

# *Classifying urban form at a national scale*

*The case of Great Britain*

Martin Fleischmann

[@martinfleis]

Dani Arribas-Bel

[@darribas]



**The  
Alan Turing  
Institute**



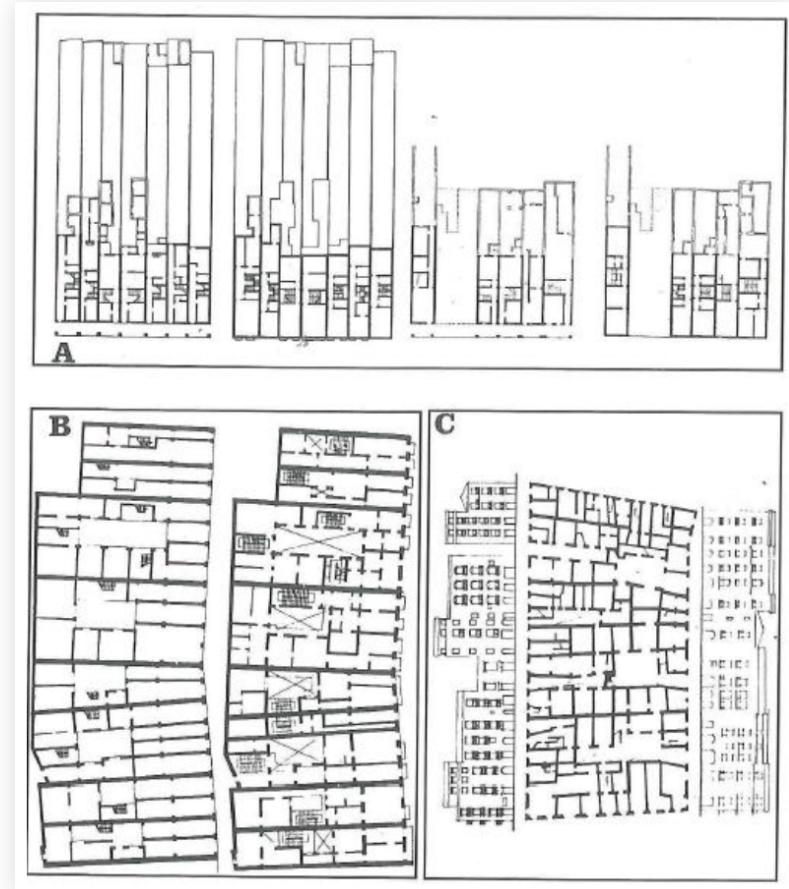
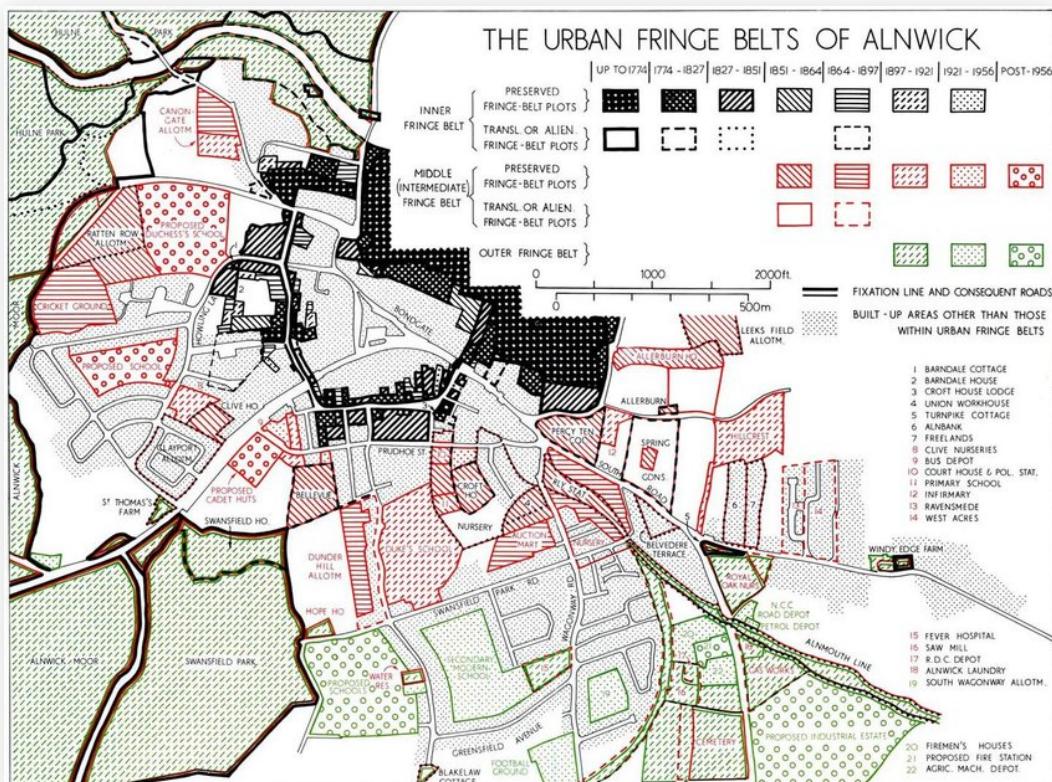
Geographic  
Data Science  
Lab

# Scaling morphological studies

... can be daunting

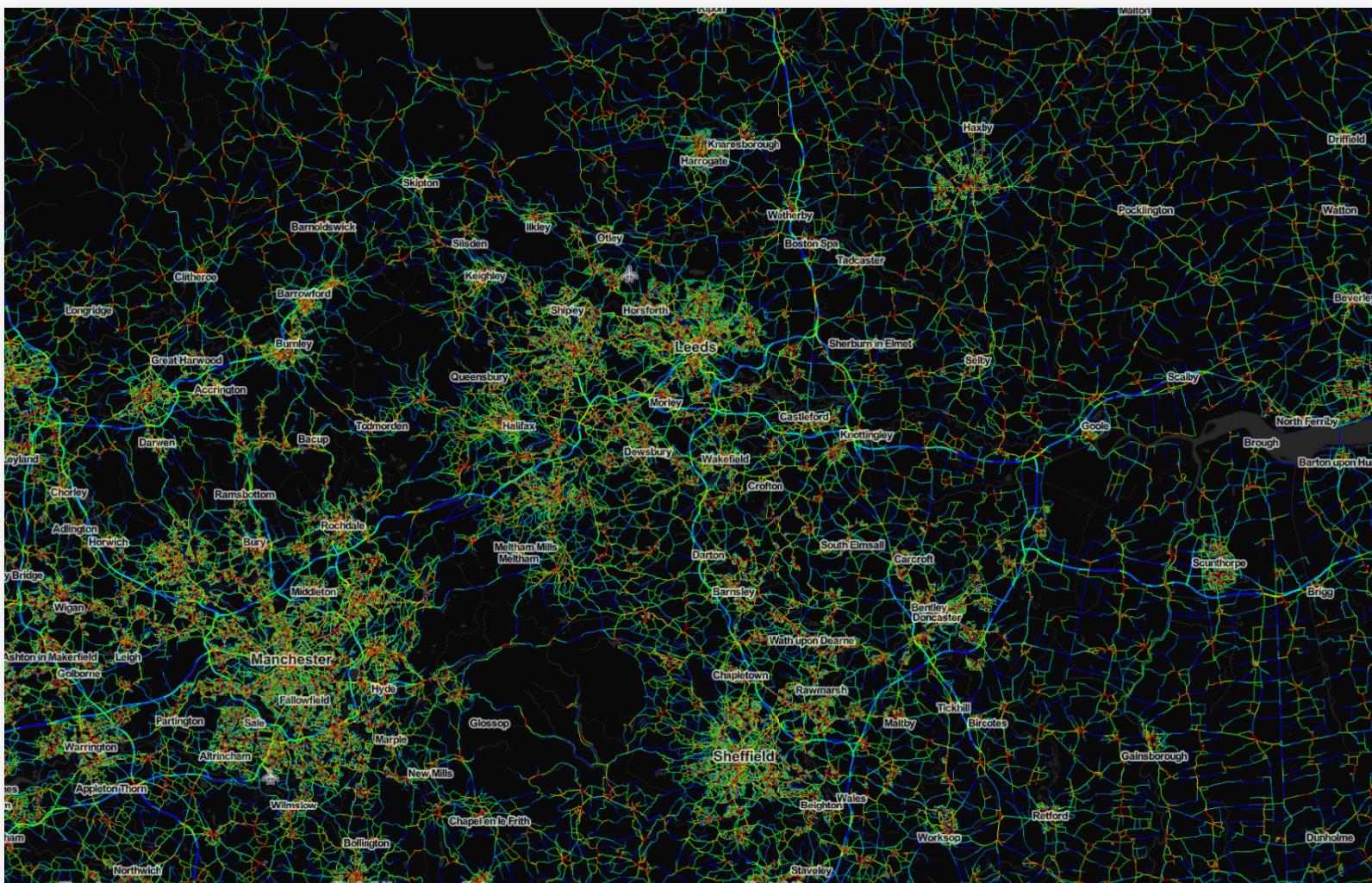
# Traditional schools

... (almost) cannot scale



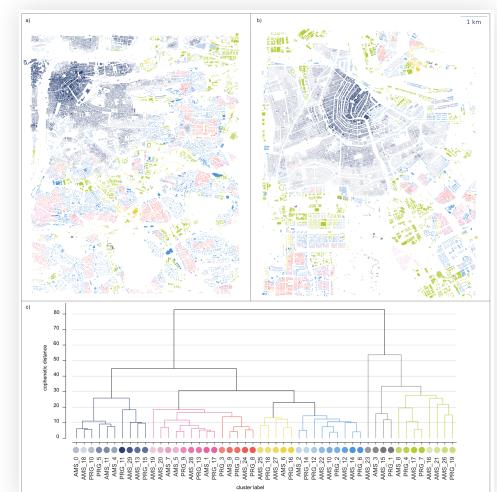
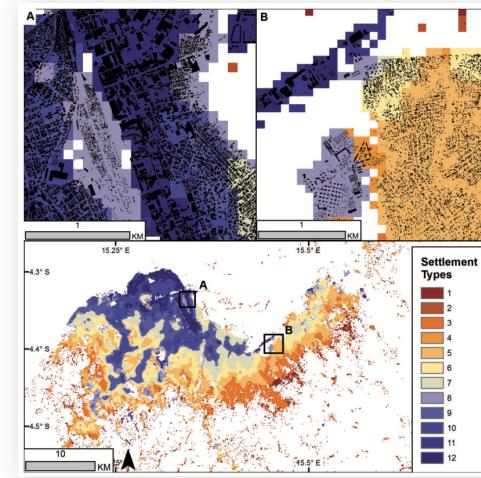
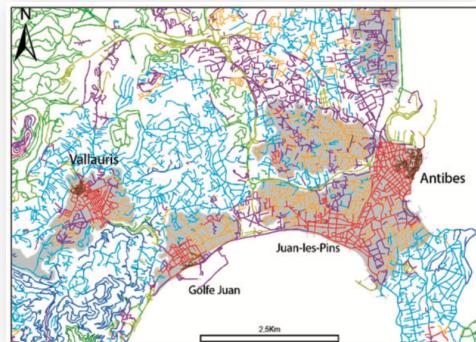
# Space Syntax

