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GEOSPATIAL
SYSTEMS
CENTRE FOR DOCTORAL TRAINING

Cities in shape:

Assessing the impact of urban form on accessibility

Clara Peiret-García

Prof. Rachel Franklin

Dr. Alistair Ford

Dr. Joe Matthews

Introduction

Research question

Methods

Results

Conclusions

Accessibility & urban form

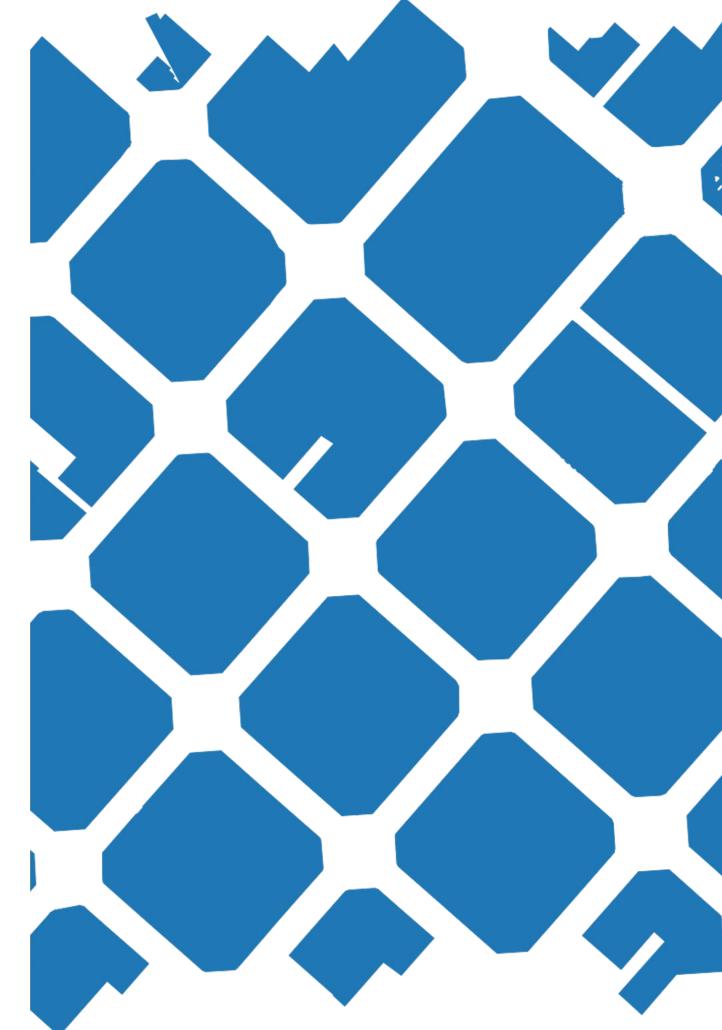
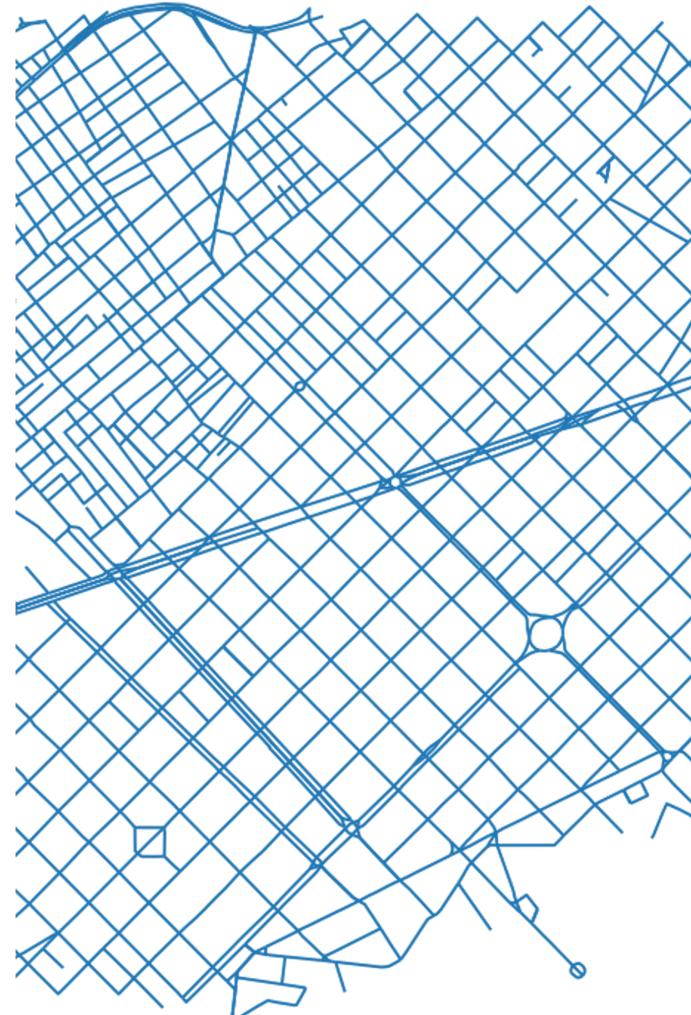
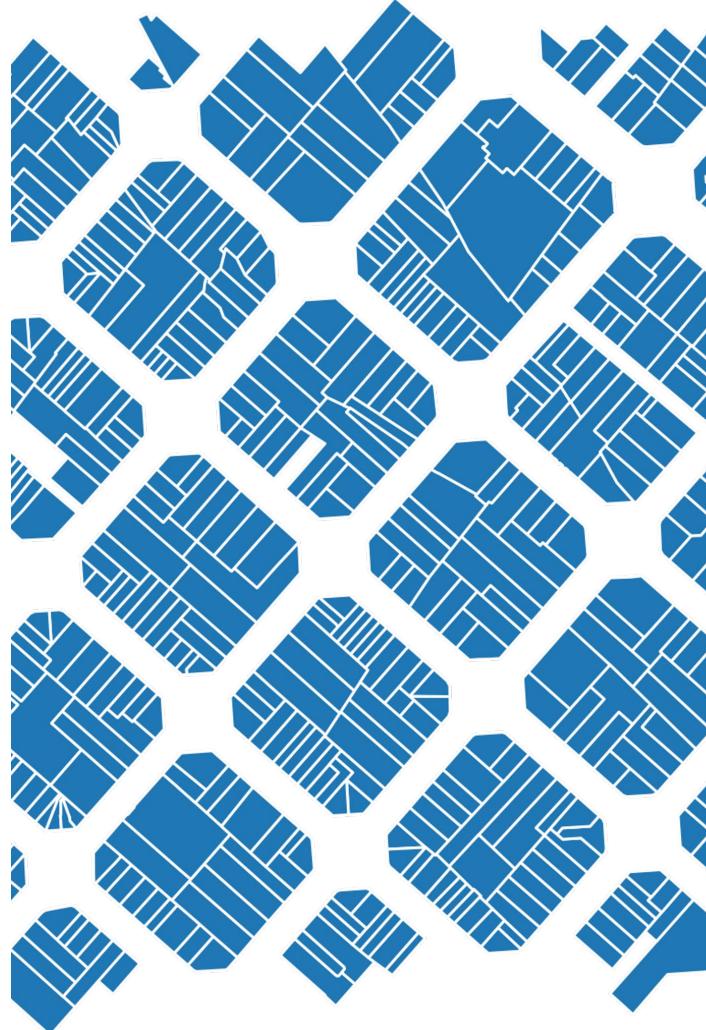
Accessibility

