

## **Health and Urban Planning**

**The impact of spatial structure of cities  
on the potential for active travel**

**Healthy City Design**

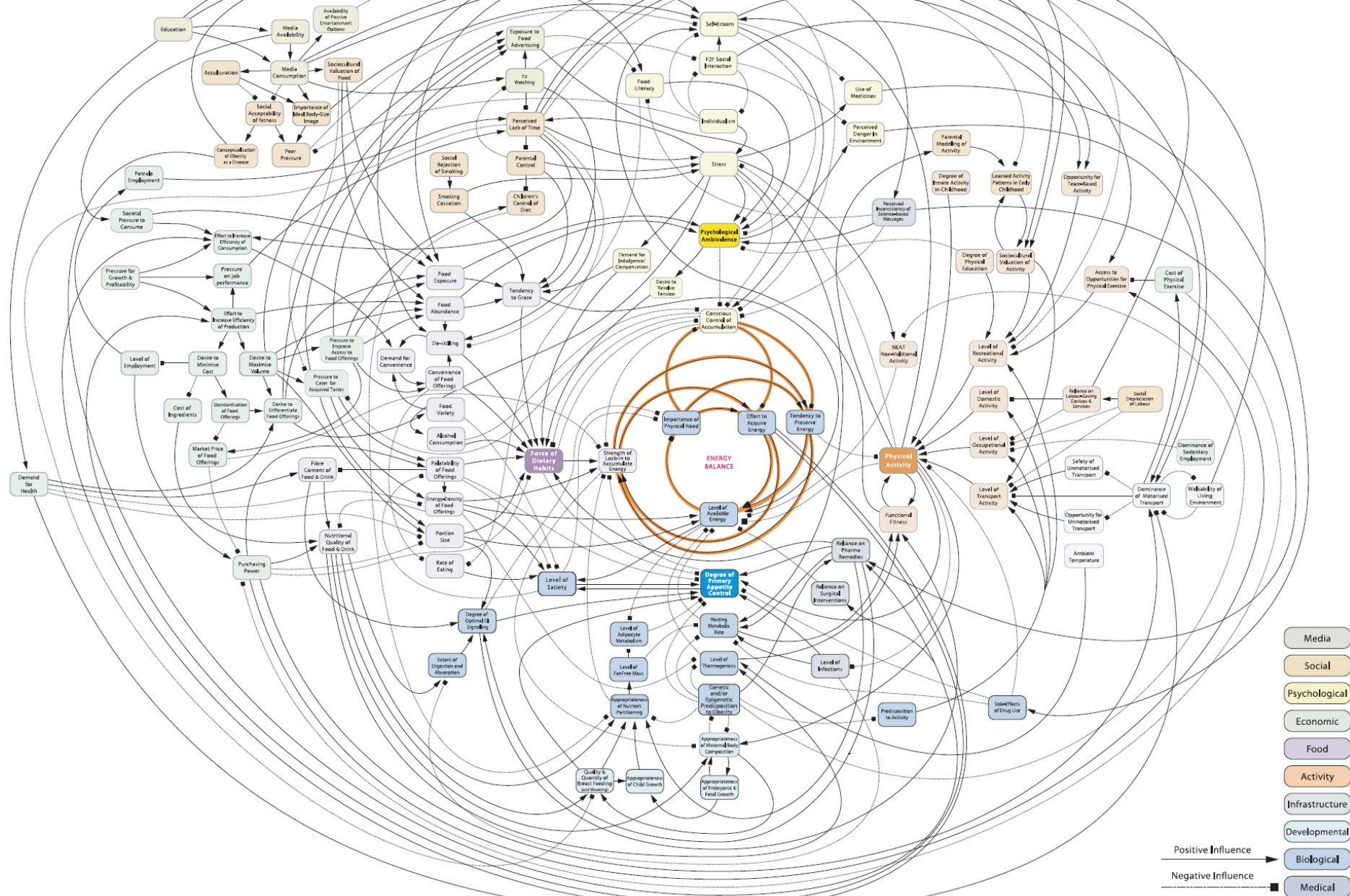
17 October 2017

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Associate Director

# Foresight

## Obesity System Map







## Neighbourhood Design

### Quality of Evidence:

- ▲ Improved
- ▼ Reduced
- High Quality
- Medium Quality
- Low Quality
- NR (Not reported):

Methodological quality of the original research is unclear and should be treated with caution.

Greyed Out Text

Association between a health impact & health outcome not obtained as part of the umbrella review.

### Best Available Evidence:

- \* In some instances, more than one piece of review-level evidence reporting on the same health impacts and/or outcomes was identified as part of this umbrella review. In such instances this table highlights findings of the review(s) which reported evidence of the best methodological quality.

### Population Groups:

- General Population
- Older Adults
- Children & Adolescents

### Disclaimer:

This diagram has been produced as part of a wider evidence resource, commissioned by Public Health England and developed by the University of the West of England. Please see the document Spatial planning for health: an evidence resource for planning and designing healthier places for further information.