... can scale but offers limited insights



# Morphometric approaches

... are trying to find a way

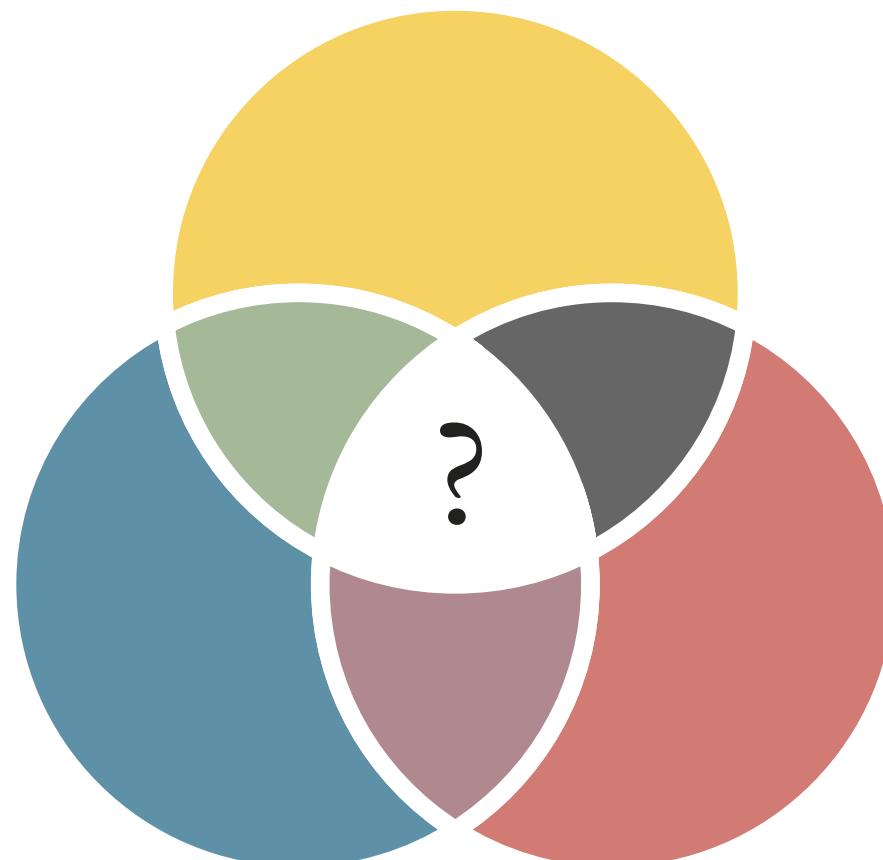


# Opportunities

detailed

scalable

consistent



# Spatial Signatures

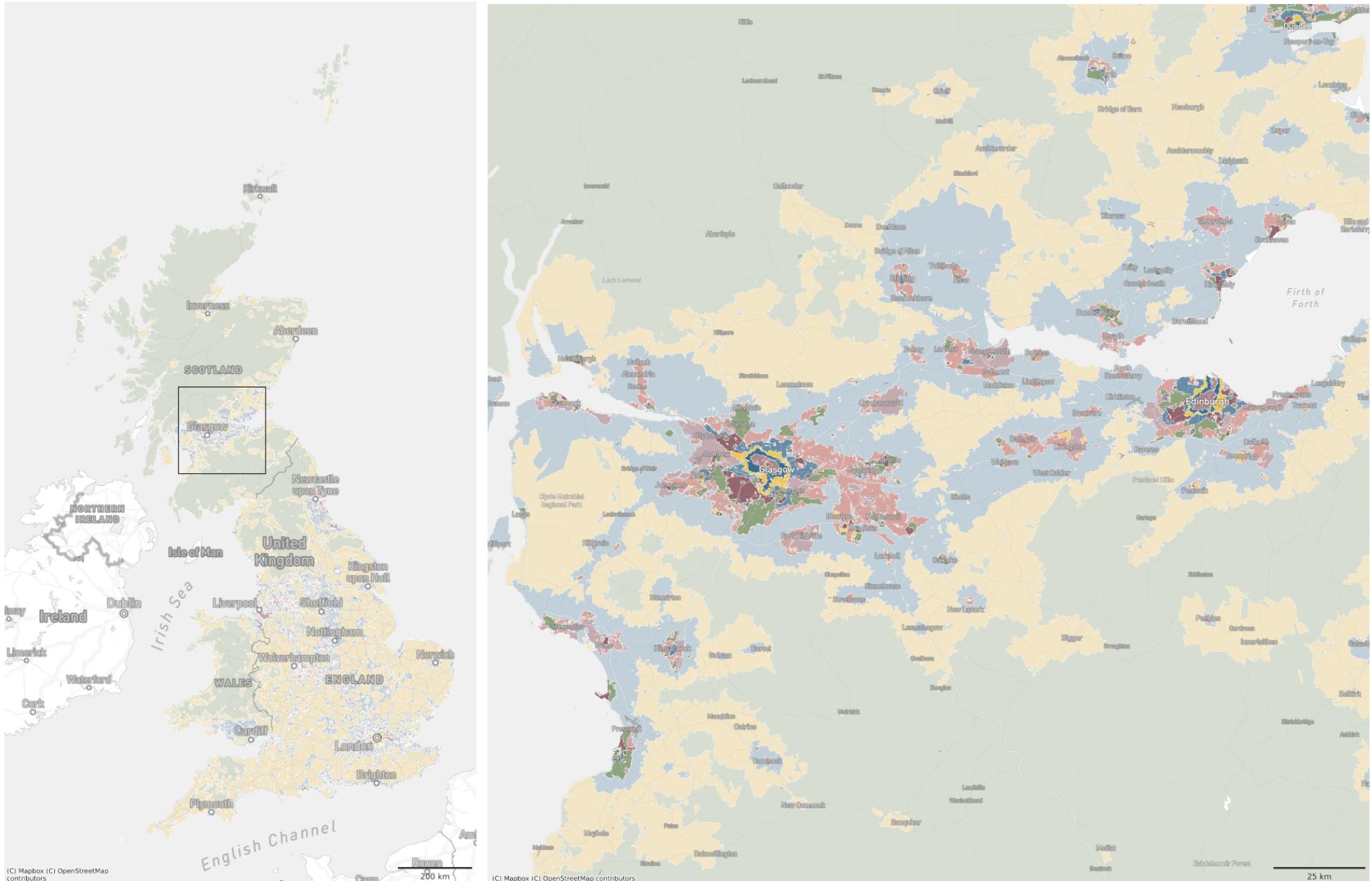
*A characterisation of space based on form and function  
designed to understand urban environments*

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# Spatial Signatures



# Form

One of the two components of Spatial Signatures

Qualitative, quant. case studies, morphometrics,  
remotely sensed

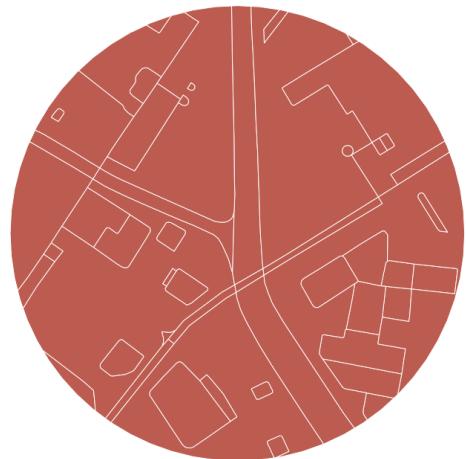
# Ordnance Survey Open Data

building footprints + street network  
... can be a bit limited.



# Spatial Unit

# Enclosed tessellation



**How can we describe it...  
... numerically?**

# Urban morphometrics

“quantitative analysis of urban form”

All about measuring.

