

# Using mobile telephone data to estimate social exclusion and equity in transport investments

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## Introduction



Social exclusion refers to limits to an individual's ability to participate in society, including in employment, social, health and political activities and access amenities

Social equity refers to differences (or ideally similarity) in access or investments for different socio, demographic and economic groups



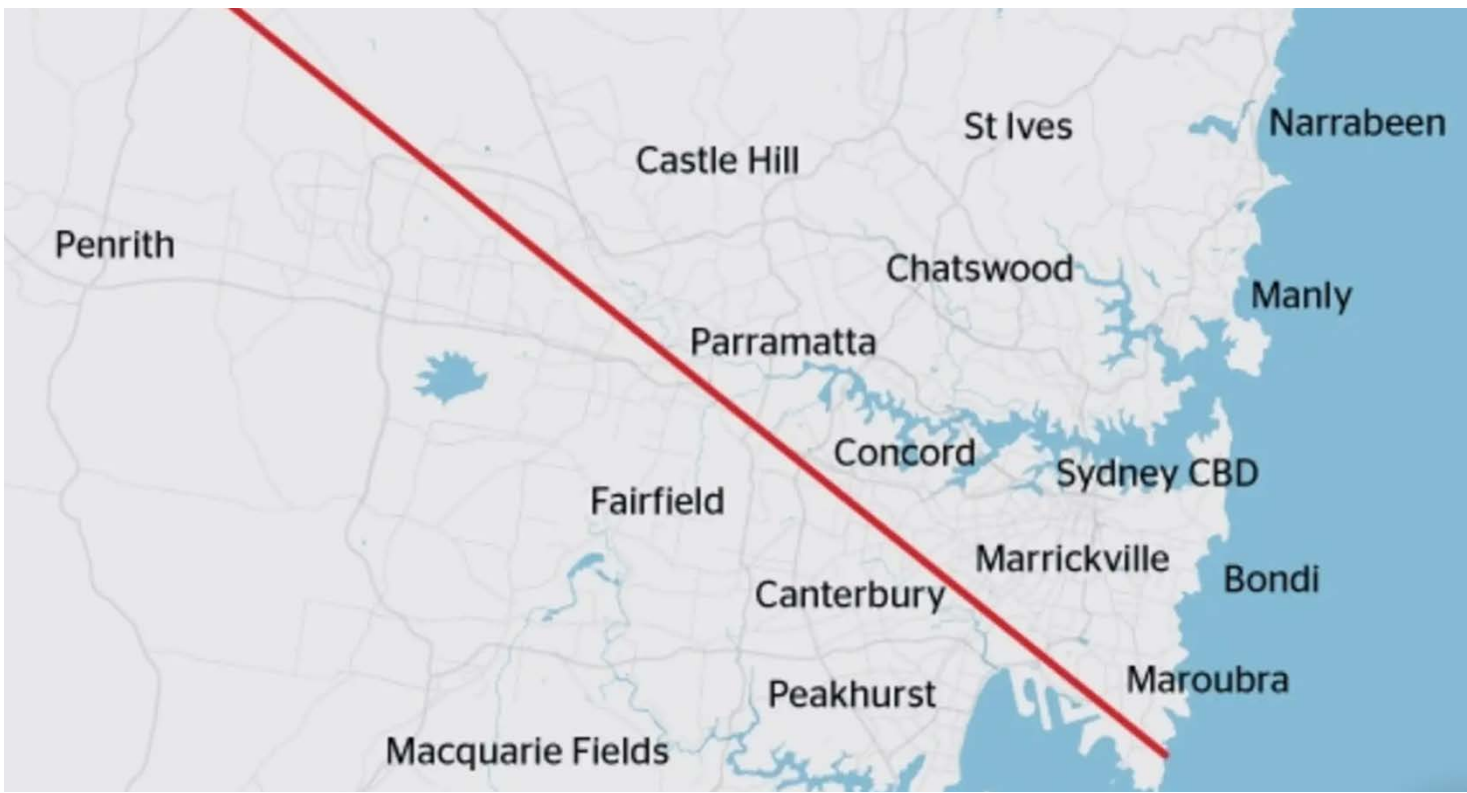
# How Sydney's planners are using the 'Latte Line' to try and reshape the city

By [Jacob Saulwick](#)  
**Updated** December 17, 2016 –  
12.52am, first published  
December 16, 2016 – 10.27am



They're calling it the Latte Line. Or perhaps the Goats Cheese Line.

