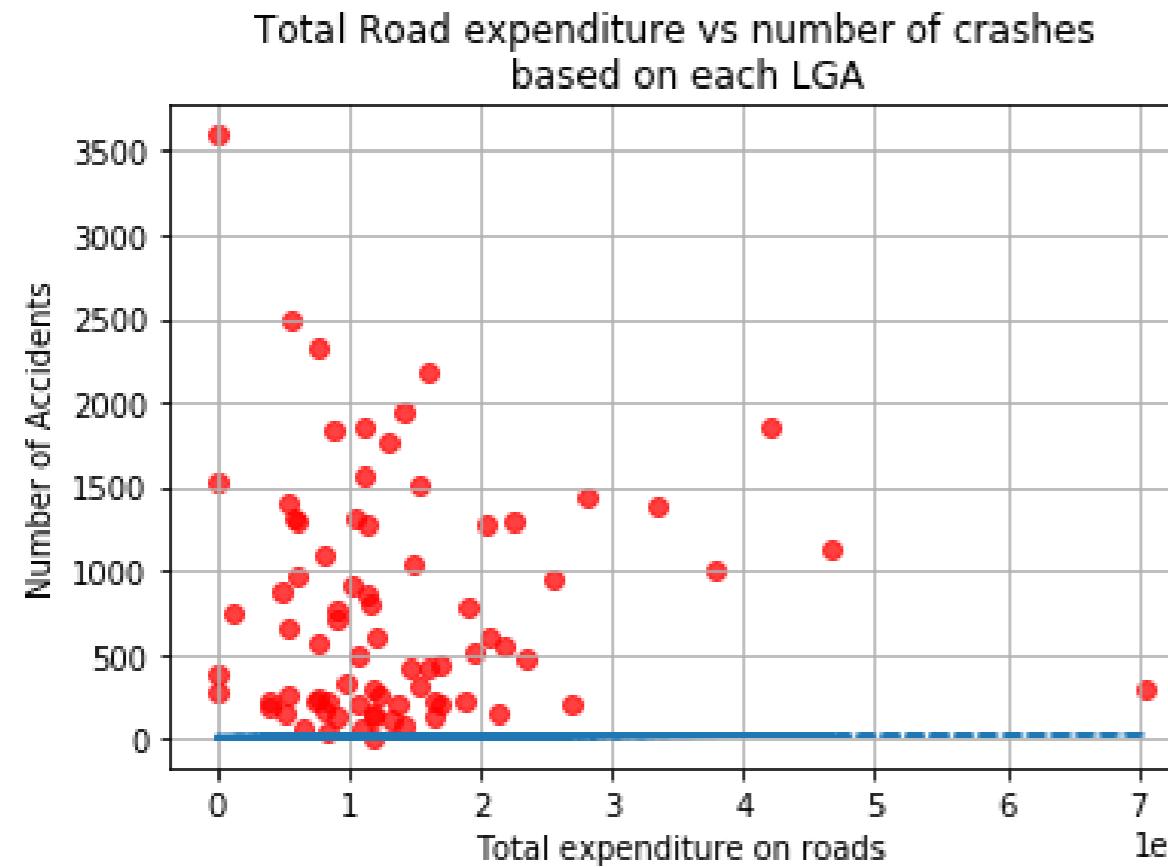
Percentage of accidents per Light conditions



"The objective of road lighting is to provide an illuminated environment, which is conducive to the safe and comfortable movement of vehicular and pedestrian traffic at night, and the discouragement of illegal acts"

