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GEOSPATIAL  
SYSTEMS  
CENTRE FOR DOCTORAL TRAINING

# Cities in shape:

## Assessing the impact of urban form on accessibility

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**Clara Peiret-García**

Prof. Rachel Franklin

Dr. Alistair Ford

Dr. Joe Matthews

Introduction

Research question

Methods

Results

Conclusions

# **Accessibility & urban form**

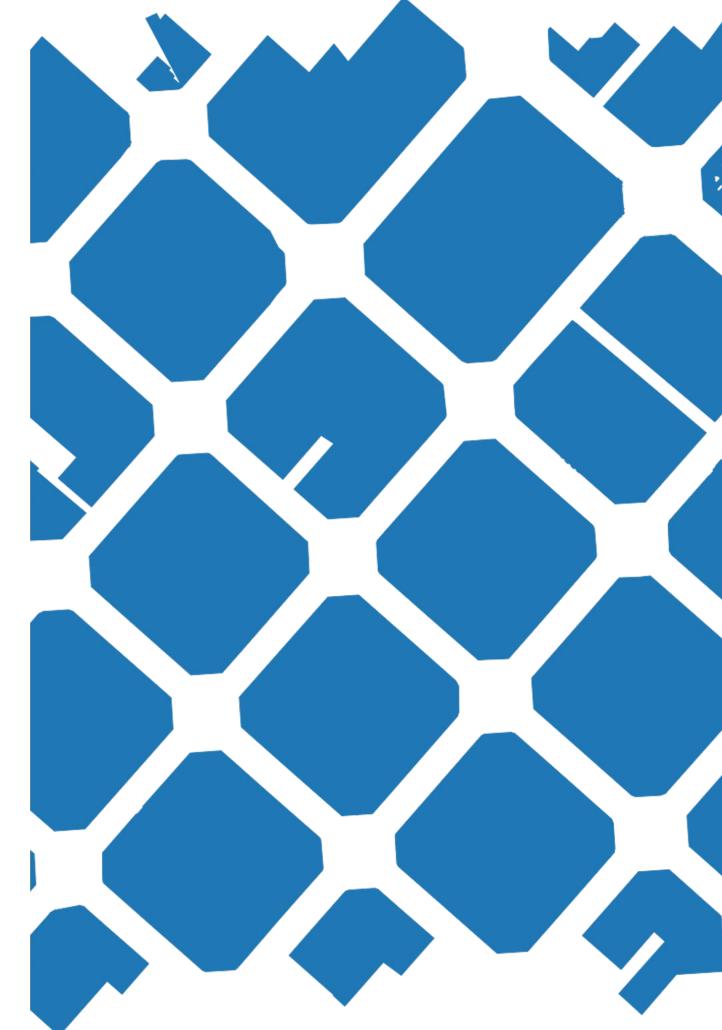
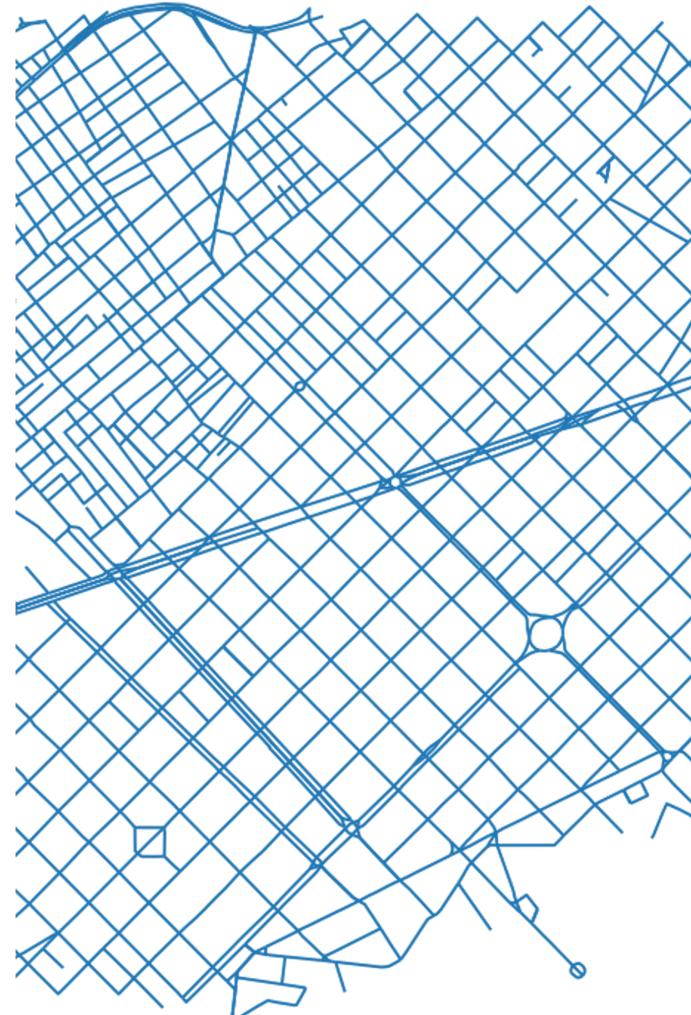
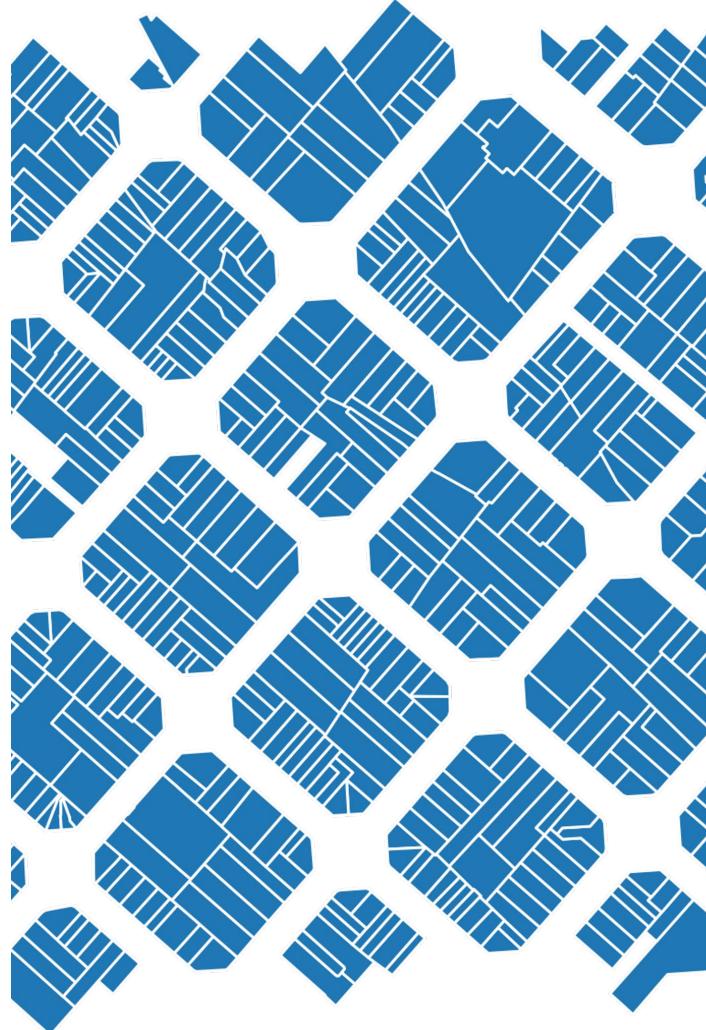
# Accessibility