# Measuring

dimension

intensity

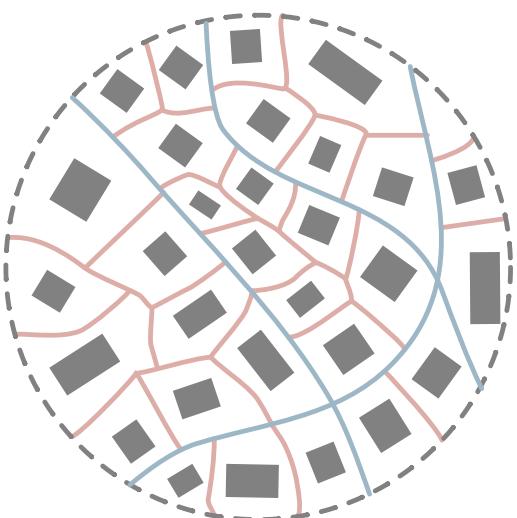
shape

connectivity

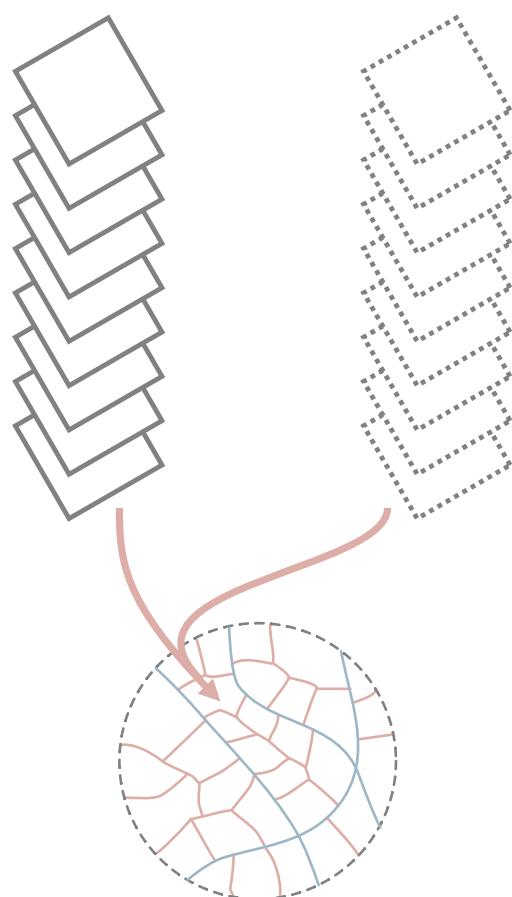
spatial  
distribution

diversity

# Enclosed Tessellation



# Embedding *measurements*

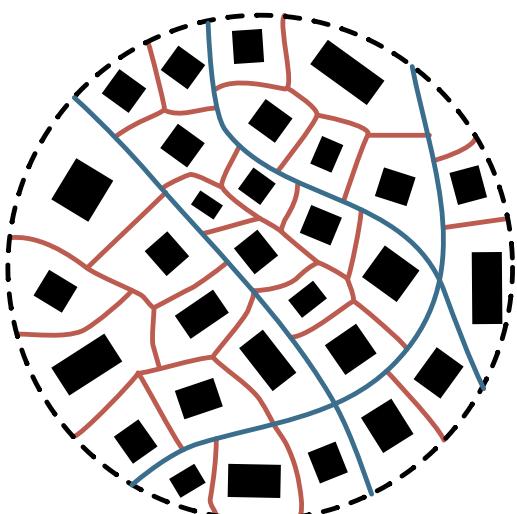


