



# 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**

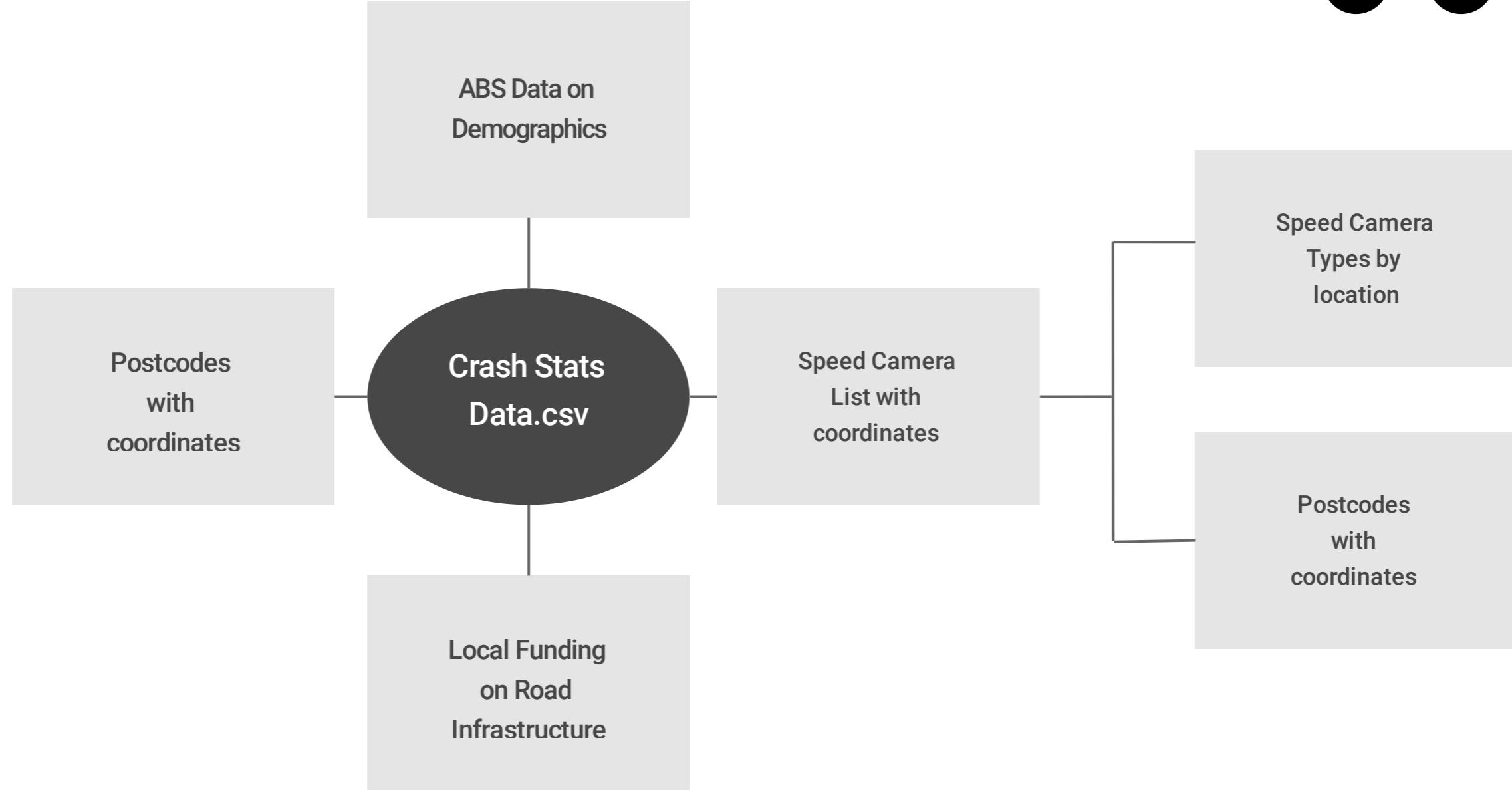
Is road safety impacted by local government spending to improve road conditions?

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.

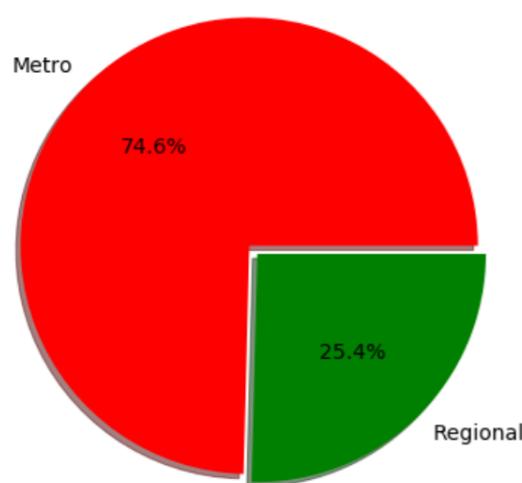
- A man police identified as Jimmy was driving down the highway in Calliope, Australia, on June 15 when he saw a snake at his feet.
- It was an eastern brown snake, one of [Australia's deadliest snake species](#).
- Jimmy was able to kill the snake using a seatbelt and his work knife, but fearing he'd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

# Road crashes in Victoria 2013 – 2019

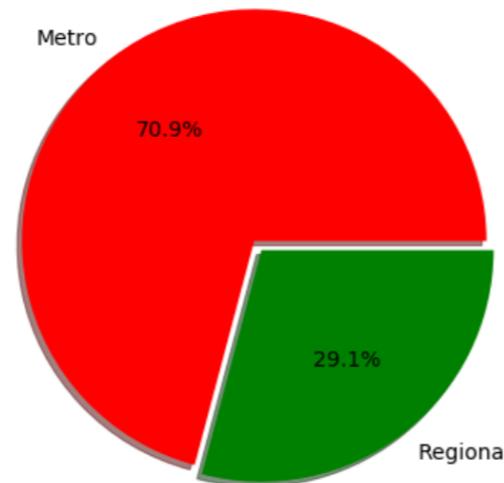
## Key headlines:

- 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

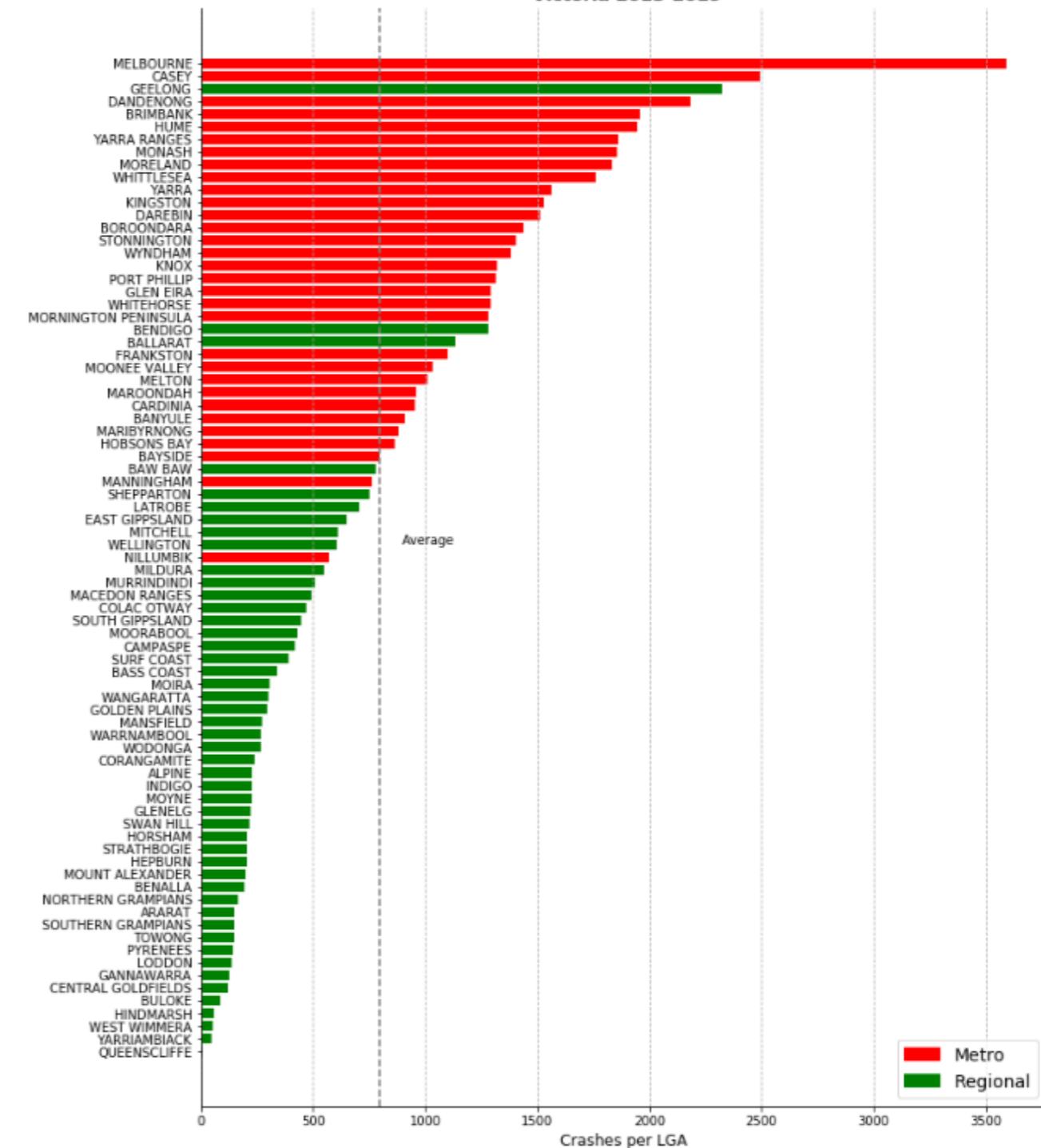
% of Victorian Population Main Residence  
Metro or Regional  
2016 Australian Census



