

Abstract for GeoVisualization Workshop at AGILE 2008

Title: GeoVisualization of local authority planning decisions.

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Abstract:

This abstract presents a GeoVisualisation tool that informs discussion of planning policy by providing a view of planning decisions and their geographic distribution over time. Local plans and structure plans are printed documents describing the policies that guide decision making in the UK planning system. These inform both decision-makers and the users of the planning system about current planning policy. The GeoVisualisation tool helps the user explore how these policies have been implemented. That is, it allows the user to seek evidence confirming that decision-making on individual planning applications correspond to these plans.

An Information Extraction (IE) process is developed to automatically analyse the texts present in planning applications, the output of this process classifies an application according to the changes in land-use associated with the proposed development. We found that the texts in planning applications use a sufficiently restricted subset of language to allow this to be done reliably.

The results of the text analysis process are stored in a database – this allows applications to be queried according to the land-use consequences of the proposal, for example, the selection of only those applications that propose the development of a new office. The GeoVisualisation tool is developed for the purposes of exploring these results.

There are three problems in relating the decision on an individual planning application to overall policy:

- i. Several, potentially competing, policies may apply to a single application, the decision-maker reaches a decision by weighing up all the applicable policies. Policies and their relative importance are open to some interpretation.
- ii. Policy changes over time.
- iii. Some policies are phrased in terms of existing land use.

The geovisualisation is designed to overcome these problems. It addresses each as follows:

- i. The visualisation approach does not impose a particular interpretation of policy on the user. By contrast, statistical analysis of the results would require a formal definition of each policy and its relative weighting.
- ii. The visualisation uses dynamic querying and linked views (a histogram and map of submitted applications) to interactively explore the temporal aspect of the planning data.
- iii. Maps of actual, baseline land-use are created by matching the addresses in a public register to a geo-coded address gazetteer. Using these baseline maps as a backdrop to the planning data places the decisions in their land-use context.

The planning dataset used in our prototype is City of Edinburgh Council's planning database, which contains every application from 1990 – 2005, a total of 56,000

applications. Baseline land-use data is available for the years 1995, 200 and 2005. It is important to recognise the difference in what these datasets represent: the baseline maps describe actual urban land-use, whereas the planning data represents granted or refused permissions to make changes to urban land-use. Planning permission lasts for five years, but there is no guarantee when, or if, permission will be acted upon.

The combination of the IE process and the GeoVisualization can help inform policy-maker's discussion of the following questions: Has a particular land-use policy been correctly implemented? Is a particular land-use policy still relevant? Are there any significant trends in decision making regarding land-use that the development plans would benefit from documenting?

The aim is thereby to help improve the accuracy with which development plans describe the operation of the planning system. There are a range of benefits that arise from improving development plans. Firstly, the task of decision-makers is made easier, this should result in more efficient and consistent decision making. Secondly, development plans that more accurately document decision-making will help improve public understanding of planning policy. The planning system itself benefits from better public understanding of policy, for example, by increasing the value in participation exercises.