# Clustering

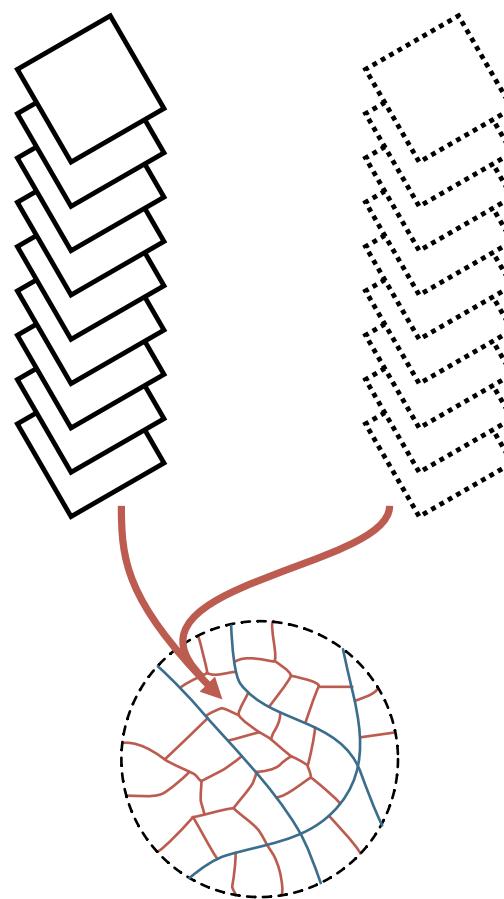
# Context

Every piece of information is considered within its  
spatial context

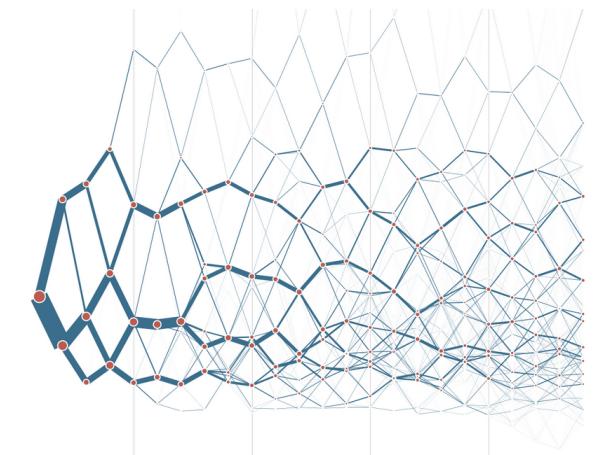
# Enclosed Tessellation



# Embedding *measurements*



# Clustering



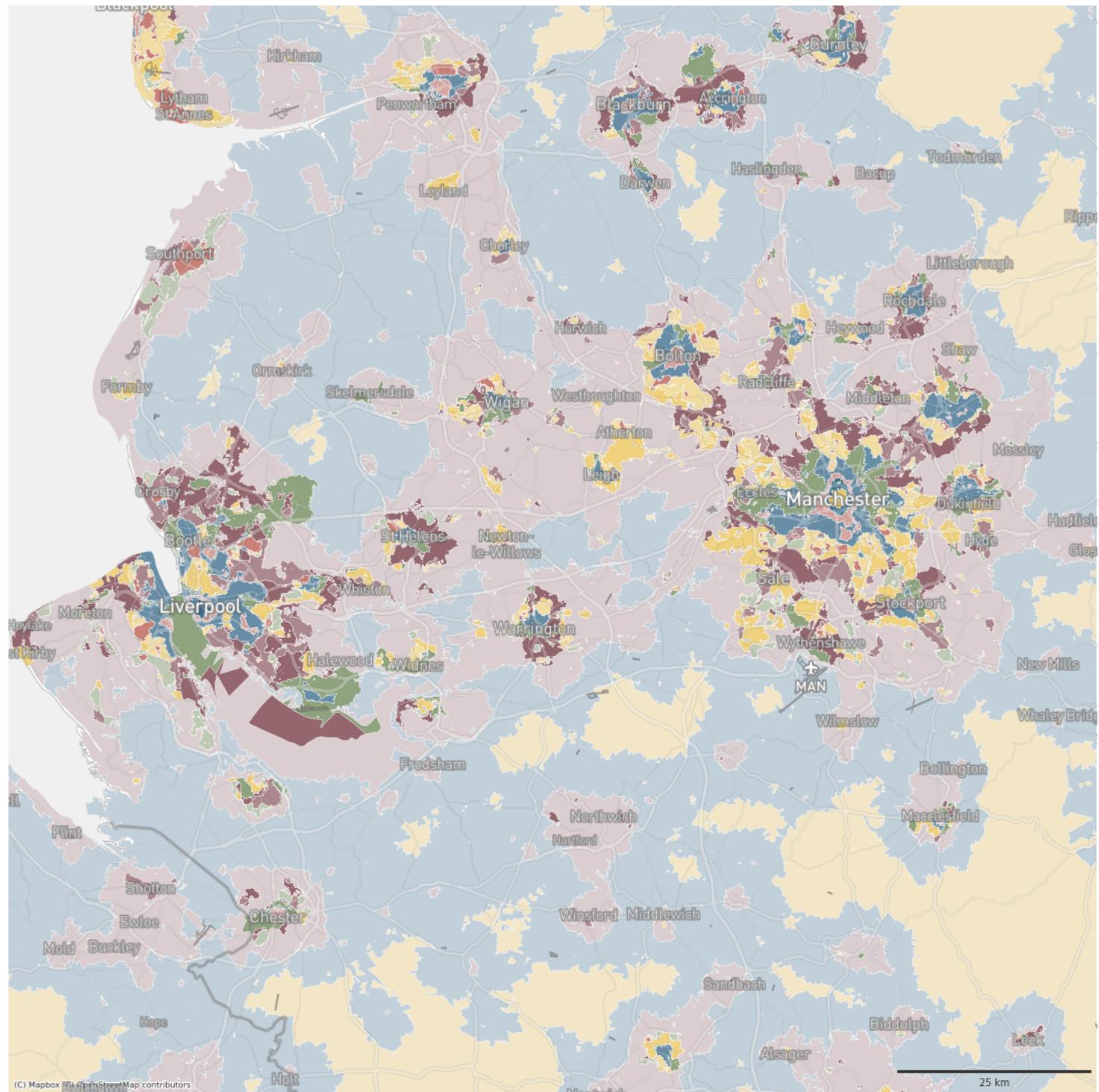
