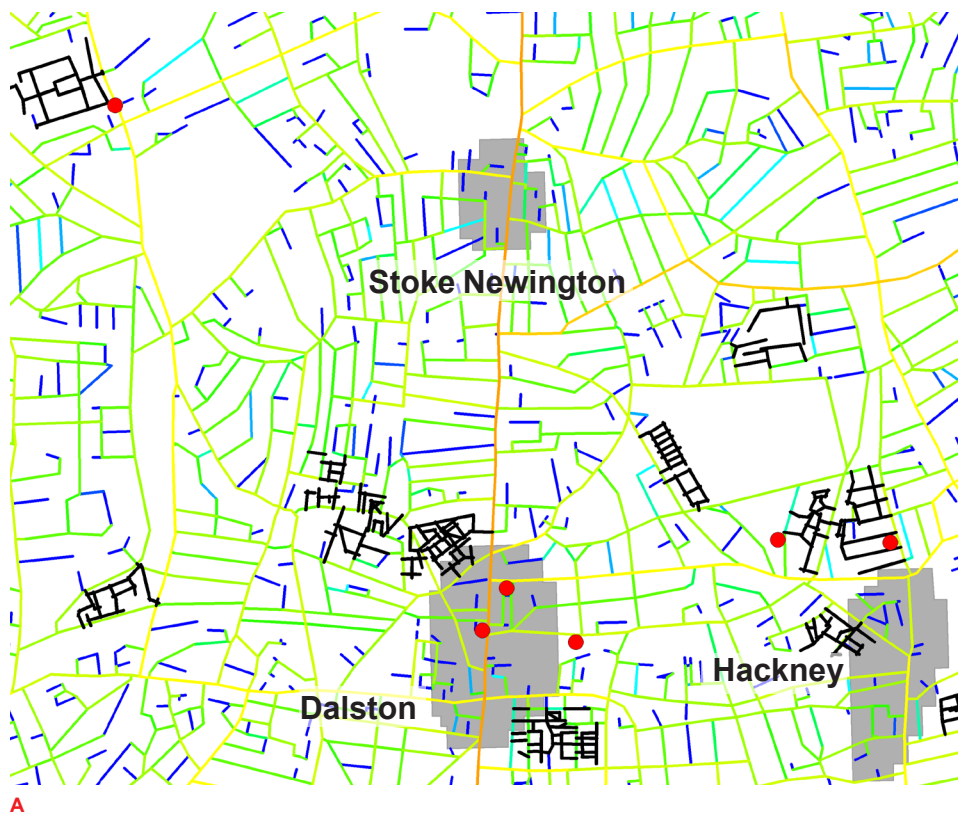# 2011 London Riots location analysis
Proximity to town centres and large post-war housing estates

84% of verified incidents in north London and 96% in south London took place within a five minute walk of BOTH a) an established town centre and b) a large post-war housing estate.

Local centres without large post-war estates nearby were unaffected.

A Riot location and spatial layout analysis
Extract of north London study area showing how well connected each street is (red indicates a space is well connected, blue indicates it is poorly connected), the location of riot incidents (red dots), defined town centres (grey areas) and the location of large post-war housing estates (black lines).

A

Background

London-based consulting company Space Syntax Limited has undertaken an initial spatial analysis of the London Riots in terms of a) the location of the incidents and b) the addresses of convicted rioters.

The principal aim of the study was to test a hypothesis that riot incidents occurred in places that were both near town centres and near large post-war housing estates. Space Syntax founder, Bill Hillier, has previously conjectured that the overly complex spatial layout of these housing estates has an effect on social patterns, often leading to social malaise and anti-social behaviour [1].

Publicly available riot datasets were combined with established town centre locations (courtesy of CASA) and Space Syntax™ spatial network analysis. Two study areas covering 12 town centres were defined in north and south London.

[1] Hillier, Bill, "Space is the Machine", Chapter 5
http://www.spacesyntax.com/en/downloads/library/

First findings

Visual analysis (A) supports the hypothesis with riot locations (red dots) being close to both town centres (grey areas) and large housing estates (black lines). This result holds up to further quantitative analysis:

In the north London study area, 84% of verified incidents took place in local centres that are within a five minute walk (400m) of large post-war housing estates. In the south London study area, this figure increases to 96%.

Local centres that were unaffected, such as Stoke Newington, are as well connected as many of the areas where incidents were recorded (see map above). However in these areas there are no large post-war housing estates in close proximity. This is the case in 75% of the unaffected local centres within the north and south London study areas.

It has been suggested by others that there is a link between riot locations and the nearby presence of social housing. We think this link can be more accurately defined.

