Walkability Index

Hadley Wood

Space Syntax

Space Syntax

2 Angel Square
London
EC1V 1NY
United Kingdom

T +44 (0) 20 7400 1320
F +44 (0) 20 7400 1333

london@spacesyntax.com
www.spacesyntax.com

v2_August 2021

Disclaimer
The scope of this Report, and all Services performed in connection with it, are limited to the Project as disclosed to us and defined in the Proposal. Any models created, and any evaluations and/or recommendations made by Space Syntax Limited in connection with the Project are specifically designed for the parameters of the Project and may only be used in the context of the Project.

Space Syntax Limited excludes all liability for any use made by the Client or by its customers of any Space Syntax Deliverables or Services in any other context including in respect of any changes subsequently made to the parameters of the Project.

Publication/Use by third parties
This work is only licensed for use by Hadley Wood Association.

Contents

Walkability

The built environment either supports or inhibits daily behaviours. Over time these behaviours affect long-term outcomes.

The design of a new housing development can make it possible to walk to work or the shops.

Research has shown that people who are active as part of their every day lives, for example by commuting to work using active and public modes of transport are at a reduced risk of Obesity. They also reduce traffic on roads and associated emissions.

When the built environment is designed poorly it can make it impossible to walk; areas may be cut off by fast or busy roads, cul-de-sac street layouts may increase the distances people have to walk to reach amenities, or large areas of mono-functional land use may reduce the reasons to walk.

Young couples 'trapped in car dependency'

By Roger Harrabin
BBC environment analyst

24 October 2018 Share

The scramble to build new homes is producing communiti

It must be miserable: you've saved for a newl
ring-road, but now you're trapped too often in

thebmj

BMJ 2014;349:g4887 doi: 10.1136/bmj.g4887 (Published 19 August 2014) Page 1 of 9

RESEARCH

Associations between active commuting, body fat, and body mass index: population based, cross sectional study in the United Kingdom

OPEN ACCESS

Ellen Flint *research fellow*[1], Steven Cummins *professor of population health*[1], Amanda Sacker *professor of lifecourse studies*[2]

[1]Department of Social and Environmental Health Research, London School of Hygiene and Tropical Medicine, London WC1H 9SH, UK; [2]ESRC International Centre for Lifecourse Studies in Society and Health, Research Department of Epidemiology and Public Health, University College London, London WC1E 6BT, UK

Abstract

Objective To determine if promotion of active modes of travel is an effective strategy for obesity prevention by assessing whether active commuting (walking or cycling for all or part of the journey to work) is independently associated with objectively assessed biological markers of obesity.

Design Cross sectional study of data from the wave 2 Health Assessment subsample of Understanding Society, the UK Household Longitudinal Study (UKHLS). The exposure of interest, commuting mode, was self reported and categorised as three categories: private transport, public transport, and active transport.

Participants The analytic samples (7534 for body mass index (BMI) analysis, 7424 for percentage body fat analysis) were drawn from the representative subsample of wave 2 respondents of UKHLS who provided health assessment data (n=15 777).

Main outcome measures Body mass index (weight (kg)/height (m^2)); percentage body fat (measured by electrical impedance).

Results Results from multivariate linear regression analyses suggest that, compared with using private transport, commuting by public or active transport modes was significantly and independently predictive of lower BMI for both men and women. In fully adjusted models, men who commuted via public or active modes had BMI scores 1.10 (95% CI 0.53 to 1.67) and 0.97 (0.40 to 1.55) points lower, respectively, than those who used private transport. Women who commuted via public or active modes had BMI scores 0.72 (0.06 to 1.37) and 0.87 (0.36 to 0.87) points lower, respectively, than those using private transport. Results for percentage body fat were similar in terms of magnitude, significance, and direction of effects.

Conclusions Men and women who commuted to work by active and public modes of transport had significantly lower BMI and percentage body fat than their counterparts who used private transport. These associations were not attenuated by adjustment for a range of hypothesised confounding factors.