Whatever the cliché, a hypothetical boundary drawn on the diagonal between Sydney Airport, Parramatta and Sydney's north-western suburbs has become the guiding principle in planning the

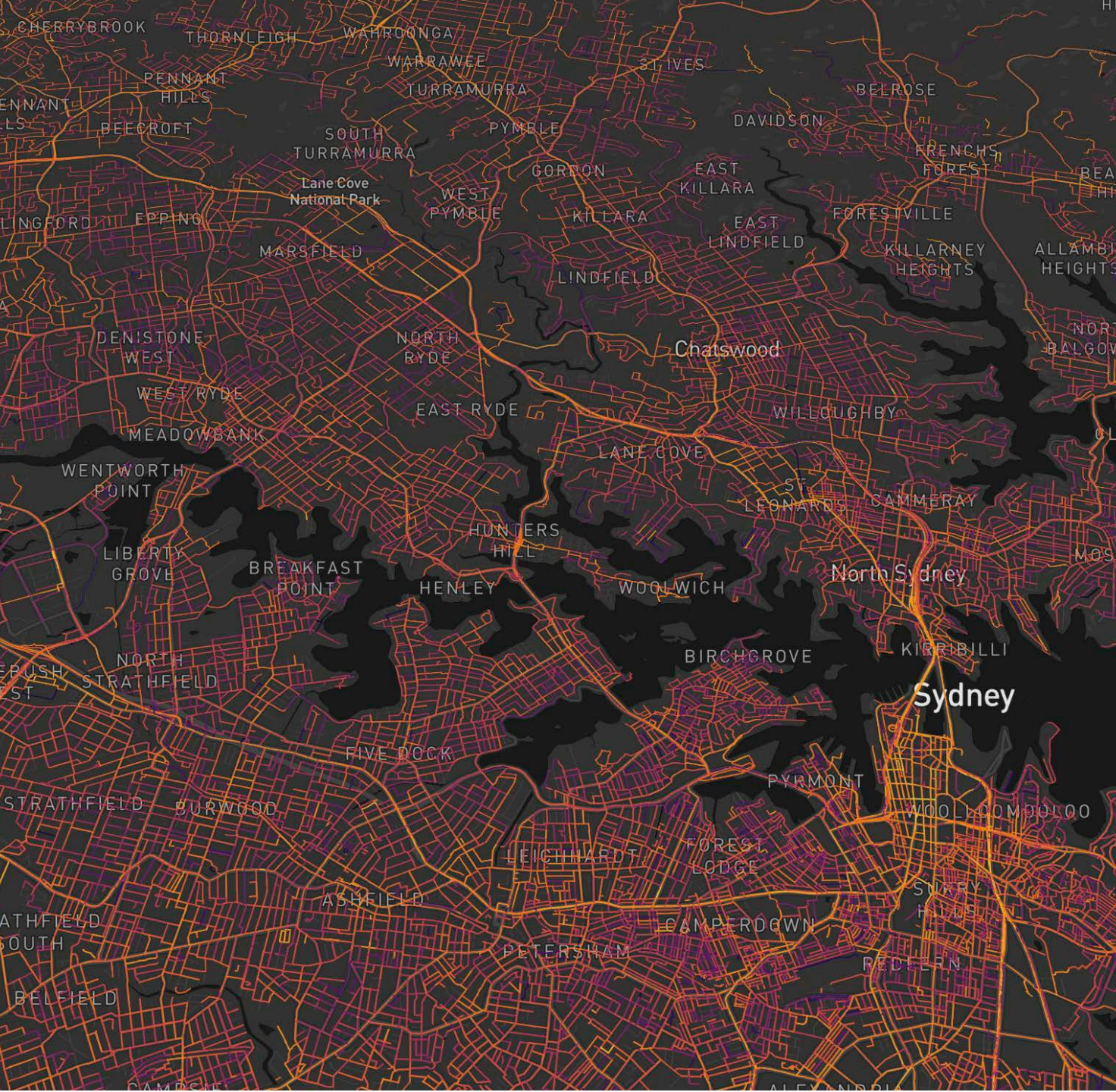


## Introduction

Clear division in multiple measures of social exclusion between different areas of Sydney including:

- Education
- Employment
- Access to activities
- And more...