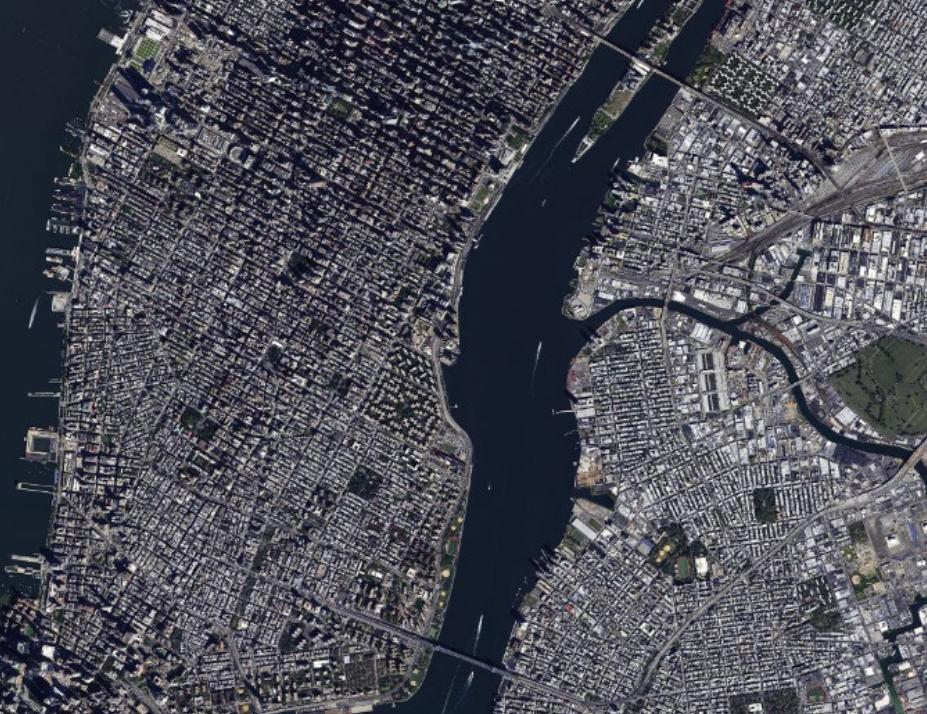
“**Accessibility** is the ease with which a destination can be reached from an origin”

(Hansen, 1959)

Hansen, W. G. (1959). How accessibility shapes land use. *Journal of the American Institute of Planners*, 25(2), 73–76.

# Urban form





# Research question

# Research question

What does an accessible city look like to  
different people?

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Thiago Herick de Sa  • Abraham Mwaura • Cristina Vert • Pierpaolo Mudu • Nathalie Roebbel • Nhan Tran • et al.

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10.1080/01944360608976725



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## Journal of Urban Economics

Volume 65, Issue 1, January 2009, Pages 91-98

# The impact of residential density on vehicle usage and energy consumption ★

David Brownstone <sup>a</sup>  , Thomas F. Golob <sup>b</sup>

COMMENT | VOLUME 10, ISSUE 6, E786-E787, JUNE 01, 2022

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Mizuki Kawabata , Qing Shen

First Published February 1, 2006 | Research Article  
<https://doi.org/10.1068/b31144>

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# Measuring up: Comparing public transport in the UK and Europe's biggest cities

This report examines whether intra-urban public transport plays a role in the underperformance of big British cities and sets out the implications that transport has for the levelling up agenda.

The in  
and en

Report published on 3 November 2021 by [Guilherme Rodrigues](#), [Anthony Breach](#) and [James Evans](#)