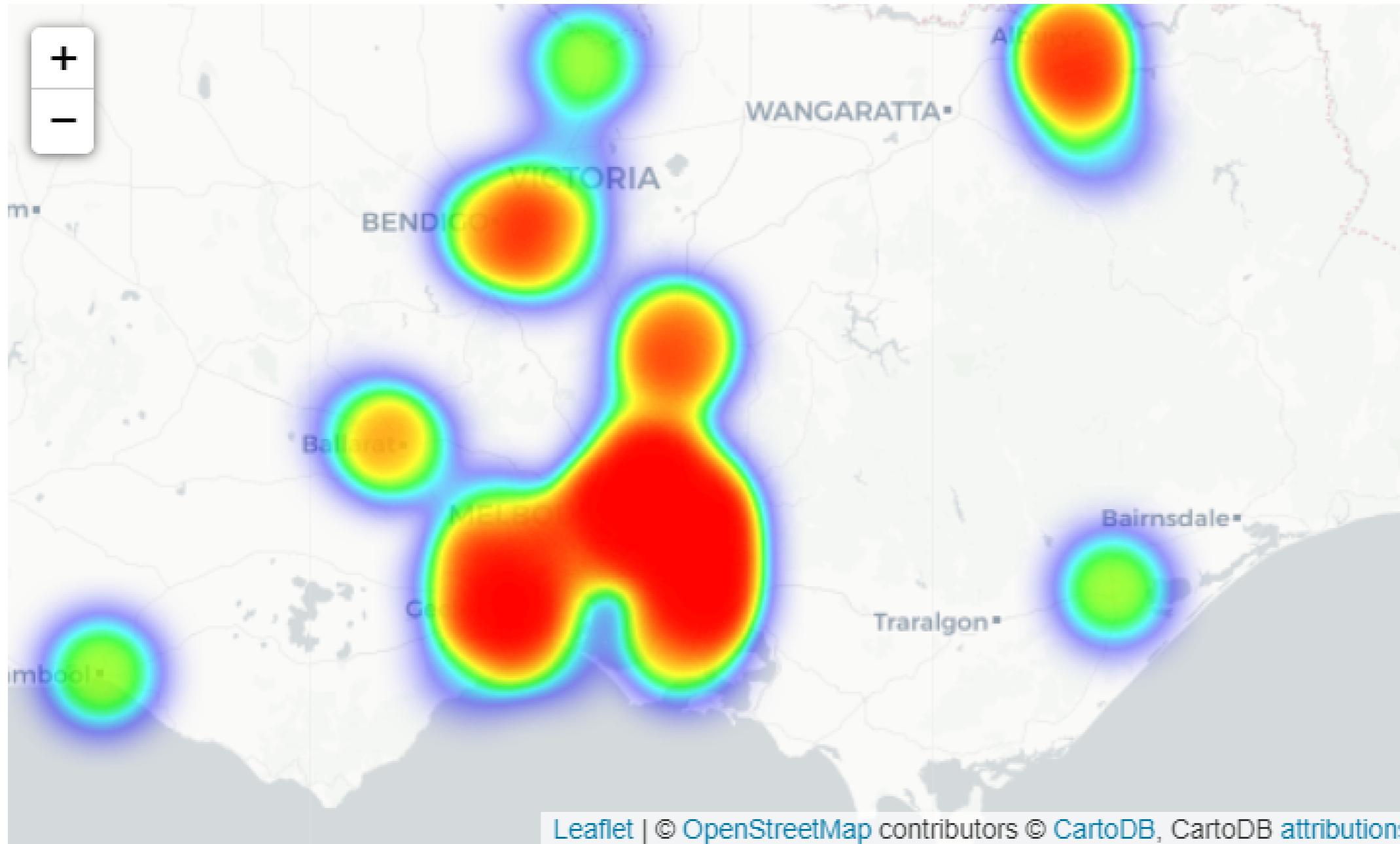
% of Accidents in Victoria  
Metro or Regional  
2013-2019