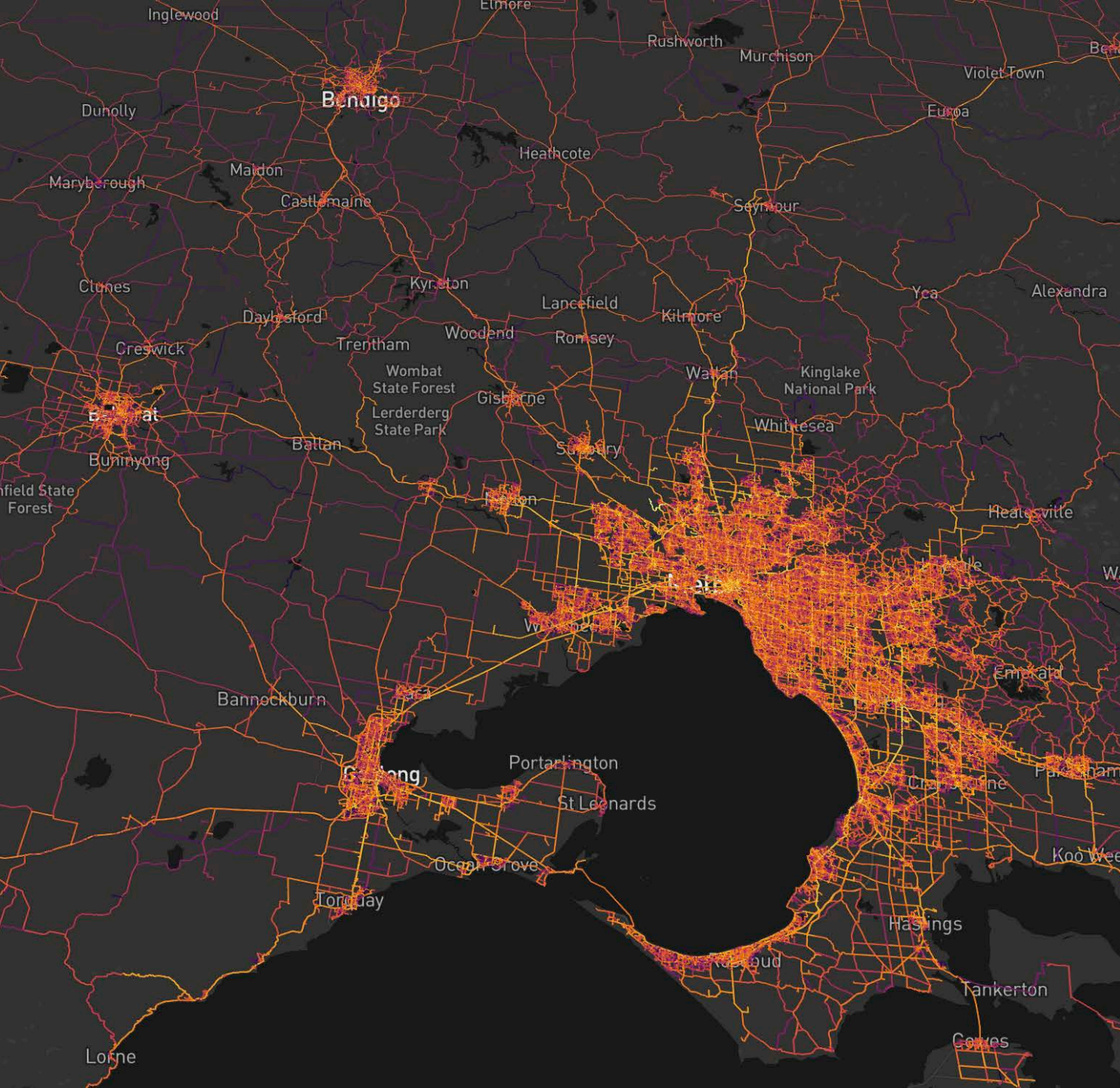


## Data

Data includes longitudinal records of activities and trips for millions of individuals

Demographic details including age, gender, home and work location (and status) are also available





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1  
**Median daily  
trip rate**