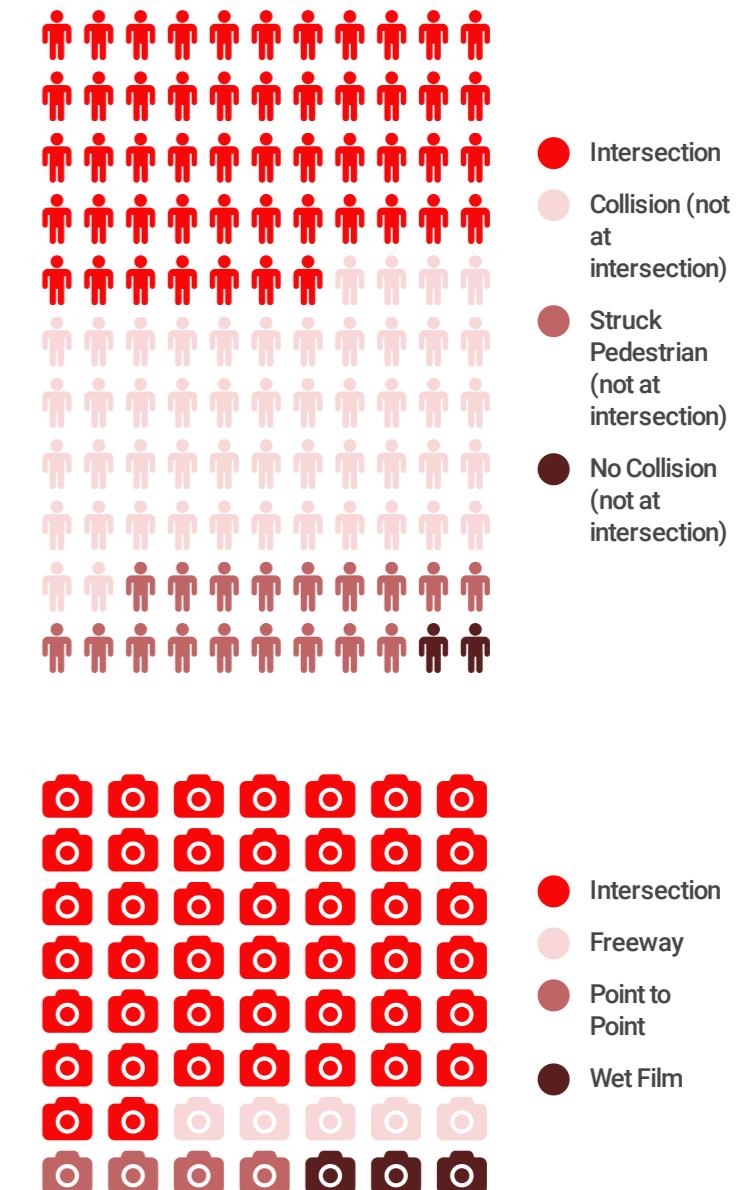
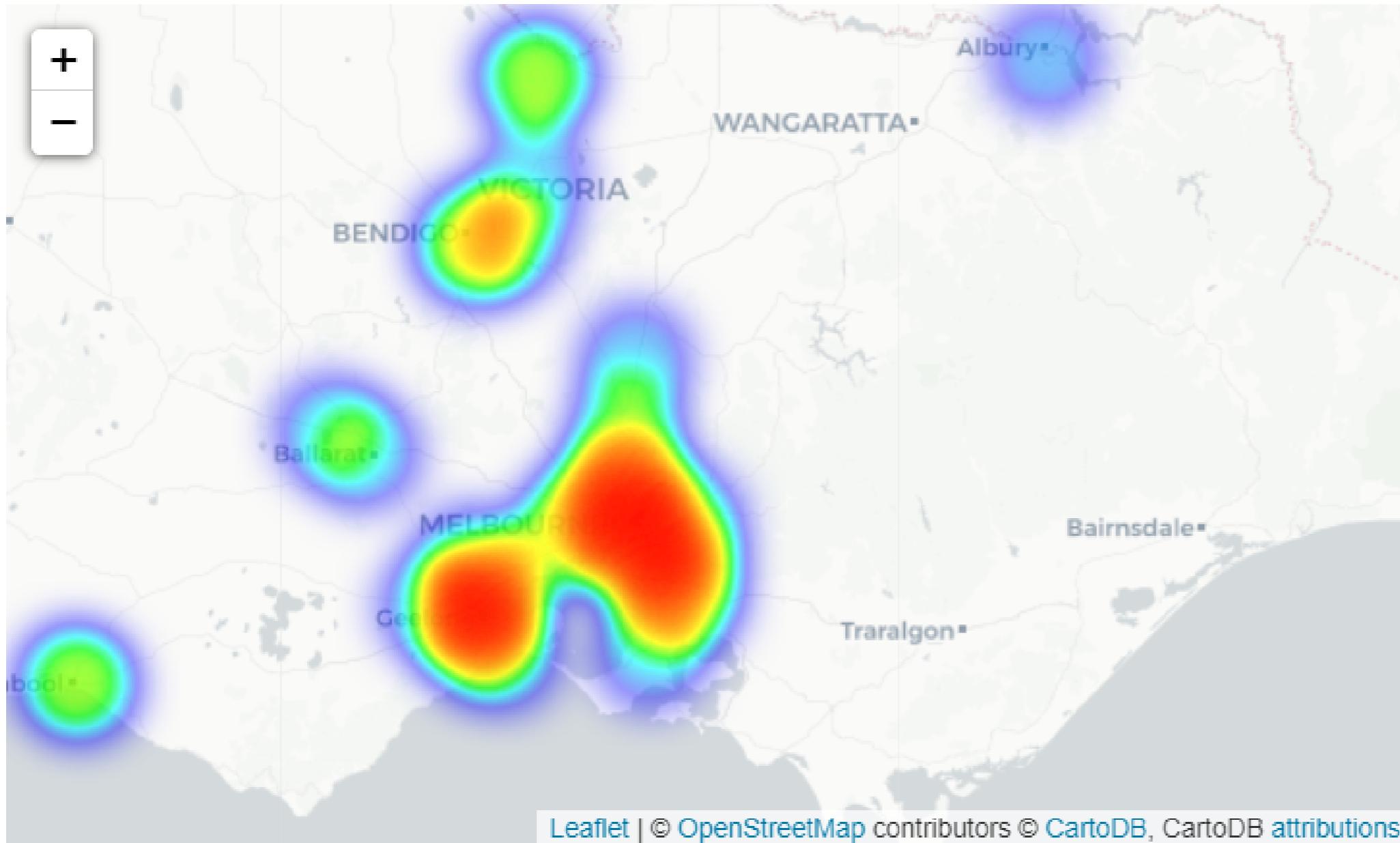
Department of transport and main roads

