

# IF WE CAN CYCLE TO PLACE DO WE STILL DRIVE?



Investigating Transport Accessibility and  
Annual Car Travel

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# ACCESSIBILITY + VKT

## ACCESSIBILITY

The **ease of access** for a person to reach **key locations** such as goods, services, places of employment and activities.



## ANNUAL HOUSEHOLD VKT

Vehicle Kilometres Travelled (VKT). For the study, **VKT** was a **measurement** of how much a **household** drives **annually** .

# MEASURING ACCESSIBILITY

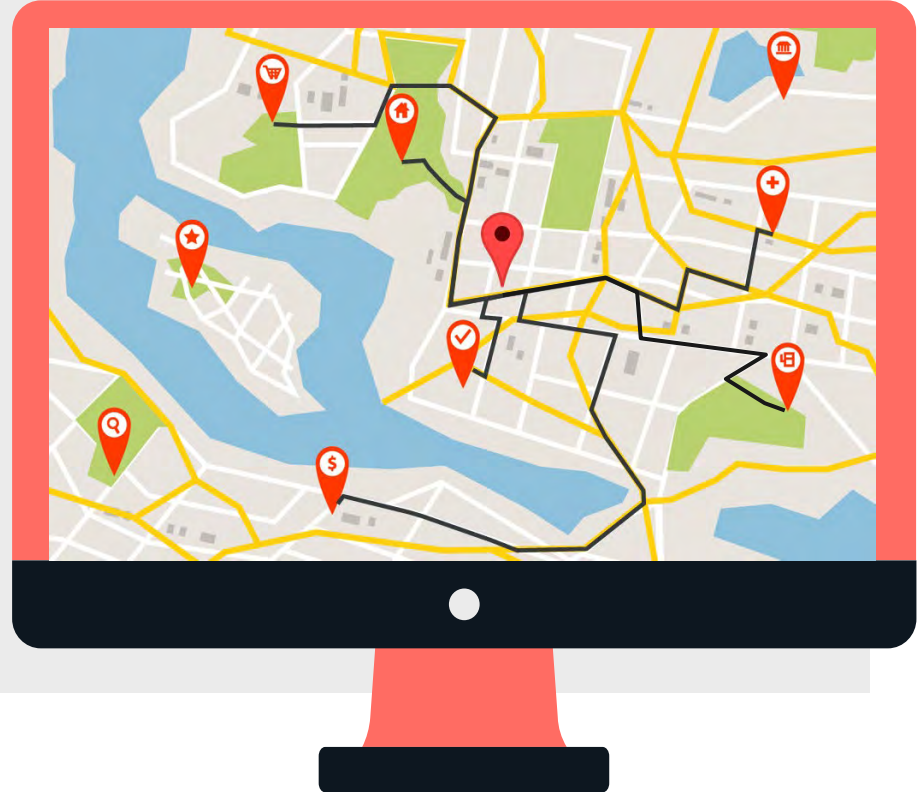


Spatial assessment  
was conducted  
(using ArcGIS)