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2  
**Median daily  
distance  
travelled**

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3  
**Median daily  
travel time**

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4  
**Proportion of  
activities within  
the same SA2**

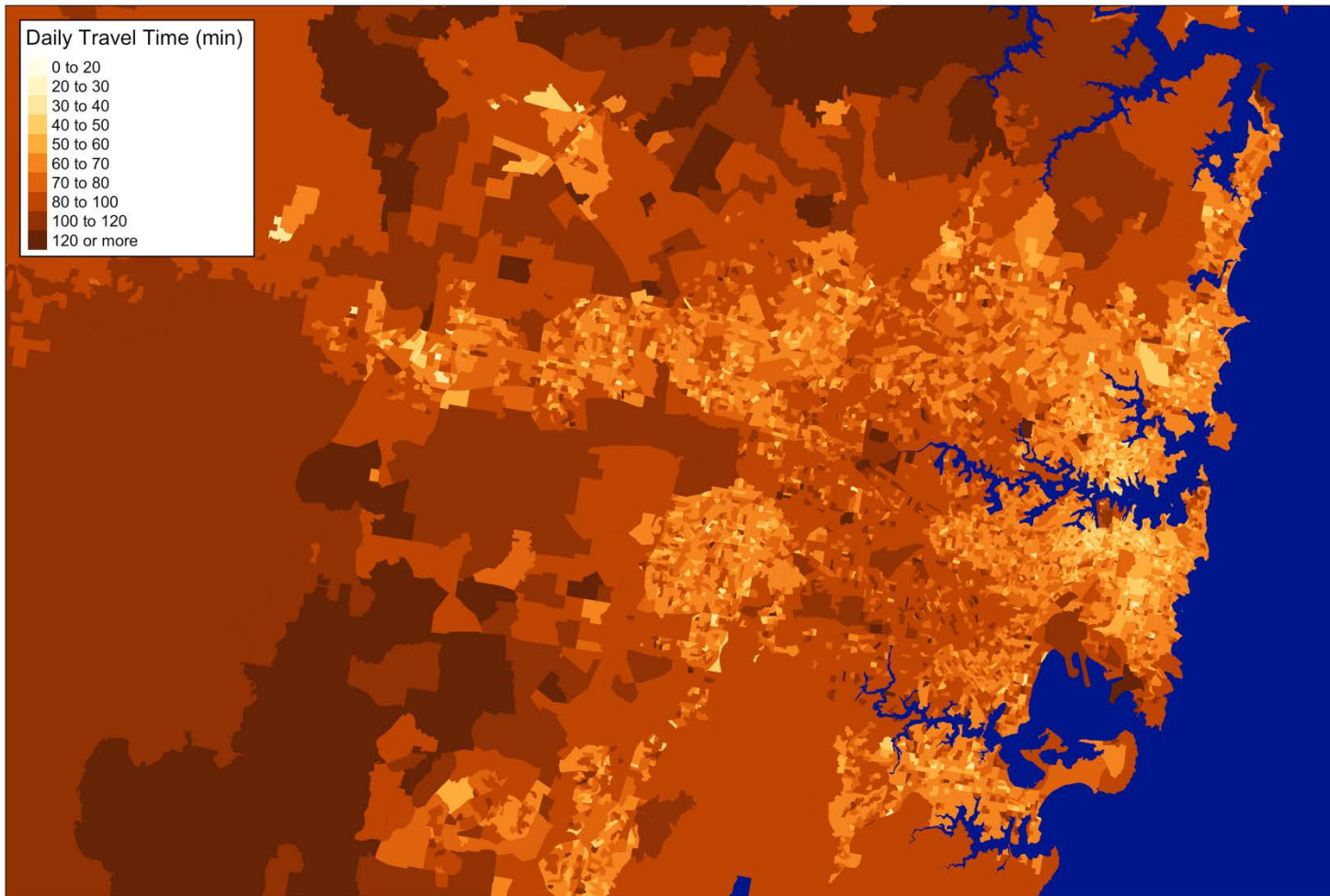
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5  
**Proportion of  
population  
social excluded  
in an SA1**