## Planning Principles



Enhance Neighbourhood Walkability



Build Complete and Compact Neighbourhoods

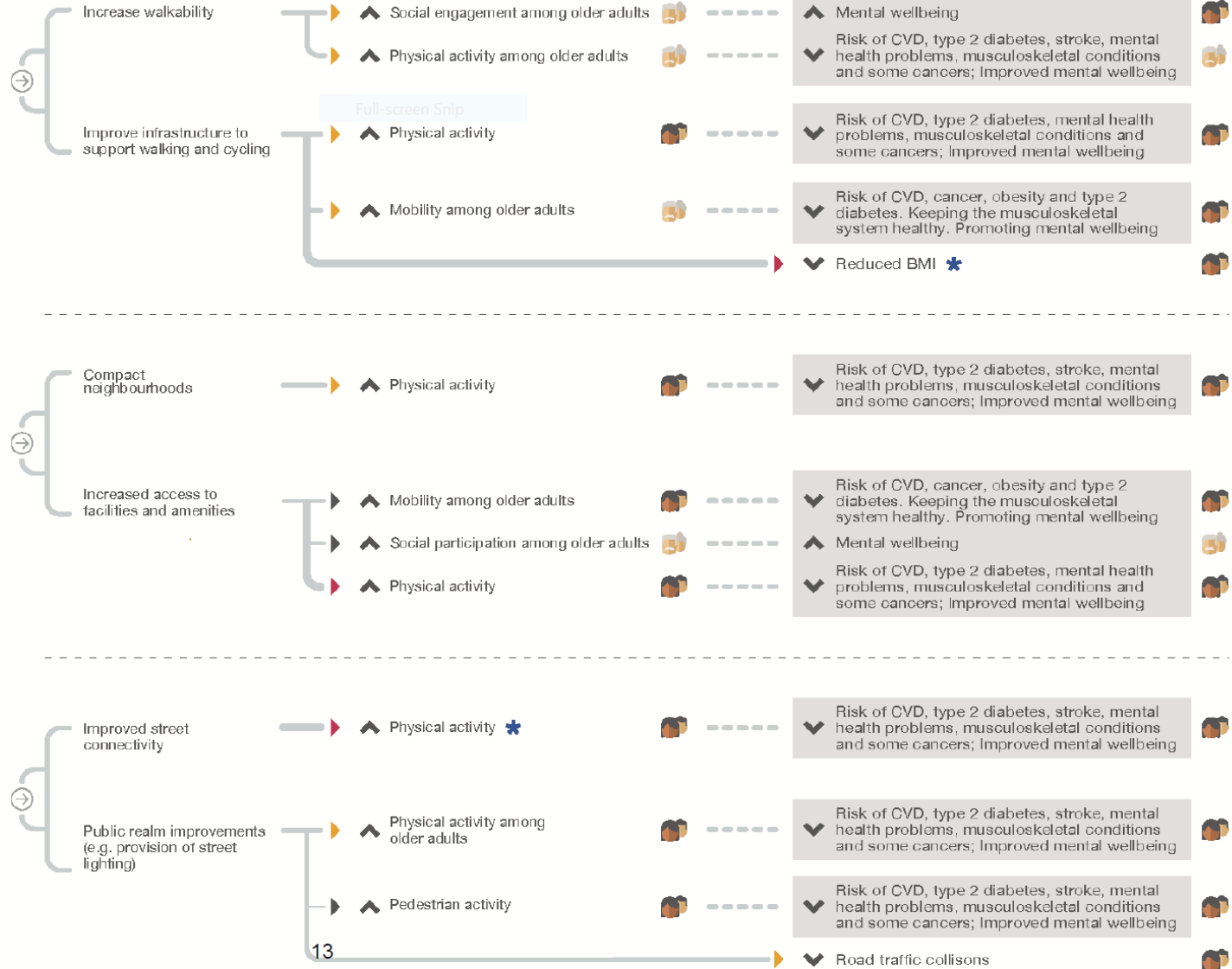


Enhance connectivity with safe and efficient infrastructure

## Modifiable Features

## Impact

## Health Outcomes



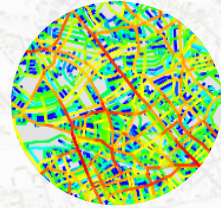




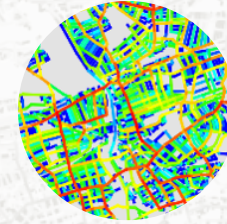
**Green infrastructure**



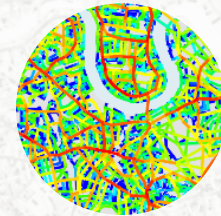
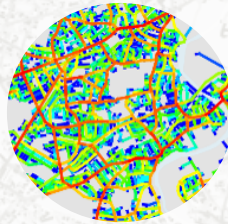
**Transport**



**Street connectivity**



**Mixed use**



**Compact neighbourhood**

**Density**







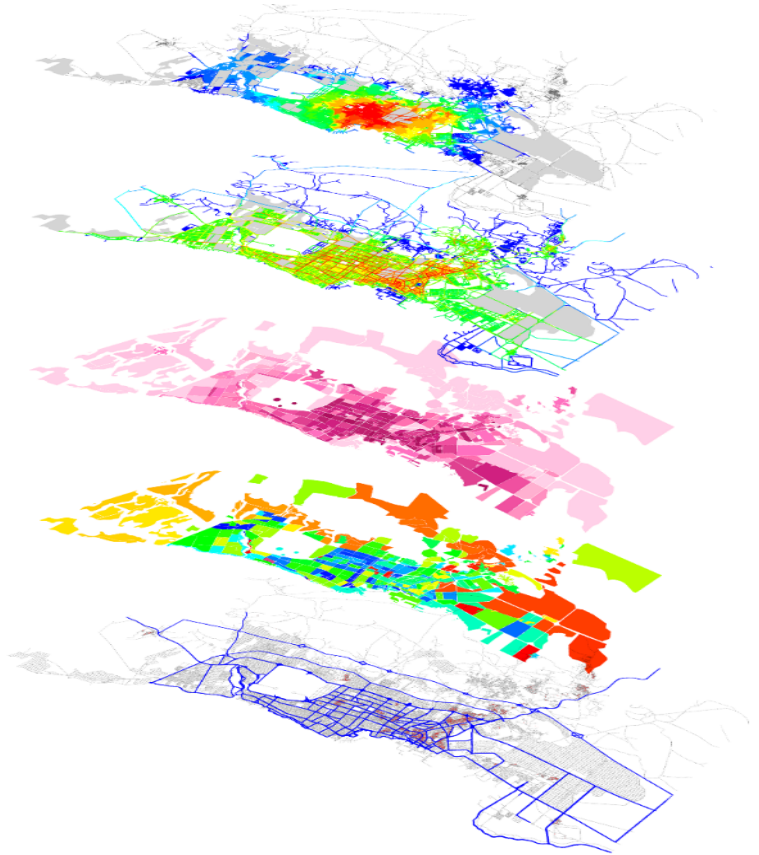
# Integrated Urban Modelling Linking design and outcomes