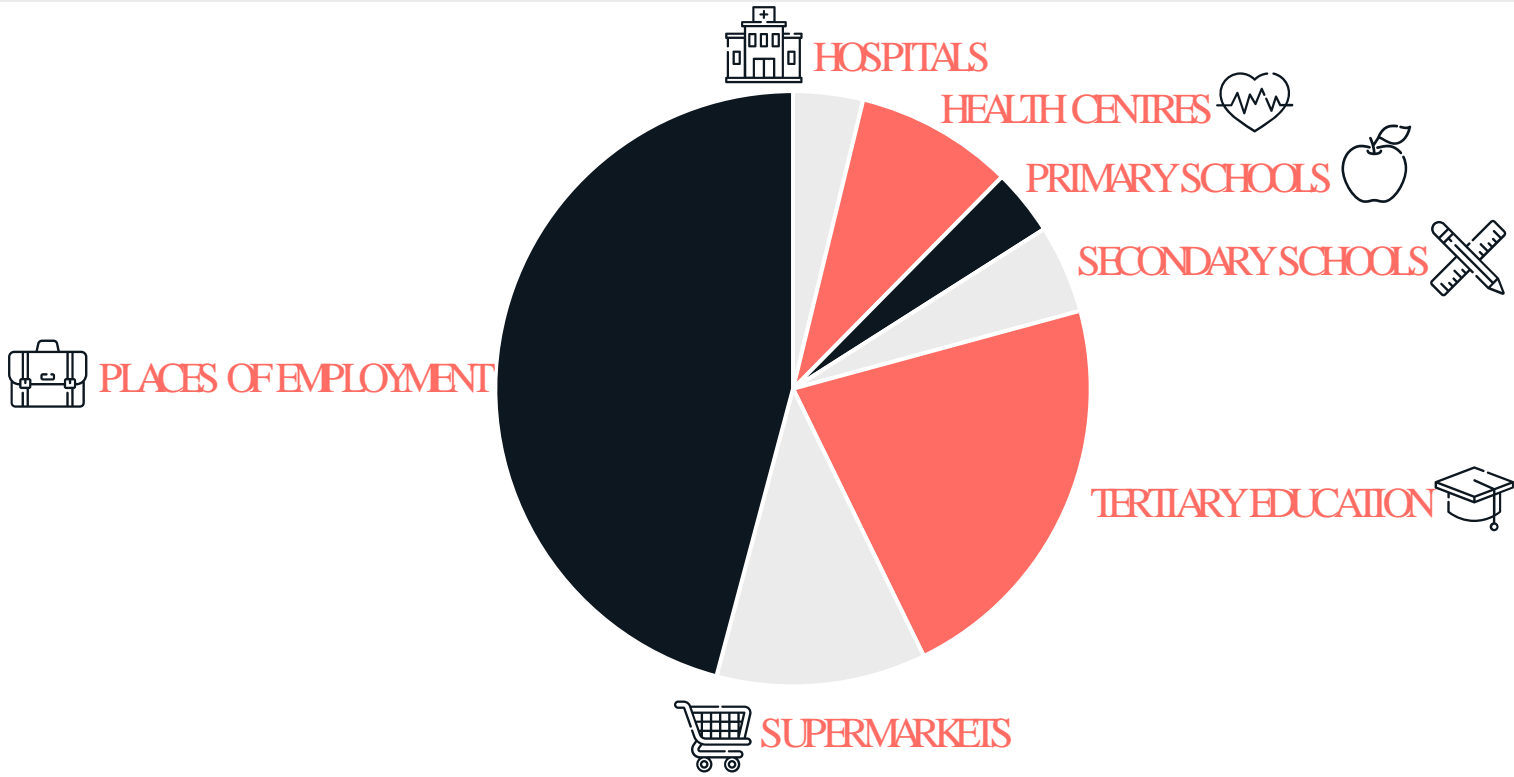
Four kilometre radius  
network buffers used



