



# JDiBrief - Analysis

## Hot Routes: SUMMARY (1 of 5)

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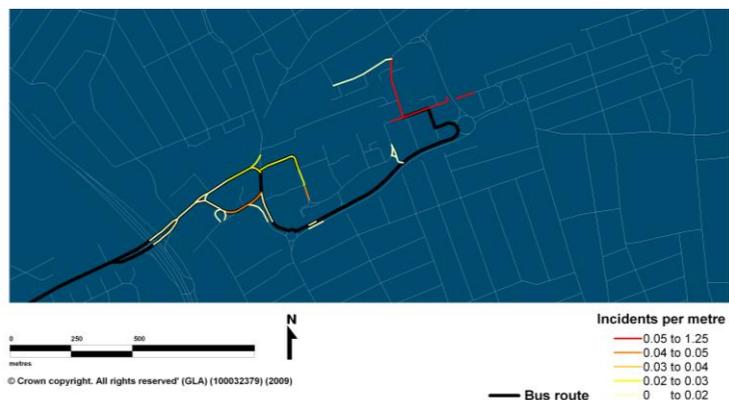
**PURPOSE:** Hot Routes is a spatial analysis technique that visualises crime patterns on a network. It allows an analyst to map crime concentrations along different segments of that network and uses colour and line-width to display the results (known as thematic mapping).

**THEORY:** According to crime pattern theory, the distribution of crime largely depends on how victims and offenders converge in space. In an urban environment an individual's 'activity space' is defined by streets and transport networks called 'paths' along which they travel to 'nodes' where they live, work, or engage in leisure activities. Crime tends to concentrate at the nodes and along the paths that connect them. Since streets and transport networks constrain the routine movements of victims and offenders, they strongly influence the spatial distribution of crime.

**METHOD:** Two data files are needed for the analysis: a) point-level crime data which are geocoded to a high level of spatial resolution, and b) a network layer. The following steps summarise the analytical process that needs to be followed to produce a Hot Routes map (more detailed information is provided in the Method brief on this topic along with GIS tools suitable for each step).

1. *Preparing the network layer:* network layers typically contain streets of unequal length. It is advisable in this analysis to use equal length street segments, where possible. Street segments that are unusually long or short need to be split or combined with neighbouring segments.
2. *Linking crime events to street segments:* In this step, each crime event needs to be linked to the nearest street segment and the attribute table of the network layer updated with the corresponding count of crime.
3. *Calculating a rate:* the length of each street segment needs to be calculated (if this is not automatically done by the GIS). Next, a new column needs to be created in the network layer to record a crime per metre score. This is calculated by dividing the number of crimes linked to a street segment by its length..
4. *Visualising the results:* The final step is to thematically shade each street segment with a colour (and line thickness if desired) that corresponds to the range of the rate of crime per metre.

**APPLICATION:** To date, the Hot Routes method has been applied to study crimes and incidents on the transport network in London, to examine street traffic collisions involving cyclists, and in analysis on theft from motor vehicle offences.



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