## Key parameters in spatial planning:

Street and transport networks

Land use distributions

Population/density



**Movement**



**Character**



**Economy**



**Safety**



**Sustainability**





# Spatial planning and health Measurable health-related outcomes

## Spatial planning parameters

Connectivity + Land use distributions + Density



Potential for **Active Travel** and **Access to Services**



**Choice of transport mode**

**Physical activity levels**

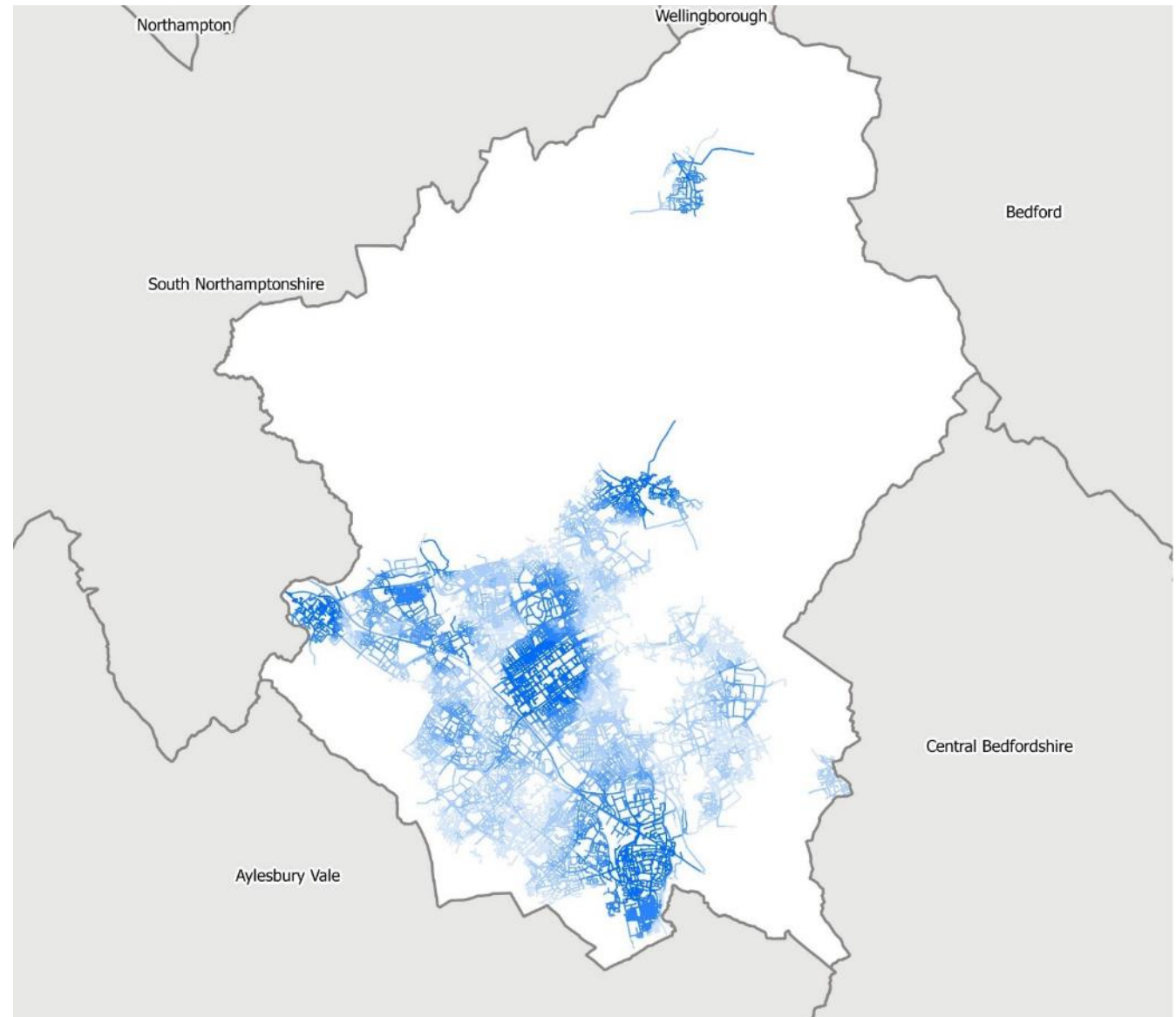
**Social isolation**

# Active travel

Car dependency

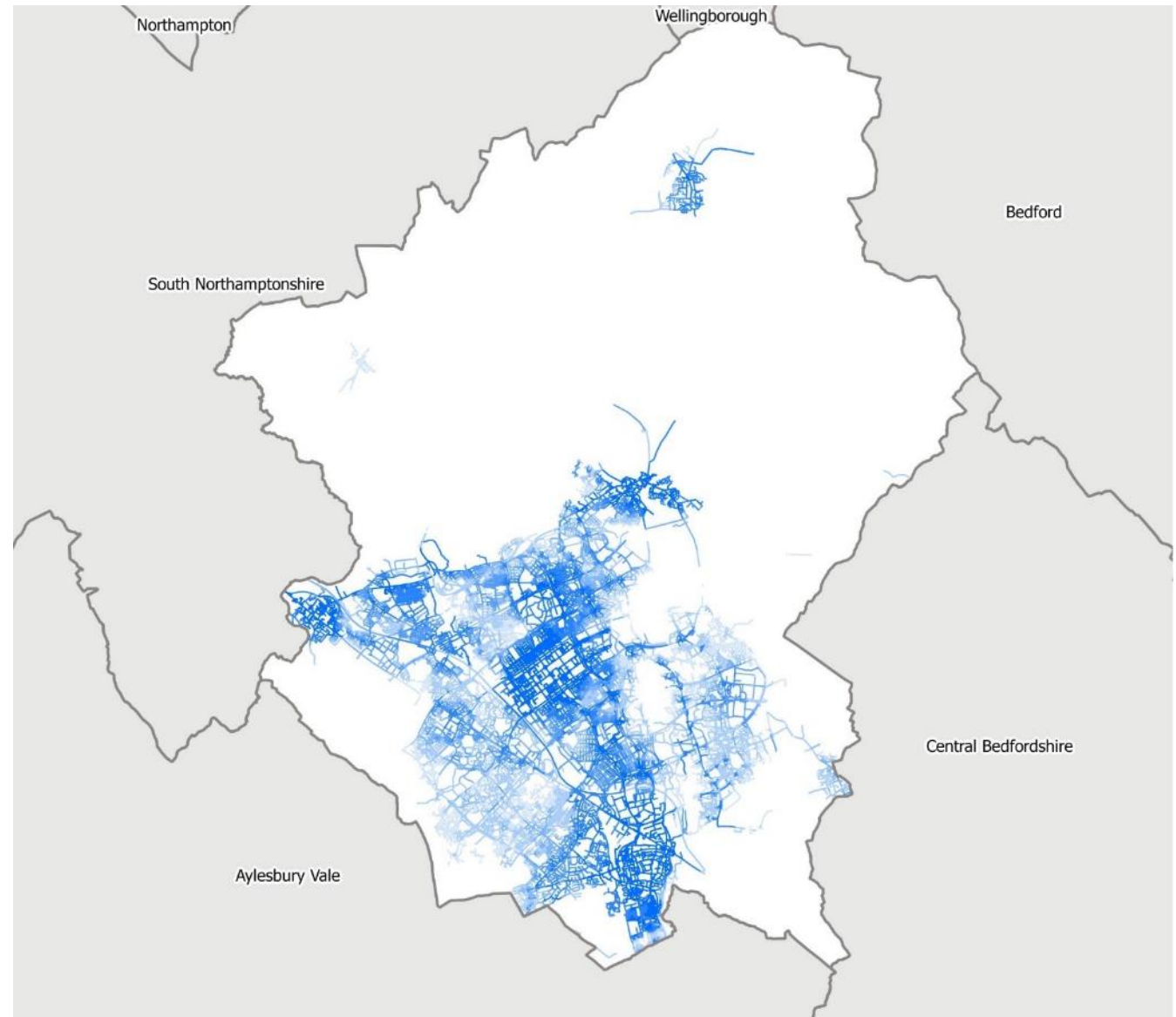


# Access to job opportunities Walking



**Access to job opportunities**  
15 mins walk

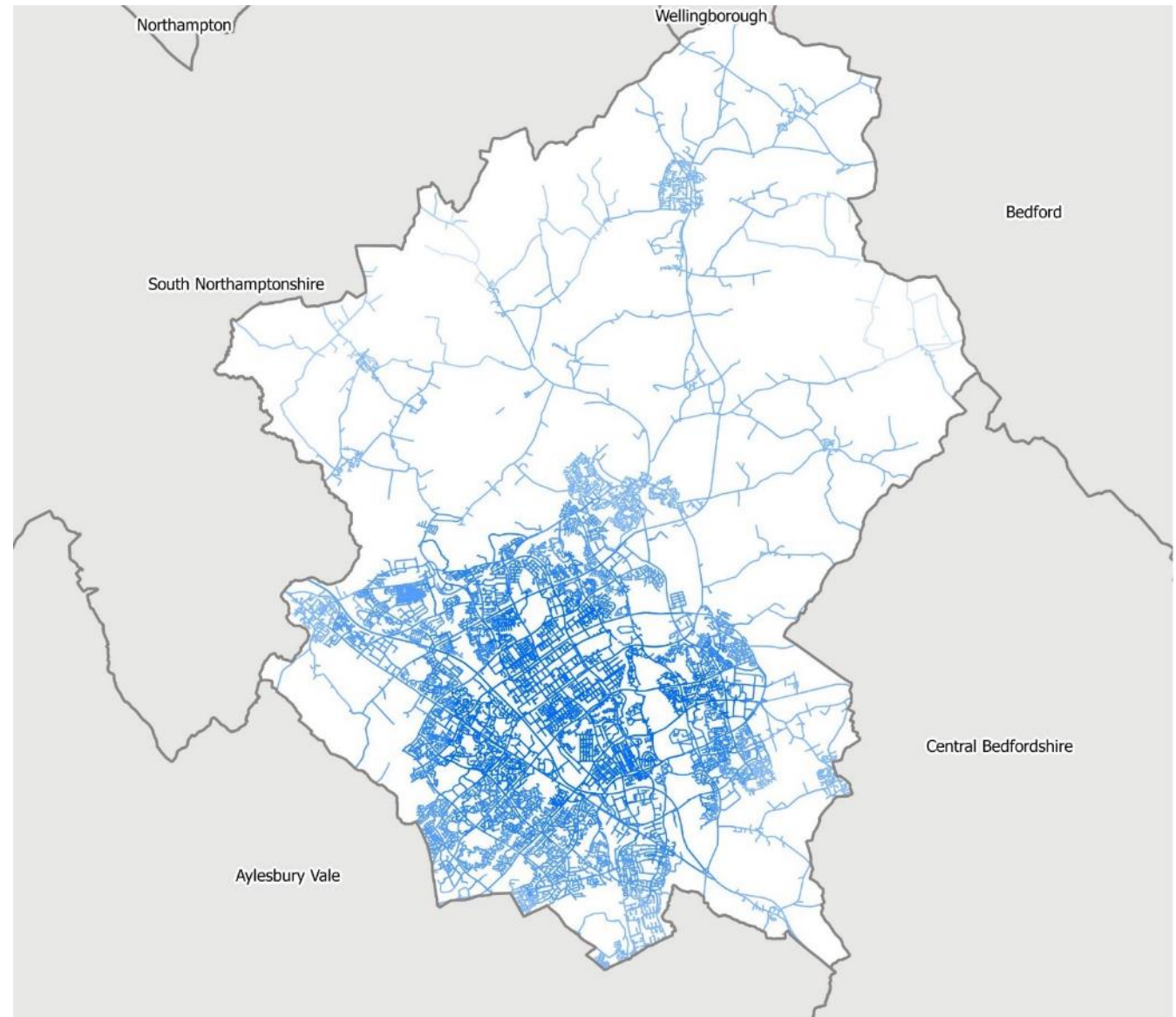
# Access to job opportunities Public transport