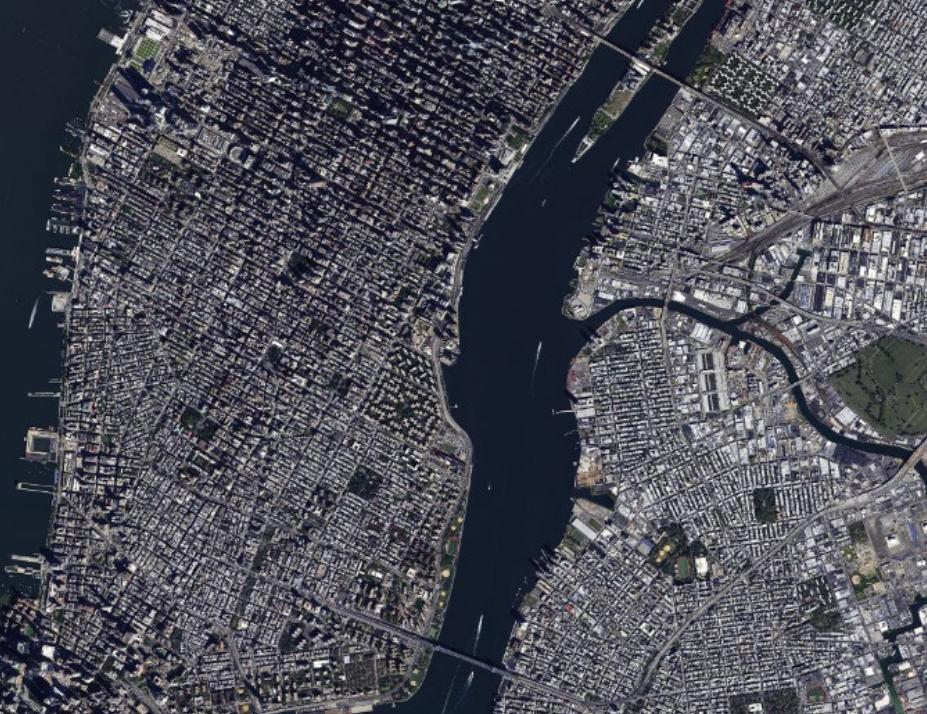
“**Accessibility** is the ease with which a destination can be reached from an origin”

(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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Lawrence D. Frank, James F. Sallis, Terry L. Conway, James E. Chapman, Brian E. Saelens & William Bachman

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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 ^a  , Thomas F. Golob ^b

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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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Future of cities

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Levelling up

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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