Boston and Los Angeles with Tokyo

David Brownstone , Thomas F. Gol

Mizuki Kawabata , Qing Shen

First Published February 1, 2006 | Research Article

<https://doi.org/10.1068/b31144>

# Research question

Multi-city comparisons

Detailed urban form characterisation

Comprehensive routing algorithm

Demographic profiling

Innovative destination selection method

# Research question

Multi-city comparisons

Detailed urban form characterisation

Comprehensive routing algorithm

Demographic profiling

Innovative destination selection method

**Identify best practices  
and explore their  
potential  
implementation in  
different contexts**

# Methods

Accessibility score



Morphometric analysis



Socioeconomic analysis

Accessibility score

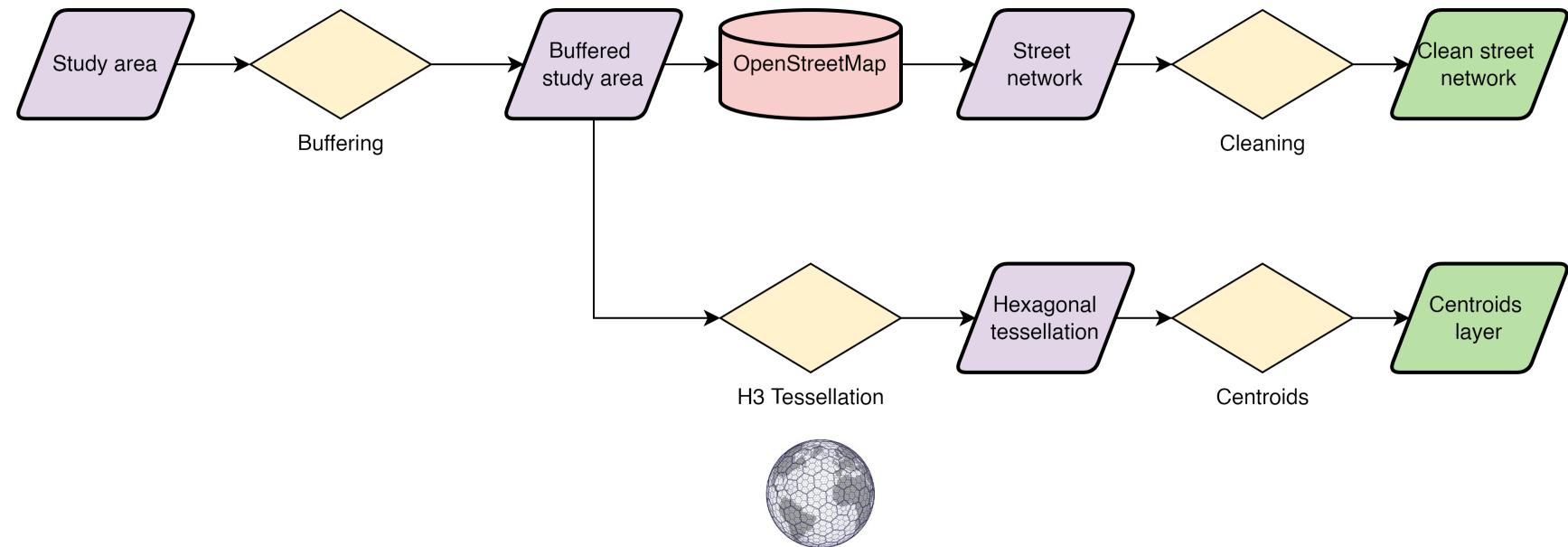


Morphometric analysis