Introduction

The beneficial effects of physical activity on obesity and related health outcomes are generally well understood.[1] In high and middle income countries however, lifestyles have become increasingly sedentary, and physical inactivity has become the fourth leading risk factor for premature mortality.[2] Declining rates of functional active travel have contributed to this population-level decrease in physical activity, and ecological evidence suggests that rising levels of obesity are more pronounced in settings with greater declines in active travel.[3 4] Active commuting to work has been strongly recommended by the UK National Institute for Health and Care Excellence (NICE) as a feasible way of incorporating greater levels of physical activity into daily life.[5] Data from the 2011 census show that in England and Wales 23.7 million individuals regularly commute to a workplace—more than half of the 41.1 million adults of working age covered by the census.[6] With 67% modal share, private motorised transport is by far the most common commuting mode reported, followed by public transport (18%), walking (11%), and cycling (3%).[6] Policies designed to effect a population-level modal shift to more active modes of work commuting therefore present major opportunities for public health improvement.

Studies consistently suggest that use of active commuting modes translates into higher levels of overall individual physical activity.[7-9] A recent UK study provided 103 commuters with accelerometers for seven days and found that total weekday physical activity was 45% higher in participants who walked to work compared with those who commuted by car, while no differences in sedentary activity or weekend physical activity were observed between the two groups.[9] However, the definition of "active commuting" should not be limited to walking and cycling. Previous research has suggested that travelling by public

Correspondence to: E Flint ellen.flint@lshtm.ac.uk

No commercial reuse: See rights and reprints http://www.bmj.com/permissions Subscribe: http://www.bmj.com/subscribe

Space Syntax Walkability Index

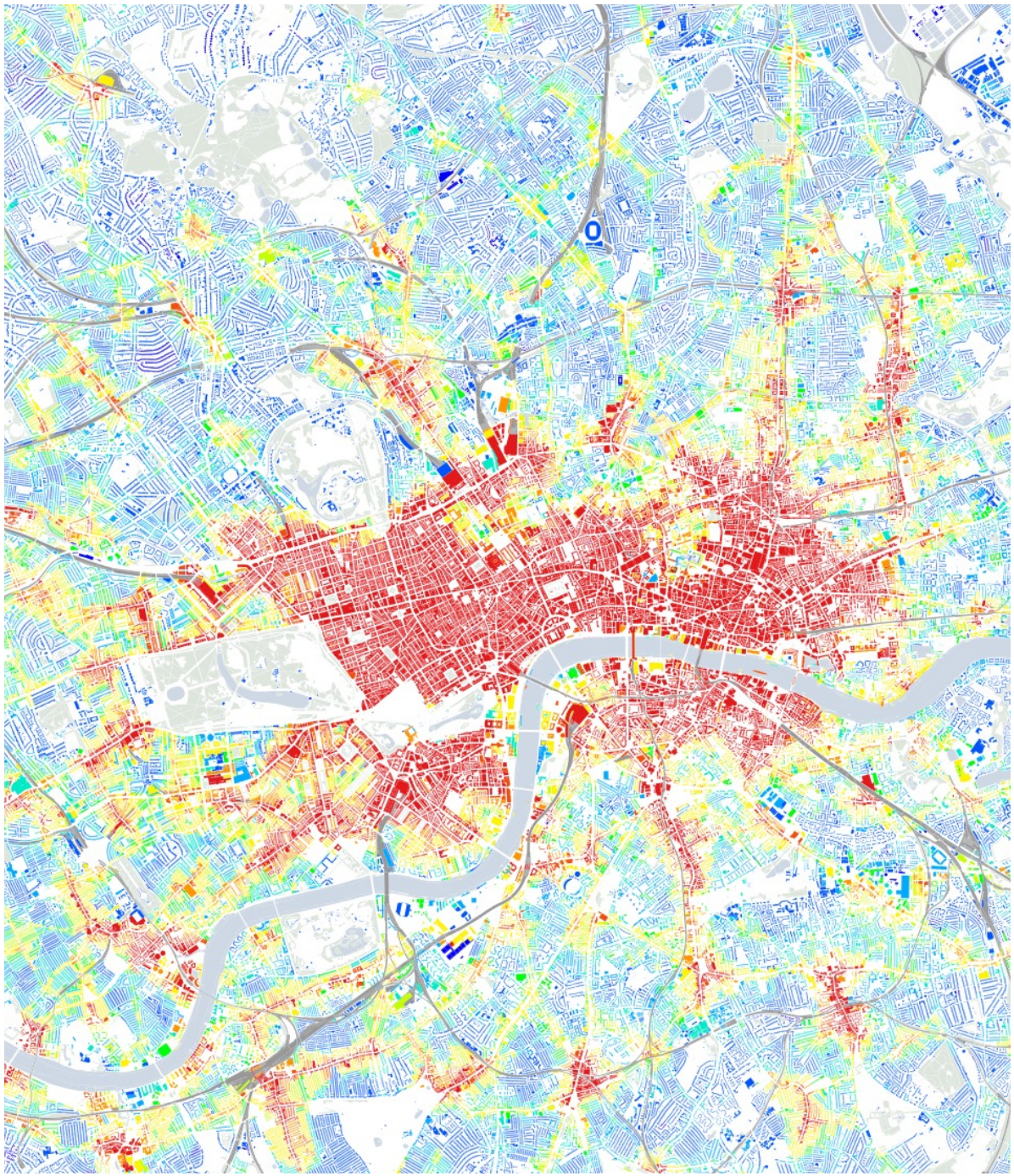
Space Syntax Walkability Index explains how the infrastructure systems (street and pedestrian networks, land use) in a city make it possible to walk. They do not explain the public realm quality or personal safety characteristics.