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## Methodology



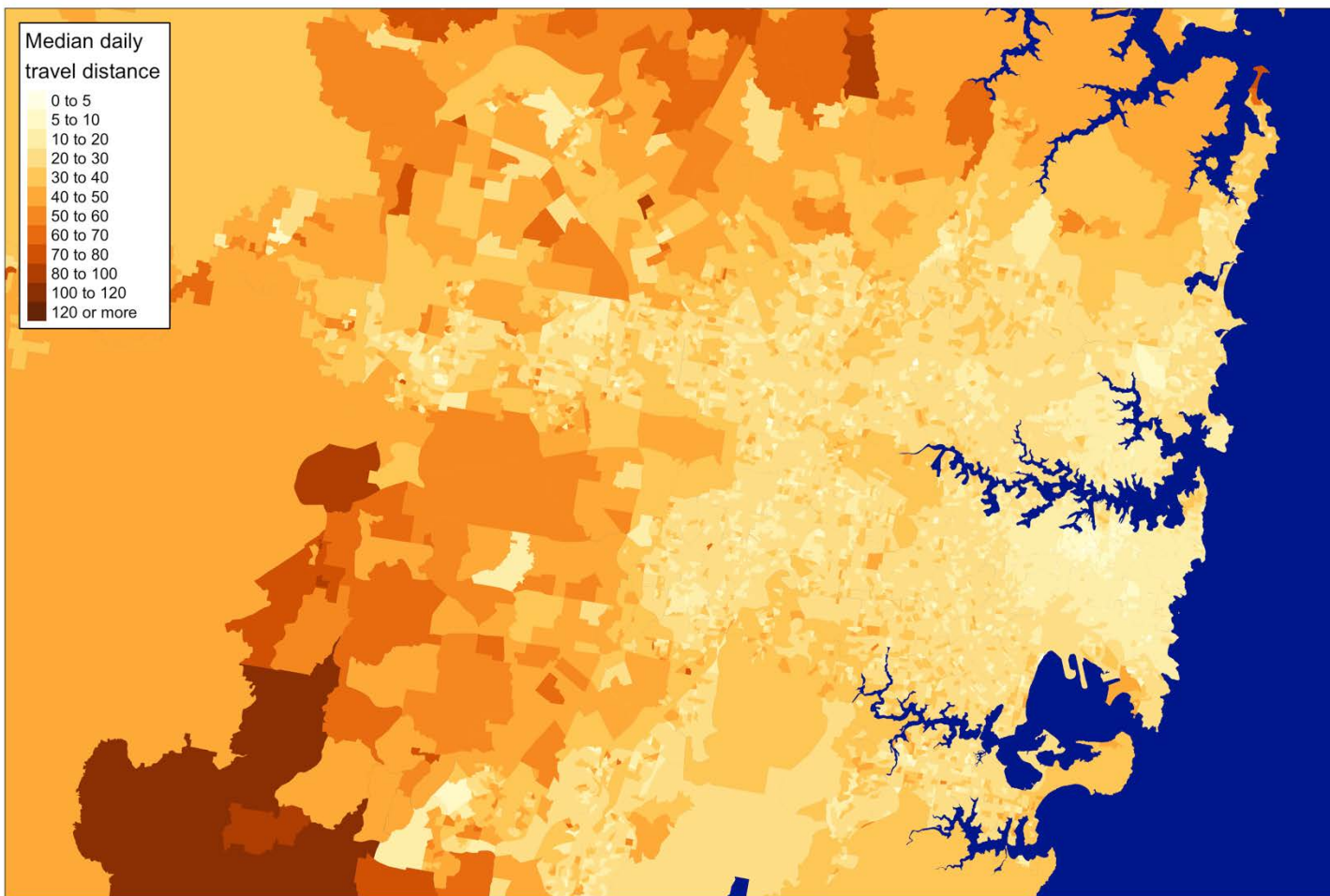


## Travel time

Travel time varies significantly between and within geographic areas.