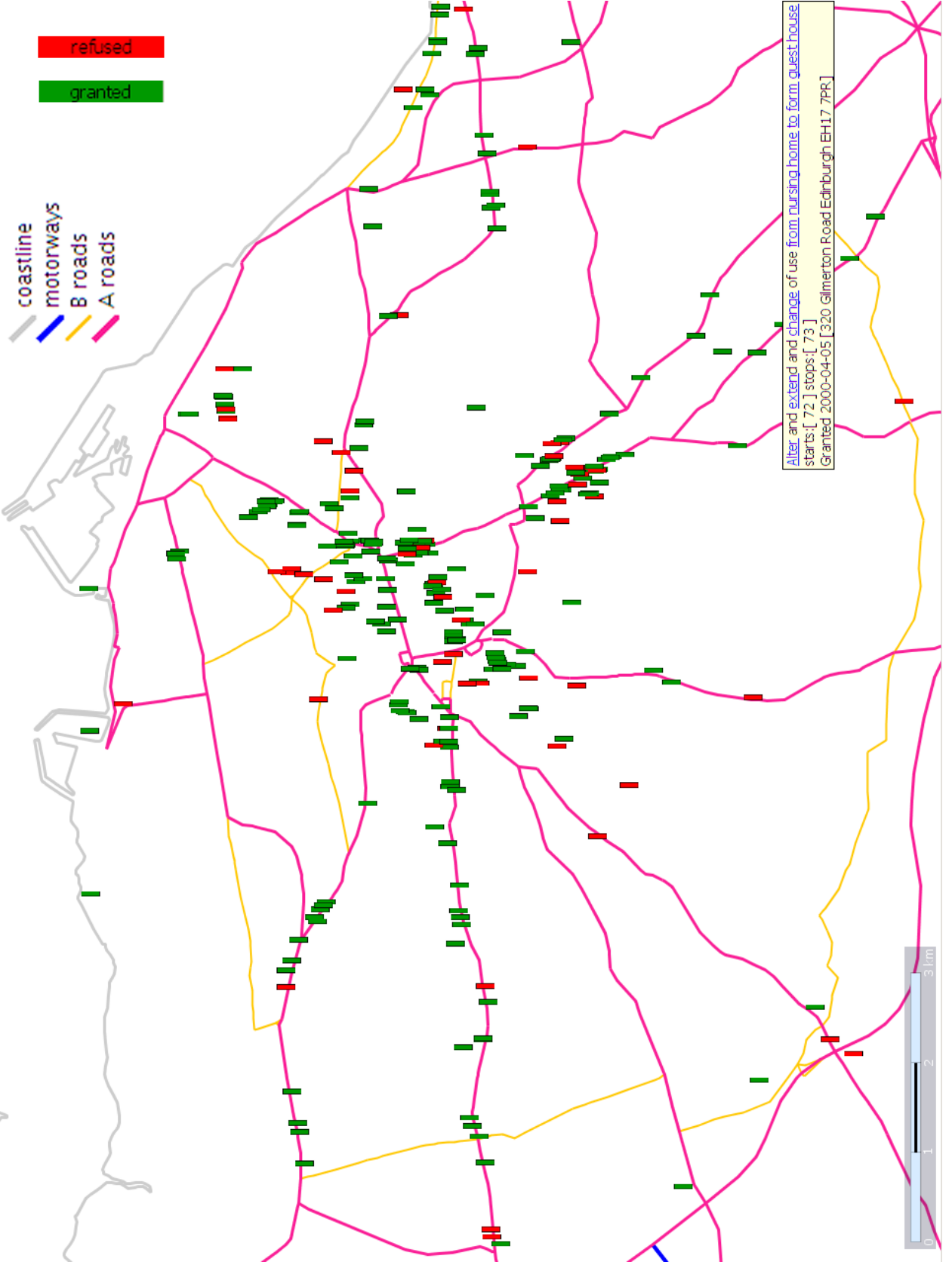
Illustrations

The following gives an example of how the approach can be used to examine the implementation of a policy. The 1997 local plan for Central Edinburgh (drafted in 1992, under revision in 2005) states the following about new Hotel development:

New hotel development, including the conversion of non-residential buildings to hotel use, will be favourably considered, will be favourably considered on suitable sites within the Mixed Activities Zone and on or adjacent to the main tourist approach routes but their acceptability will depend on the character and their compatibility with surrounding uses. New hotel development will not be accepted in residential areas.

New hotels are to be allowed inside a geographical zone defined in the development plan, on arterial routes in and out of the city centre and are not allowed in existing residential areas. The tool can be used to select only those applications that propose the creation of a new hotel, the screenshot on the following page shows granted (green) and refused (red) applications for proposed hotels in relation to arterial routes in and out of the centre. Moving the mouse over a symbol brings up the original text of the application with the words matched by the IE process underlined (bottom right of screenshot).

The two screenshots on the final page show the entire user interface and give an example of the use of the temporal dynamic querying. The applications shown propose the change from an office to a dwelling. In the second of these two screenshots a peak in the histogram has been selected. The peak occurs almost entirely within the Edinburgh's UN designated world heritage site (shown as red hatch).



refused
granted

coastline
motorways
B roads
A roads

Alter. and extend and change of use from nursing home to form guest house starts: [72] stops: [73]
Granted 2000-04-05 [320 Gilmerton Road Edinburgh EH17 7PR]