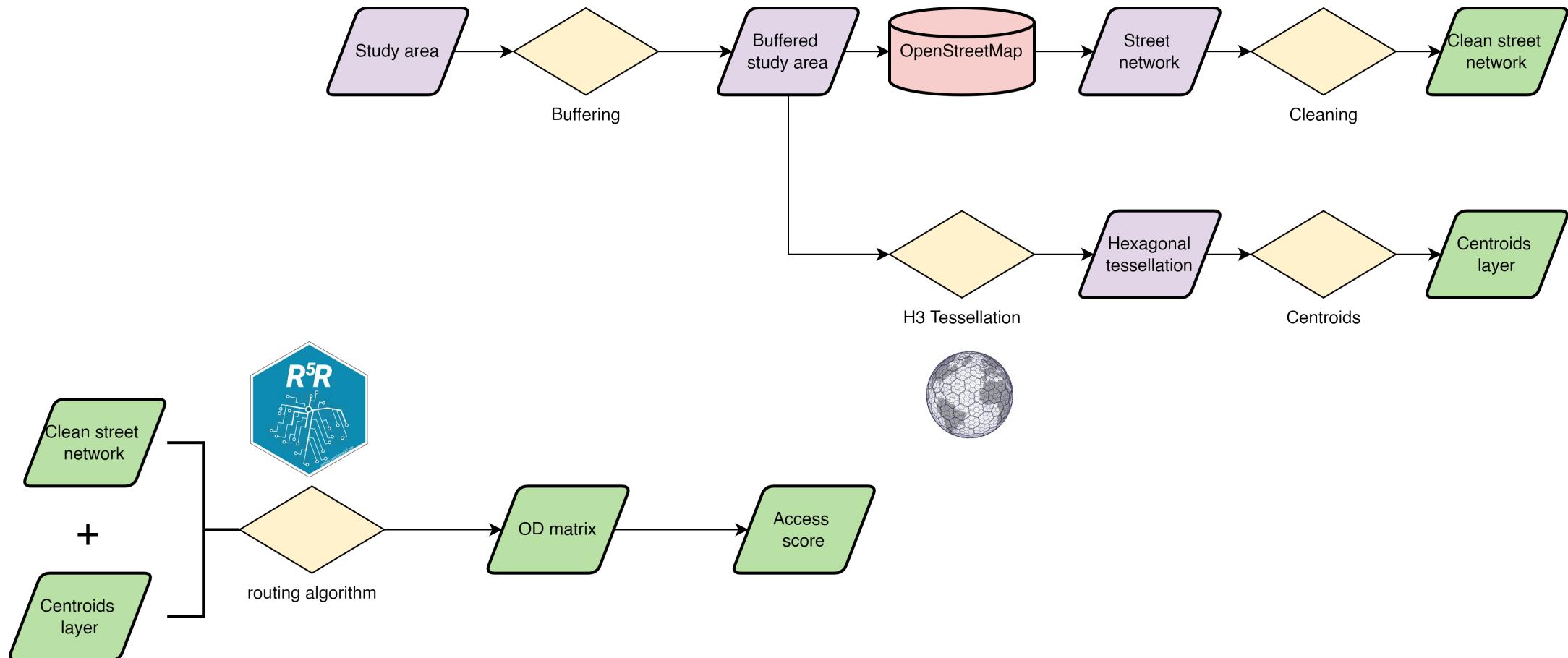


Socioeconomic analysis

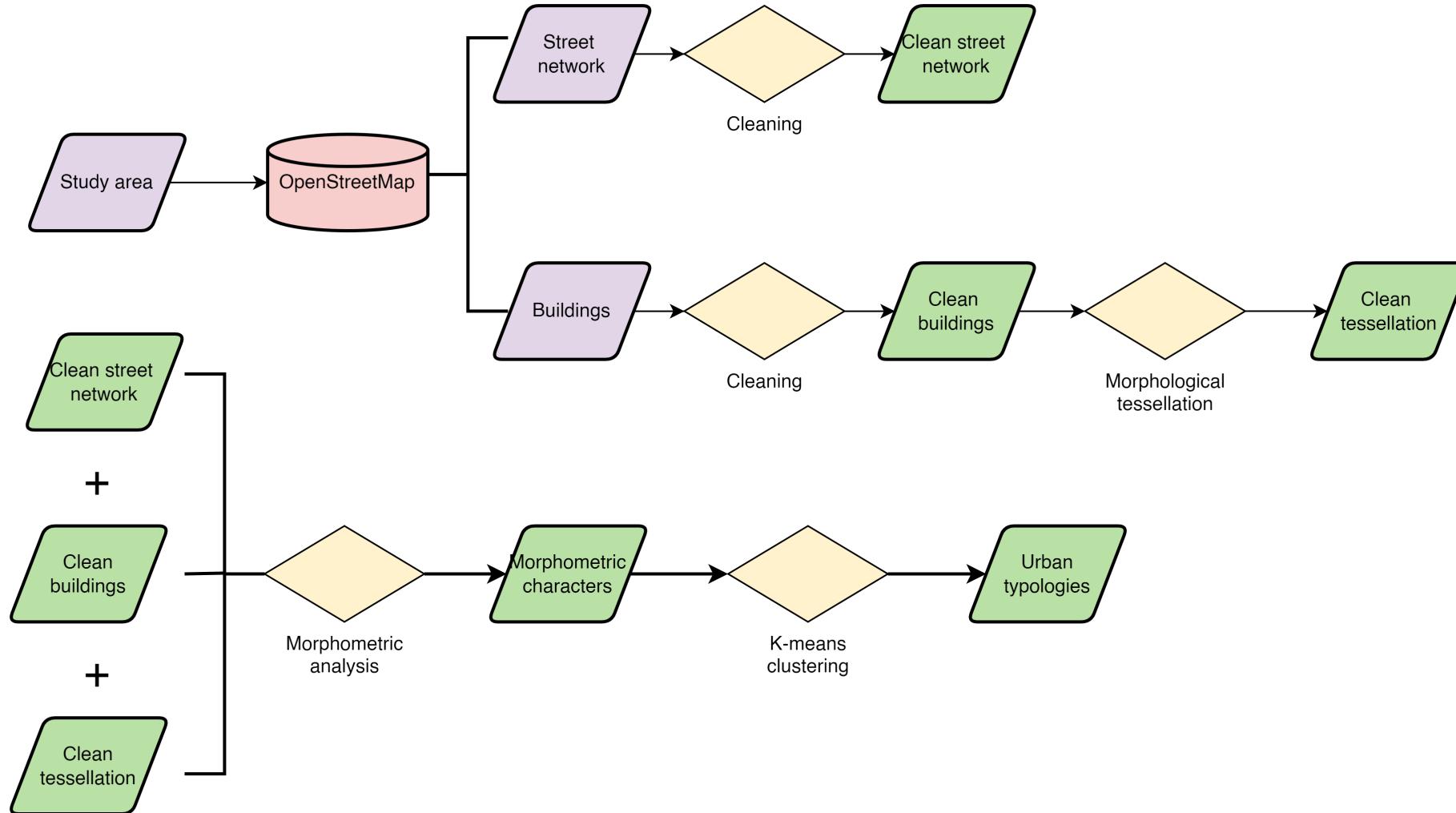
# Methods – Accessibility score

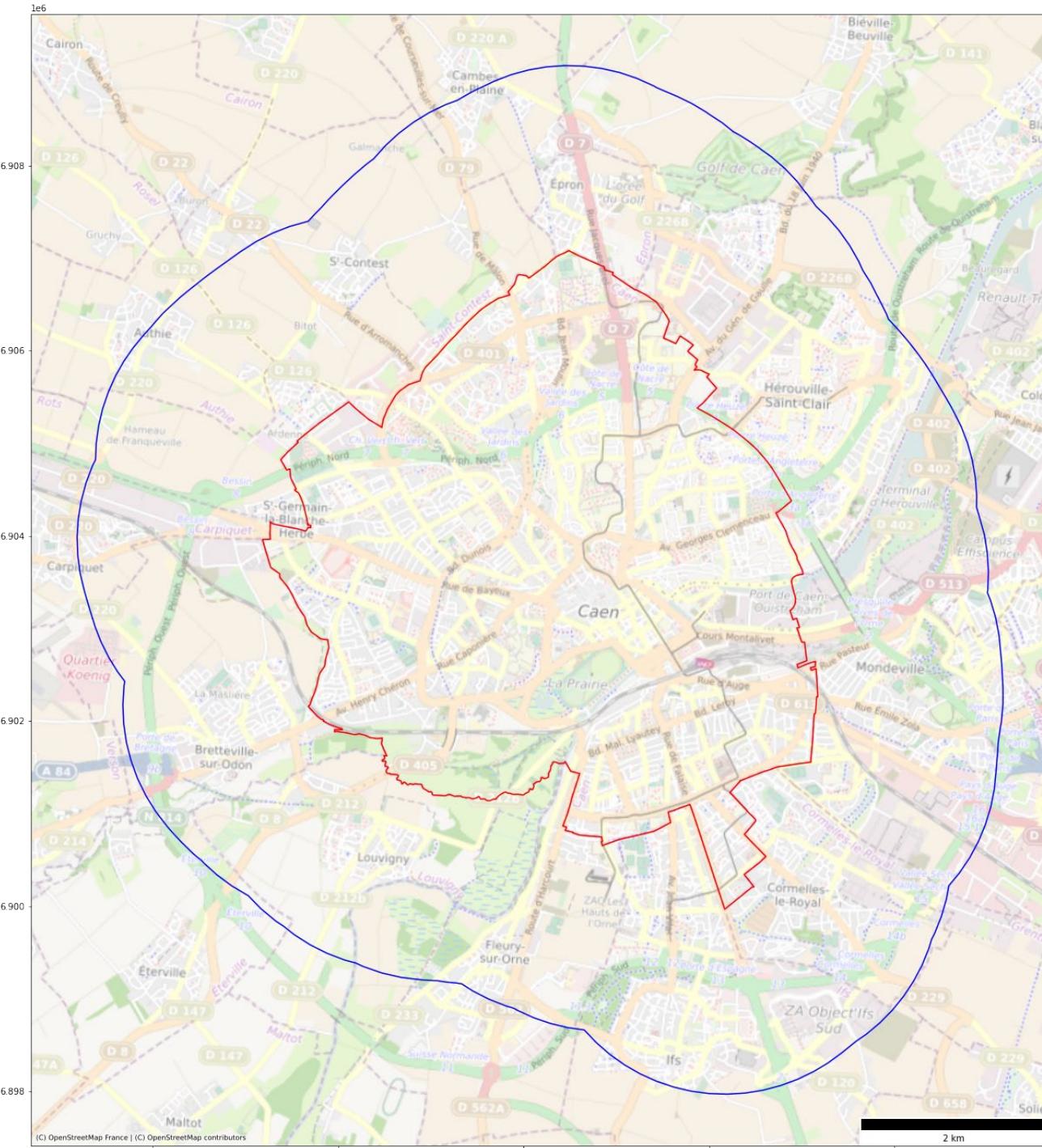


# Methods – Accessibility score



# Methods – Morphometric analysis



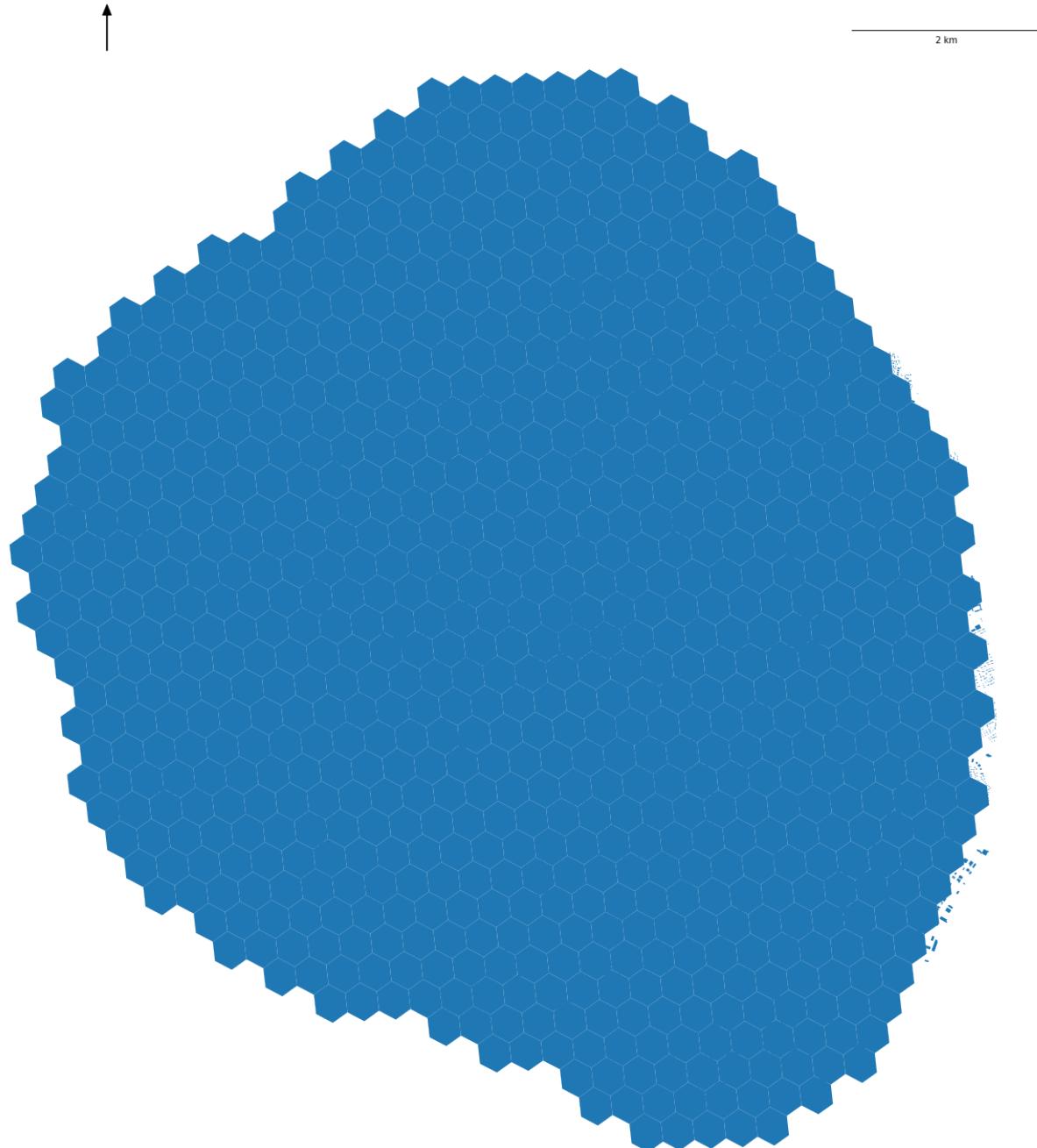




2 km

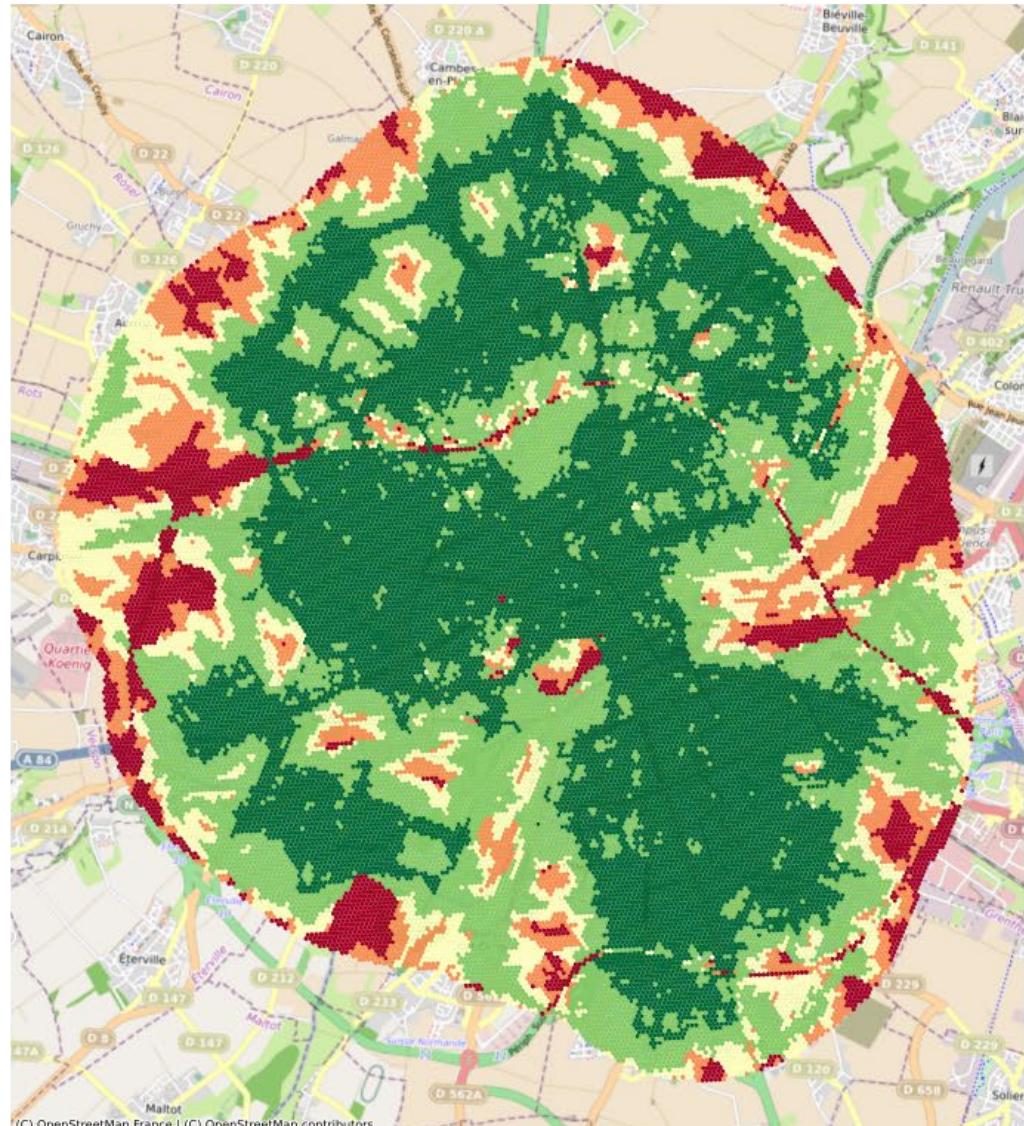




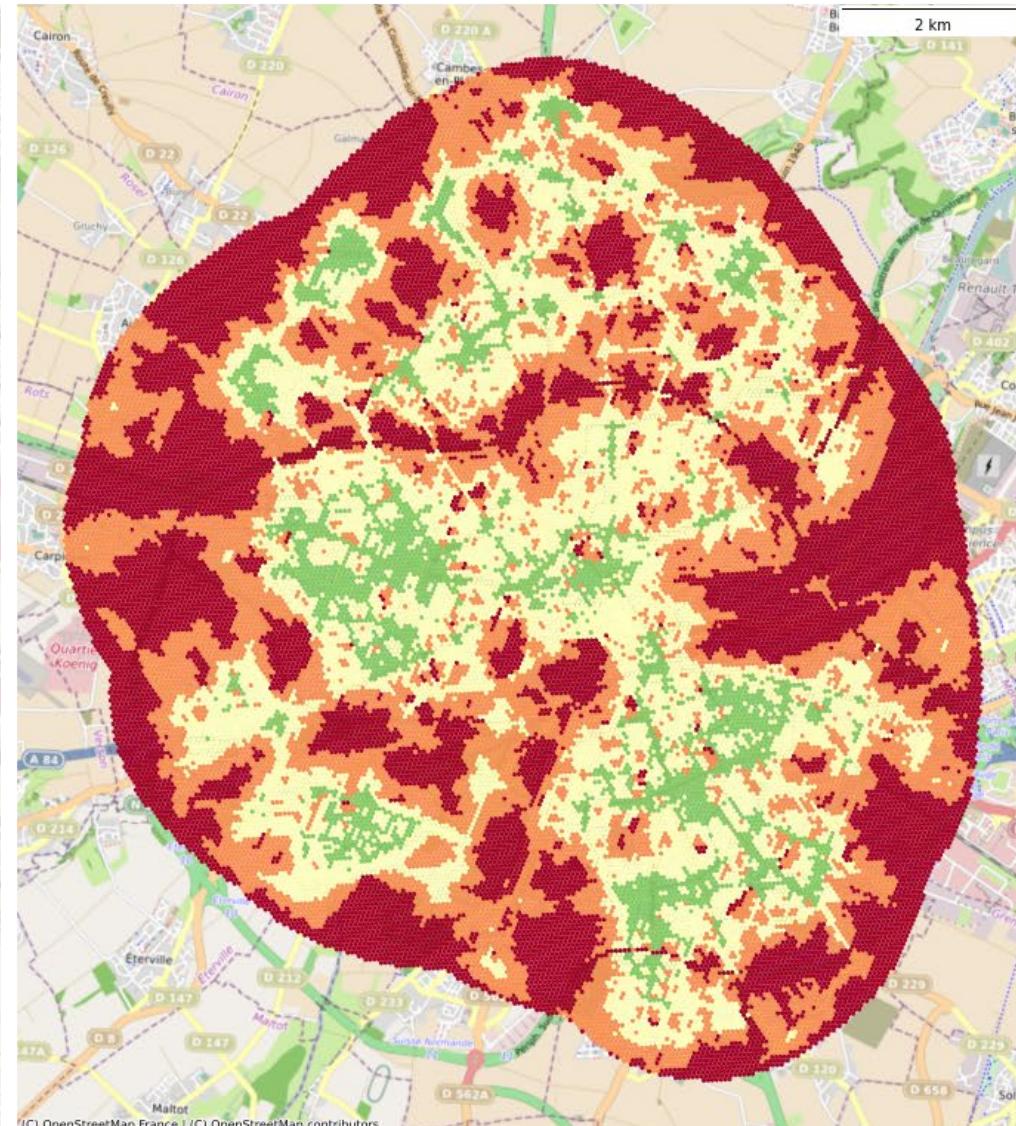