**Access to job opportunities**  
15 mins walk + bus

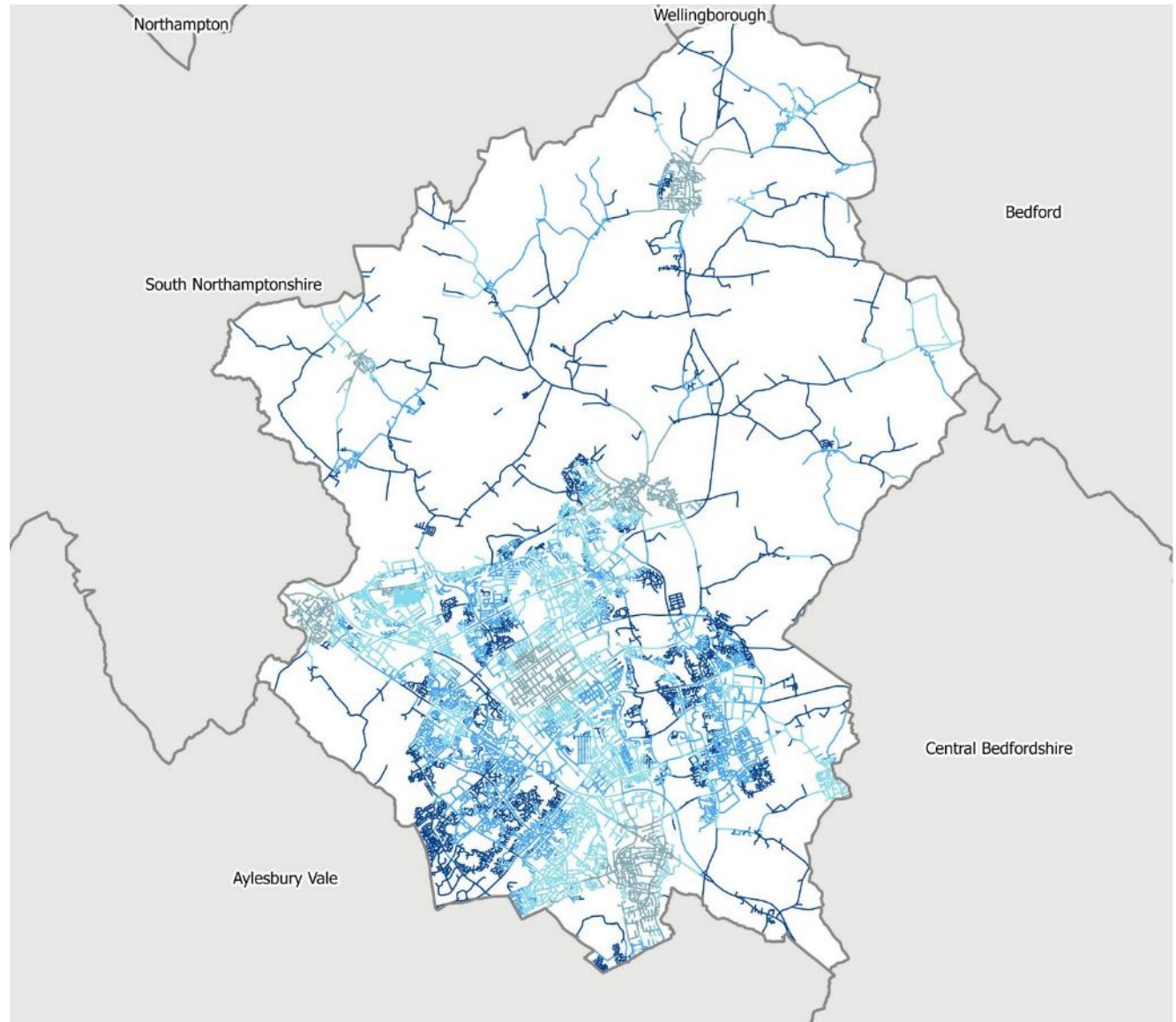
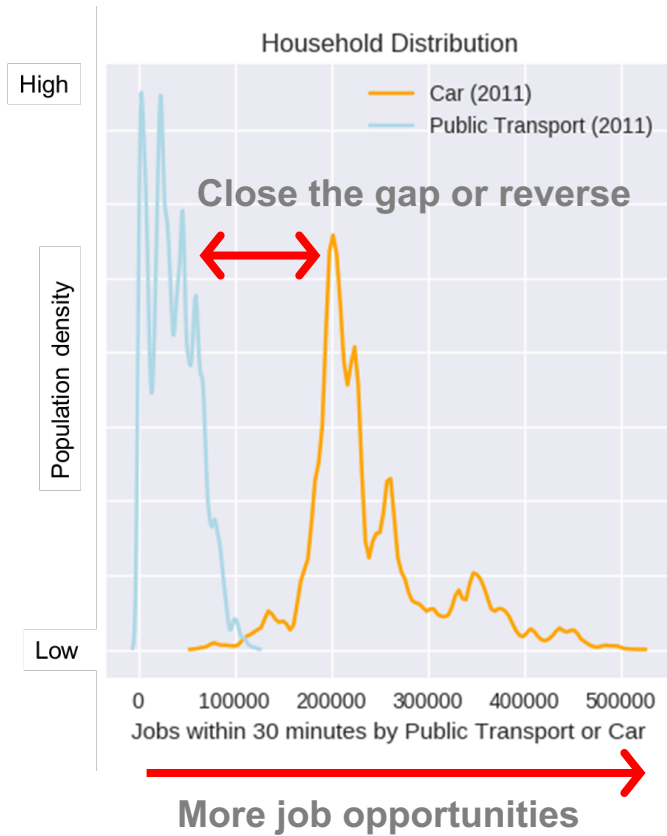