Highly walkable areas combine small urban blocks, arranged in well connected grids, with a wide mix of uses.

Less walkable areas may have a combination of larger urban blocks, a less well connected street network formed from culs-de-sac, or a narrow mix of land uses.

If the underlying infrastructure is Walkable, the public realm quality could be improved to encourage walking. If the underlying infrastructure is not Walkable, improving the public realm will have limited impact.

Changing the walkability of an existing area can be very difficult: increasing the mix of land uses will have limited impact if the street network is not made from small urban blocks in a well connected grid.



Space Syntax Integrated Urban Models

The Walkability Index is an analytic measure calculated using a Space Syntax Integrated Urban Model (IUM).

The IUM combines street, pedestrian, cycle and public transport networks with land use. All properties are linked to each other, through these movement networks, allowing each individual property to be analysed in terms of the mix of different uses within a 15 minute walk.

The Walkability Index measures the number of different families of land use within a 15 minute walk, and considers both the number of each individual land use and the distance to the closest.

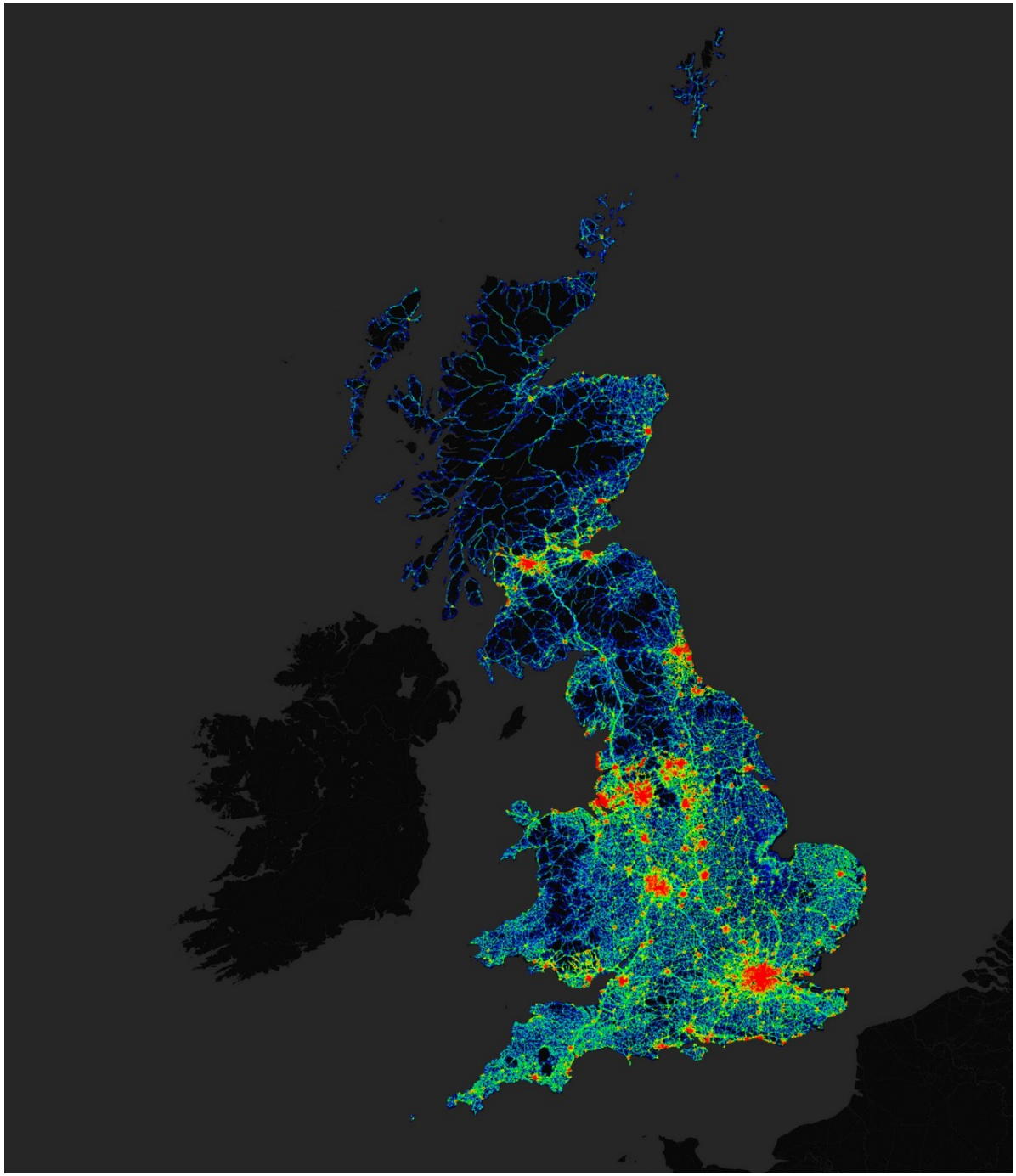
This measure has been used on consultancy projects across Great Britain and has been associated with commuting behaviour and health outcomes.

