
A Classification of Multi-Dimensional Open Data of Urban Morphology (MODUM)

Cluster Profiles

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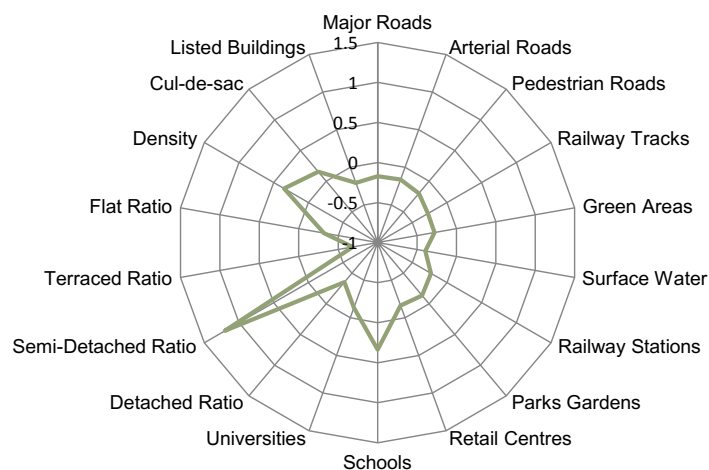
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Pen Portraits and Attribute Plots

1. Suburban Landscapes

These areas are typically of semi-detached houses, with good access to parks. They tend to be quite distant from town centres. They are primarily residential areas and close to schools. Cul-de-sacs are relatively common, probably because of organized developments and gated communities.

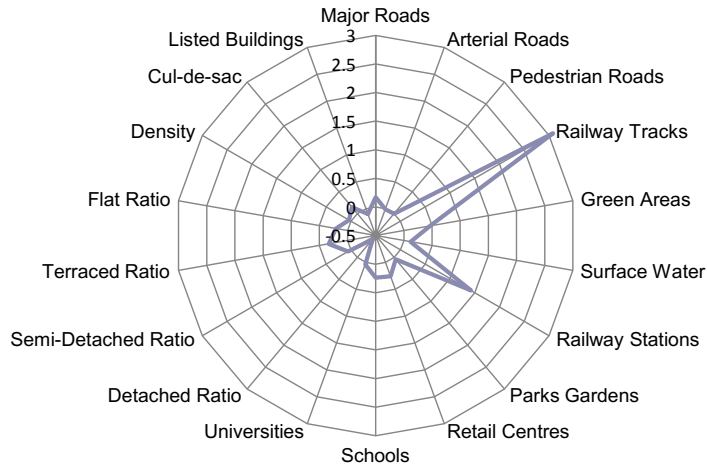
Suburban Landscapes



2. Railway Buzz

These areas are dominated by railway tracks and railway stations. They have no other major distinguishing attributes which may suggest that they are actually rather heterogeneous in physical structure.

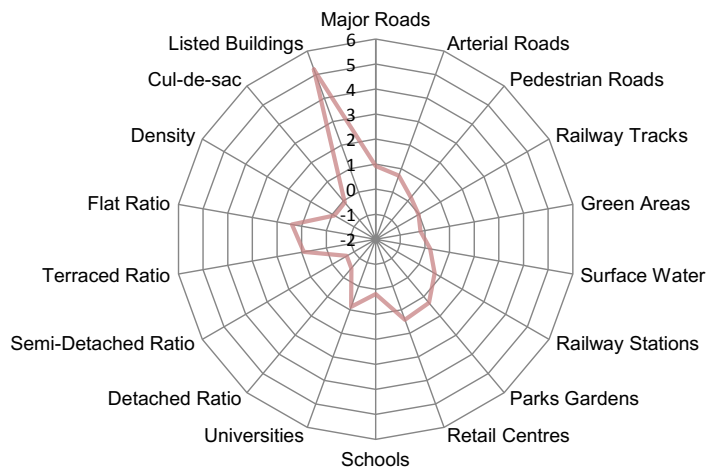
Railway Buzz



3. The Old Town

The traditional town centre, usually close by the main high street. It is strongly defined by the amount of registered buildings. Typically, a lot of recreational facilities can be found there, like pubs and restaurants, along with many administrative buildings and some historical major roads. Although it does have a considerable amount of flats, densities remain low, potentially due to refurbishments and change of usage.