# Access to job opportunities Private vehicles



**Access to job opportunities**  
15 mins drive

# Car dependency Public transport vs private vehicles

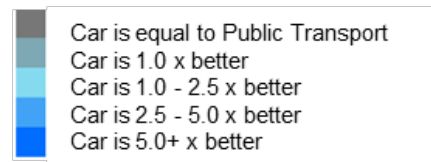


**Car dependency index**  
Bus vs private vehicles

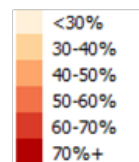


# Insight generation Commute to work by car

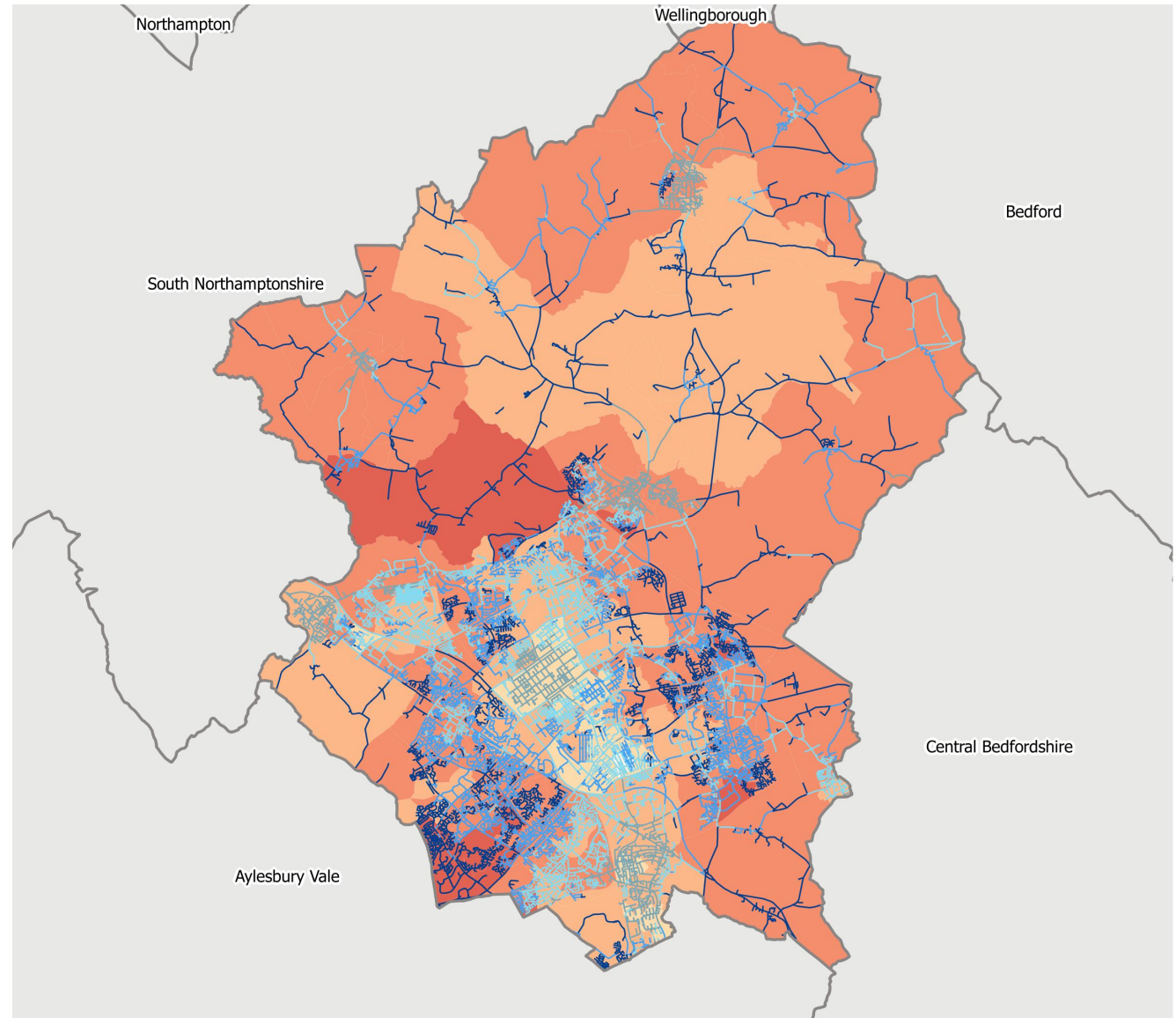
## Car Dependence



## Census 2011 Car Commute to work %

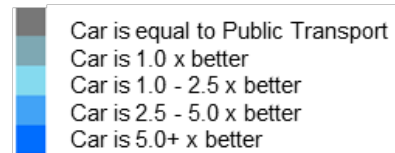


## Commute by car Census 2011

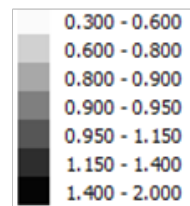


# Insight generation Impact on mental health?

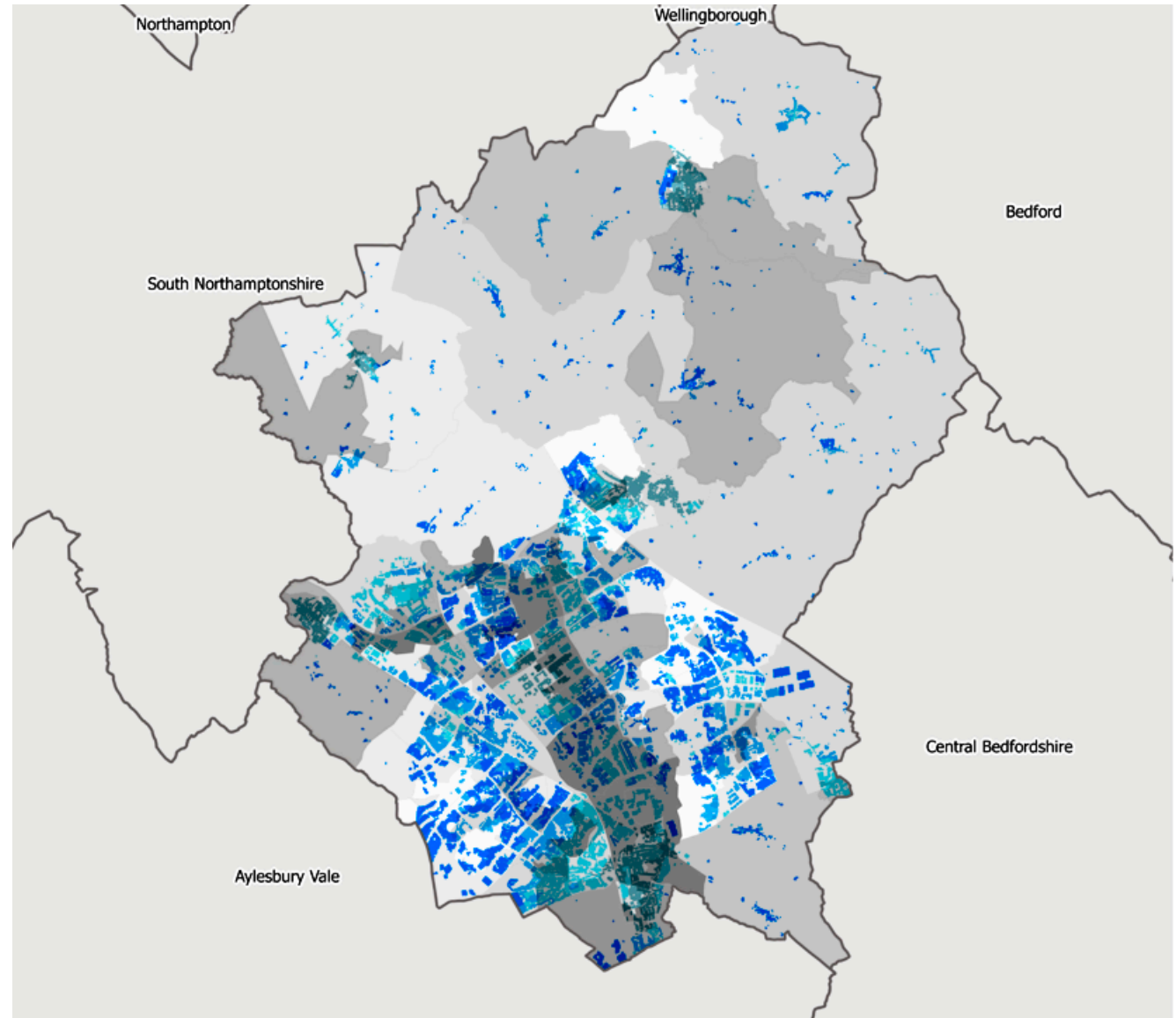
## Car Dependence



## Social Isolation Score



**Social isolation score**  
Age UK





# **Access to Services**

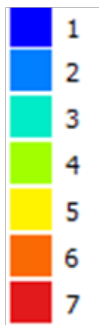
**Walkable services and amenities**

# Access to services Variety of land uses

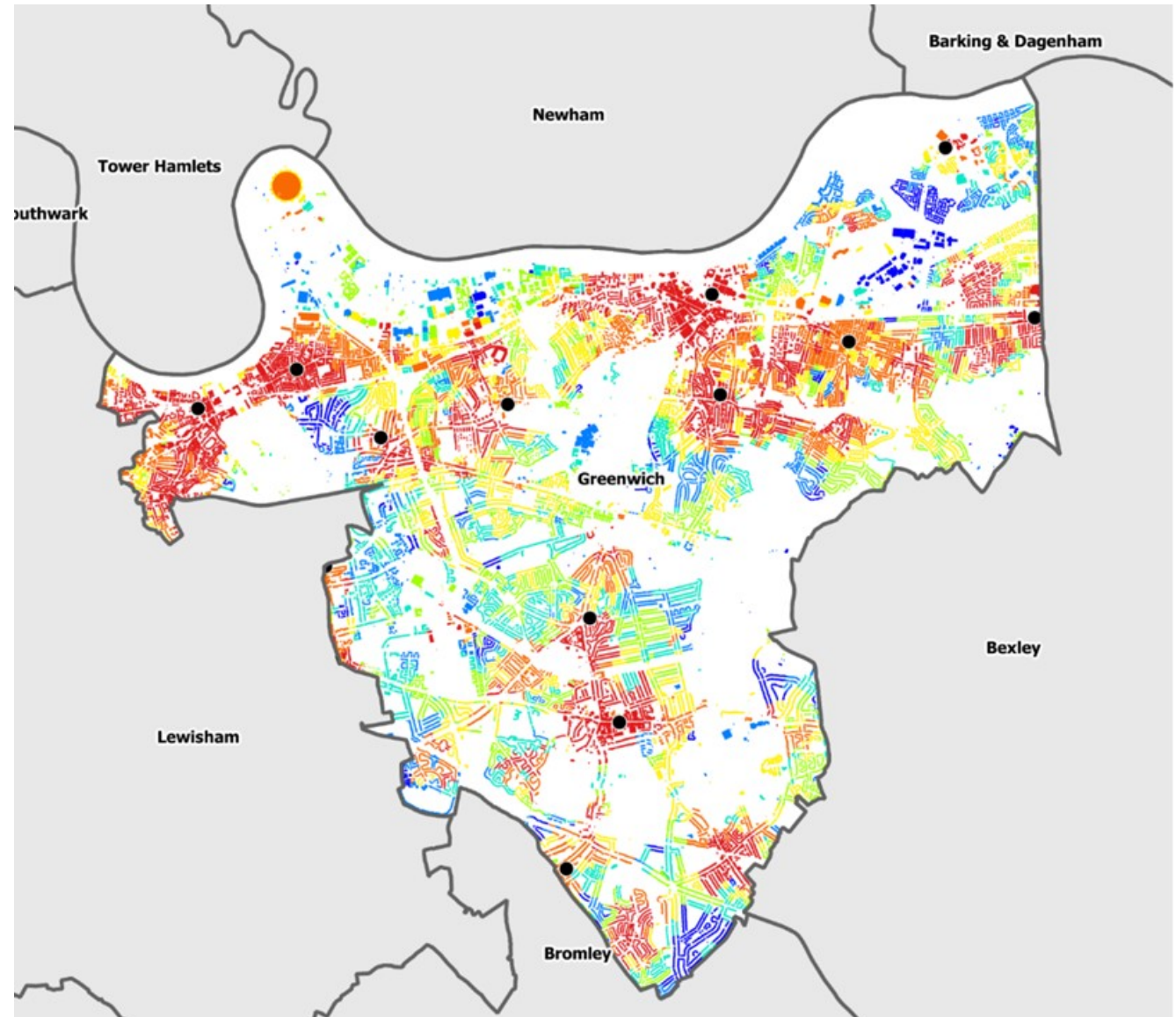
- Retail shops
- Food shops & markets
- Services
- Community facilities
- Open spaces
- Leisure
- Residential