# Results

# 19 classes in 3 main groups

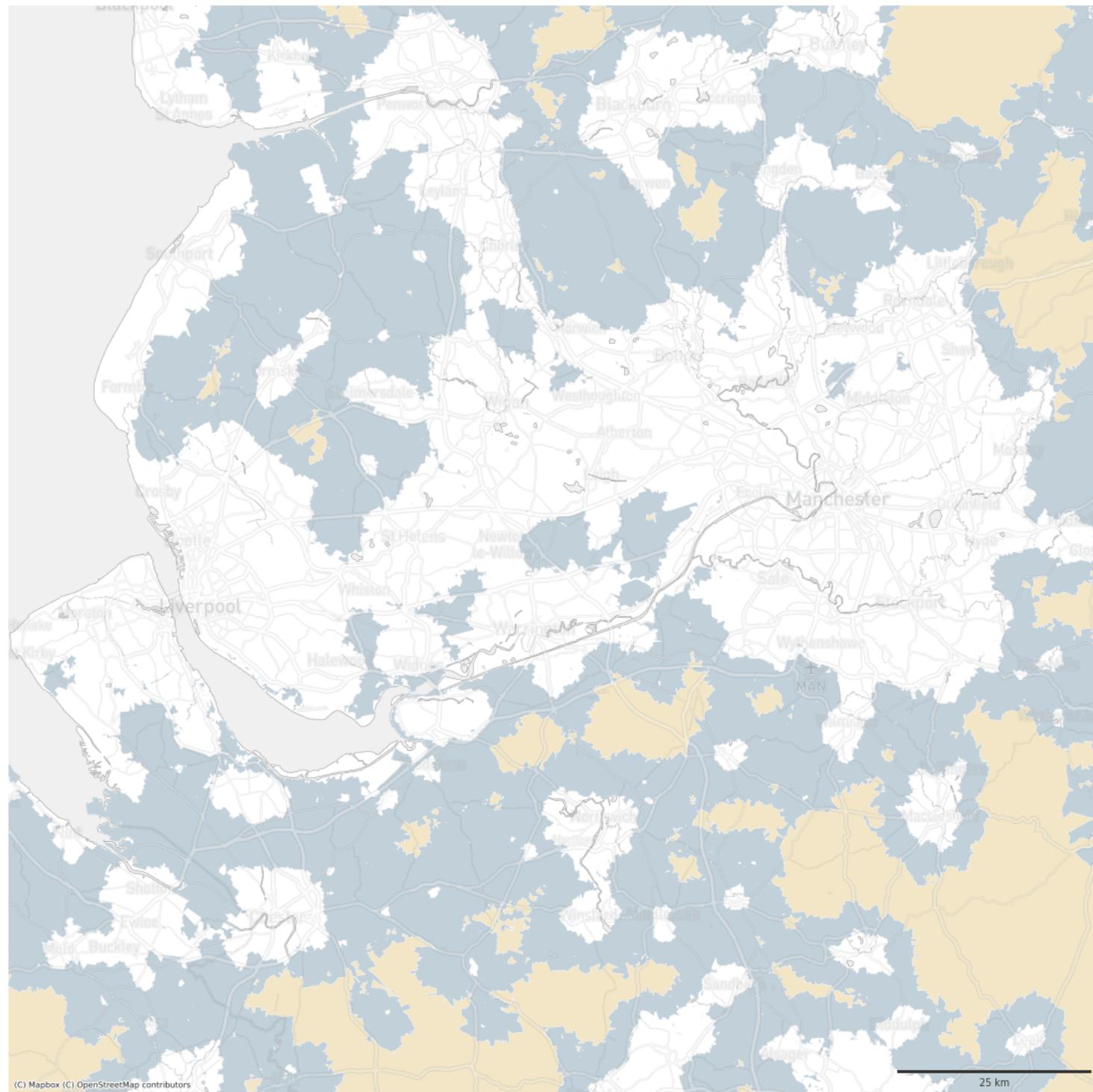
countryside

low density  
development

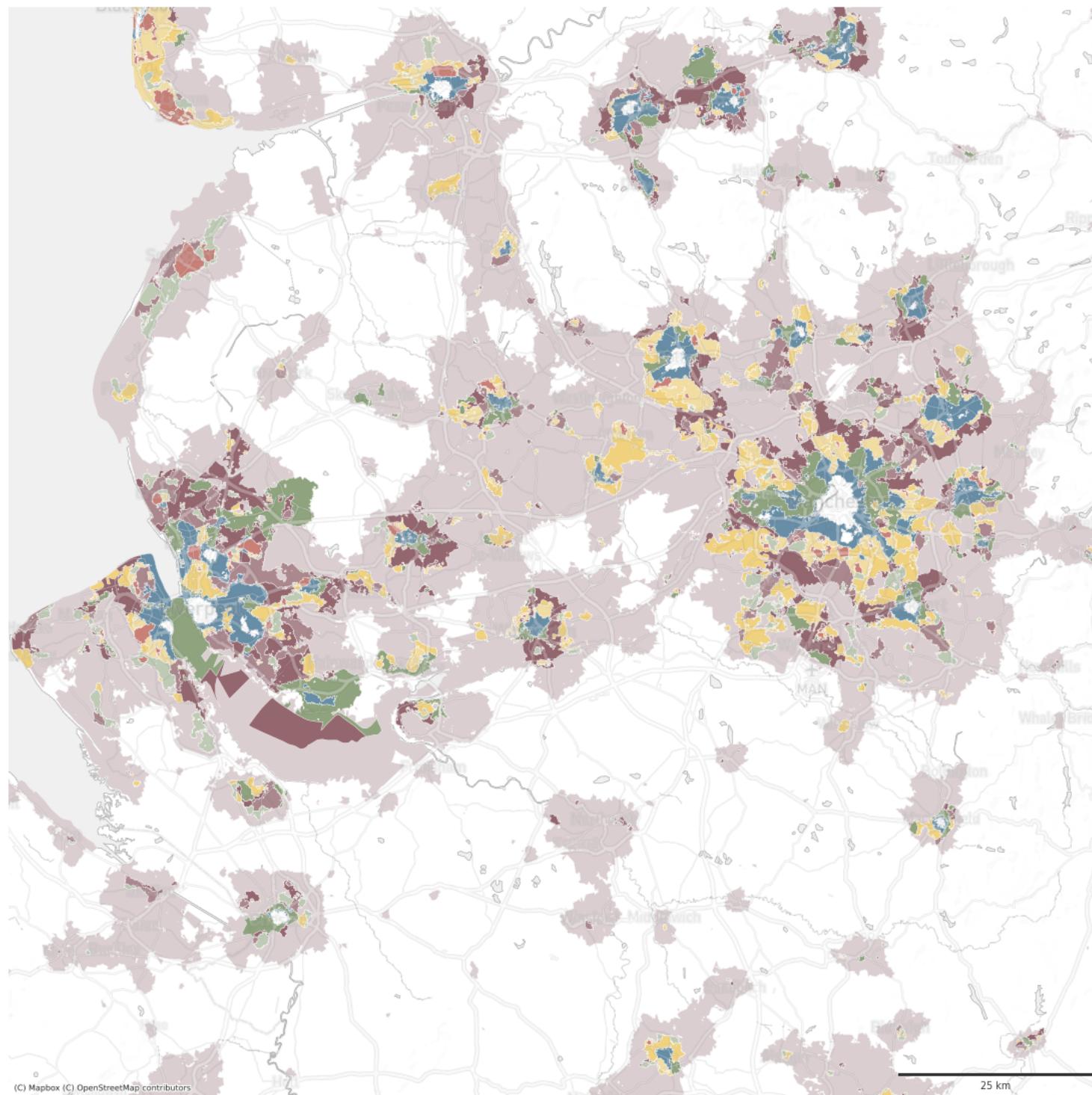
dense city  
centres



Liverpool - Manchester

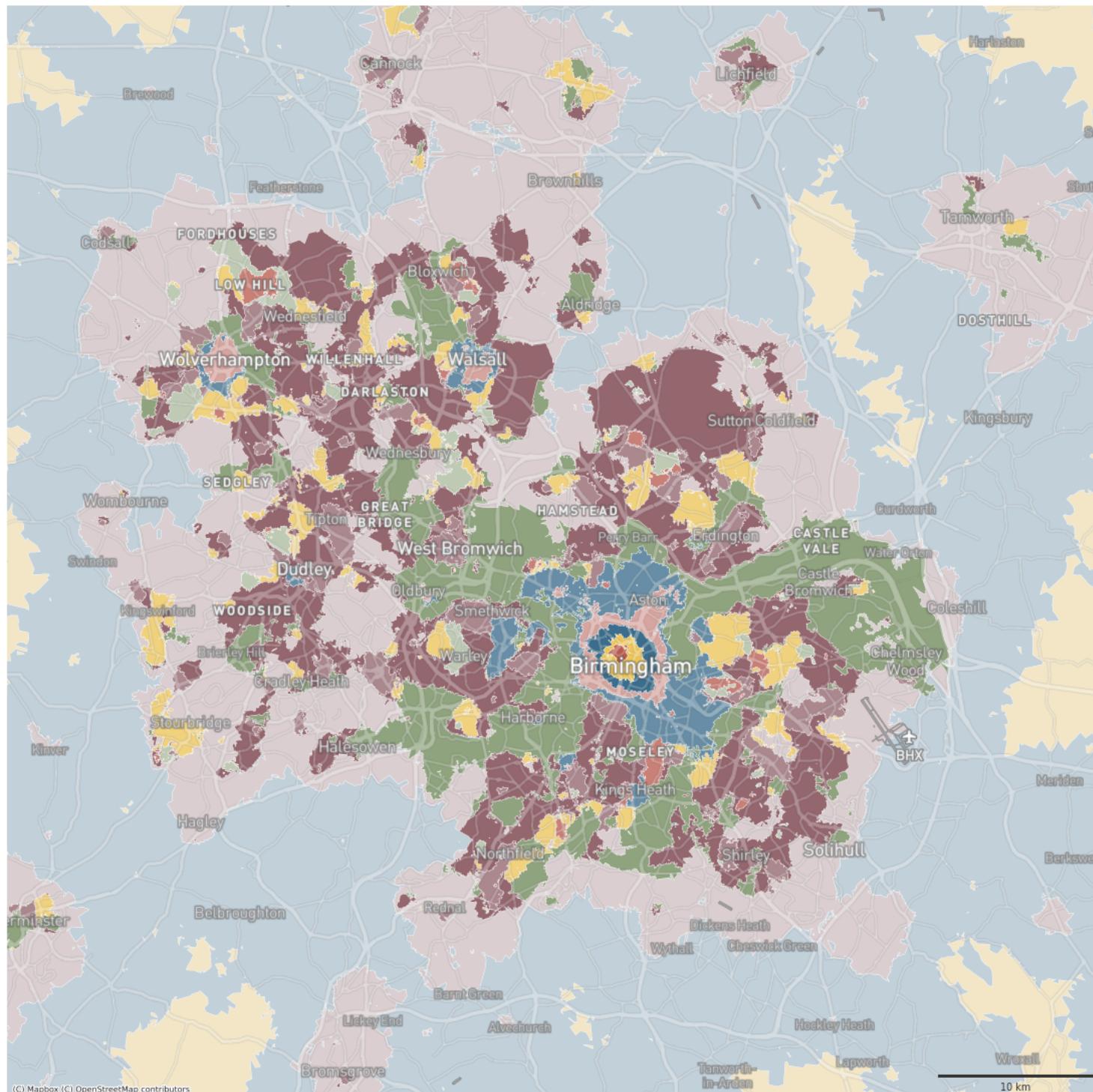