Limitations

The IUM has been pre-processed across Great Britain, using nationally available datasets from the OS. These are produced to OS standards, and updated periodically. There may be changes to individual land uses which are not reflected in the OS datasets, and consequently in the IUM. However, at the level of the individual building, potential anomalies are unlikely to have a large impact on overall walkability scores which consider multiple land uses.

Space Syntax has provided a modelled analysis using source datasets. Source datasets have not been checked for accuracy on site, and the Walkability Index is provided on an “as is” basis. Space Syntax has not been involved in the modelling or analysis of any future scheme, nor in any suitability assessment of any potential site. Any opinions held on the suitability of a development have been reached by that individual or organisation without input from Space Syntax.

Source datasets
OS OpenRoads, OS ITN Urban Paths, OS AddressBase Plus, Transport API



Hadley Wood
Existing Walkability Index

Most Walkable area in Hadley Wood: Crescent W (27)
Least Walkable area in Hadley Wood: 13 streets (0)
Average Walkability in Hadley Wood: (7.8)

Most Walkable part in Borough: Camden (300)
Average Walkability Index in Borough: Enfield (24)
Average Walkability Index in London: (60)

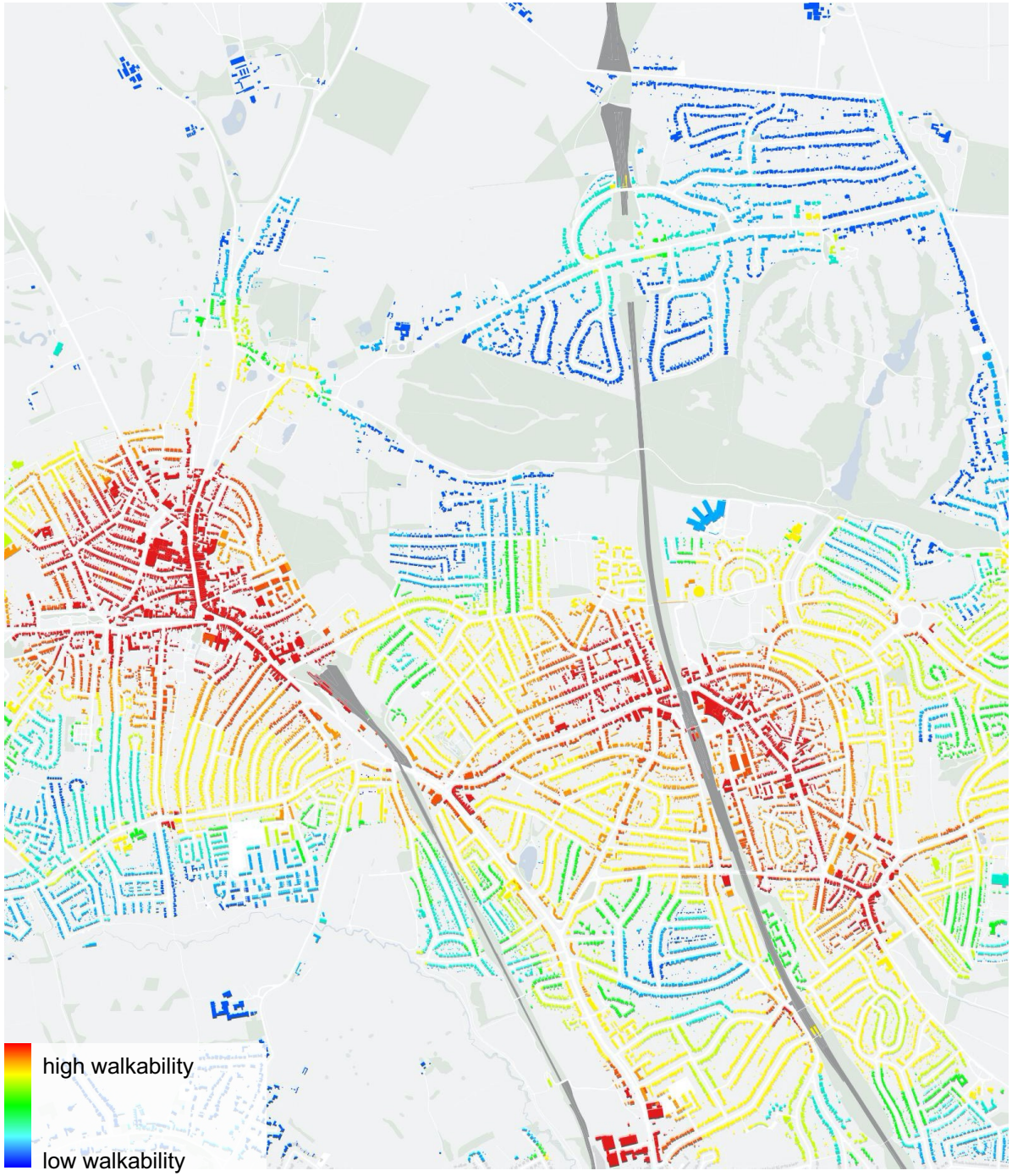
Walkability in Hadley Wood is below average for the Borough.

Factors contributing to the Walkability score in Hadley Wood are:

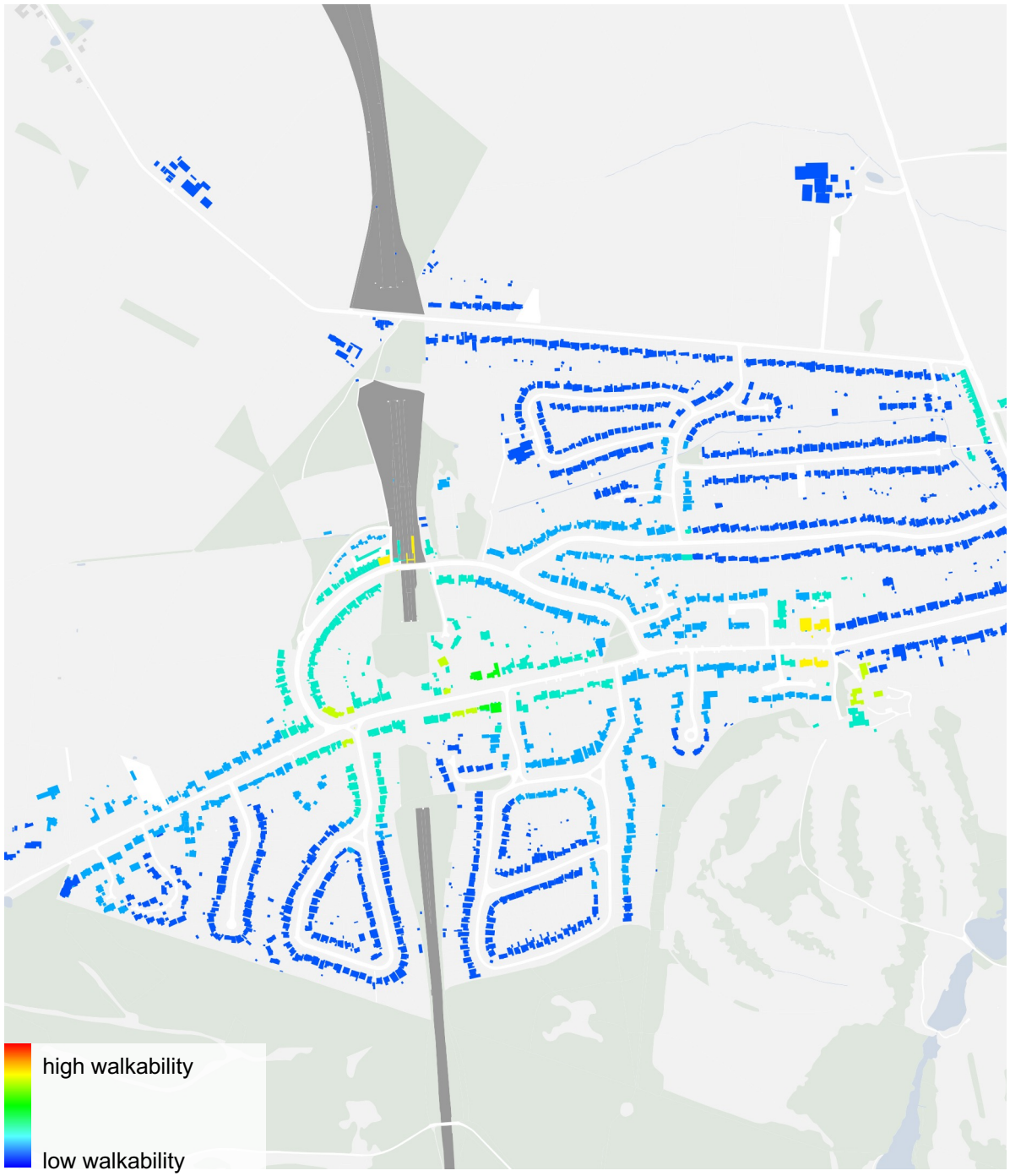
A street network made up of Disconnected streets,

Large urban blocks that increase distances to walk, and;

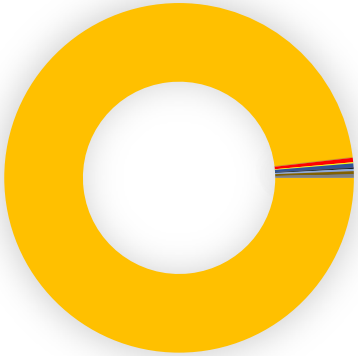
A narrow mix of land uses that creates few reasons to walk locally.