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



# Heatmap of Crash Sites

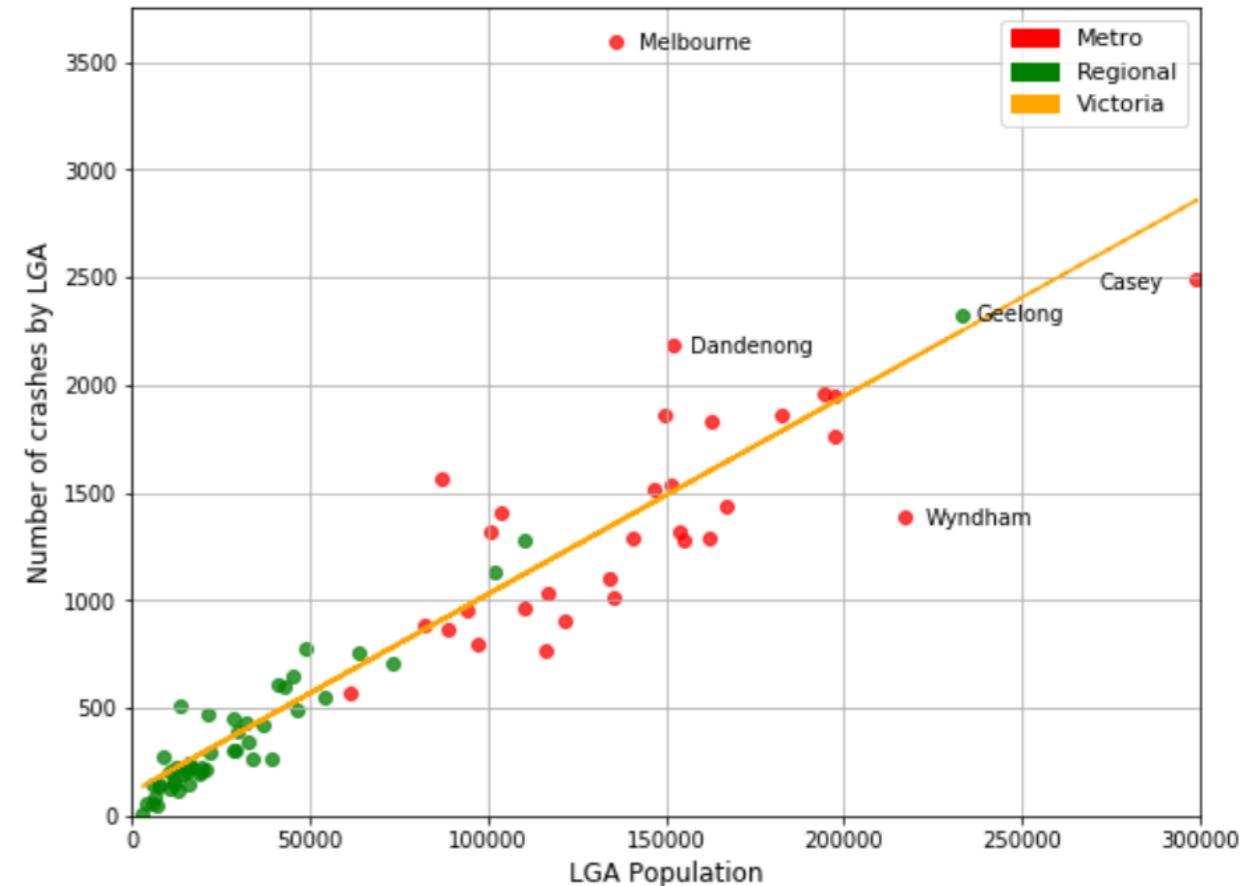


# Road crashes by Local Government Authority



- 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)**

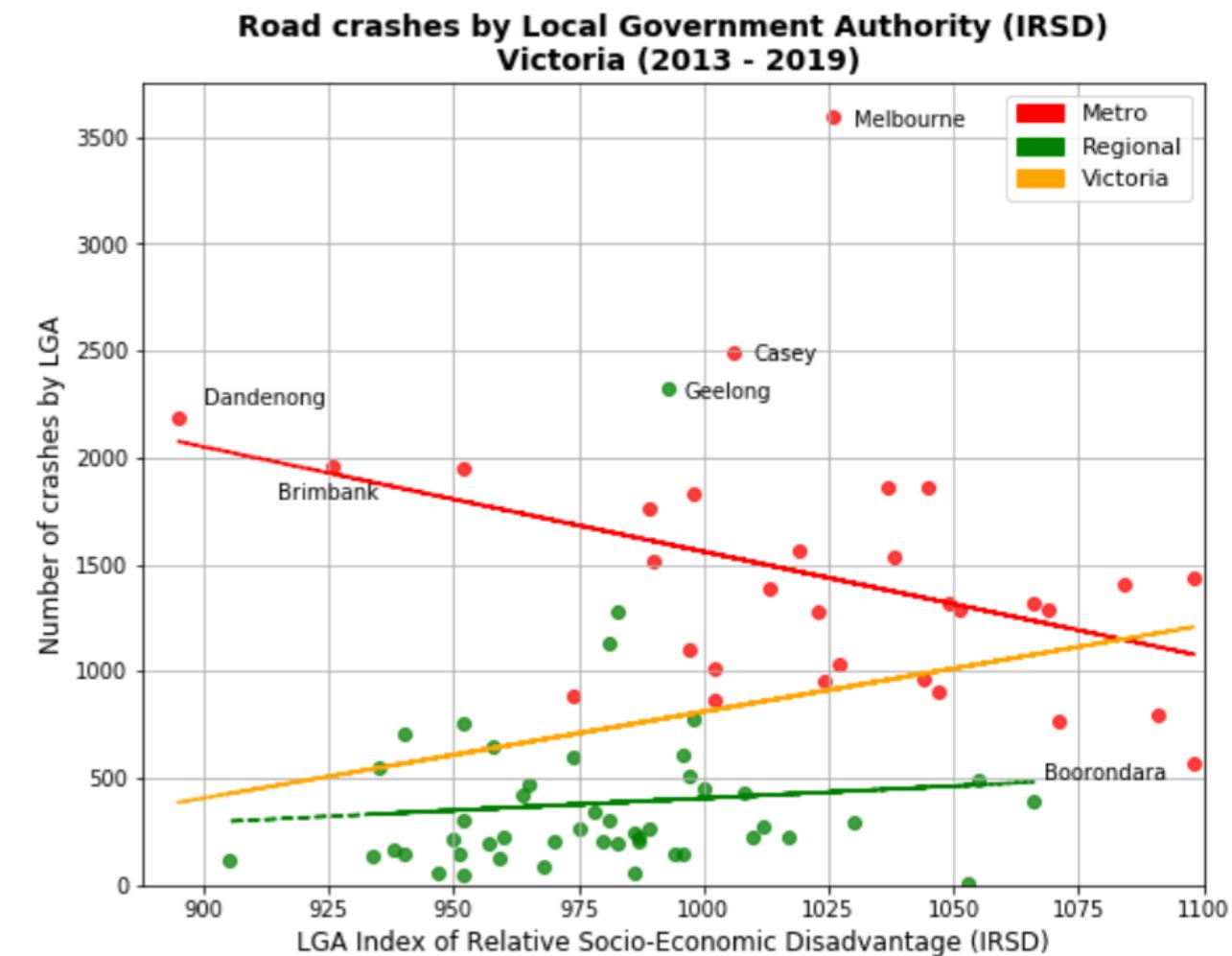


Sources: ABS Census Data, Victorian Dep't of Health, VicRoads

# 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

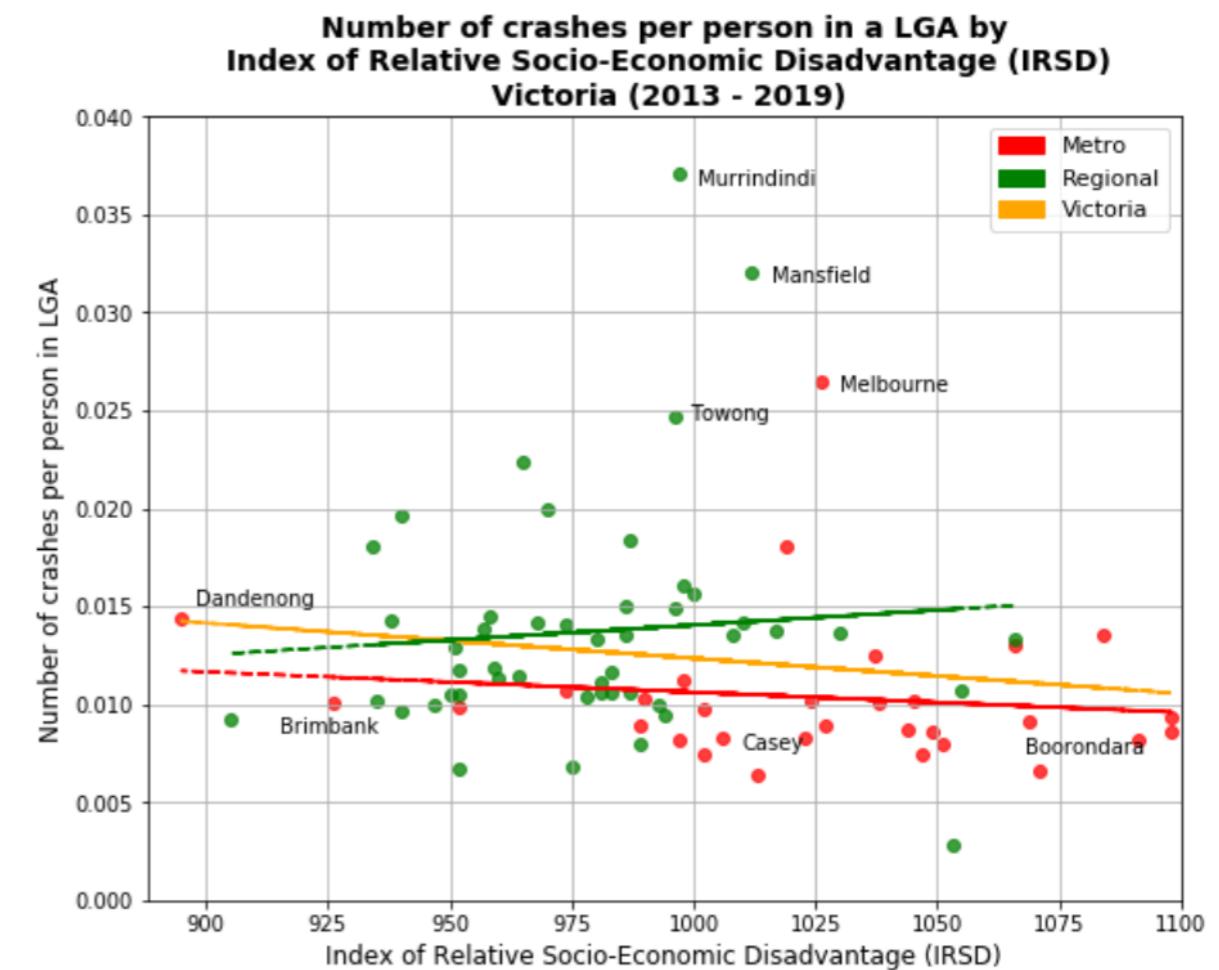