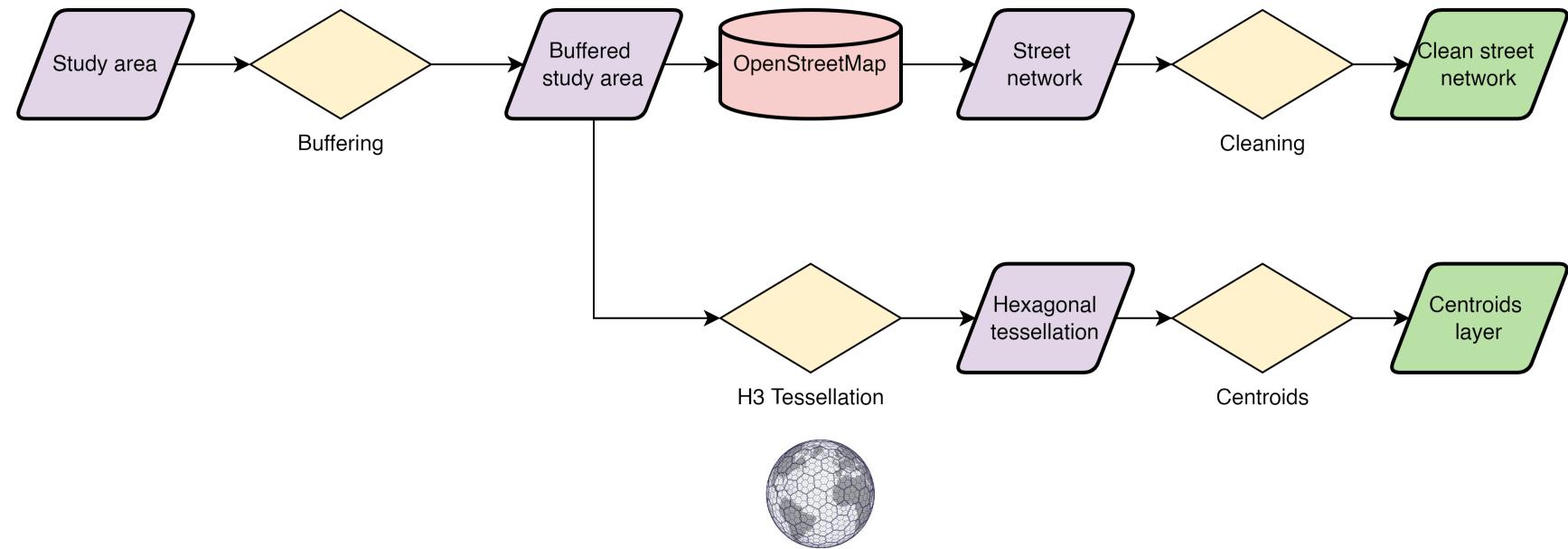


Morphometric analysis

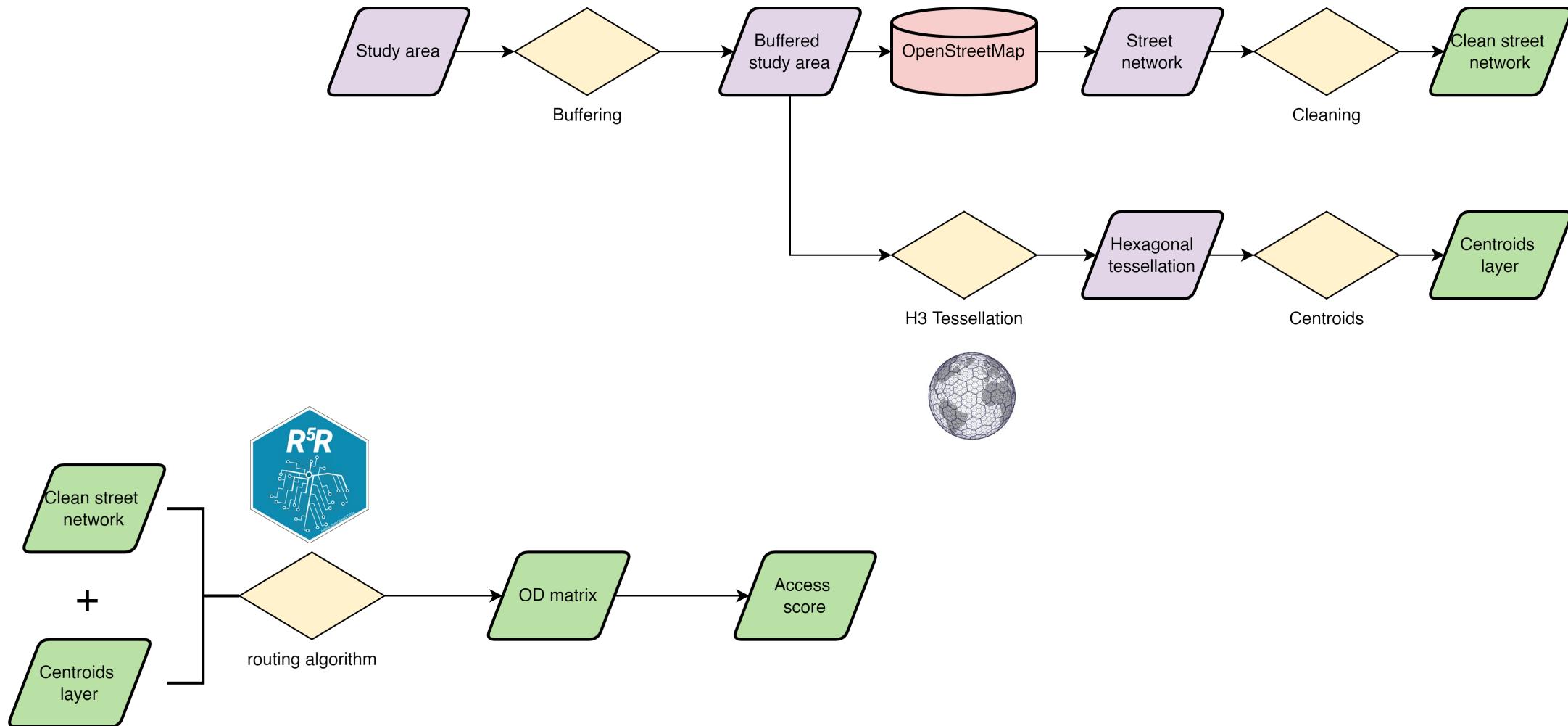


Socioeconomic analysis

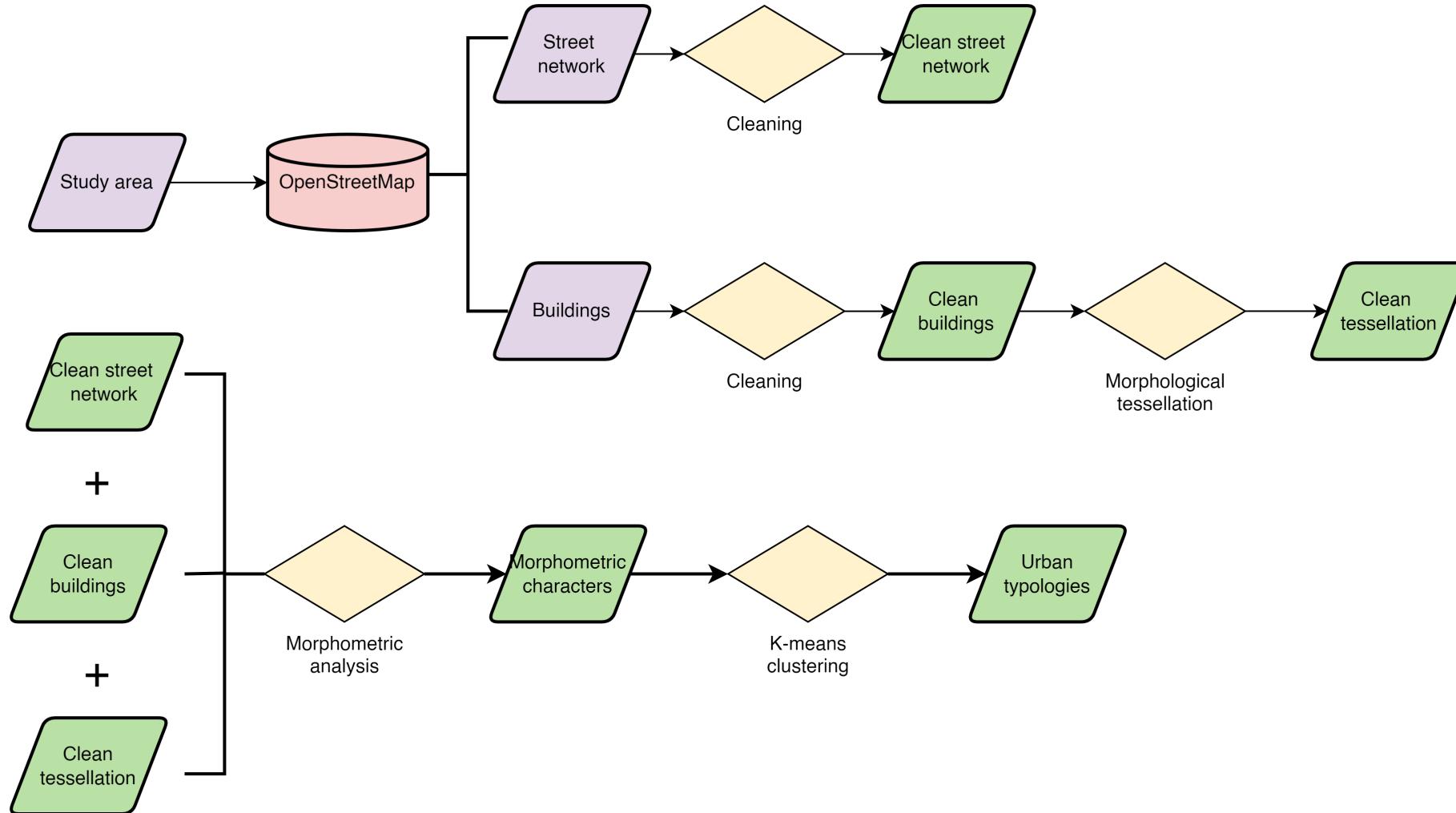