Areas with large daily travel times also have substantial populations with very low daily travel times (and trips)



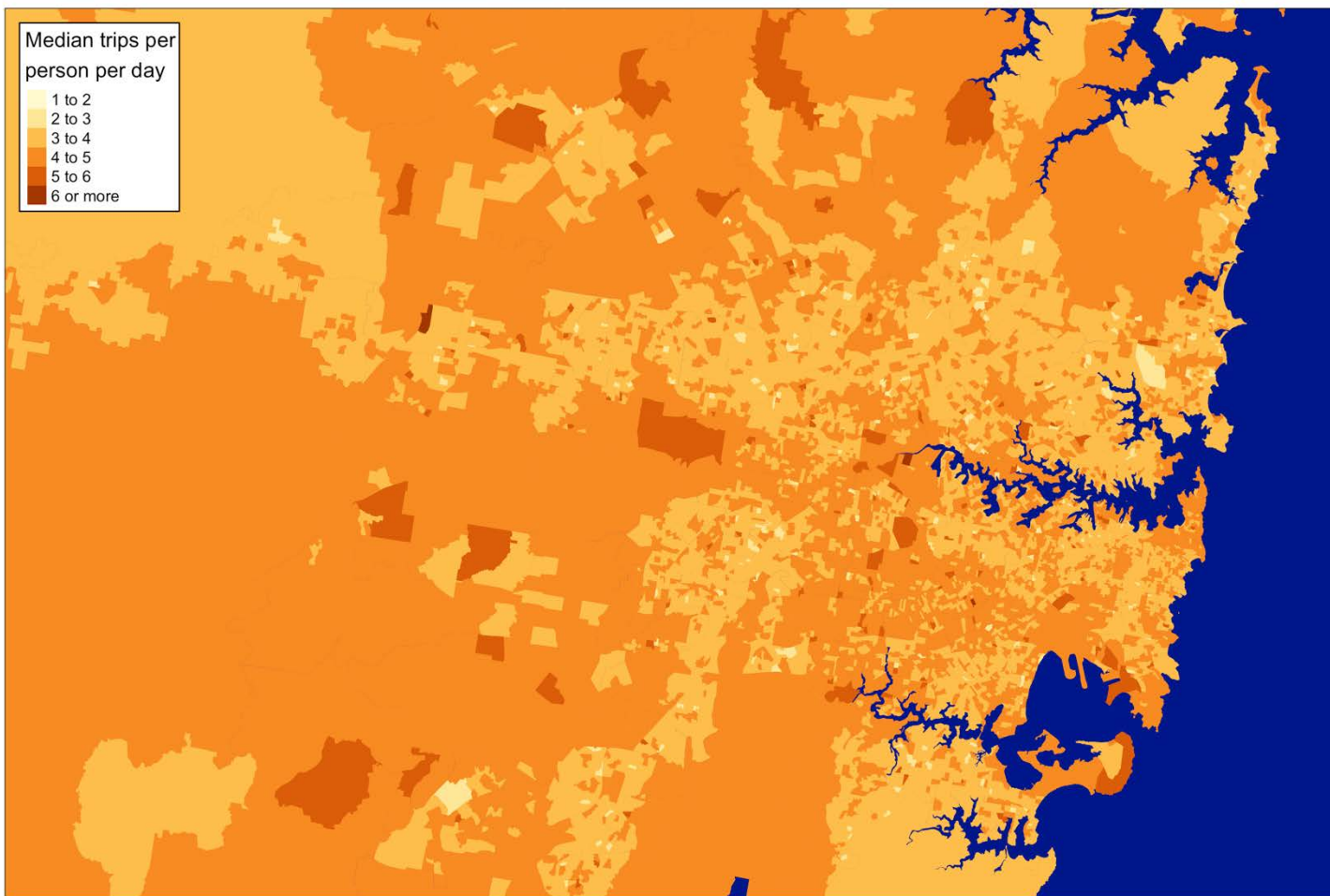


## Travel distance

Partly a measure of distance required to travel to access employment and other activities

There is a distinct bi-modal distribution in some areas with high median daily distances (some very high, some very low)