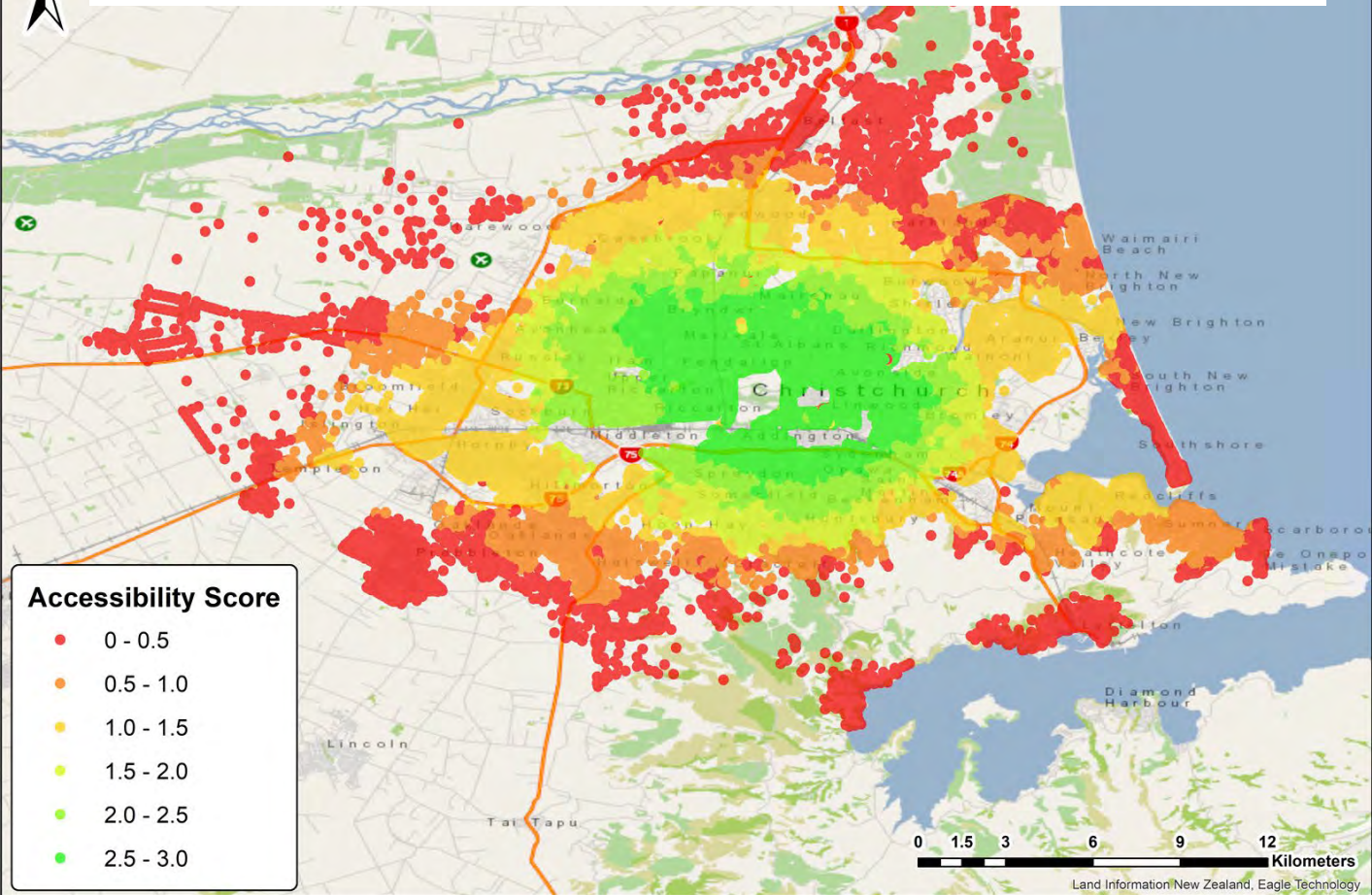
Conducted at a  
property level



# DESTINATIONS + WEIGHTINGS



# Four Kilometre Weighted Cycling Accessibility within Christchurch



## Accessibility Score

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 2.5