Hadley Wood
Existing Walkability Index



Hadley Wood
Existing Land Uses

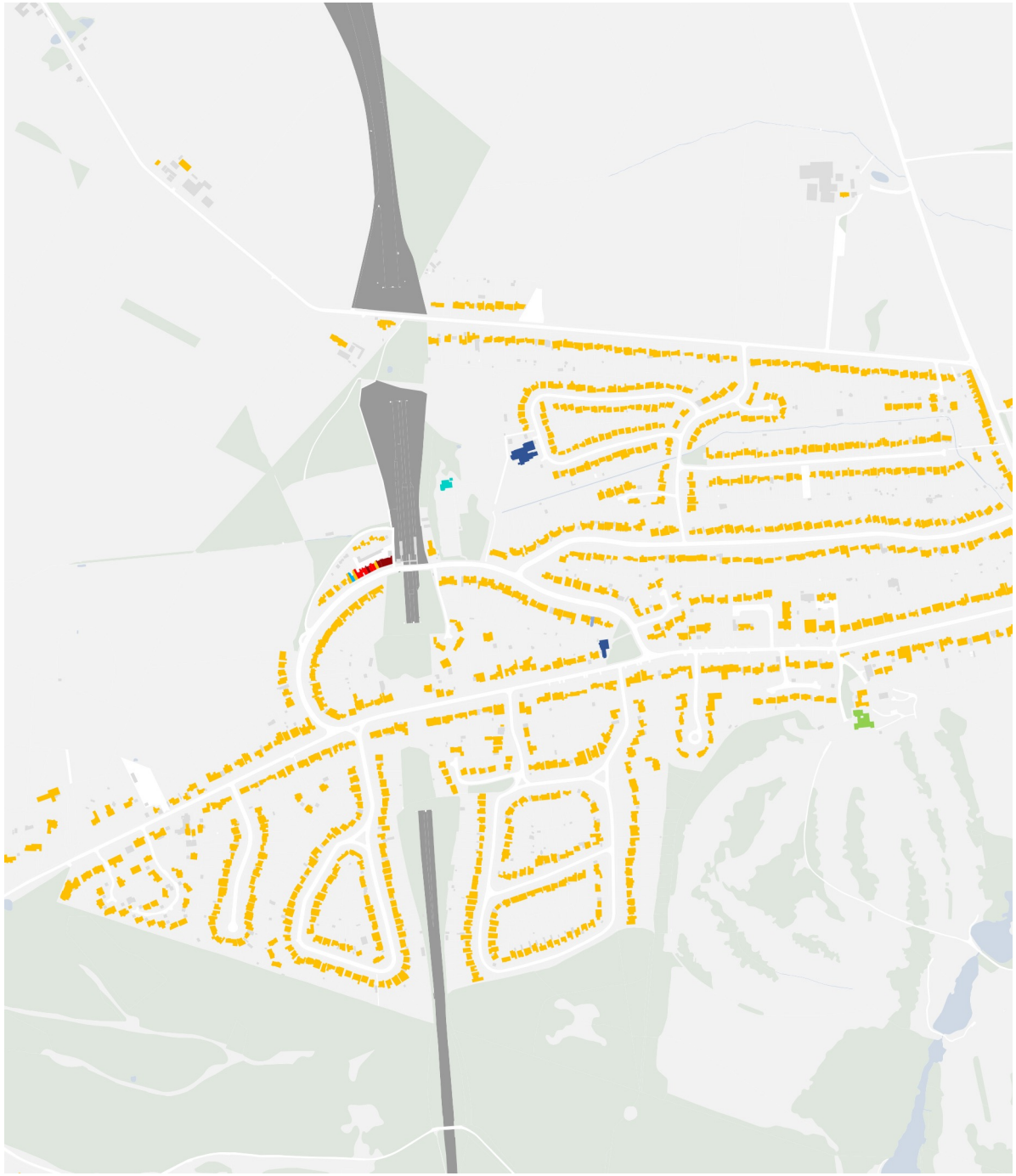


2%

Residential land uses	**98%**
Non-residential land uses	**2%**
Active land uses[1]	**0.4%**

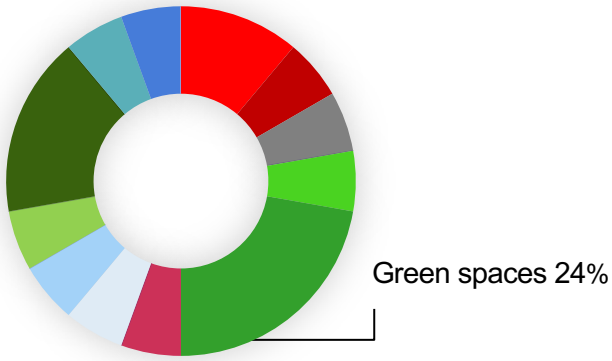
Land use categories

- Retail
- Service
- Office
- Mixed use
- Residential
- Hotel
- Education
- Health
- Leisure
- Community
- Commercial
- Culture
- Religion
- Industry
- Military
- Emergency
- Storage
- Utility
- Agricultural
- Water
- Open space
- Transport