Methods – Accessibility score

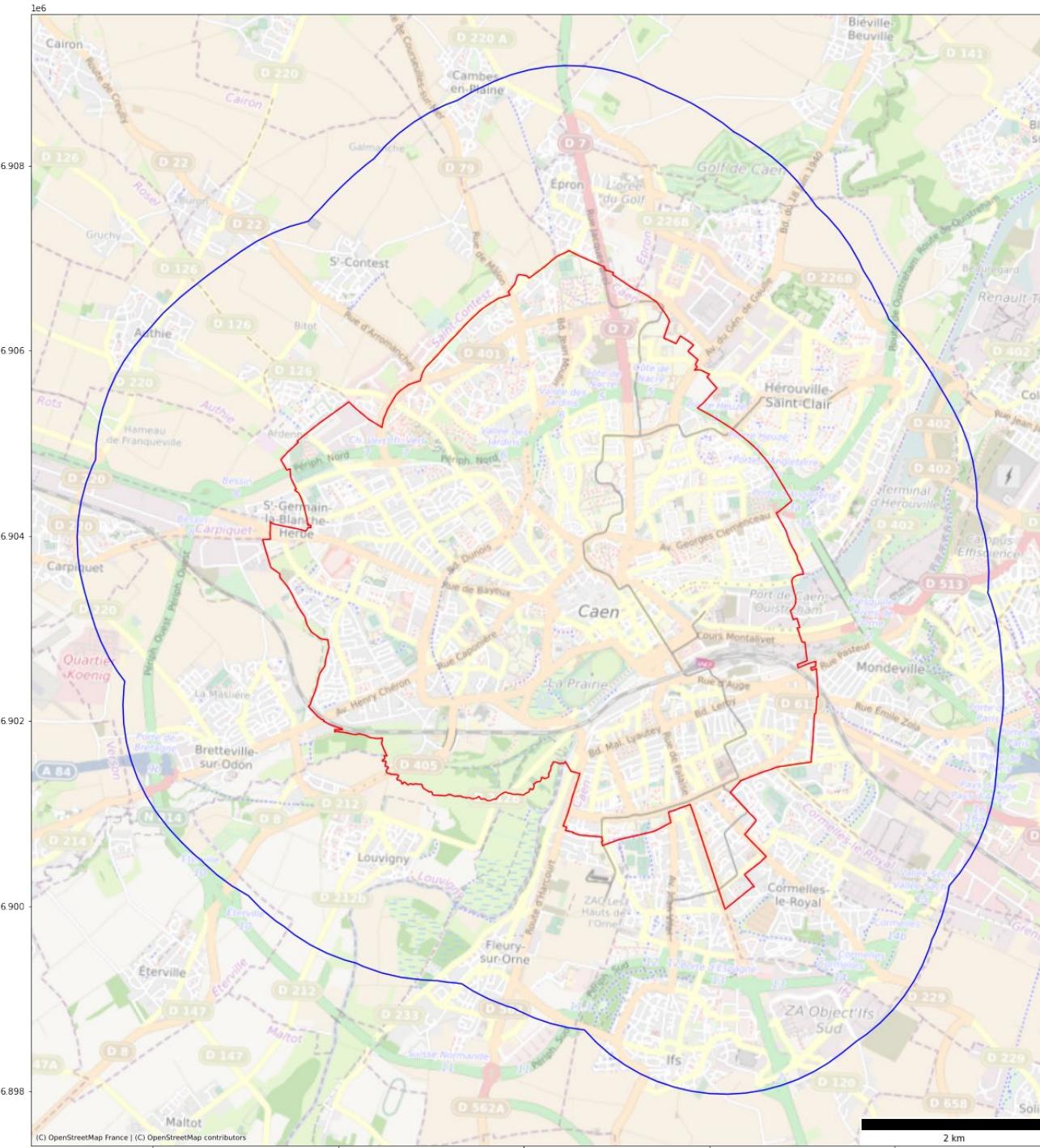


Methods – Accessibility score



Methods – Morphometric analysis



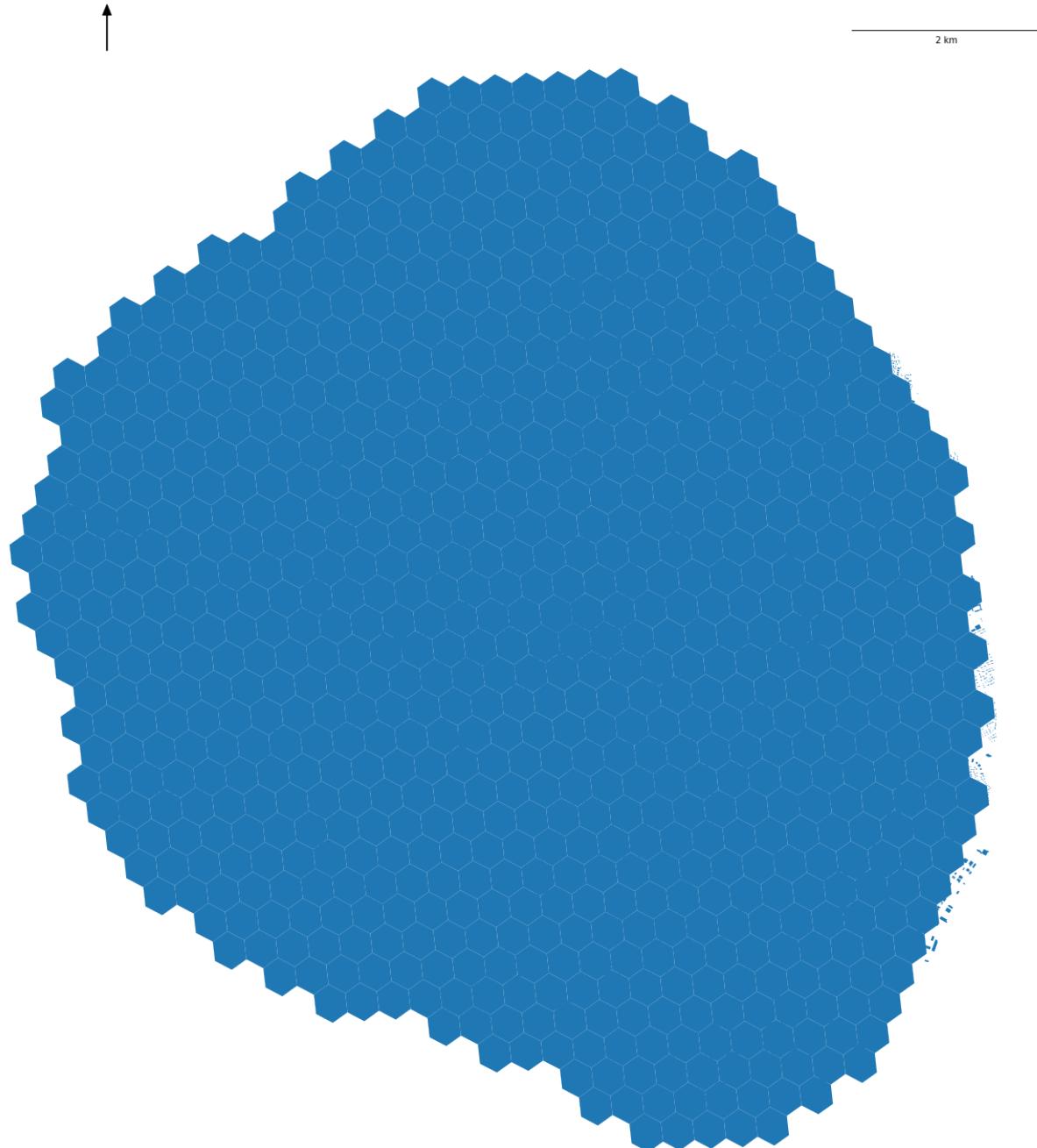