# Results

# Access score adults

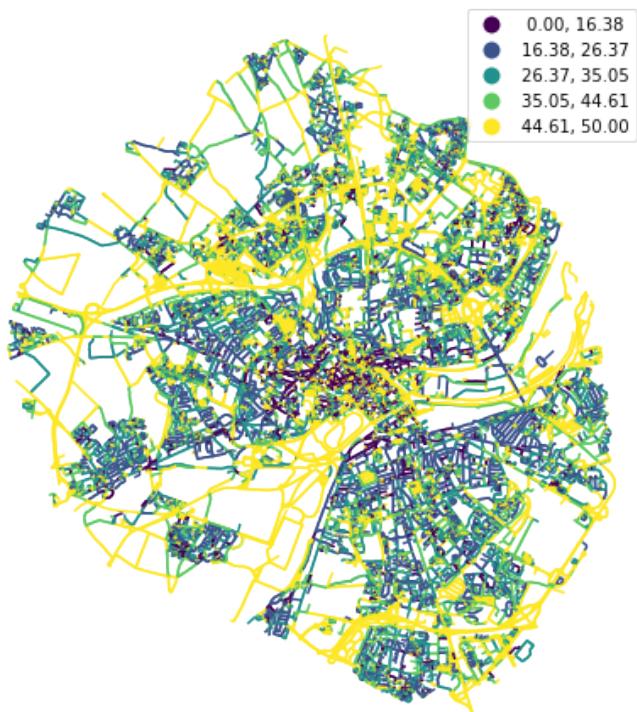


# Access score seniors

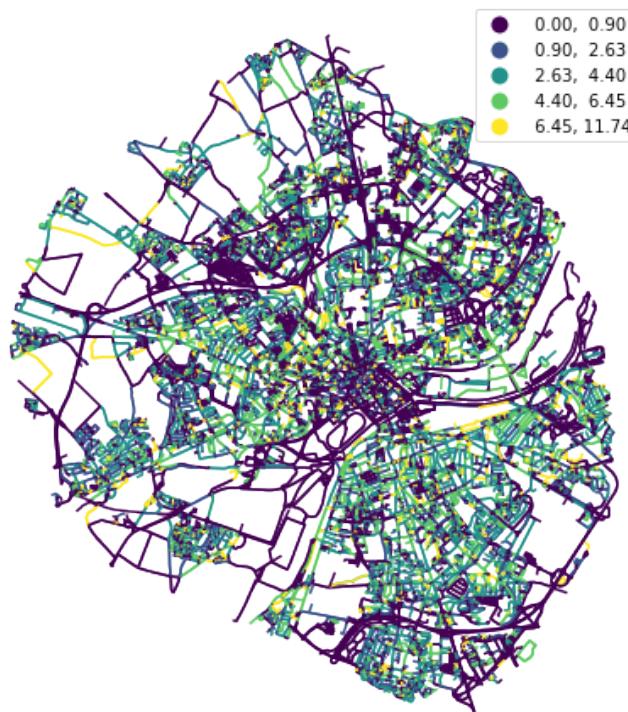


- Very low access
- Low access
- Medium access
- High access
- Very high access

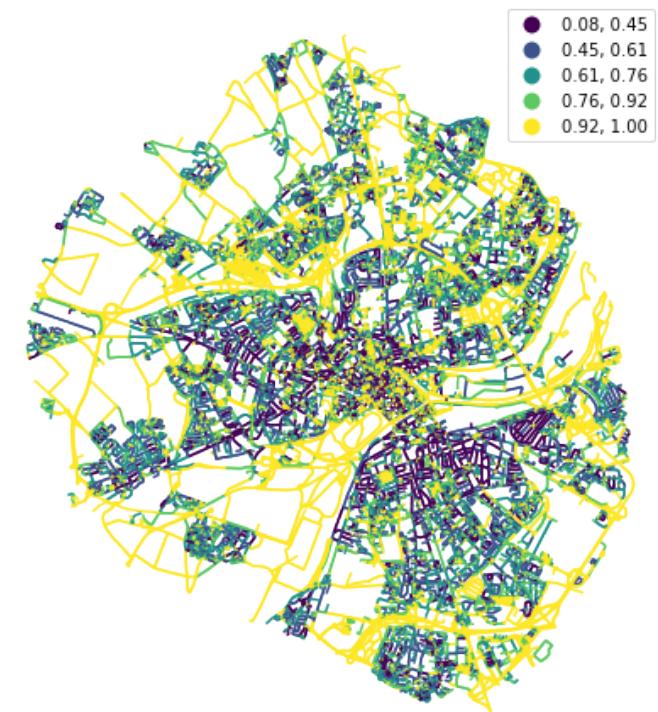
# Width



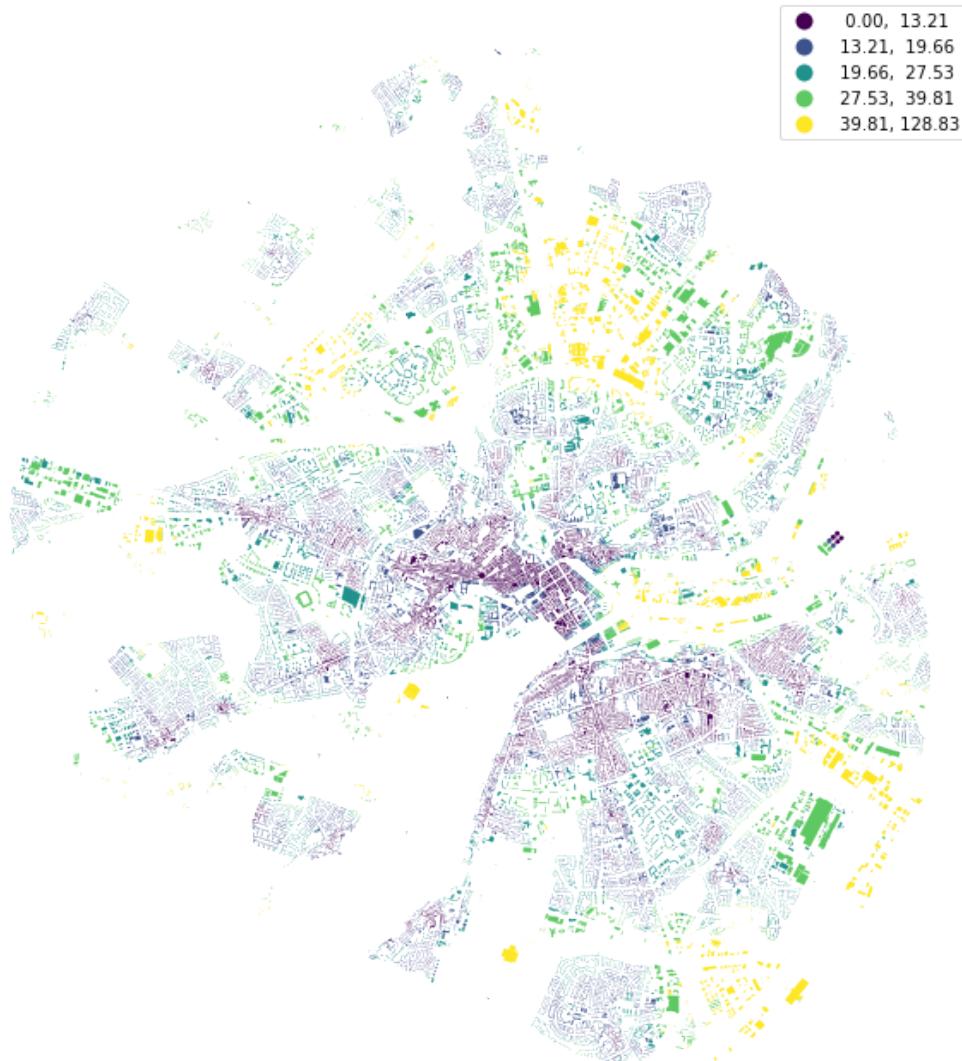
# Width deviation



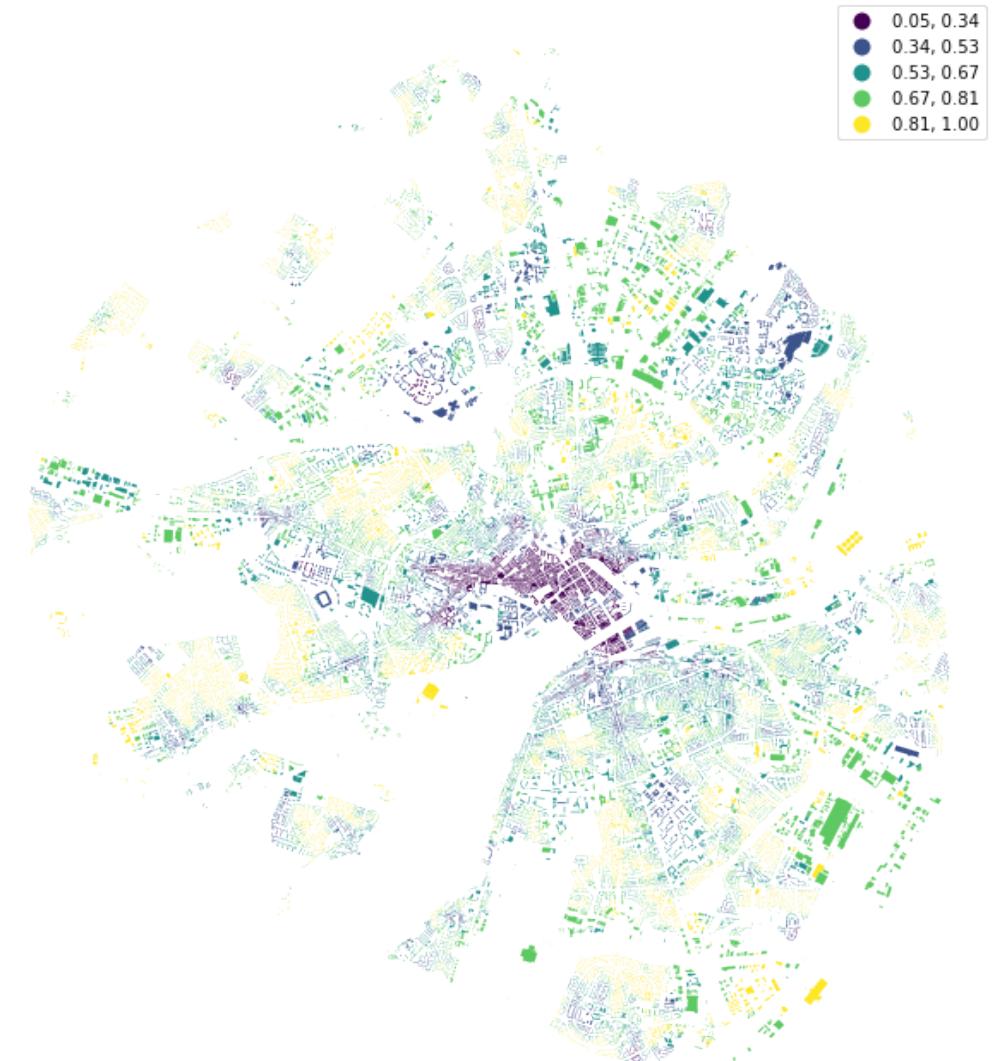
# Openness



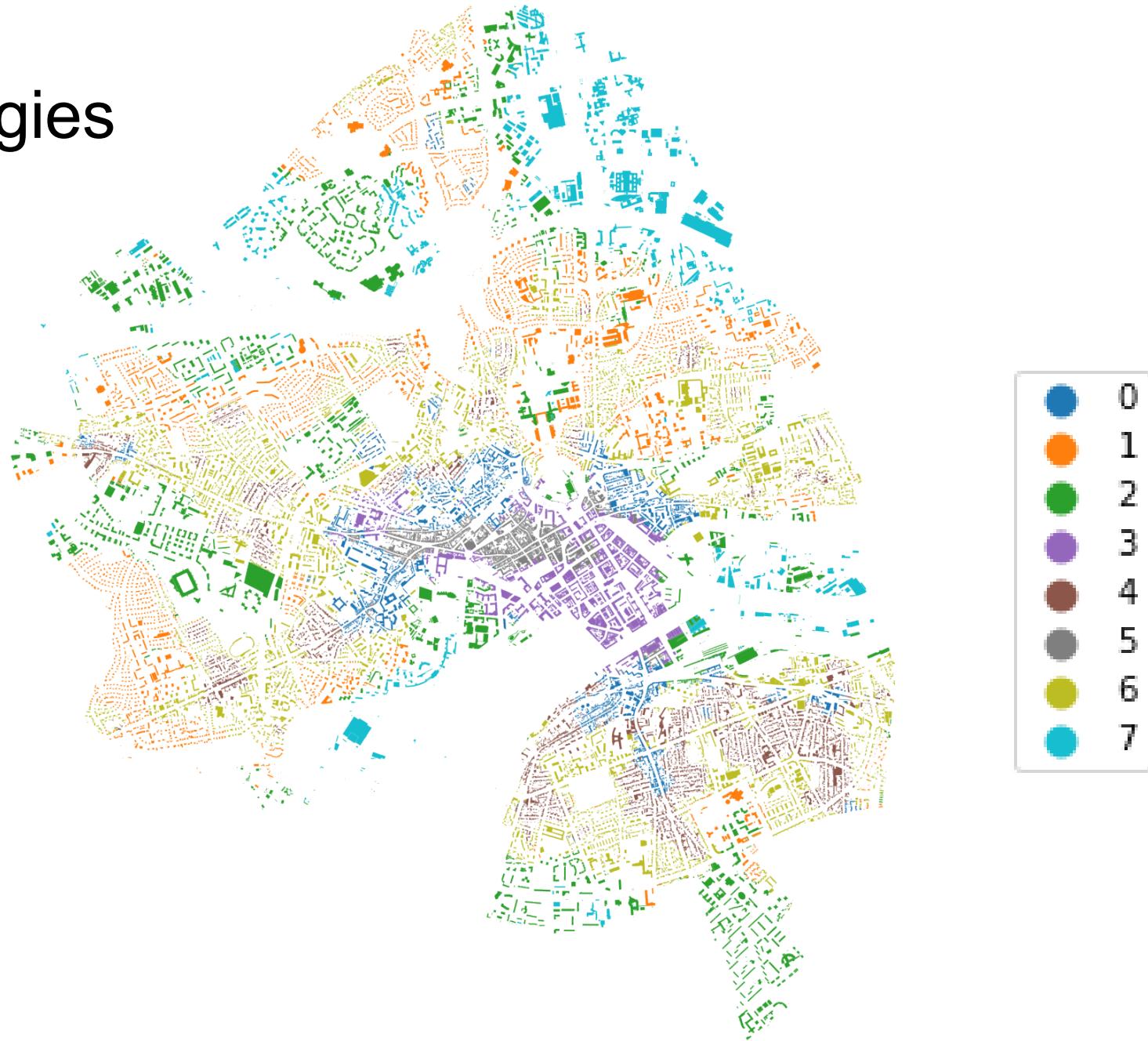