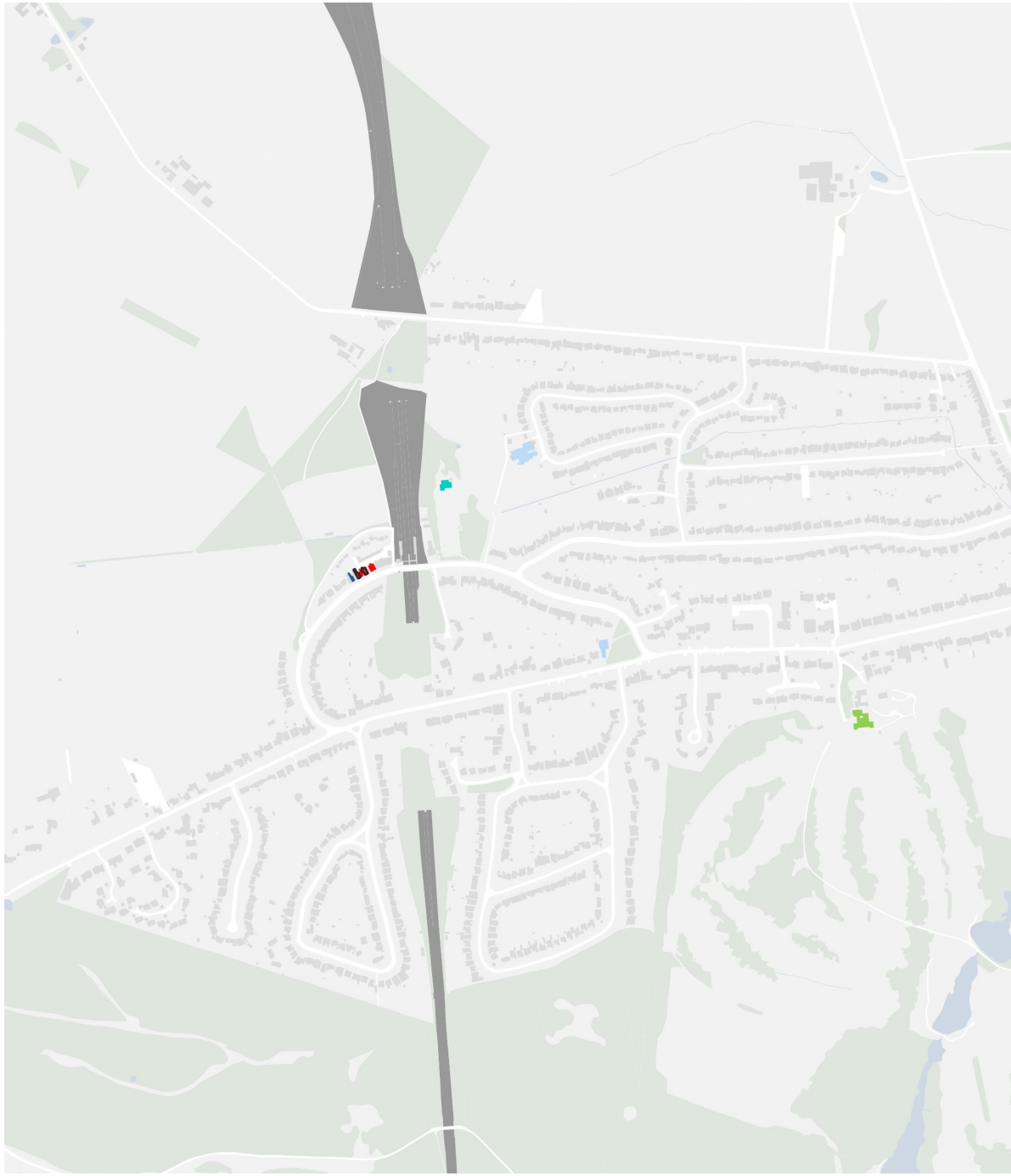


Hadley Wood

Existing Land Uses, Detailed



Land use categories	Count	%
Commercial	1	6
Offices	0	0
Nurseries	1	6
Primary schools	1	6
Secondary schools	0	0
Special school	0	0
Leisure	1	6
Culture	0	0
Sports	3	18
Social	0	0
Community	1	6
Dentist	1	6
GP	0	0
Pharmacy	0	0
Hospital	0	0
Retail	2	11
Retail services	0	0
Food	2	6
Transport	1	6
Toilet	0	0
Play space	1	6
Green space	4	22



Hadley Wood
Existing Station Catchment