road repairs and upgrades

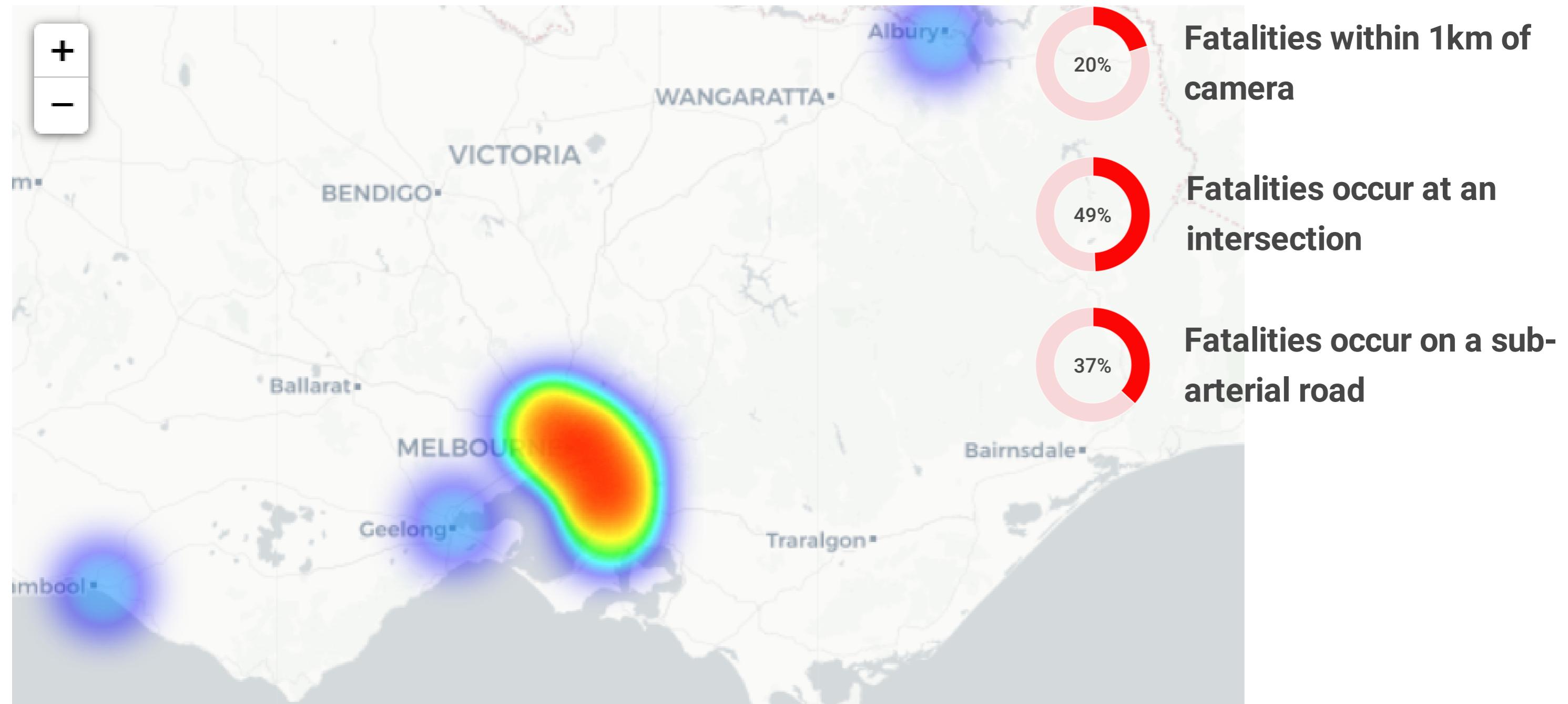


Spending on road repairs and upgrades did not seem to reduce number of accidents or fatalities

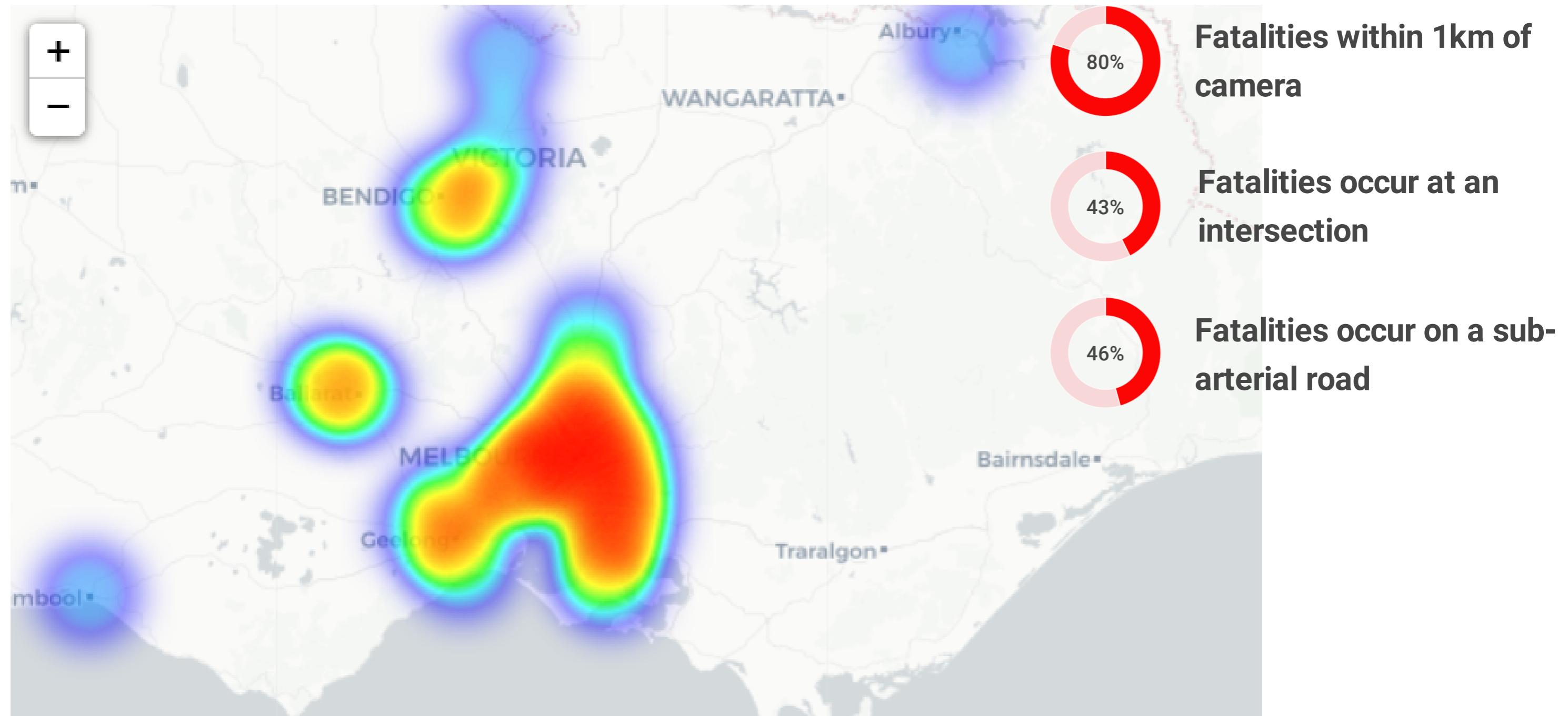
heatmap of fatalities



heatmap of fatalities within 1km radius of a camera



heatmap of road toll outside 1km radius of a camera



Do road safety cameras reduce road fatalities?