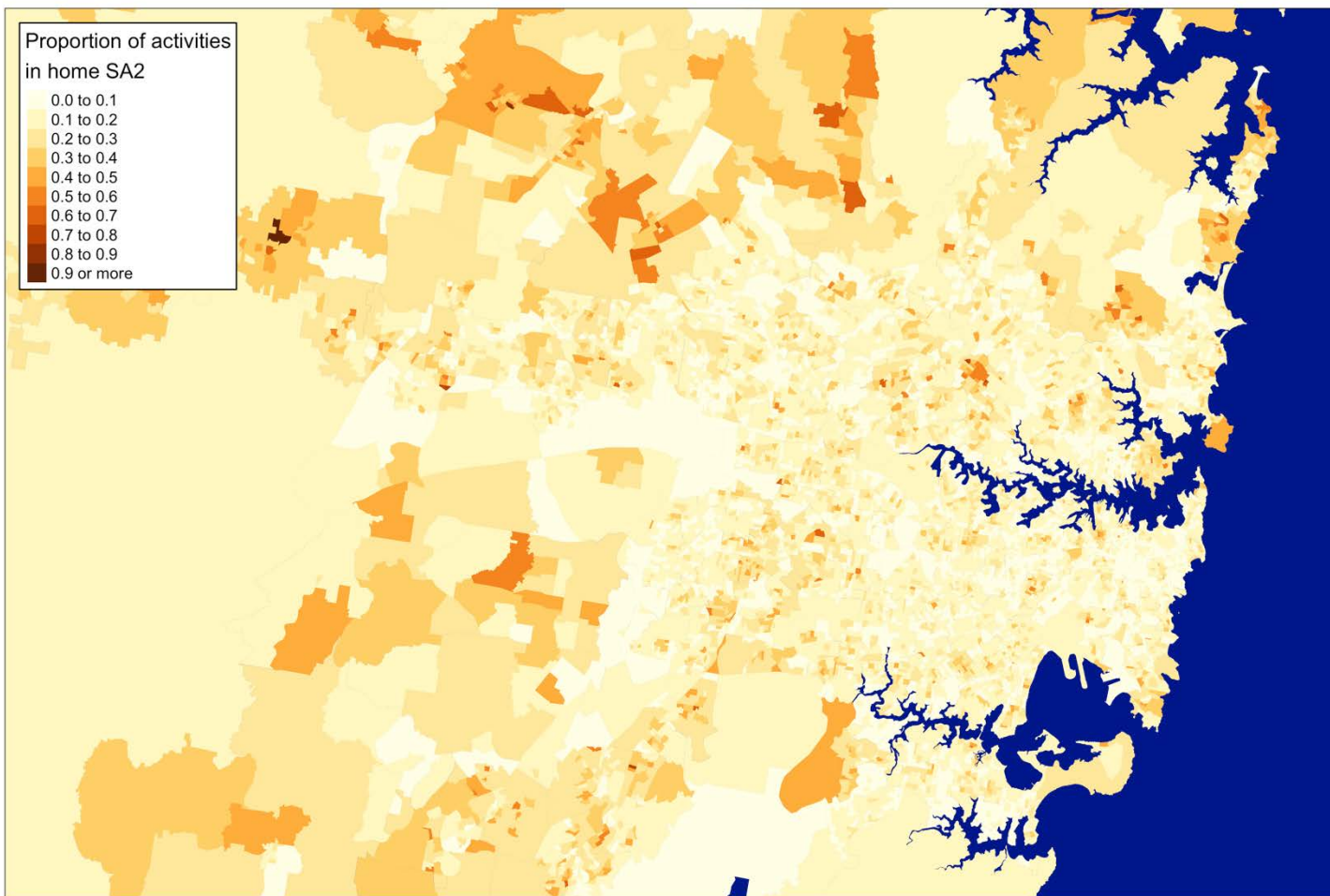




## Trips per day

Most areas of Sydney have between 3-4 trips per person per day

Some pockets of very low trip rates with larger variations in those areas with higher values for other measures of social exclusion



## Proportion of activities in home SA2


Most people go outside their home area for different activities (either social or employment)

Pockets of low movement outside the immediate area. High correlation with other measures of exclusion





## Conclusions and future work

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- Appears feasible to assess some measures of social exclusion using large-scale mobile telephone data
  - Quite strong potential to combine this with other more targeted surveys on well-being and quality of life
  - It is possible to assess distributions (both within and between individuals) including frequency of activities for each individual
  - Still need to address differences between urban and rural areas and different countries for generalisability.

The background of the slide is a dark navy blue, featuring a complex, abstract pattern of thin, glowing lines. These lines are primarily in two colors: a vibrant cyan blue and a deep magenta red. They crisscross the frame in various directions, some forming straight paths while others are more organic and wavy, creating a sense of dynamic movement and depth. The lines vary in brightness, with some appearing as sharp highlights and others as softer glows.

Thank you

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