# Liverpool - Manchester



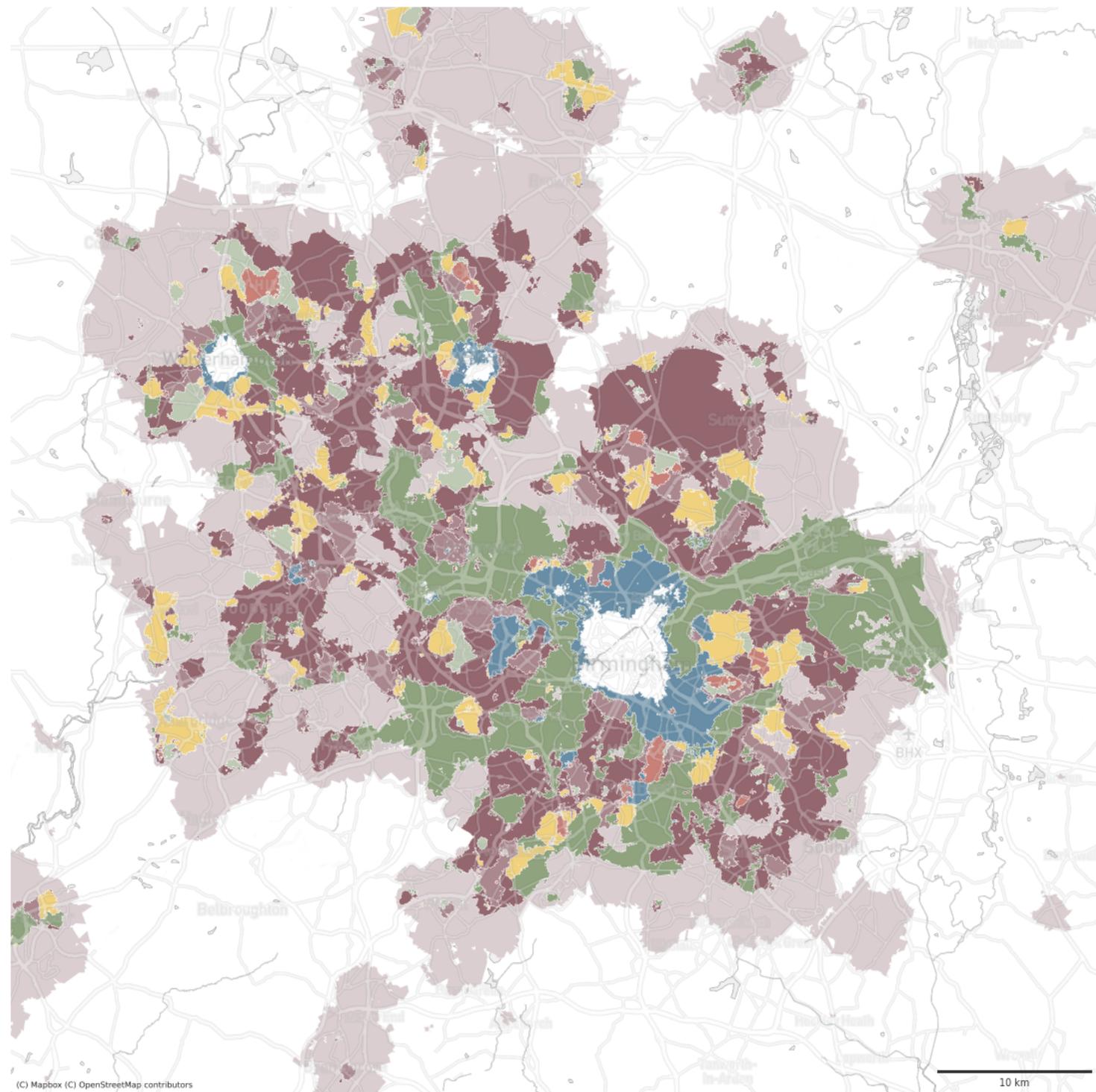
Liverpool - Manchester

## Liverpool - Manchester

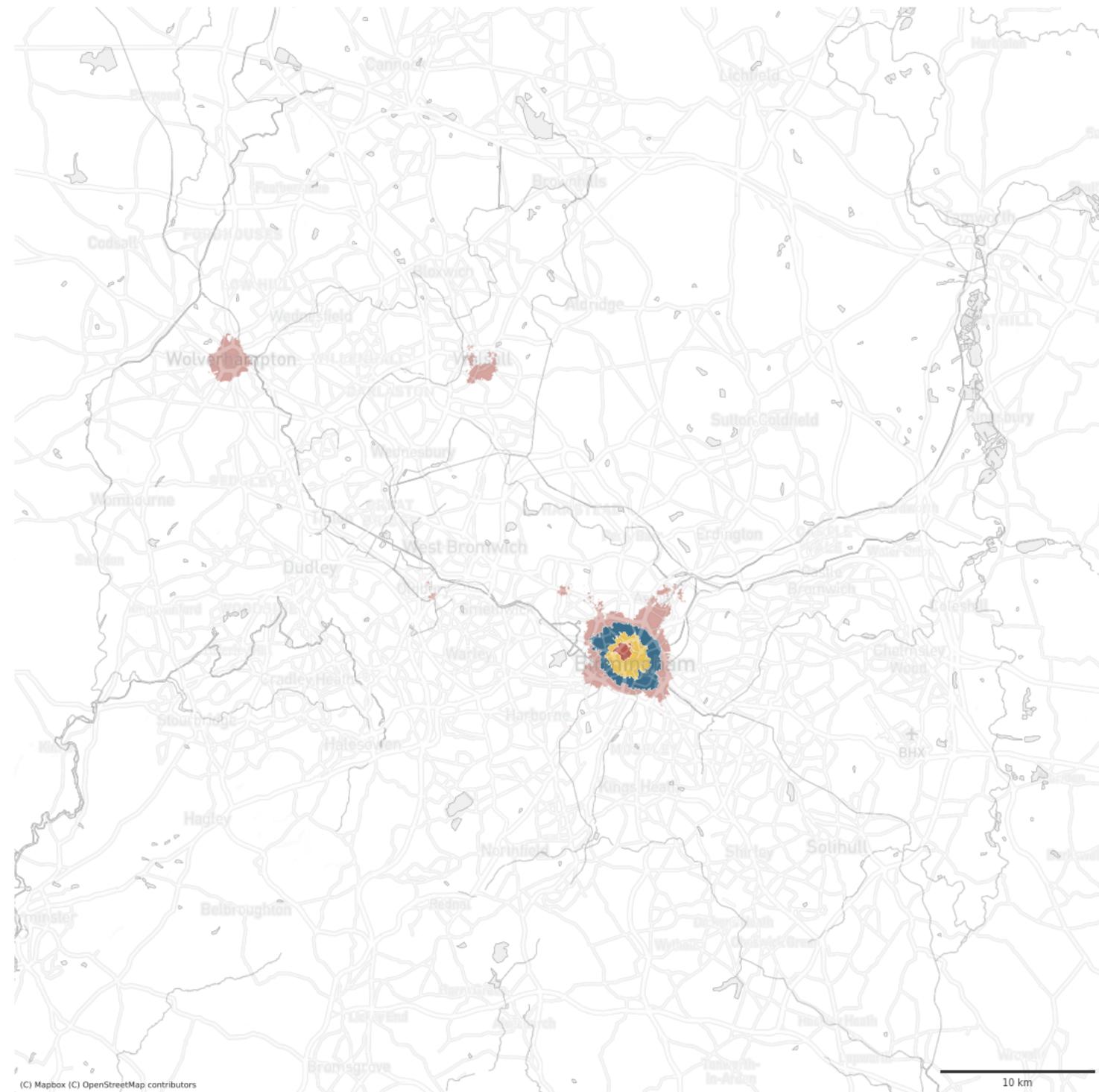


Birmingham

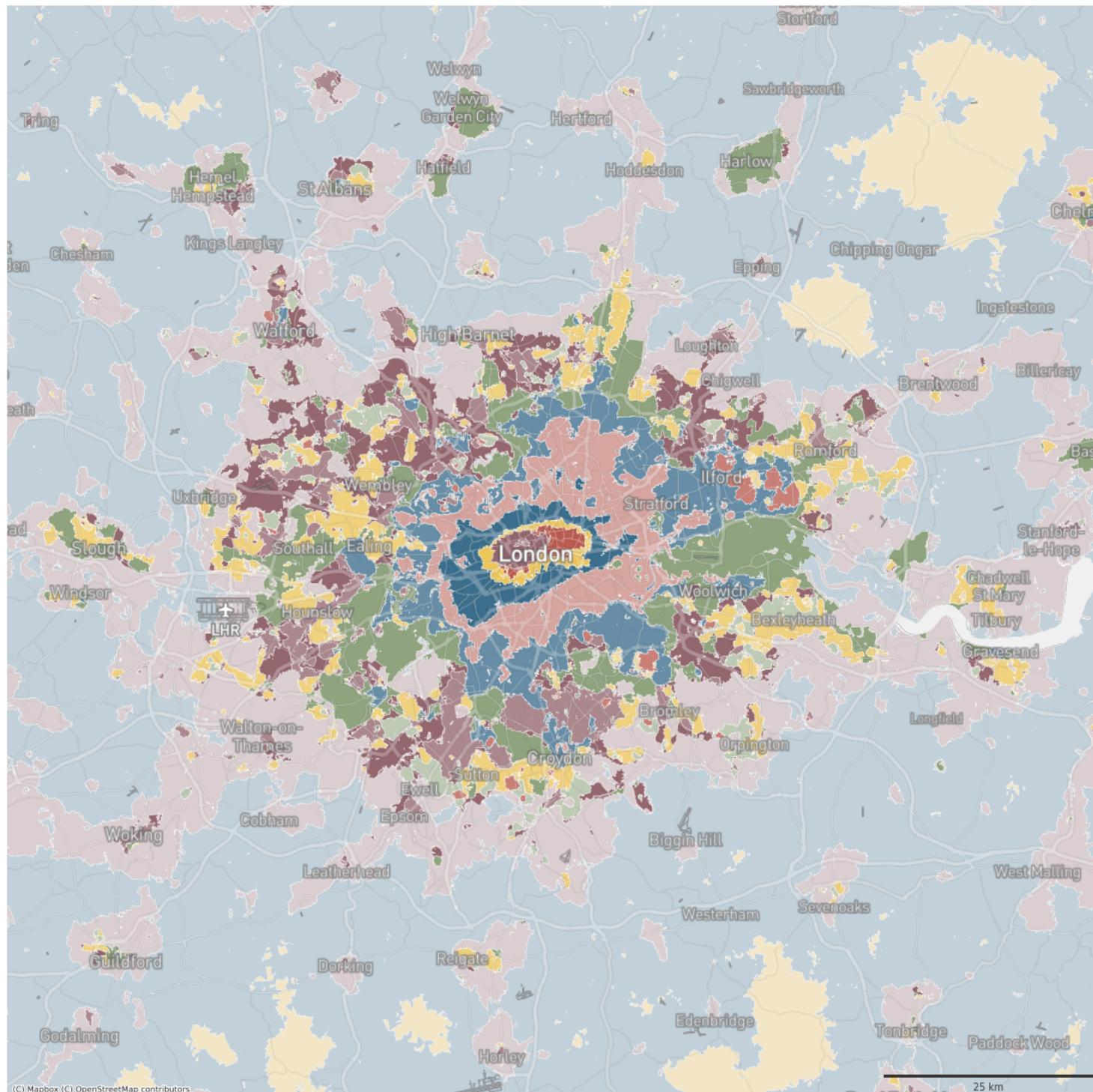
# Birmingham



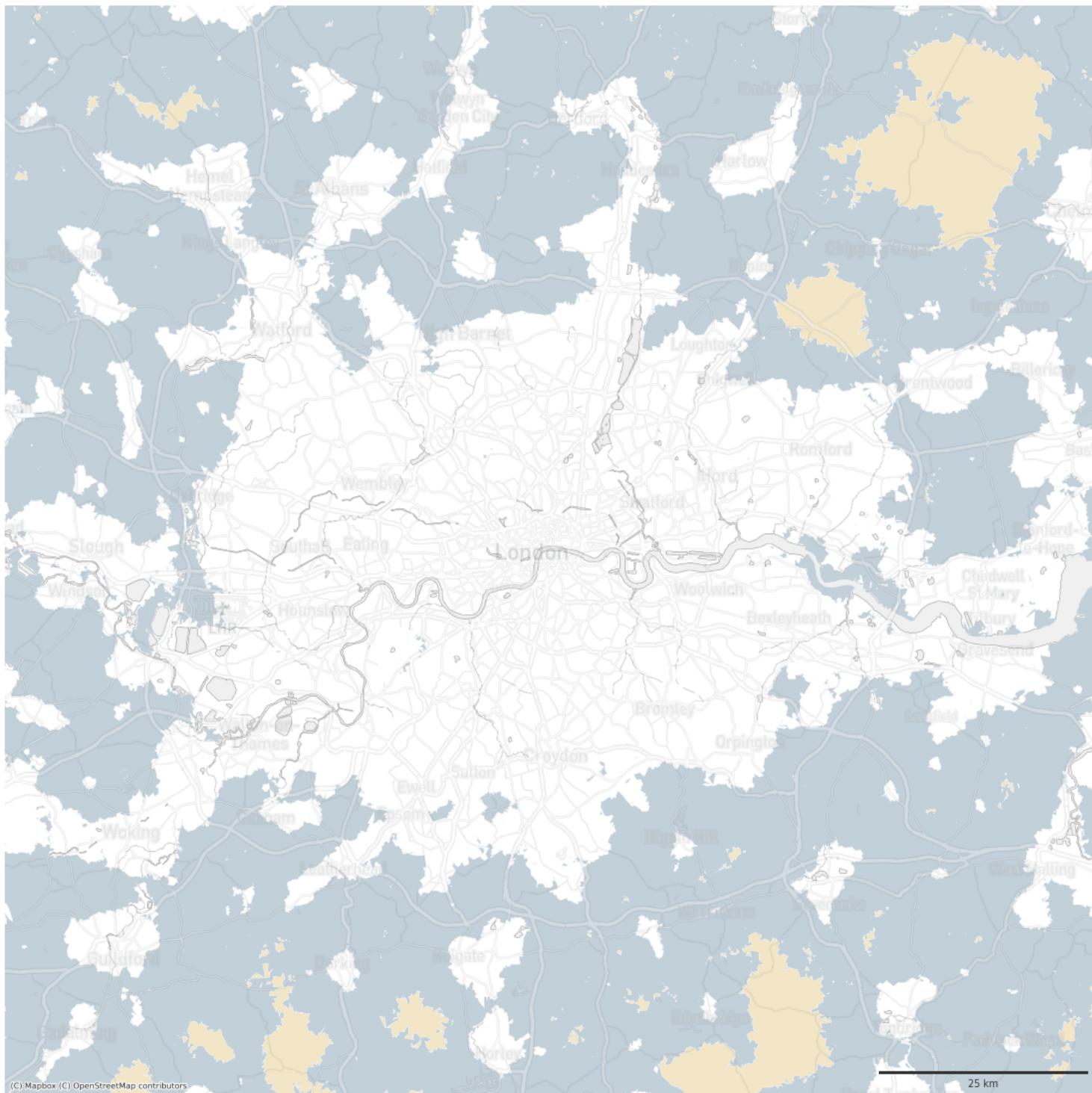