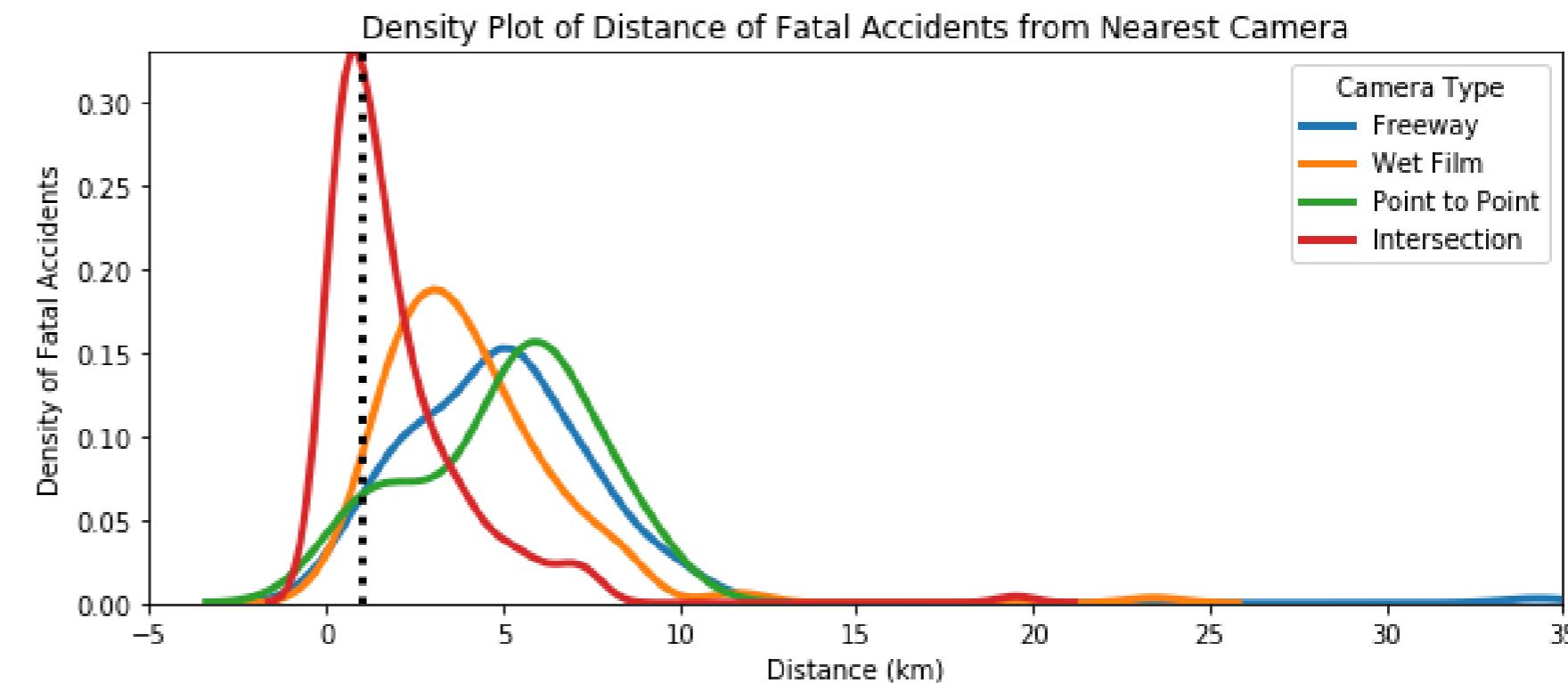


Welch's t-test

95% confidence level that safety
cameras can reduce road fatalities



p-value = 0.04



summary of observations



1

There is a correlation between socio-economic factors and the number of road incidents. Targeted programs could decrease road crashes.

2

Speed limit restrictions and light conditions affect road fatalities in Victoria

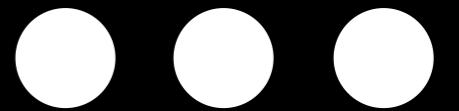
3

Spending money to build, repair and upgrade roads do not seem to have any effect on reduction of number of road accidents and road fatalities

4

Traffic cameras seem to statistically significant effect on reducing road fatalities

most effective is.....



Speed limit restrictions, lighting and traffic cameras



for further studies



: which camera type is more effective
in preventing fatal accidents?

