

UK Biobank Built Environment Project - UKB Wales

**MORPHOMETRIC ANALYSIS OF THE BUILT ENVIRONMENT IN
UK BIOBANK: Metrics of accessibility to foodscapes within the
Greater London Authority**

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1. Metrics of accessibility to foodscapes within the Greater London Authority

1.1 Food outlet data source:

The UKMAP data formed the source of food-outlet spatial data. It was made available by LandMap Services of MIMAS at the University of Manchester <http://www.landmap.ac.uk/index.php/Datasets/UKMap/Key-Facts-UKMap>. The UKMAP is one of the most detailed and feature rich databases in the UK. It has data on individual buildings, property boundaries, detailed footprints of multiple land uses including floor level retail usage, single trees etc. The spatial data comprises of 7 layers and is only available for the areas located within the Greater London Authority (GLA) boundary. The individual layers were linked together through a unique Geographic entity type sequential number (GTN) to provide coordinates, addresses and precise land use classes and food-related land use destinations extracted.

1.2 Metrics of foodscapes:

Density of food outlets

Given the epidemiological evidence of a significant associations between density of various typologies of food outlets and multiple health outcomes, density was measured within 0.5, 1.0, 1.5 kilometre street network catchments of UK Biobank respondent's dwelling as well as within the lower super output areas in which they resided. ArcGIS 10.2 Network Analyst was used to create street network catchment areas were created around the geocoded residences of UK Biobank participants. The analyses were conducted for 52,360 UK Biobank participants of the UKB centres of BARTS, Croydon and Hounslow and living within the boundaries of GLA. Density of 19 different typologies of food-related destinations were calculated through a series of GIS queries from the UKMAP dataset as the number of features of a specific category within a pre-defined neighbourhood and expressed as number of features per square kilometre of neighbourhood.

Deliverable file:

File Name (size)	Description
UKB_London_Foodoutlet_Density_LSOAs.csv (4.53 MB)	Density of food outlets within LSOA in which the UK Biobank participant resides
UKB_London_Foodoutlet_Density_Netbuf500m.csv (5.61 MB)	Density of food outlets within 500 metres street catchment area from the UK Biobank participant's residence
UKB_London_Foodoutlet_Density_Netbuf1000m.csv (8.31 MB)	Density of food outlets within 1000 metres street catchment area from the UK Biobank participant's

File Name (size)	Description
	residence
UKB_London_Foodoutlet_Density_Netbuf1500m.csv (9.96 MB)	Density of food outlets within 1500 metres street catchment area from the UK Biobank participant's residence

Header file name:

UKB_London_Foodoutlet_Density_Header.csv (350 bytes)

Table 1.1 Description of variables used for calculation of density of food outlets

Column number	Variable	Component UK MAP retail class description ¹			
		Level 1 code	Level 2 code	Full retail classification code (RCC)	Description
1	Encoded anonymised participant ID	-	-	-	-
2	Buffer/LSOA_Area	-	-	-	-
3	Den_RCC_101	1	1	101	Supermarket
4	Den_RCC_102	1	2	102	General convenience store/Grocer/Mini market
5	Den_RCC_103	1	3	103	Butcher
6	Den_RCC_104	1	4	104	Greengrocer
7	Den_RCC_105	1	5	105	Fishmonger
8	Den_RCC_106	1	6	106	Baker
9	Den_RCC_107	1	7	107	Delicatessen/Specialist
10	Den_RCC_108	1	8	108	Confectionary
11	Den_RCC_109	1	9	109	Off Licence
12	Den_RCC_201	2	1	201	Restaurant
13	Den_RCC_202	2	2	202	Take-away
14	Den_RCC_203	2	3	203	Coffee Shop/Internet Café
15	Den_RCC_204	2	4	204	Sandwich Bar
16	Den_RCC_207	2	7	207	Public House/Wine bar
17	Den_RCC_208	2	8	208	Hotels, Guest Houses, Bed and Breakfast etc.
18	Den_RCC_301	3	1	301	Department store
19	Den_RCC_303	3	3	303	General store (WHSmith, Poundstretcher etc)
20	Den_RCC_304	3	4	304	Newsagent
21	Den_RCC_306	3	6	306	Markets, mixed bazaar

Street network accessibility to food outlets

Street network distance (in metres) to the nearest food outlet of a specific typology was calculated using 'closest facility analysis' in Network Analyst, ArcGIS 10.2.

Deliverable file:

File Name (size)	Description
UKB_London_Foodoutlet_ND.csv (12.3 MB)	Street network distance in metres of UK Biobank participant's residence to specific food outlet.

Header file name: UKB_London_Foodoutlet_ND_Header.csv (310 bytes)

Table 1.2 Description of variables used for calculation of network distance to food outlets

Column number	Variable	Component UK MAP retail class description ¹			
		Level 1 code	Level 2 code	Full retail classification code (RCC)	Description
1	Encoded anonymised participant ID	-	-	-	-
2	ND_RCC_101	1	1	101	Supermarket
3	ND_RCC_102	1	2	102	General convenience store/Grocer/Mini market
4	ND_RCC_103	1	3	103	Butcher
5	ND_RCC_104	1	4	104	Greengrocer
6	ND_RCC_105	1	5	105	Fishmonger
7	ND_RCC_106	1	6	106	Baker
8	ND_RCC_107	1	7	107	Delicatessen/Specialist
9	ND_RCC_108	1	8	108	Confectionary
10	ND_RCC_109	1	9	109	Off Licence
11	ND_RCC_201	2	1	201	Restaurant
12	ND_RCC_202	2	2	202	Take-away
13	ND_RCC_203	2	3	203	Coffee Shop/Internet Café
14	ND_RCC_204	2	4	204	Sandwich Bar
15	ND_RCC_207	2	7	207	Public House/Wine bar
16	ND_RCC_208	2	8	208	Hotels, Guest Houses, Bed and Breakfast etc.
17	ND_RCC_301	3	1	301	Department store
18	ND_RCC_303	3	3	303	General store (WHSmith, Poundstretcher etc)
19	ND_RCC_304	3	4	304	Newsagent
20	ND_RCC_306	3	6	306	Markets, mixed bazaar

Reference:

1. The GeoInformation Group Limited (2012) UKMap User Guide. Version 5.