Birmingham



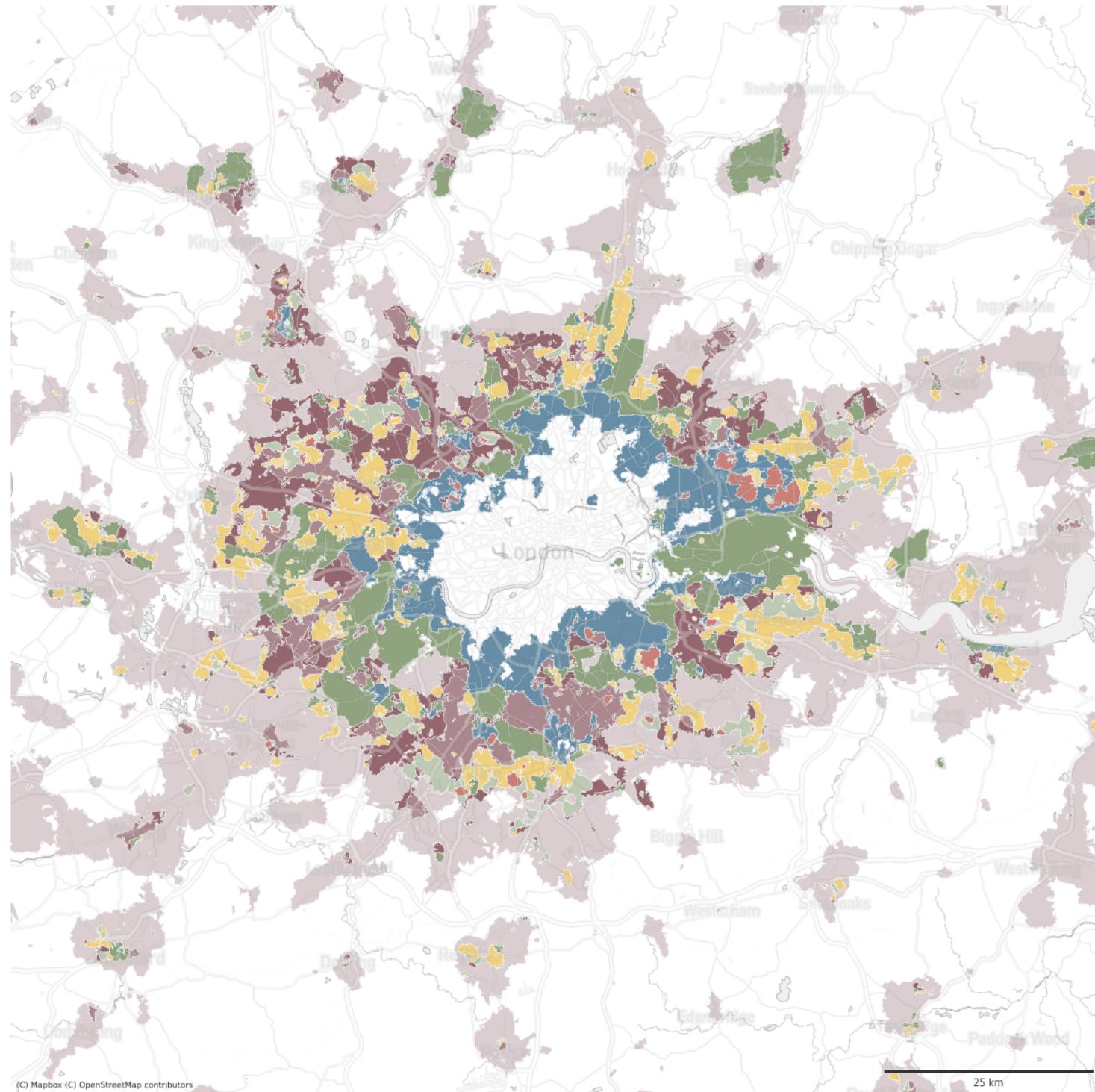
Birmingham



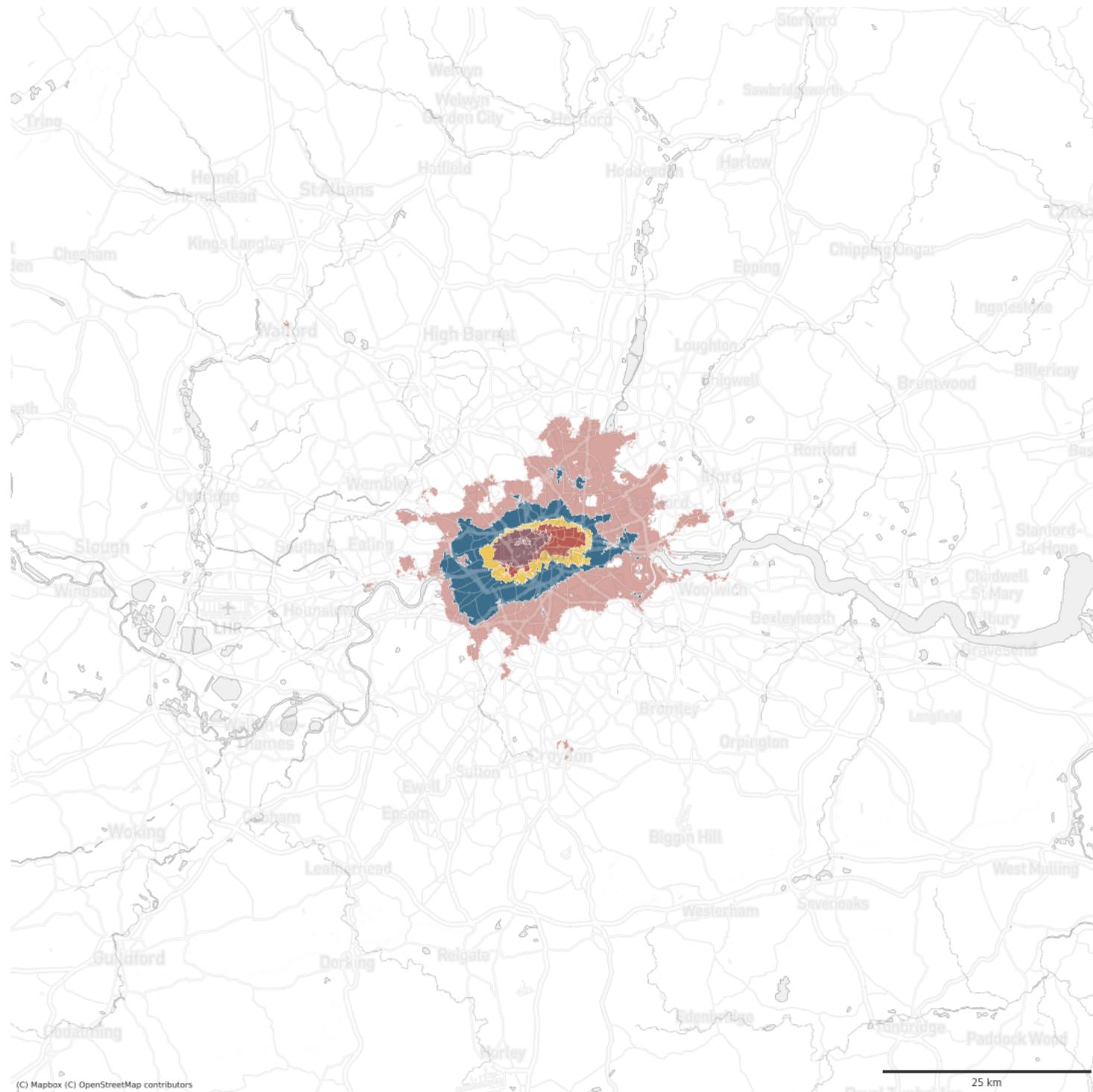
London



# London

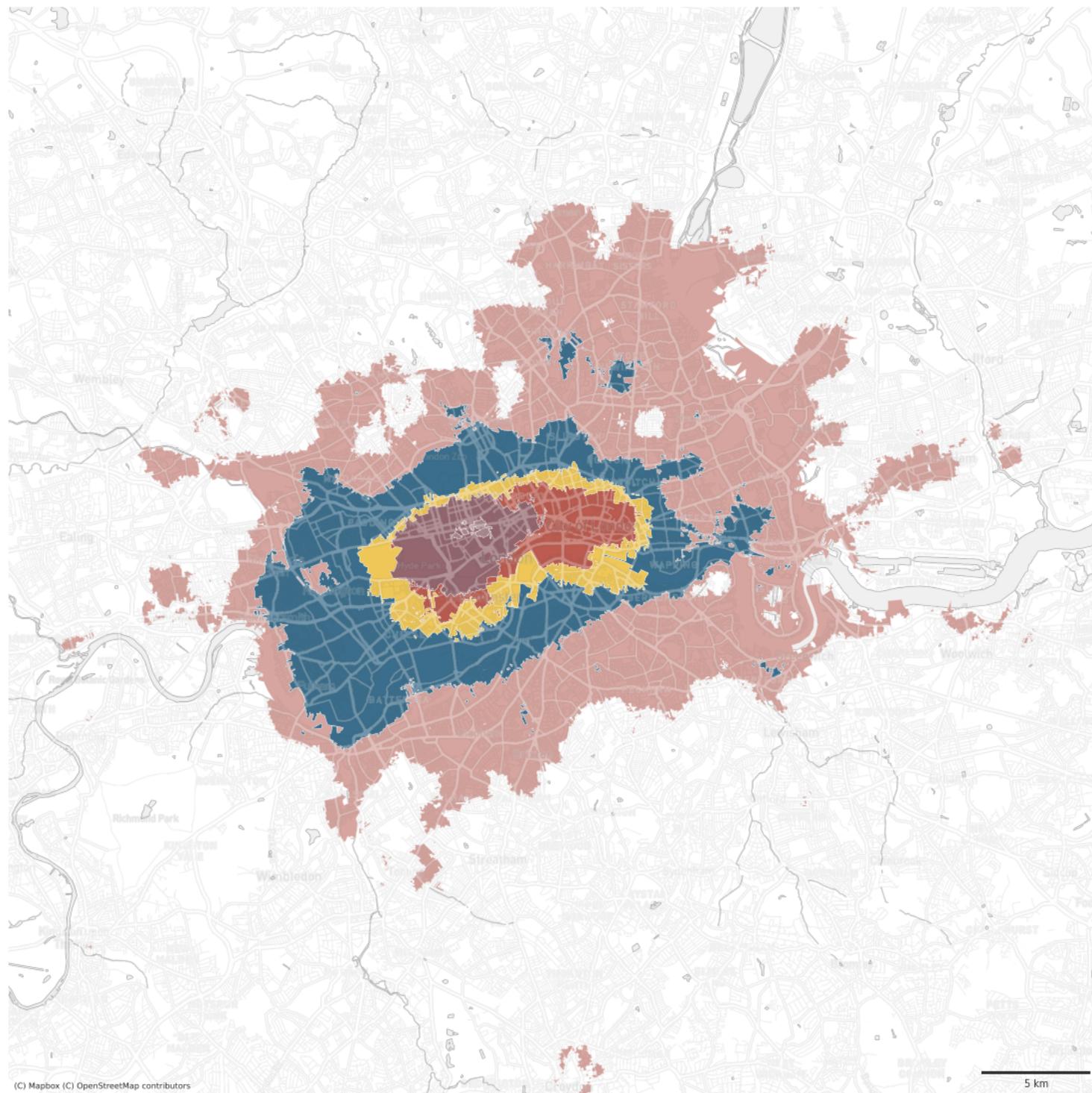


# London

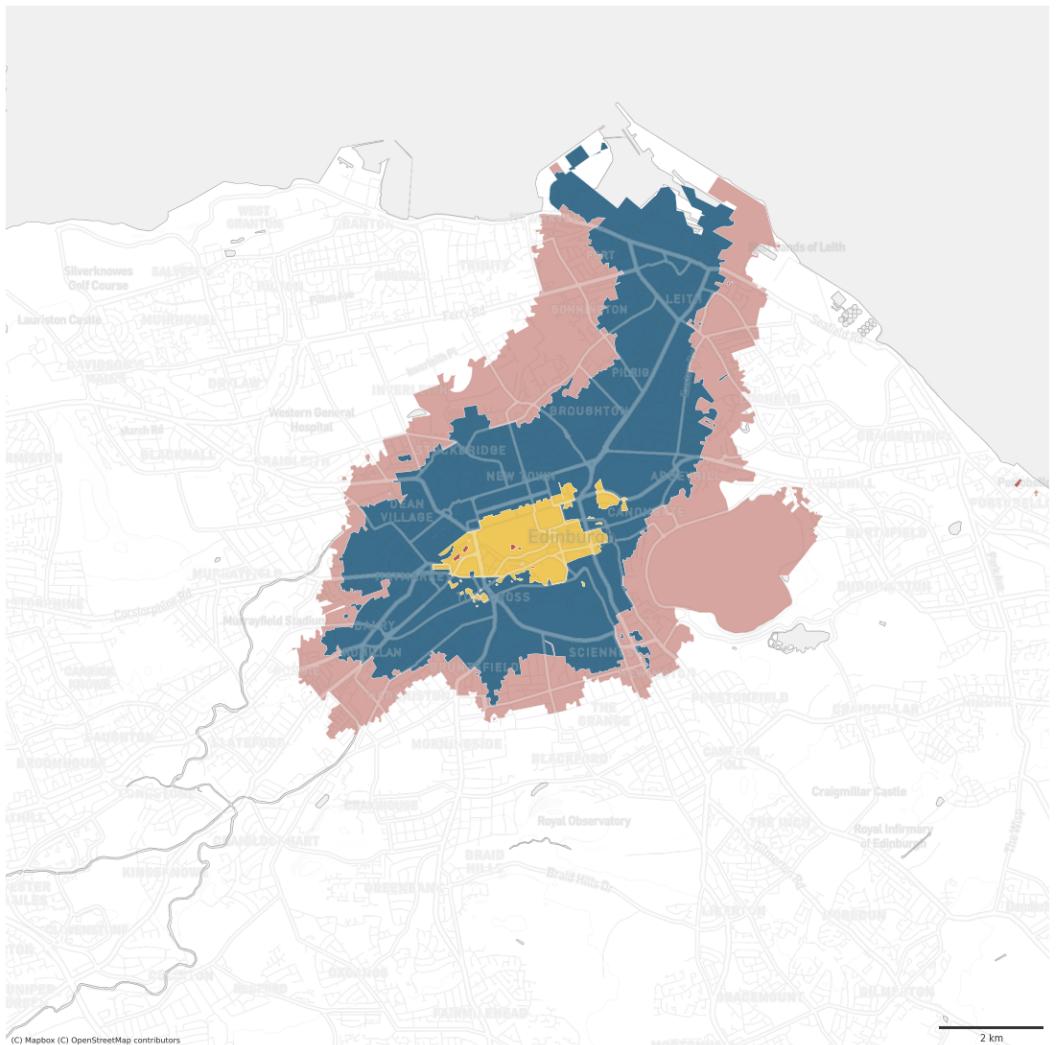
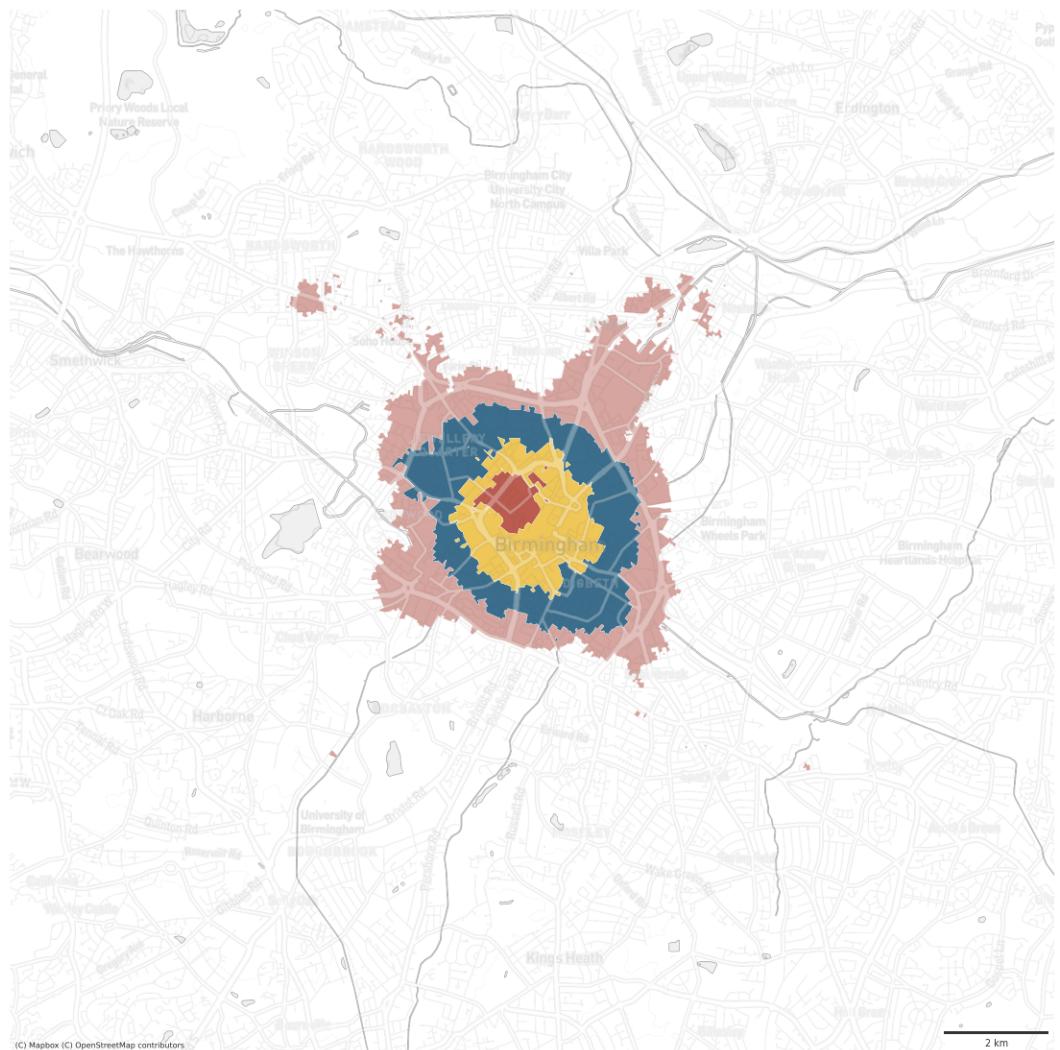