- 2.5 - 3.0



# ANNUAL HOUSEHOLD VKT



## DATA

Warrant of Fitness  
data acquired from  
NZTA



## PROCESS

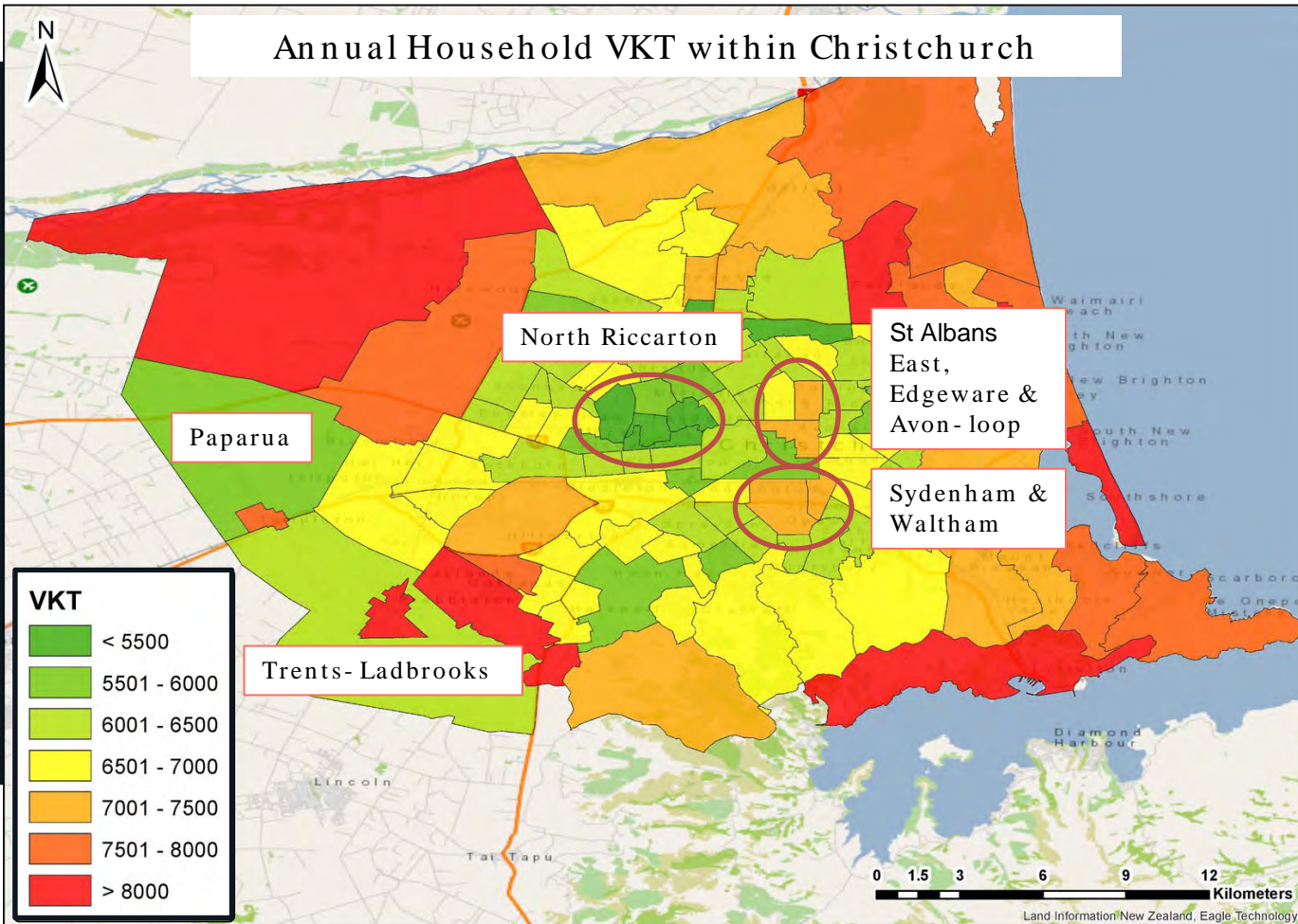
Used the Odometer  
reading difference to  
find annual VKT