Hillier's earlier work suggests that the proximity of riot activity to large post-war estates may not be the result of social housing in itself but the type of social housing: most post-war housing estates have been designed in such a way that they create over-complex, and as a result, under-used spaces. These spaces are populated by large groups of unsupervised children and teenagers, where peer socialisation can occur between them without the influence of adults. This pattern of activity, and the segregation of user groups, is not found in non-estate street networks. Our analysis of court records shows that the majority of convicted rioters in the study areas live on large post-war housing estates.
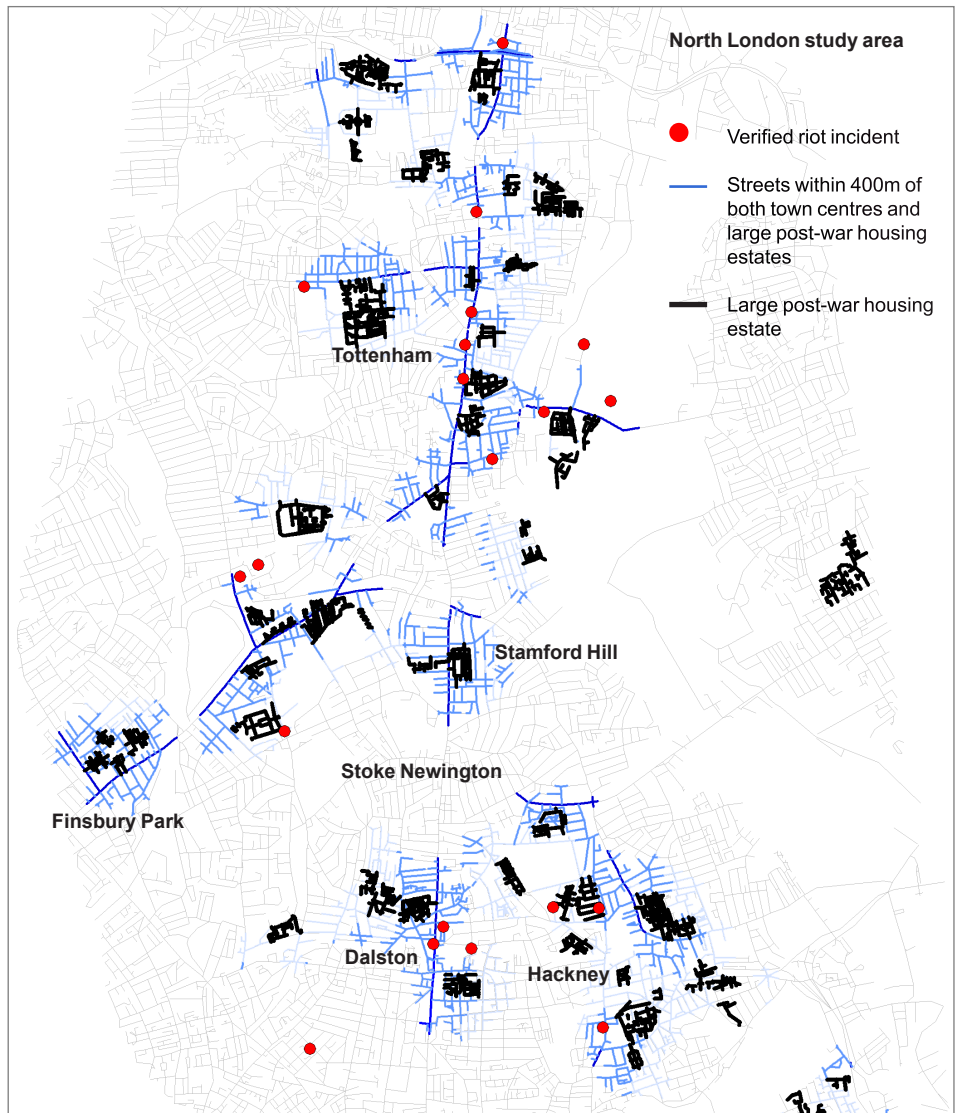
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B Large post-war housing estate in Hackney

C Analysis of over-complex, under-used spaces
Post-war estates are typified by having overly-complex spatial layouts. This means that many spaces in them are under-used by everyday activity.

D Rioting/looting "catchment" analysis
Extract from the north London study area, showing streets (blue) that are within 400m of both town centres and large post-war housing estates (black).

Note that Stoke Newington, unaffected by the rioting/looting, lies outside this catchment.

North London study area

● Verified riot incident

— Streets within 400m of both town centres and large post-war housing estates

— Large post-war housing estate

Tottenham
Stamford Hill
Stoke Newington
Finsbury Park
Dalston
Hackney

D

Next steps
There are a series of next steps which would help to consolidate the findings of this study:

- further test the hypothesis that the spatial configuration of large post-war estates is the key influence by using census data to study proportions of social housing within 400m of incident locations.

- extract data from the index of multiple deprivation to develop a more detailed understanding of the relationships linking rioting activity with socio-economic circumstances and spatial configuration.

- extend the study areas to look at the whole of London, and to look at other affected UK cities.

- include the nature of different incidents and the time they took place, to understand how rioting activities and locations change.

Space Syntax
The Space Syntax Network is an organisation of academic researchers, teachers, software developers and professional practitioners. Our mission is to enhance the social, economic and environmental performance of urban places. We do this by generating, disseminating and applying knowledge about the key role of space in shaping patterns of human behaviour - the ways in which people move, interact and transact.

From the redesign of major civic spaces, such as Trafalgar Square in London, to the planning of rapidly urbanising cities, such as Jeddah in Saudi Arabia, the Space Syntax Network provides a unique, space-first approach to planning, design and governance.

The Space Syntax Network builds bridges between the worlds of academic research and professional practice by creating a two-way flow of questions, ideas and solutions.

New research findings and technologies are first created within an academic Space Syntax Laboratory and are then tested and improved on live projects undertaken by Space Syntax Consulting companies. These live projects raise fundamental research questions that are fed back from Consulting to Laboratory. The result is a process of "mutual exploitation" that stimulates innovation, facilitates practice and, ultimately, benefits our buildings and cities.

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