- Designated town centres

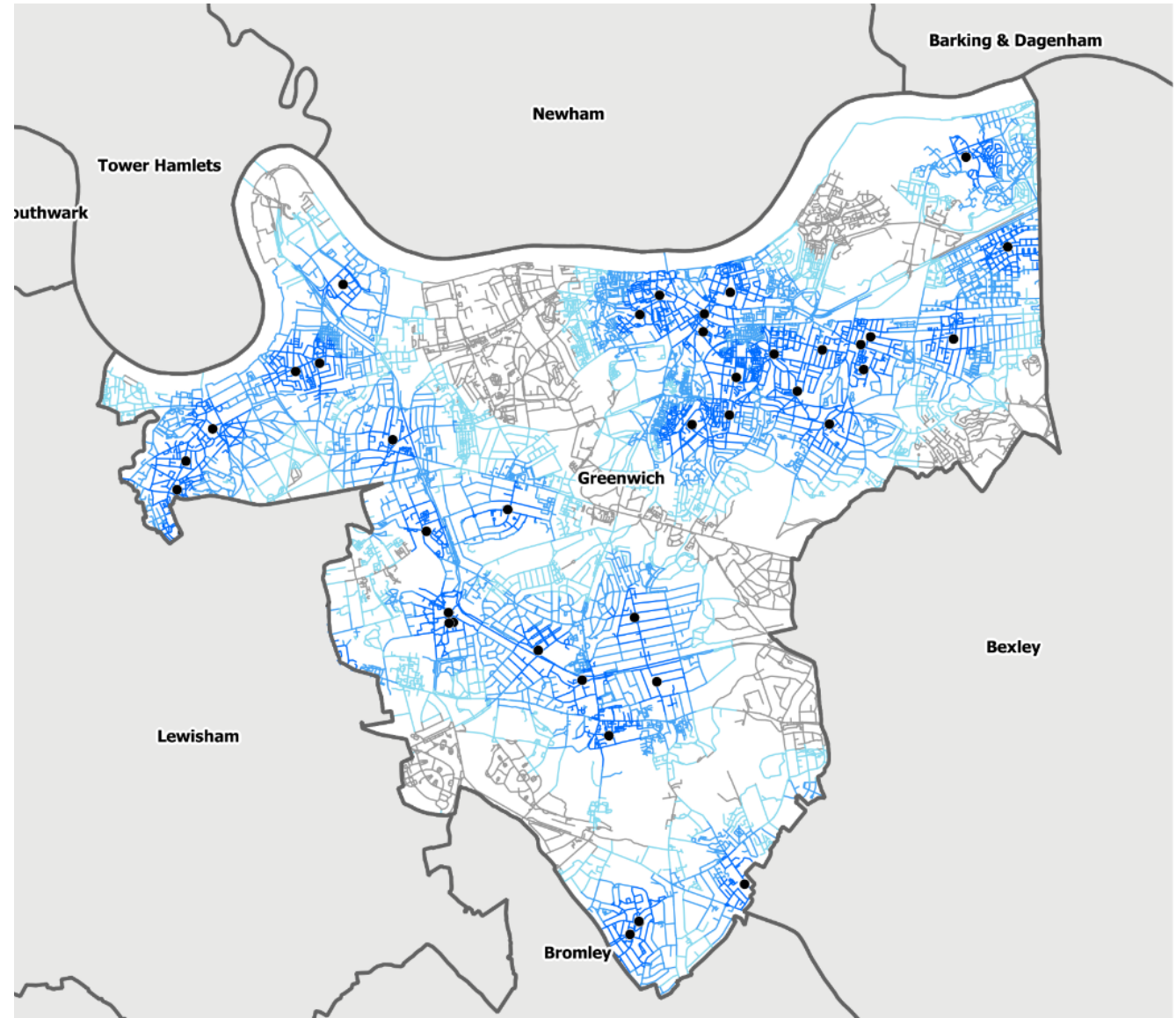
Number of different land use types  
within 5 minutes walking



**Variety of land uses**  
5-minute walk



# Access to GPs Walking



Time to the closest GP practice  
by walking (minutes)