# Inter-building distance



# Adjacency



# Urban typologies



# Conclusions & future work

# Conclusions & future work

After a very preliminary exploration, results suggest there is a relationship between accessibility and certain morphometric characters

Hexagonal tessellation can be a useful tool to standardise analyses across multiple study areas.

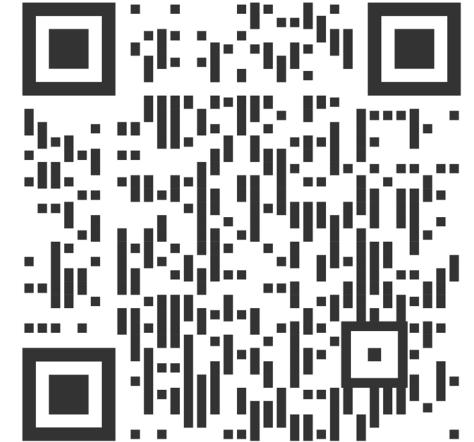
# Conclusions & future work

GWR to quantify relationships between accessibility and urban form

Incorporate amenities as destinations

Assign weights to amenities based on demographic profiles

Socioeconomic + land use variables



# Thank you

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**Clara Peiret-García**

CDT in Geospatial Systems  
Newcastle University, UK

c.peiret-garcia2@ncl.ac.uk



@cpeiretgarcia



cpeiret