Sources: ABS Census Data, Victorian Dep't of Health, VicRoads

# 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)

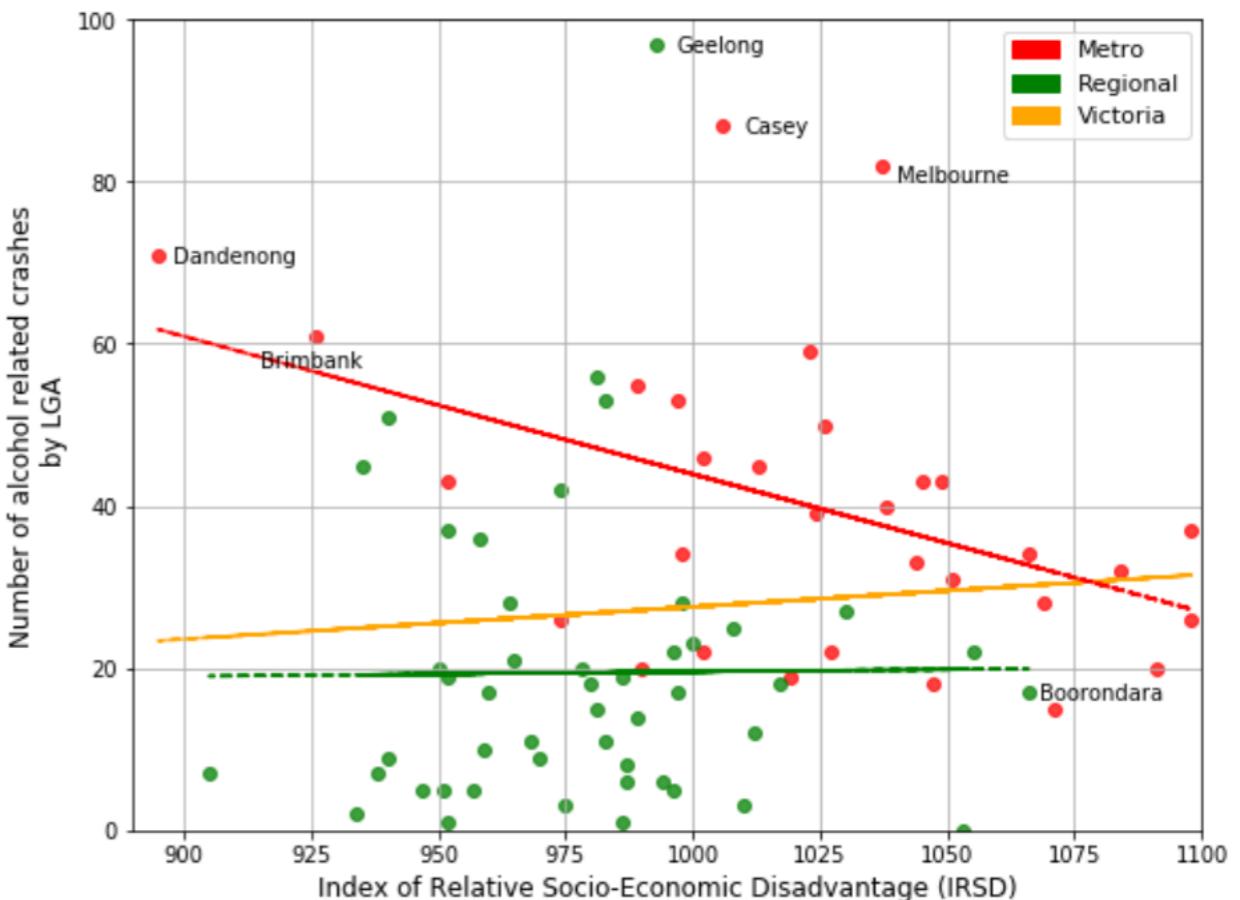


Sources: ABS Census Data, Victorian Dep't of Health, VicRoads

# 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

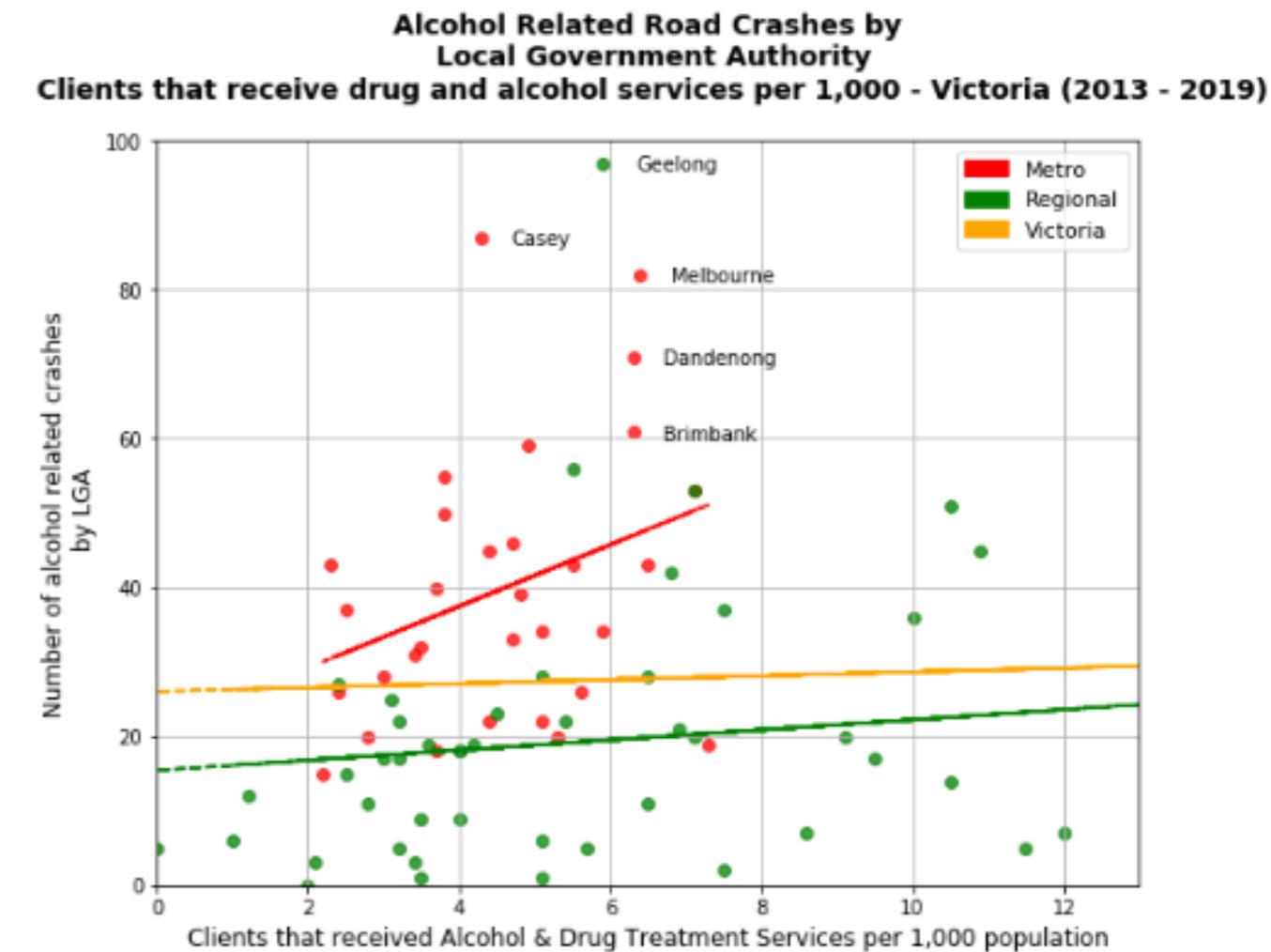
# Can socio-economic improvements reduce road incidents?



- 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.