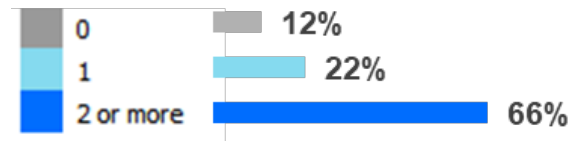
- 0 - 5
- 5 - 10
- 10 - 15
- over 15

## Access to GPs Walking

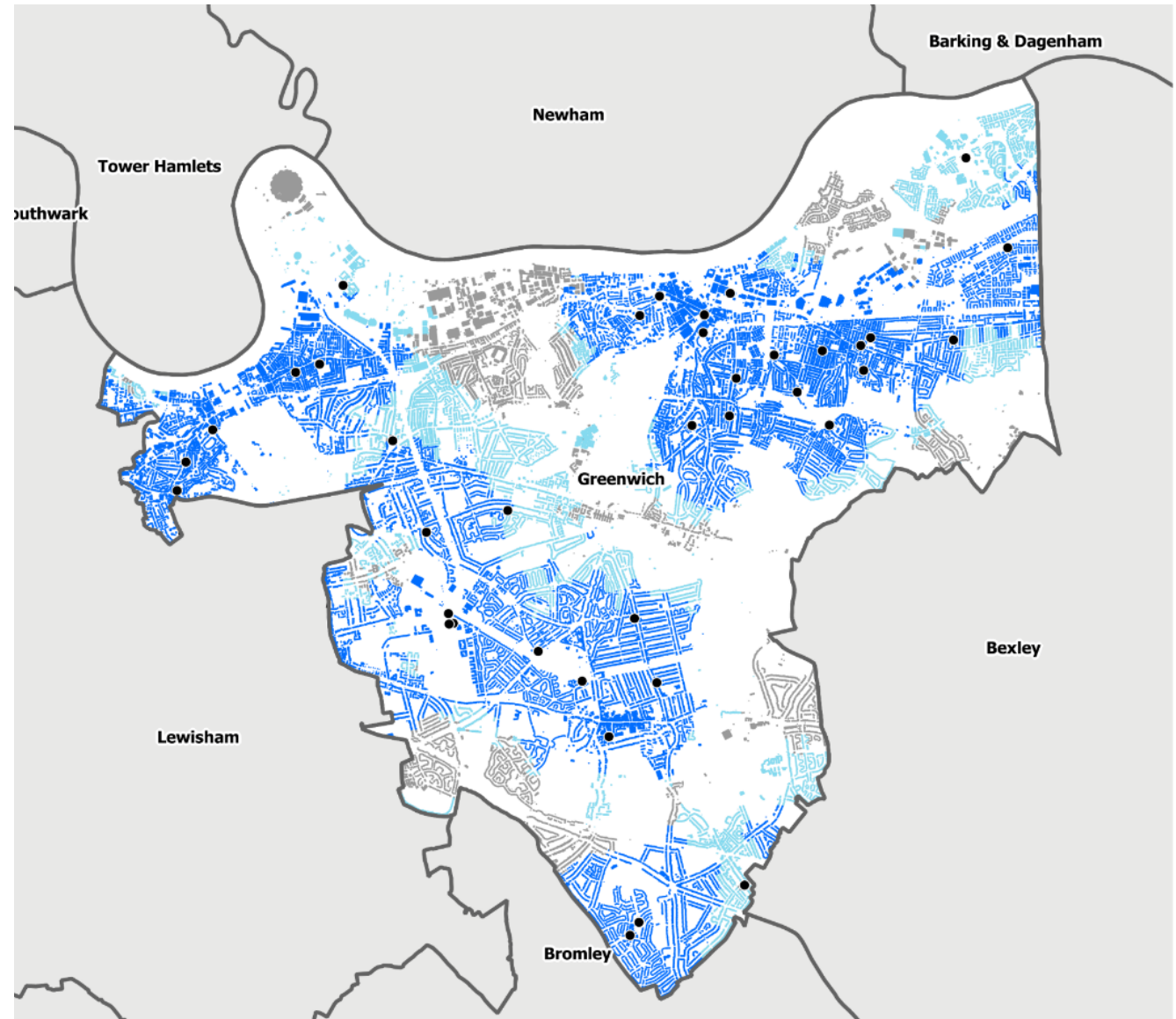


# Access to GPs Impact on household and inequality

Number of GP practices within  
15 minutes of walking



Access to GPs  
15-minute walk



# Access to GPs Service capacity

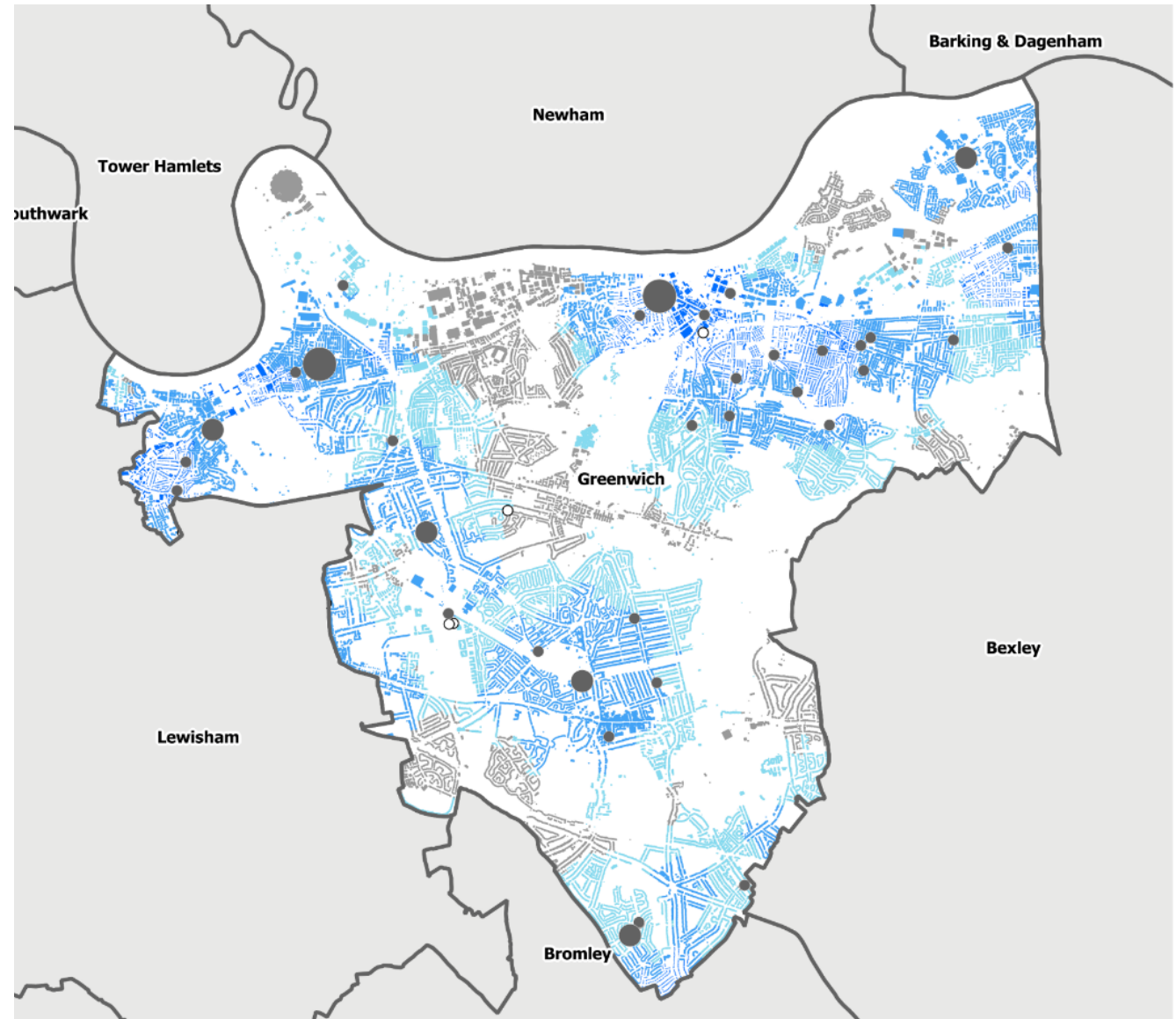
Number of GPs per 1,000 registered patients

- missing data
- 0.63 – 5
- 5 – 10
- 10 – 15

Number of FTE General Practitioners within 15 minutes of walking



Access to GPs  
15-minute walk



# Access to GPs Service capacity and quality

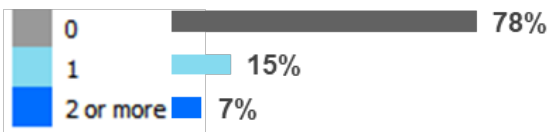
## Number of GPs per 1,000 registered patients