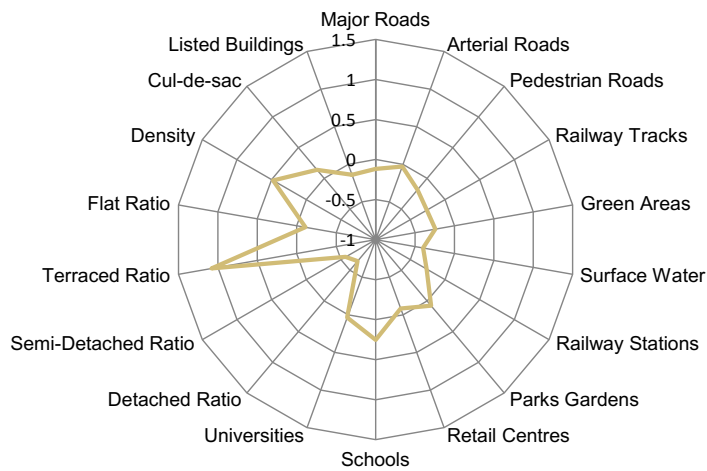
The Old Town



4. Victorian Terraces

These are typical neighbourhoods with terraced housing, average densities and some access to amenities. It is one of the few morphologies that can be found anywhere.

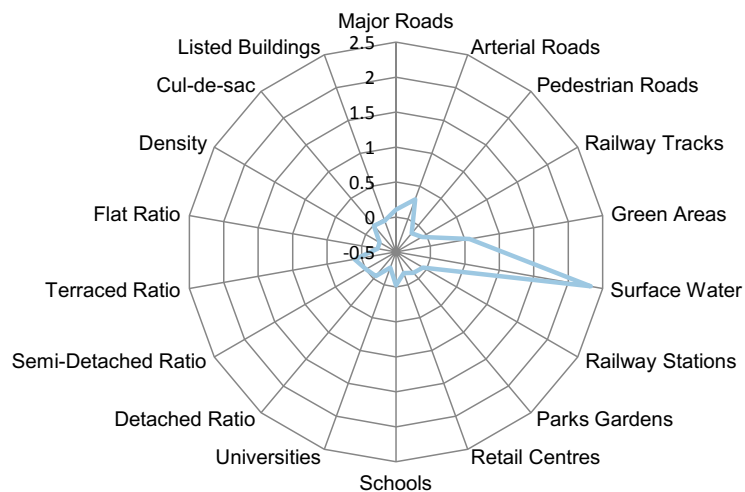
Victorian Terraces



5. Waterside Settings

The principal defining attribute of these neighbourhoods is their proximity to surface water such as rivers, canals or sea. Some of these areas are ports, industrial or post-industrial sites. Distinctive infrastructure is arterial roads, i.e. roads wide enough to be used by lorries for the distribution of goods.

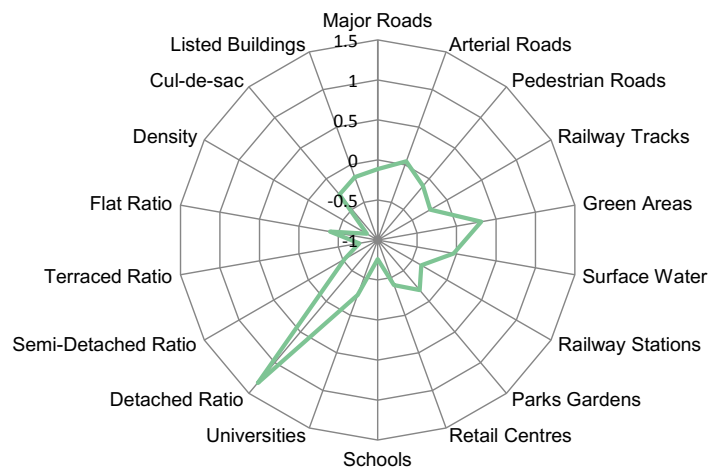
Waterside Settings



6. Countryside Sceneries

These areas are dotted with detached houses, and are located either near or within open countryside. Most rural villages fall into this category, along with some city fringe developments that lie beyond the classic suburbs.

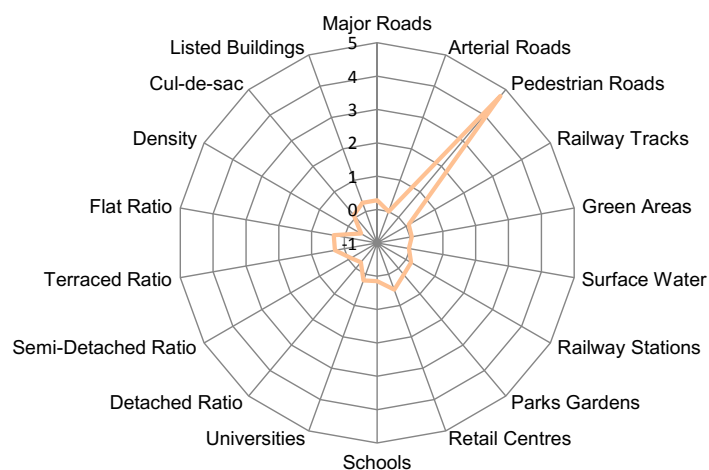
Countryside Sceneries



7. High Street and Promenades

These clearly depicted areas represent the main retail centres of urban regions located along the main commercial streets. This cluster also includes areas with significant pedestrianised street network, especially along seafronts, where a lot of recreational and leisure venues can be found.