London

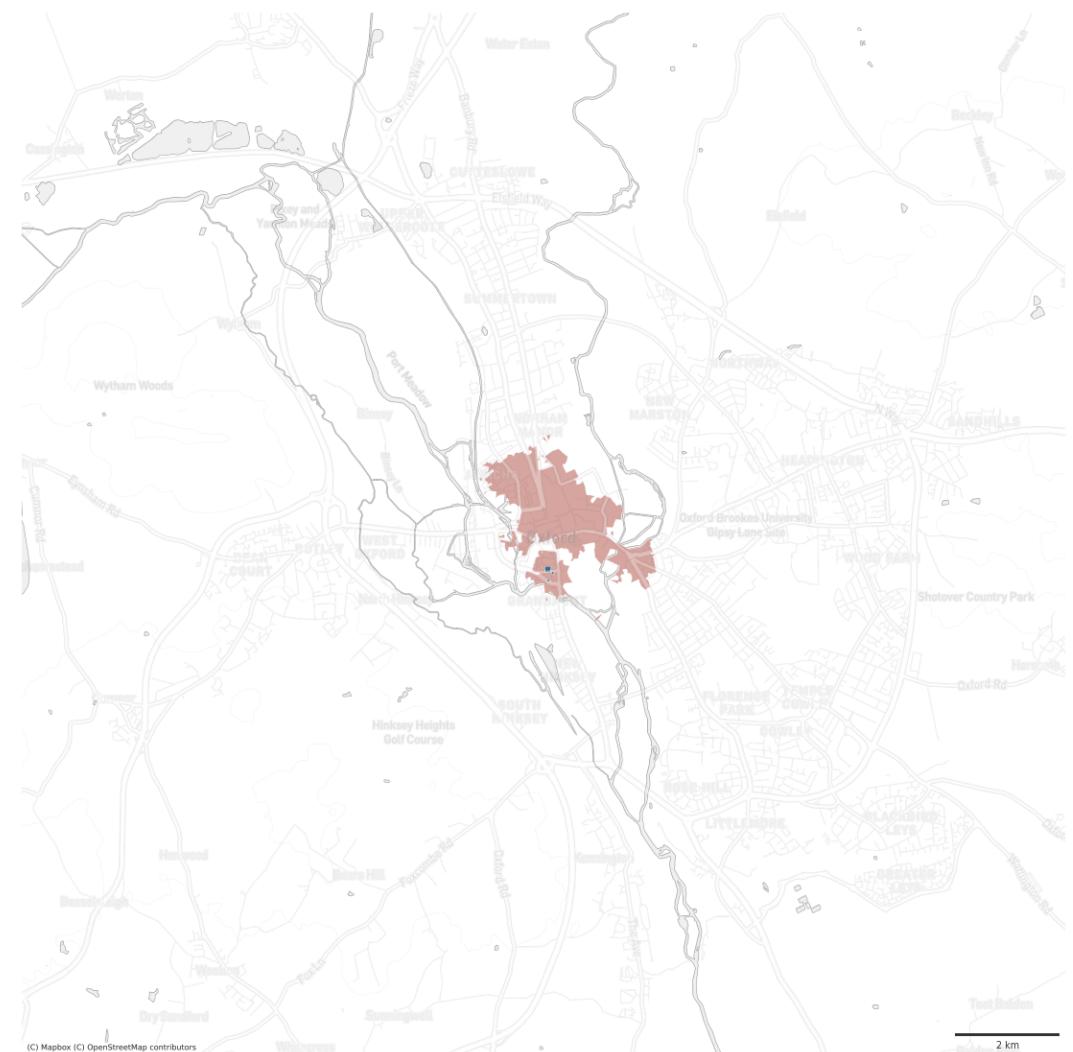
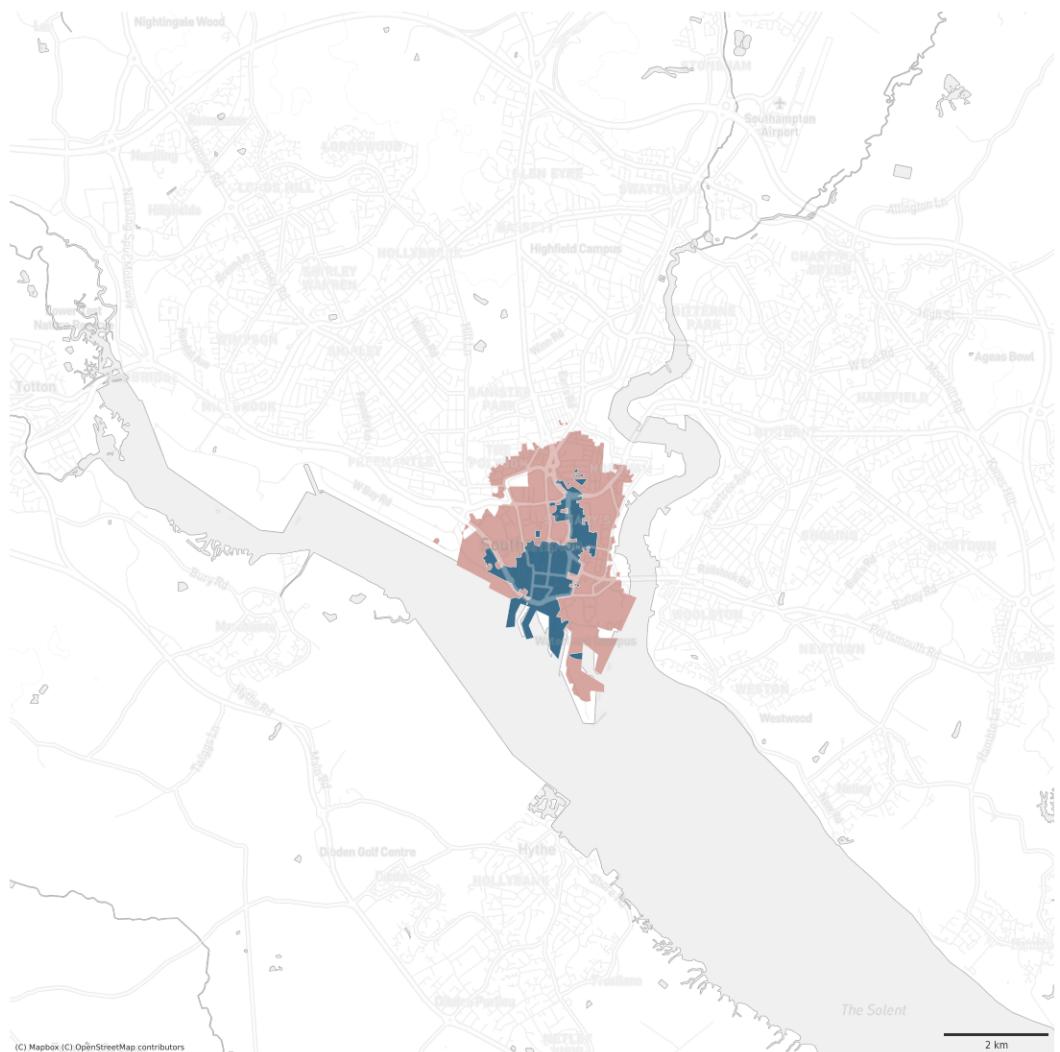
Concentric character of British  
centers and centre hierarchy



London



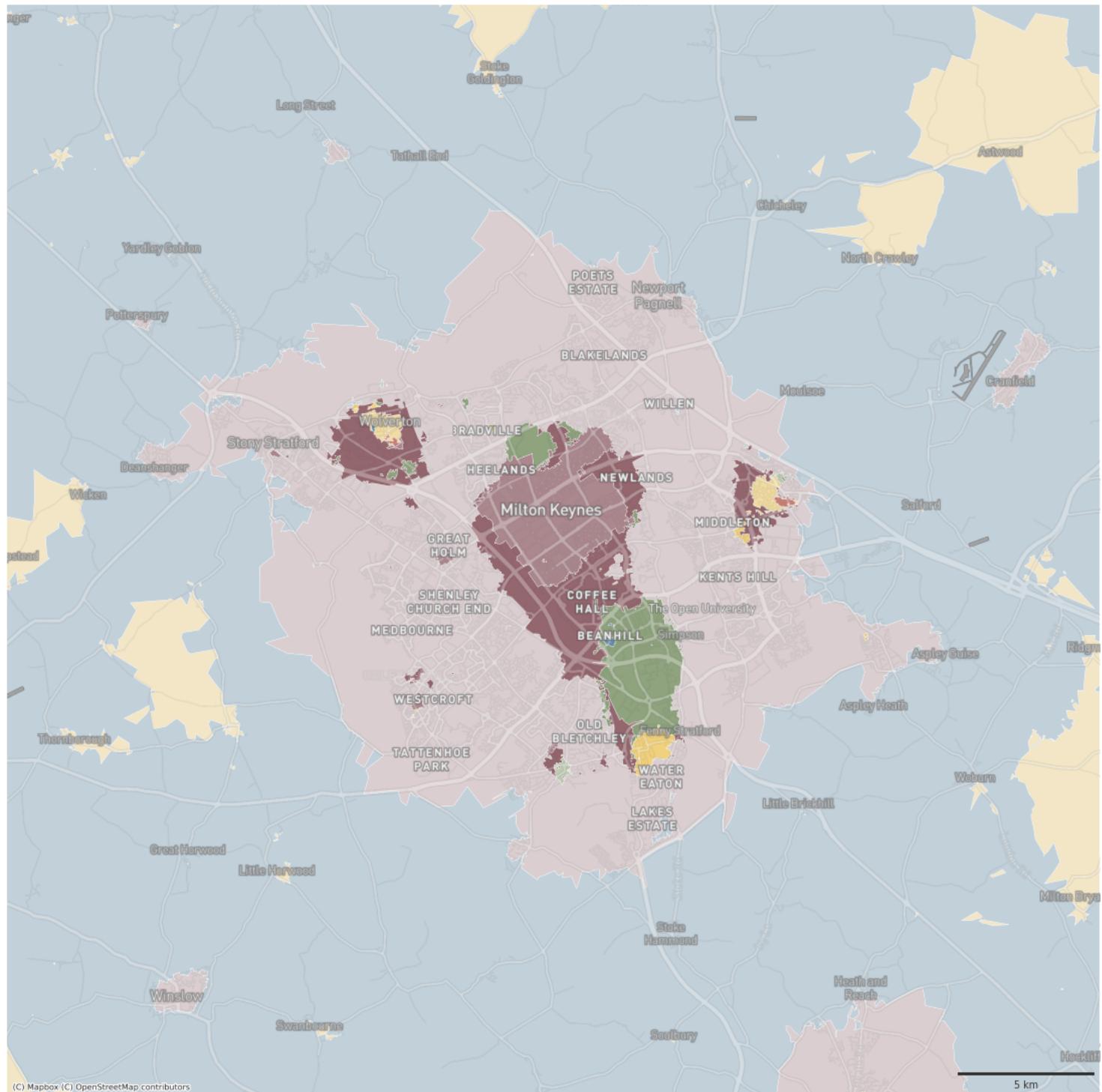
Birmingham, Edinburgh



Southampton, Oxford

# Milton Keynes

... does not have a (morphological) centre



# To take away

1. Urban morphology can be scaled
2. Form component of Spatial Signatures:  
classification of urban form in detail, at scale
3. Good measurement → better understanding

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[@darribas]



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