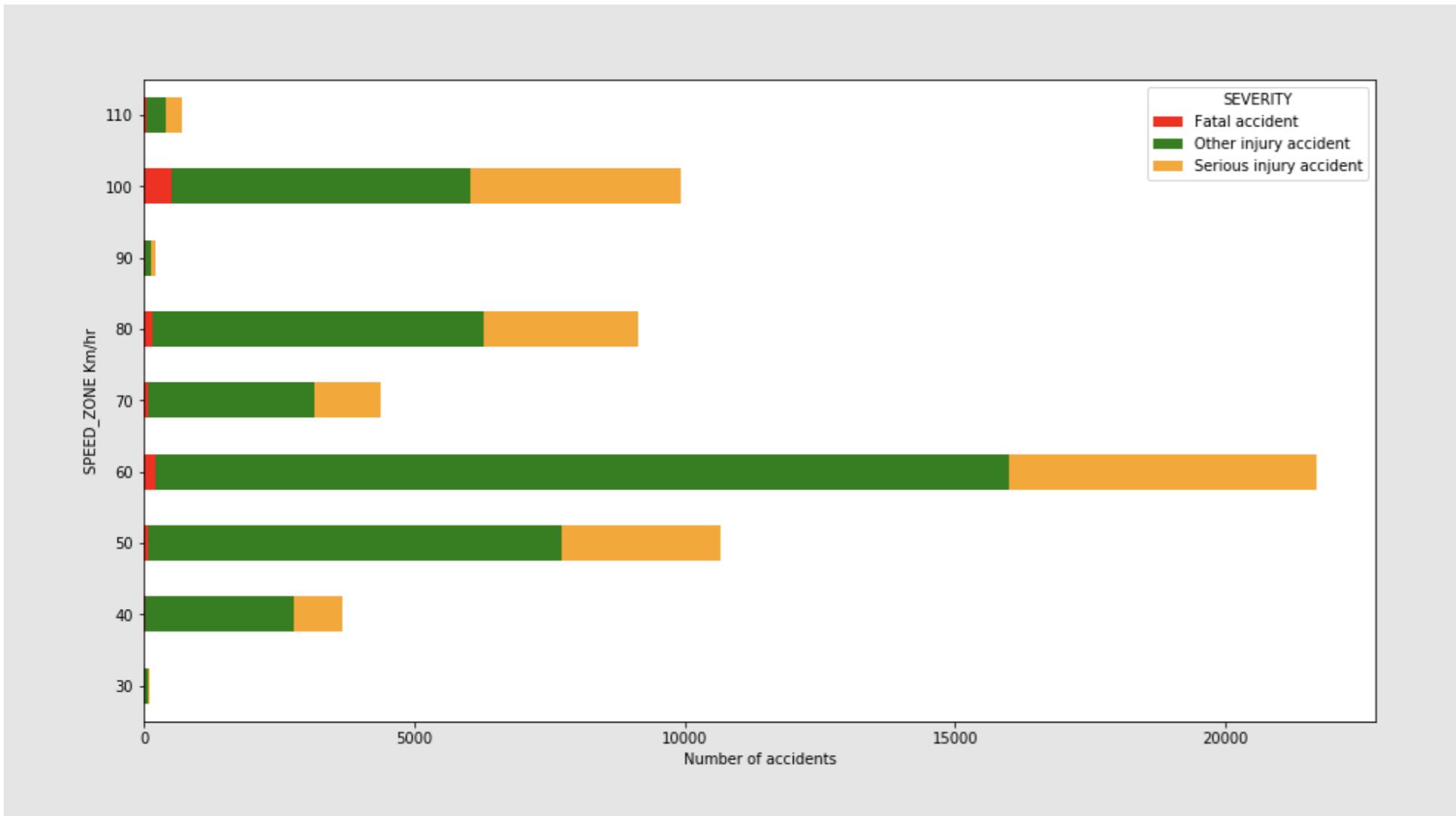
## CONCLUSION:

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



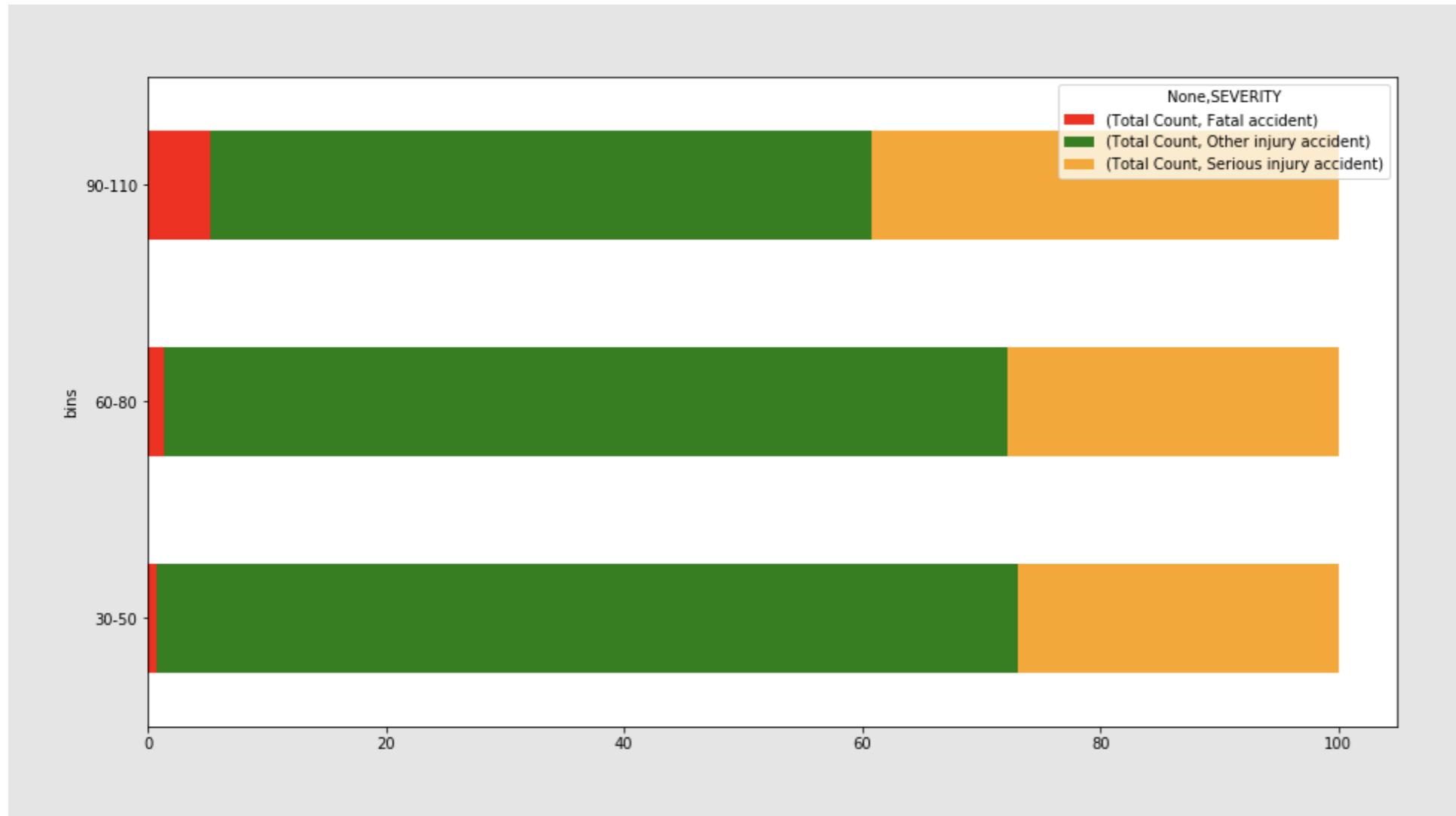
Sources: ABS Census Data, Victorian Dep't of Health, VicRoads

# 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



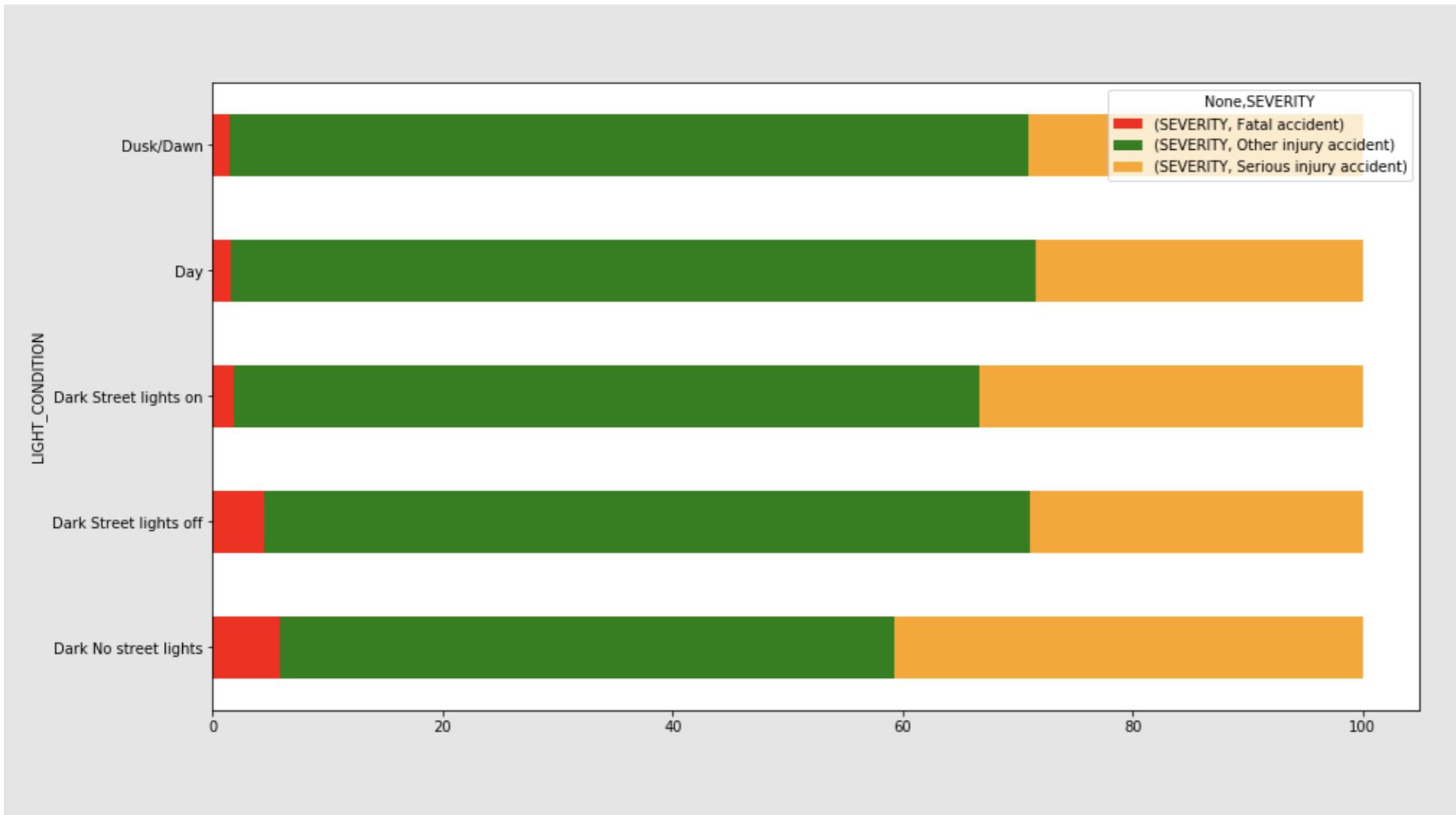
Even though we would have loved to prove otherwise; yet, the higher the speed limit the greater the possibility of a fatal accident occurring.