- missing data
- 0.63 – 5
- 5 – 10
- 10 – 15

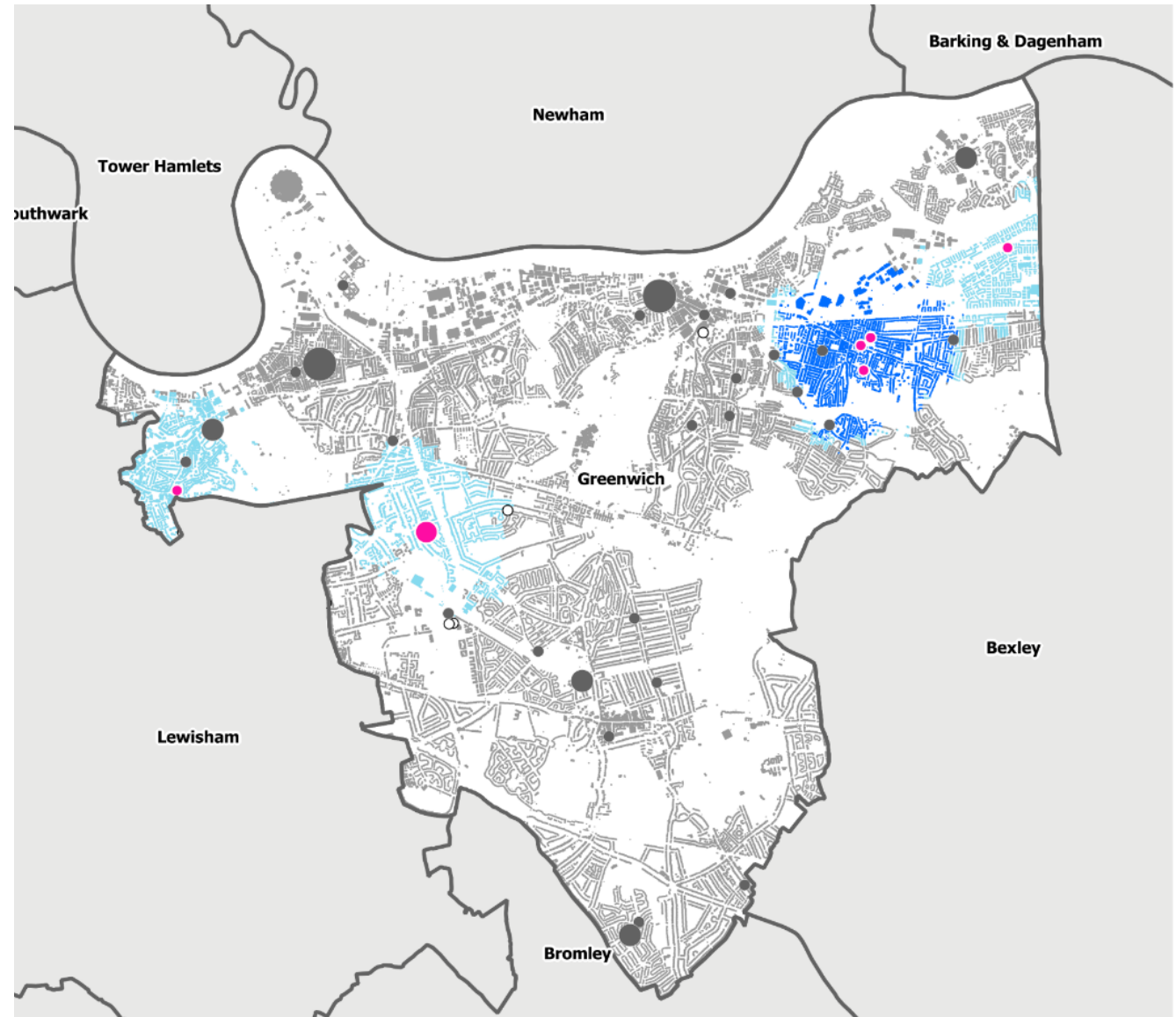
## Overall satisfaction percentage

- < 75%
- ≥ 75%

## Number of good GP practices within 15 minutes of walking



## Access to GPs 15-minute walk





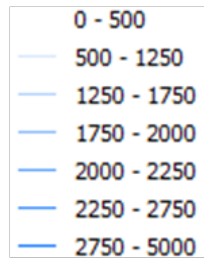
# **Social Isolation**

**Demographics and spatial segregation**

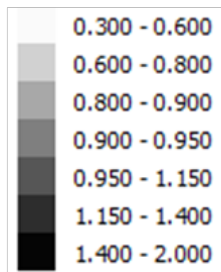
# Social isolation Demographics and residential proximity

- Marital status
- Self-reported health
- Age
- Tenure
- Deprivation

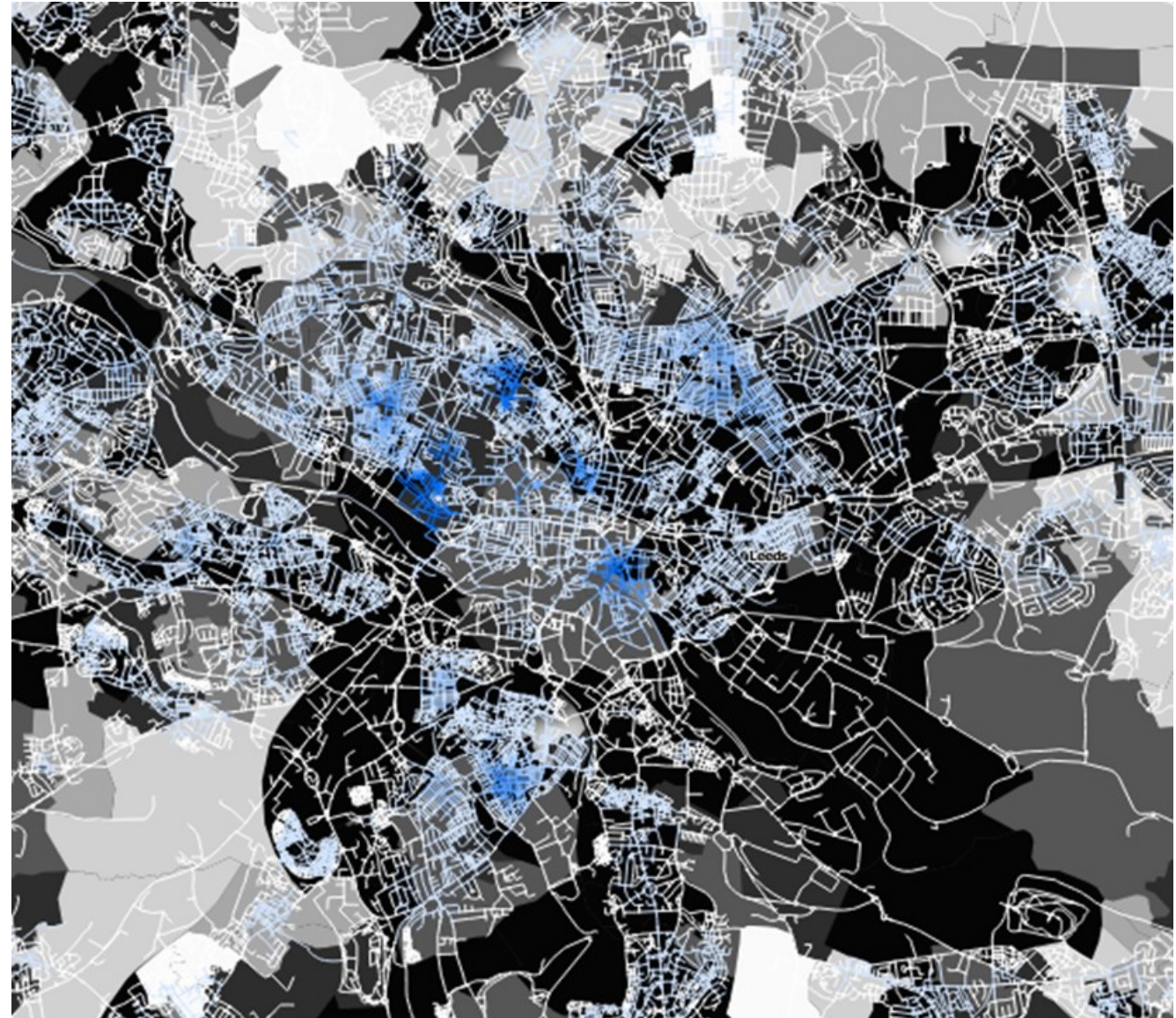
The number of residential addresses within 15 minutes walk



Social isolation score



**Social isolation (AgeUK)**  
Neighbours in 15-minute walk





# Thank you!

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[www.spacesyntax.com](http://www.spacesyntax.com)

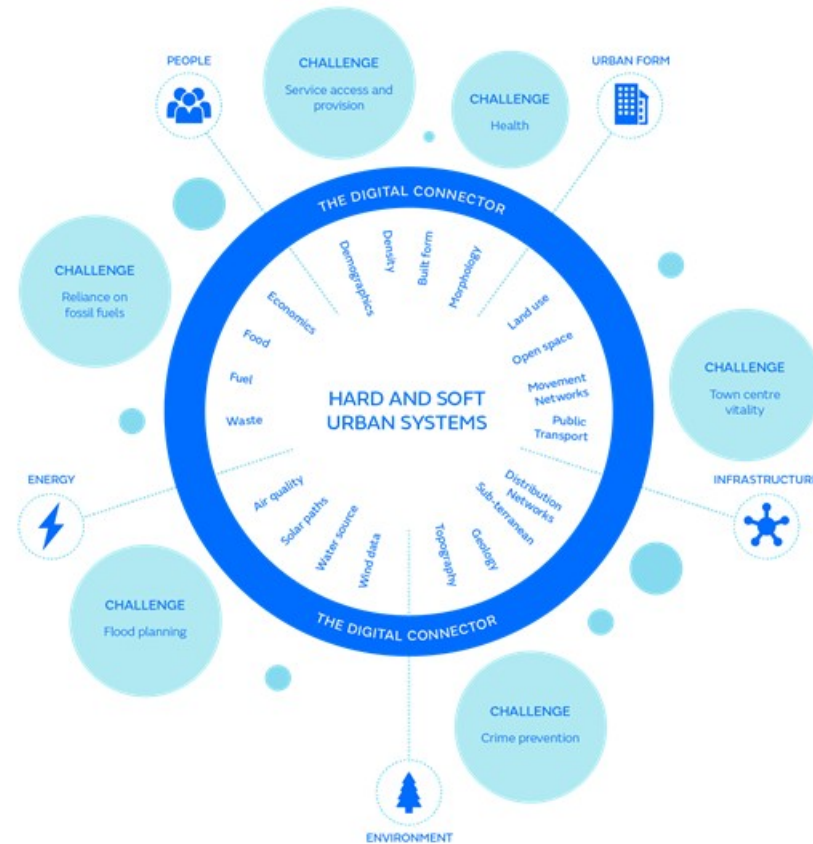
# Tombolo Digital Connector development

Three year R&D project

Funded by InnovateUK

In partnership with the  
Future Cities Catapult

Integrate data and  
models in a consistent  
way.



Tombolo.org.uk