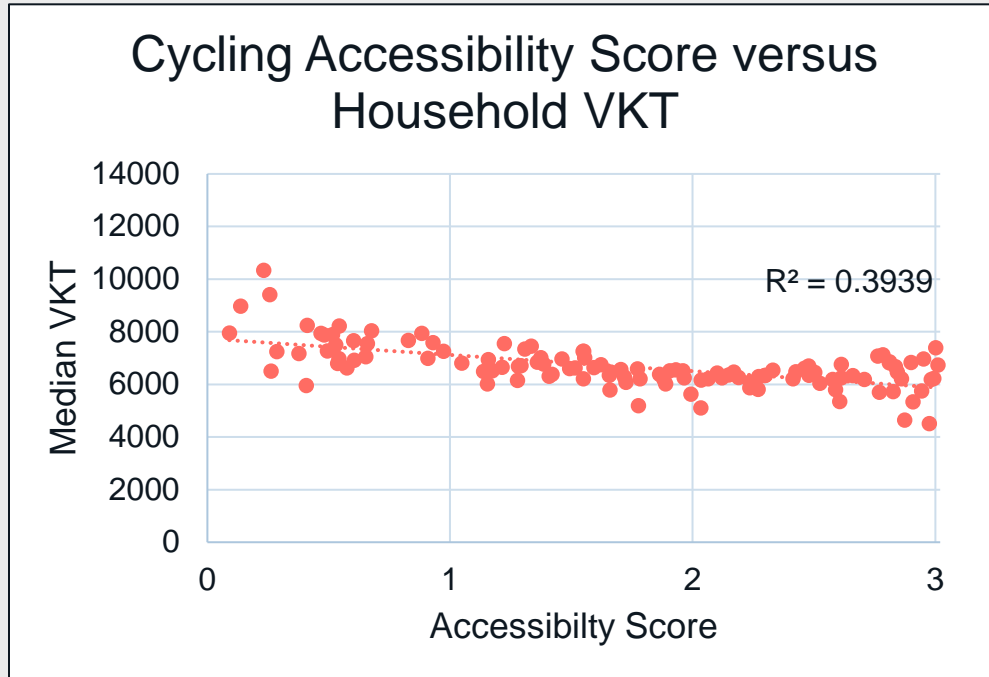
## OUTPUT

Annual Household  
VKT outputs were  
matched using  
addresses

# Annual Household VKT within Christchurch



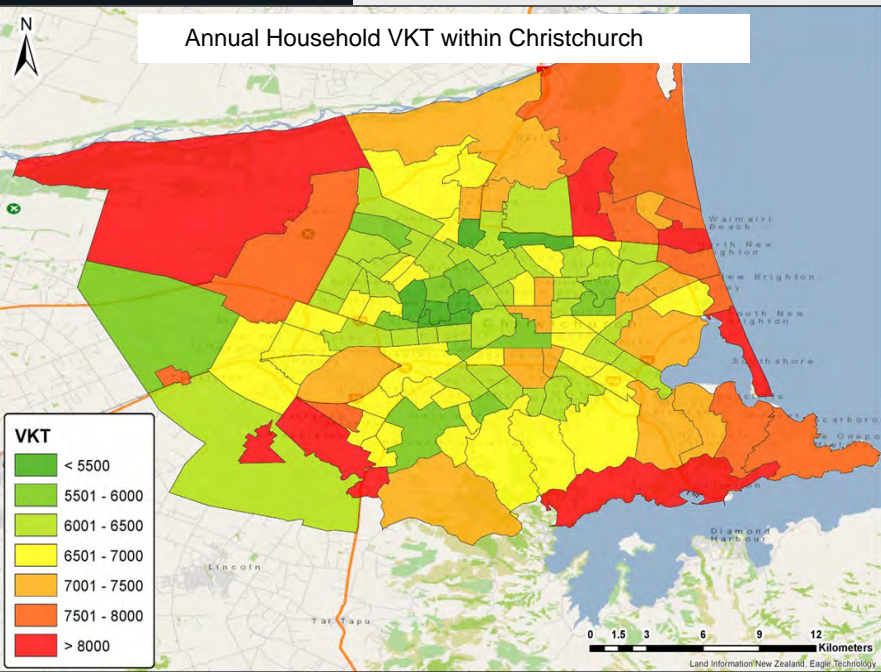
# STATISTICAL ANALYSIS



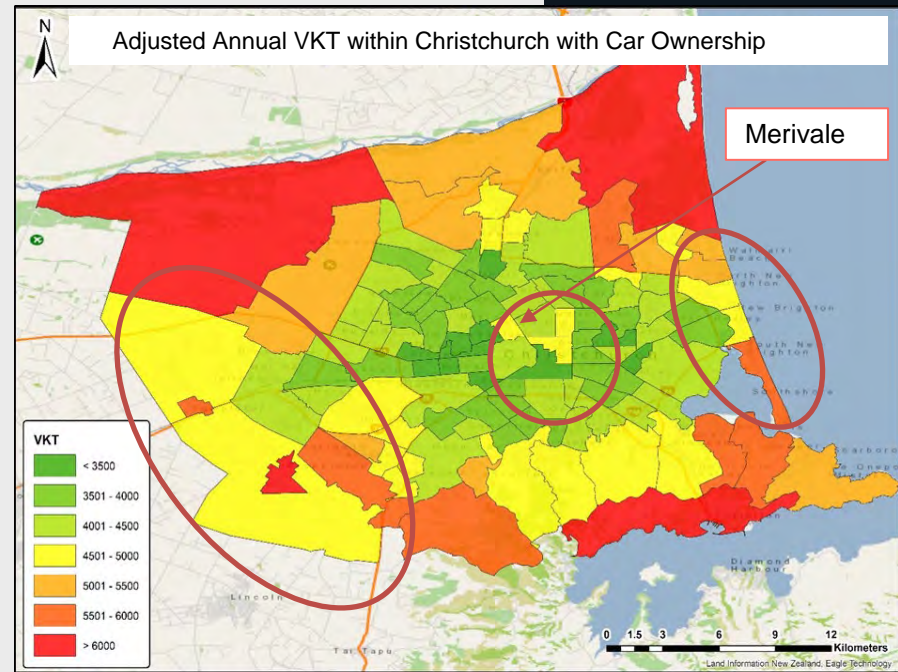
- $R^2$  represents how close the data fits to the regression line
- $R^2$  values trying to predict human behaviour are  $<0.5$  usually
- Results were a close fit, but can be better