An aerial photograph of a city street at night. The scene is illuminated by streetlights, casting long shadows. Several cars are parked along the sides of the road, 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

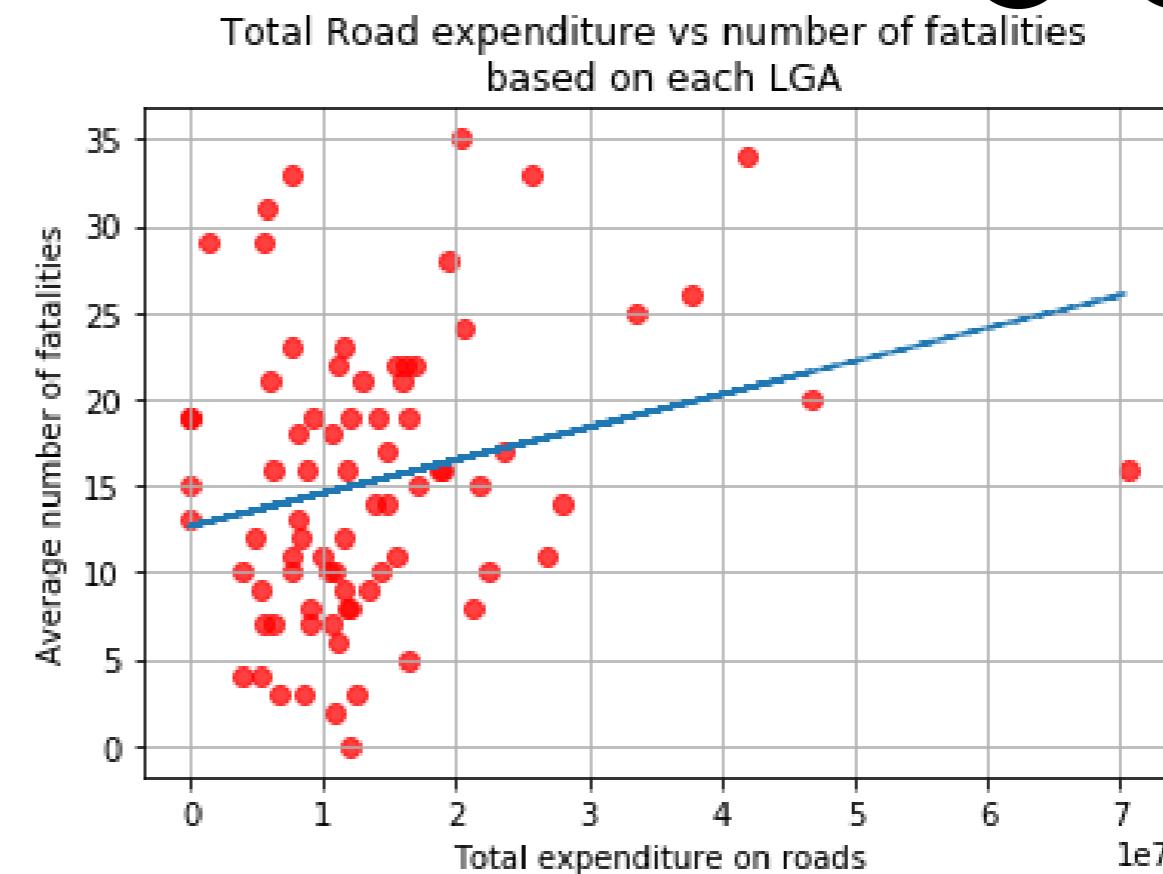
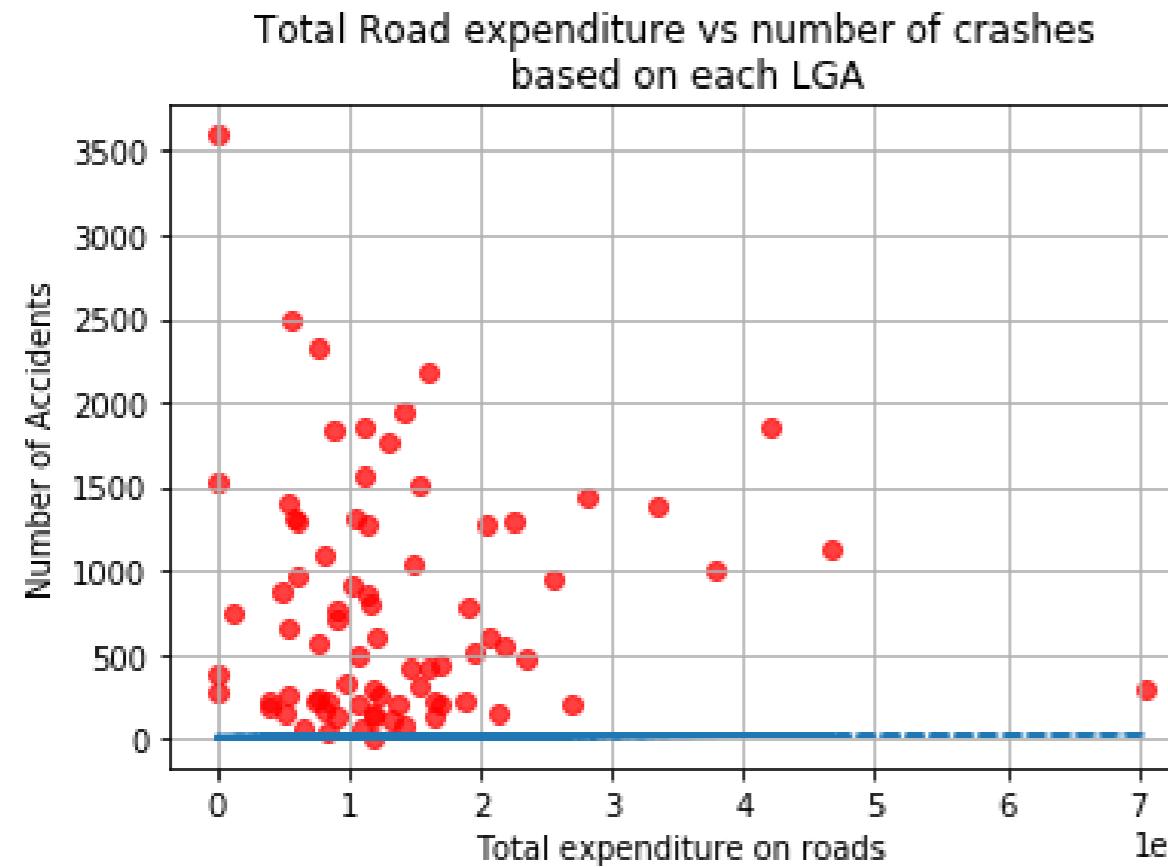
# Percentage of accidents per Light conditions



"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"