2 km

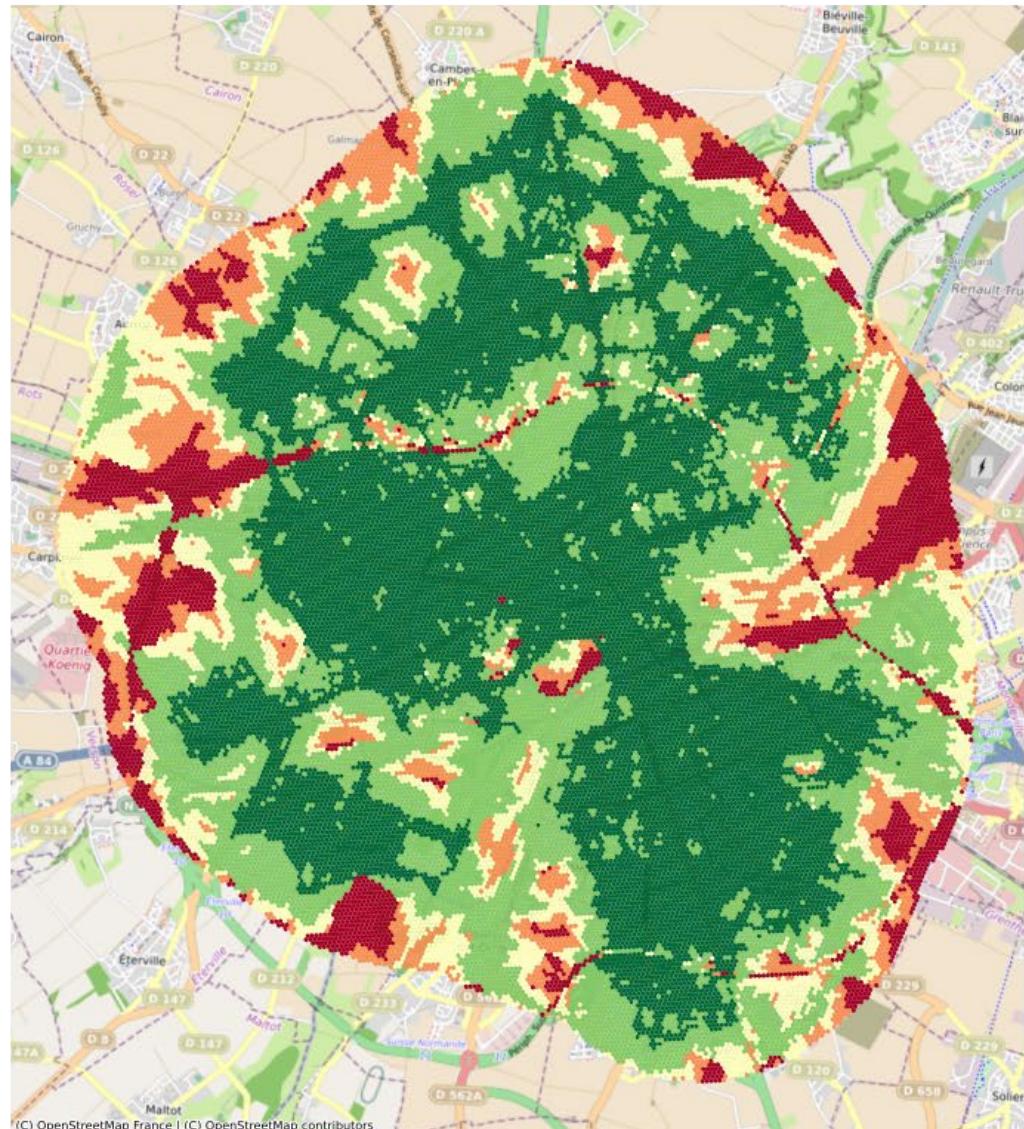




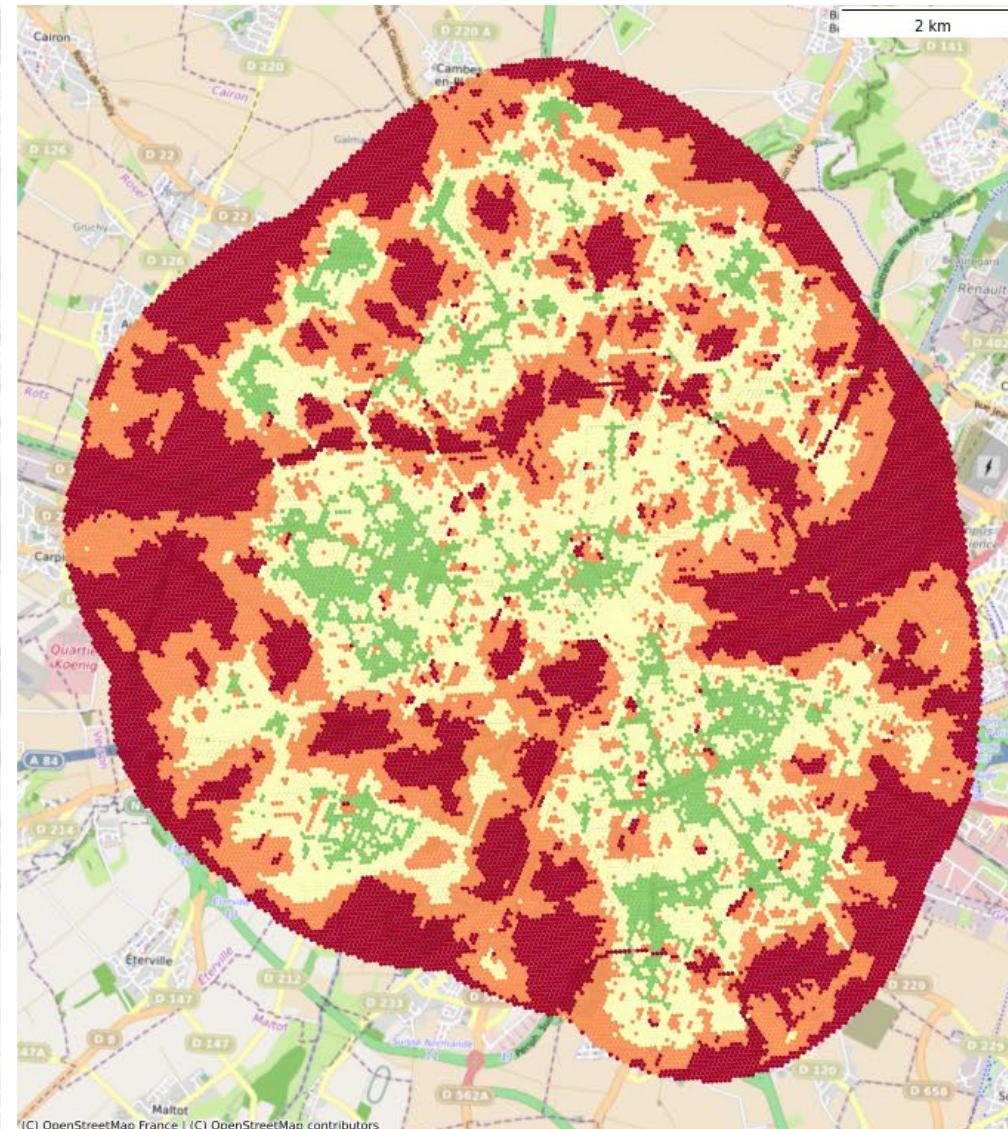


Results

Access score adults



Access score seniors