**ORIGINAL**  $R^2 = 0.39$



$R^2 = 0.56$  **APPLIED**



# OBSERVATIONS



## Cycling

### Infrastructure

Good Cycling Infrastructure = Low  
Annual VKT and vice versa



## Environment

Industrial, Suburban Fringe and  
Rural Environments have High VKT

## Isolation



Topographically Constrained Areas have  
High Annual VKT (e.g. Llytelton and  
New Brighton Spit )

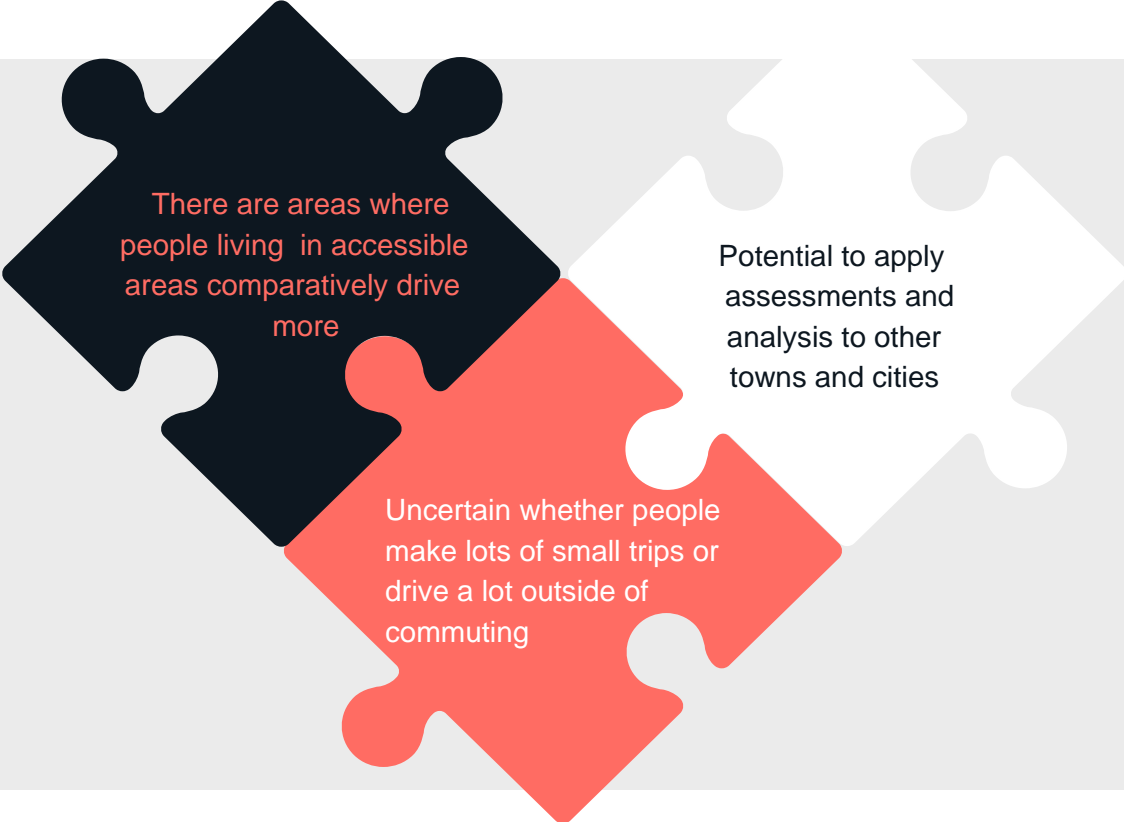
# CONCLUSION

**1** The **closer** you are to key destinations the **less** likely you are to **drive** as far annually

For areas that **differ** from this **trend** they should **not** be **targeted** for cycling infrastructure **improvements** **2**



# DISCUSSION POINTS



There are areas where  
people living in accessible  
areas comparatively drive  
more

Potential to apply  
assessments and  
analysis to other  
towns and cities

Uncertain whether people  
make lots of small trips or  
drive a lot outside of  
commuting