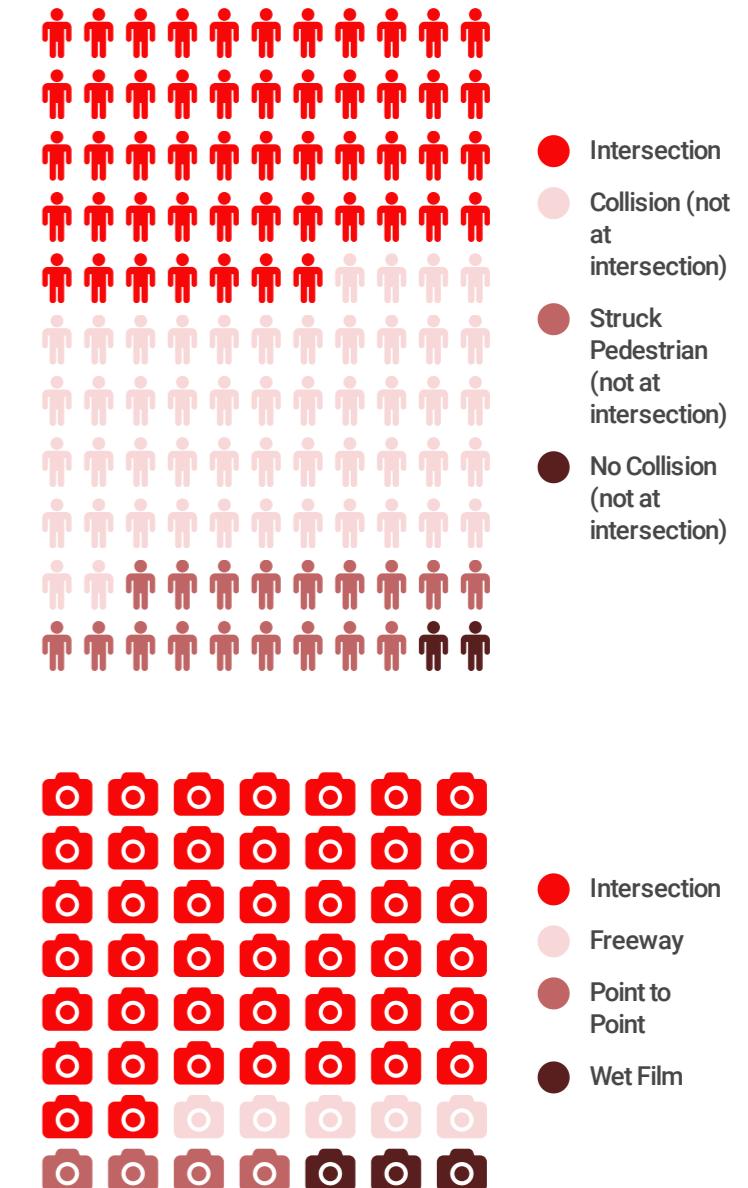
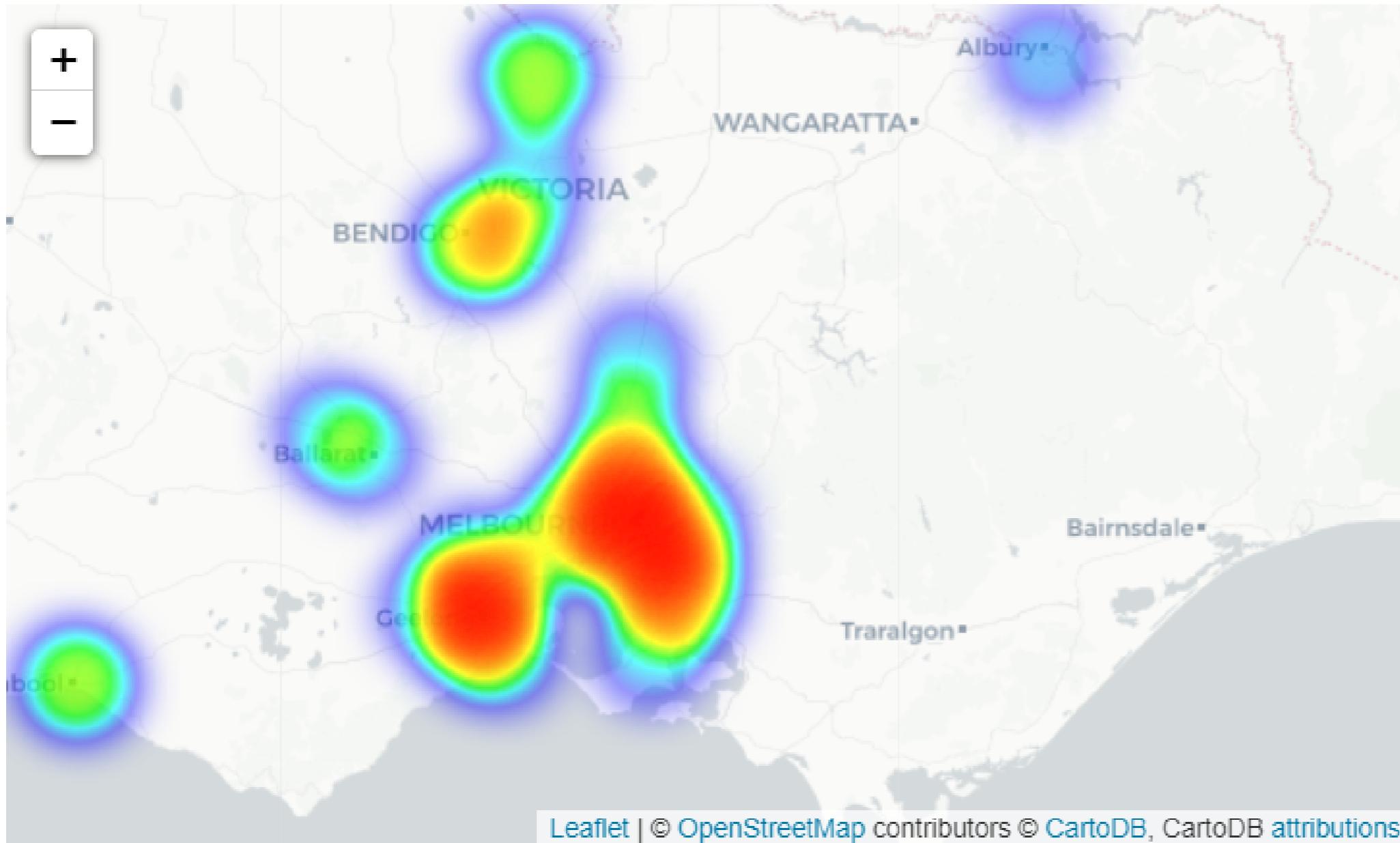
Department of transport and main roads

# road repairs and upgrades

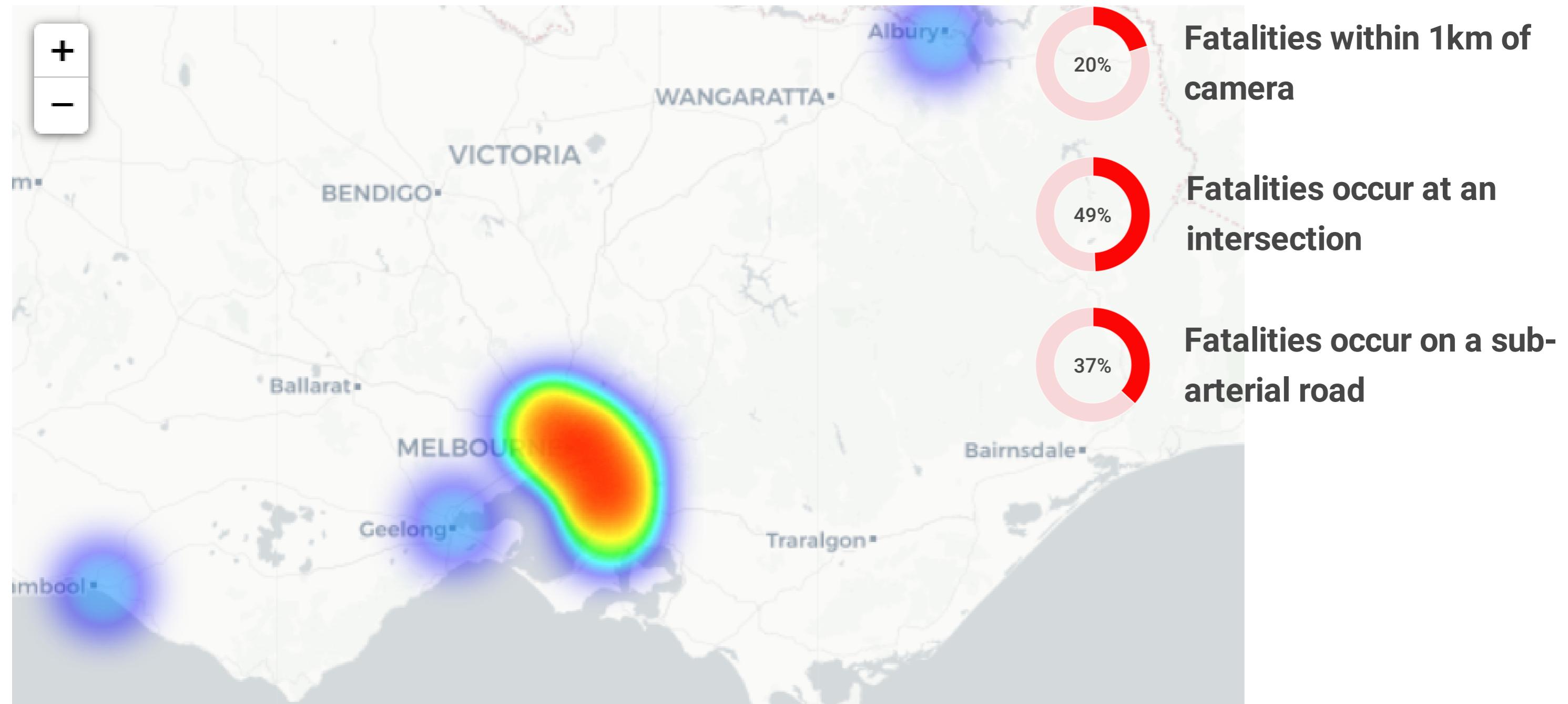


Spending on road repairs and upgrades did not seem to reduce number of accidents or fatalities