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

Width



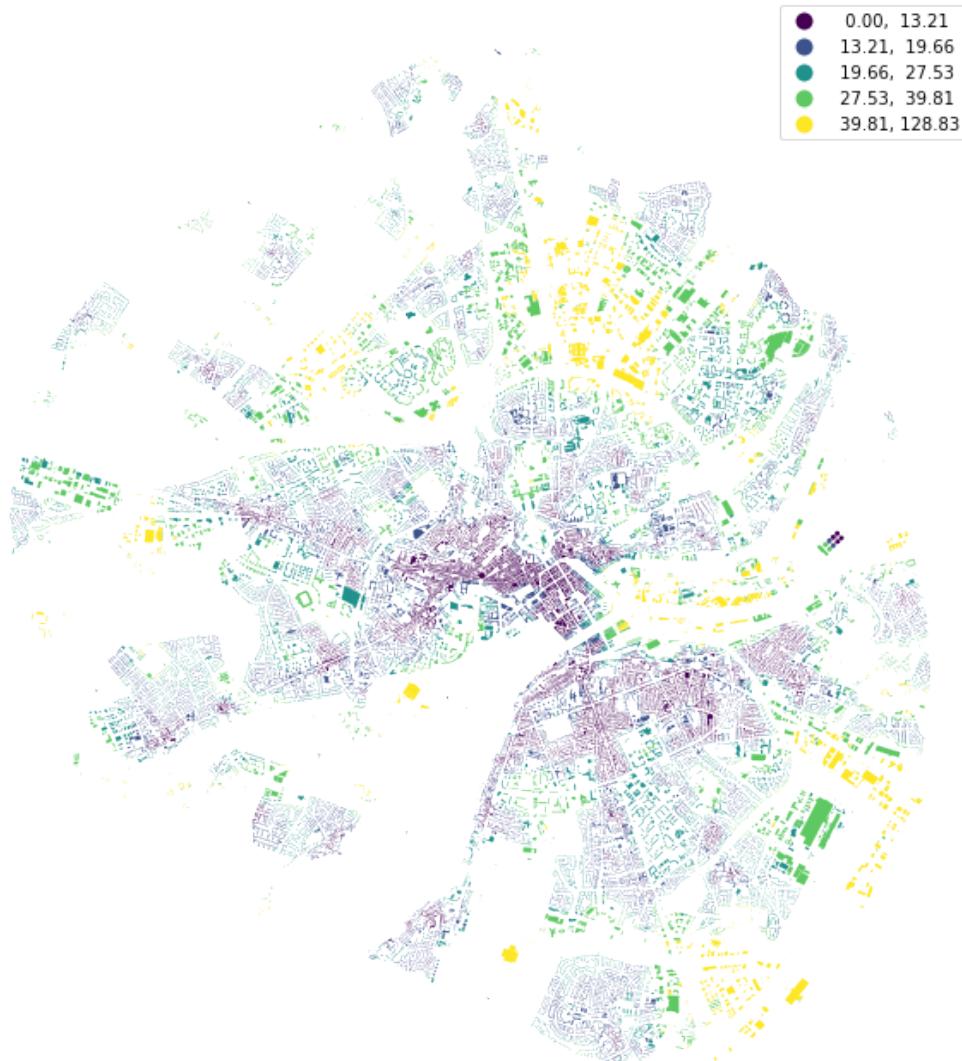
Width deviation



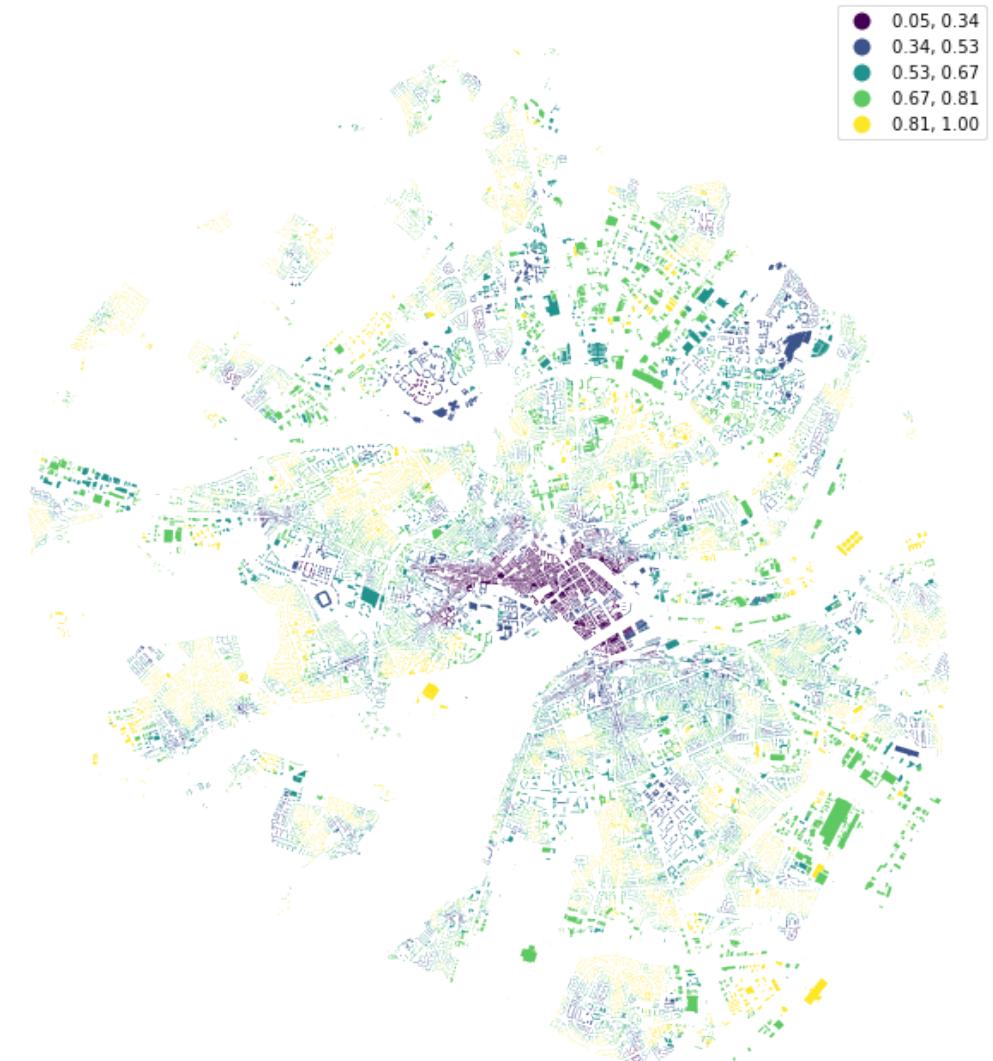
Openness



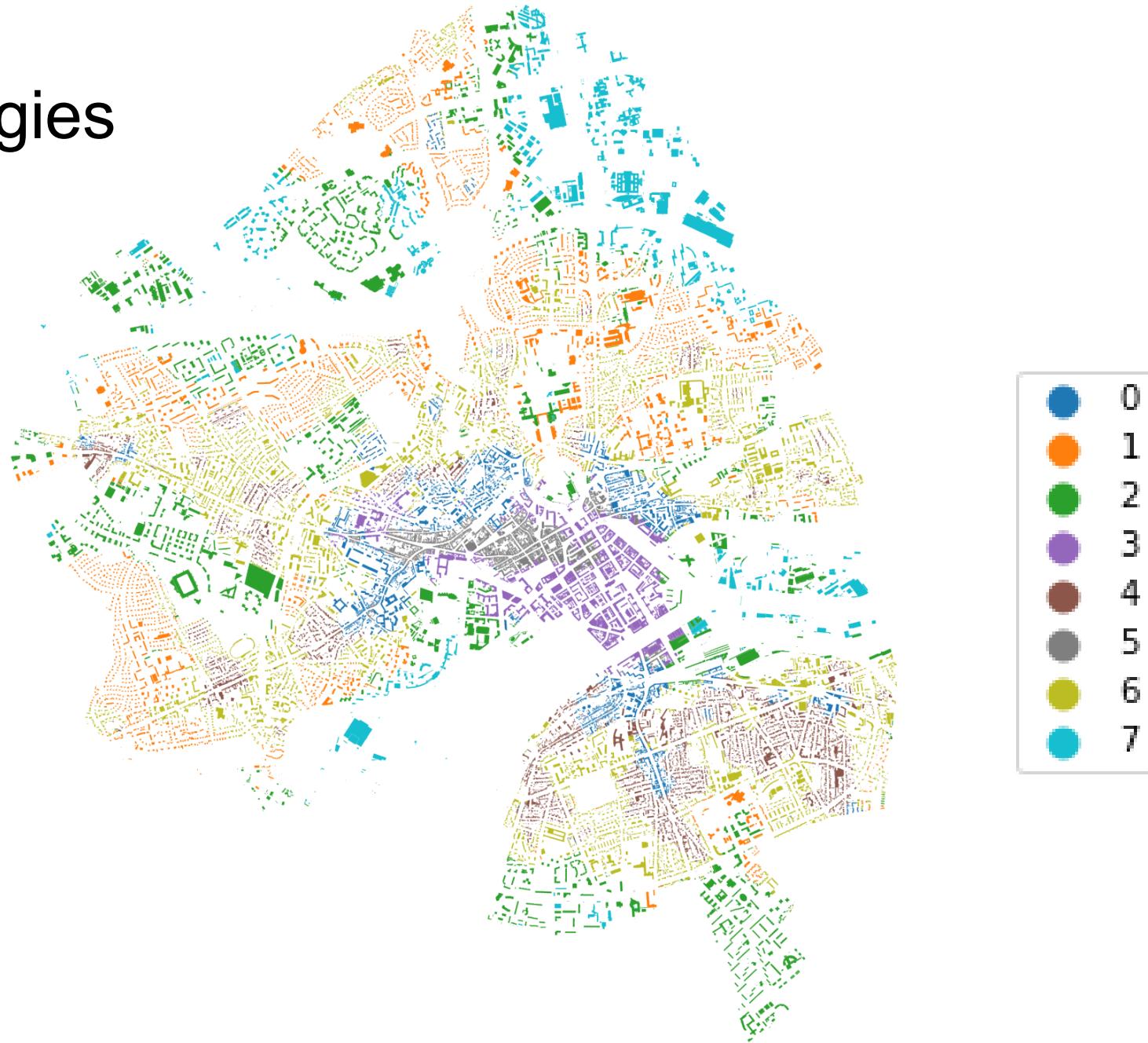
Inter-building distance



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.

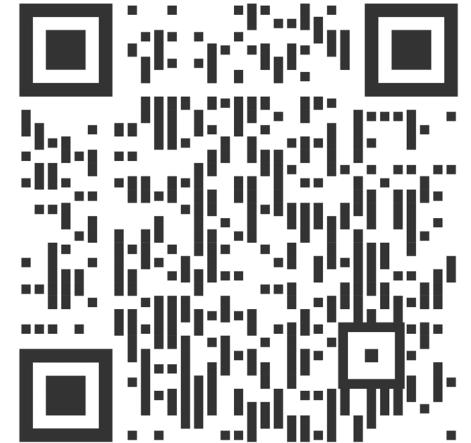
Conclusions & future work

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

Clara Peiret-García

CDT in Geospatial Systems
Newcastle University, UK

c.peiret-garcia2@ncl.ac.uk



@cpeiretgarcia



cpeiret