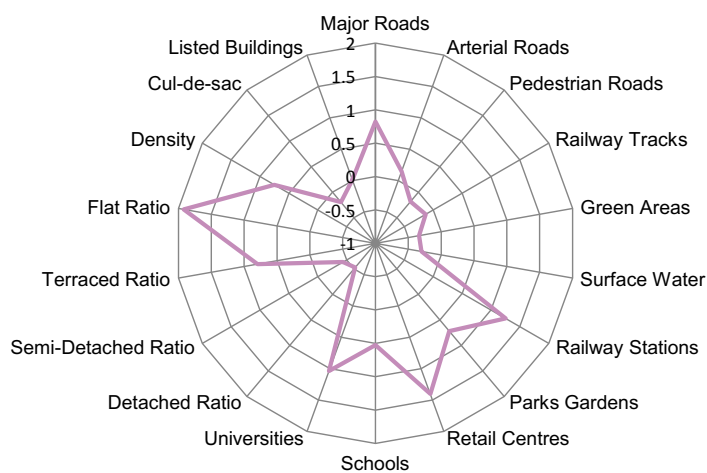
High Streets and Promenades



8. Central Business District

The area often called city centre. Typically, high-rise buildings with a lot of commercial and office spaces, hence the relatively low net population density. These areas have proximity to the majority of public amenities, and have plenty of access vial major roads and railways. For moderate-size cities the title holds true, but in areas such as London they tend to be too expansive to be labelled as central.

Central Business District



List of Input Attributes

Table 1. Descriptions of attributes used in the classification.

Variables	Variable Description, Aggregated per OA Code
<i>Adjacent effects</i>	
1. Major Roads	Percentage of the area of buildings that the centroid is within 100m of a major road to the total building area. We defined major as those of type “Motorway”, “A Road” and “Primary Road”.
2. Arterial Roads	Percentage of the area of buildings that their centroid is within 100m of an arterial road to the total building area. We defined Arterial roads as those with type “B Road”.
3. Pedestrian Roads	Percentage of the area of buildings that their centroid is within 100m of a pedestrian road or footway to the total building area.
4. Railway Tracks	Percentage of the area of building units that their centroid is within 100m of railway tracks, excluding tunnels to the total building area.

5. Woodland Areas	Percentage of the area of building units that their centroid is within 100m of woodland features to the total building area.
6. Surface Water	Percentage of the area of building units that their centroid is within 100m of surface water (inland) and seafront (calculated by the distance from the coastal line), but excluding small rivers and streams, to the total building area.
<i>Intermediate effects</i>	
7. Railway Stations	Percentage of the area of building units that their centroid is within 600m from the centroid of a railway station to the total building area.
8. Parks and Gardens	Percentage of the area of building units that their centroid is within 600m from the registered site extents to the total building area.
9. Retail Centres	Percentage of the area of building units that their centroid is within 600m from the retail centre centroid plus 200m to the total building area.
10. Schools	Percentage of the area of building units that their centroid is within 600m from the sites that are identified as primary through secondary education to the total building area.
11. Higher Education (Universities)	Percentage of the area of building units that their centroid is within 600m from the sites that are identified as further and higher education to the total building area.
<i>Direct measures</i>	
12. Detached Ratio	Percentage of unshared households that are classified by the 2011 Census as detached housing to the total building area.
13. Semi-Detached Ratio	Percentage of unshared households that are classified by the 2011 Census as semi-detached housing to the total building area.
14. Terraced Ratio	Percentage of unshared households that are classified by the 2011 Census as terraced housing to the total building area.
15. Flat Ratio	Percentage of unshared households that are classified by the 2011 Census as Flats to the total building area.
16. Density	Ratio of persons to total building area (people/ha).
17. Cul-de-sac	Ratio of cul-de-sacs (dead-end street points) to the total OA area (points/ha).
18. Registered Buildings	Ratio of listed buildings to the total OA area (points/ha)