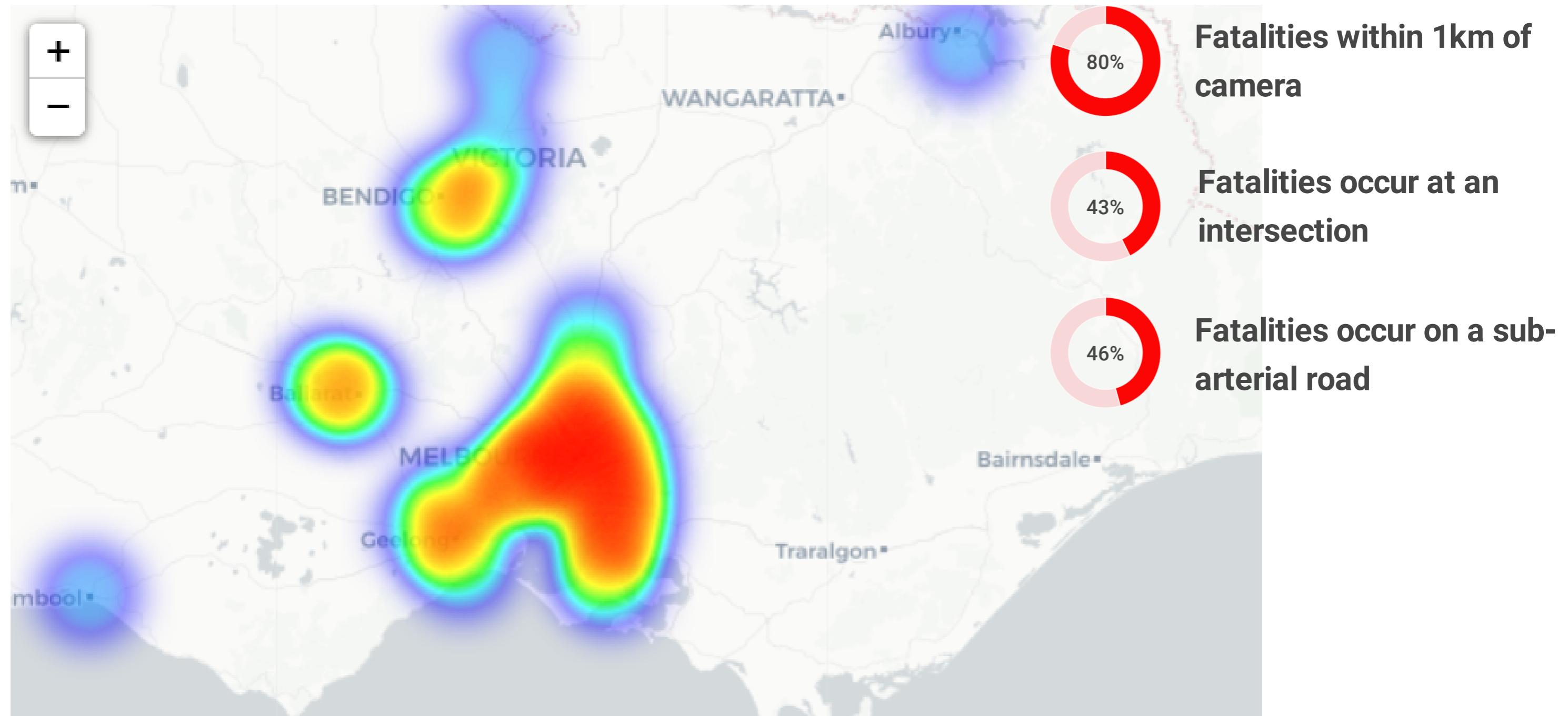
# heatmap of fatalities



# 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?

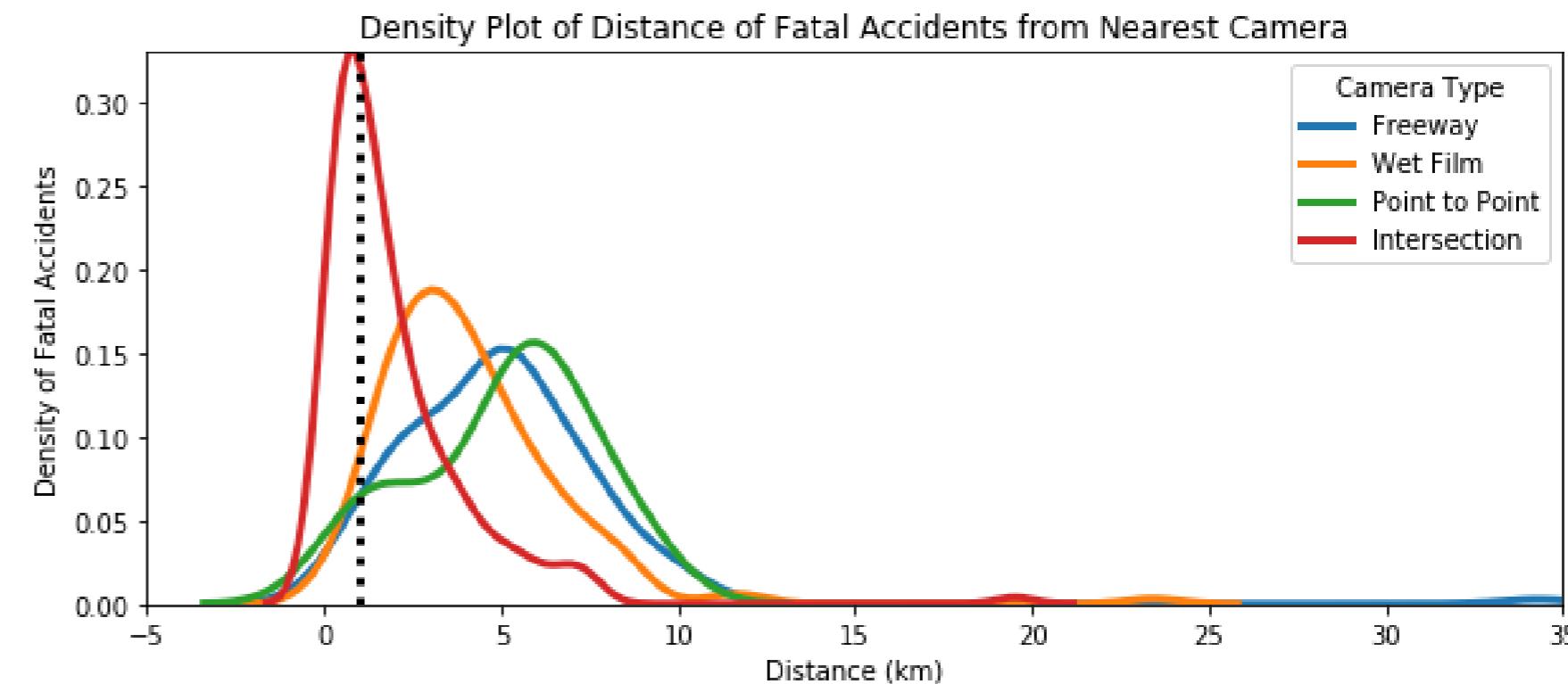


**Welch's t-test**

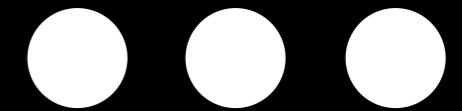
95% confidence level that safety  
cameras can reduce road fatalities



**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?



## ANOVA Test Result

Confirms that camera types are not equally effective in preventing road fatalities  
(statistically significant vs p-value of 0.05)



p-value = 0.67

