Joint Partnership Strategic Assessment 2010/11

Leicestershire County Appendices

ABH

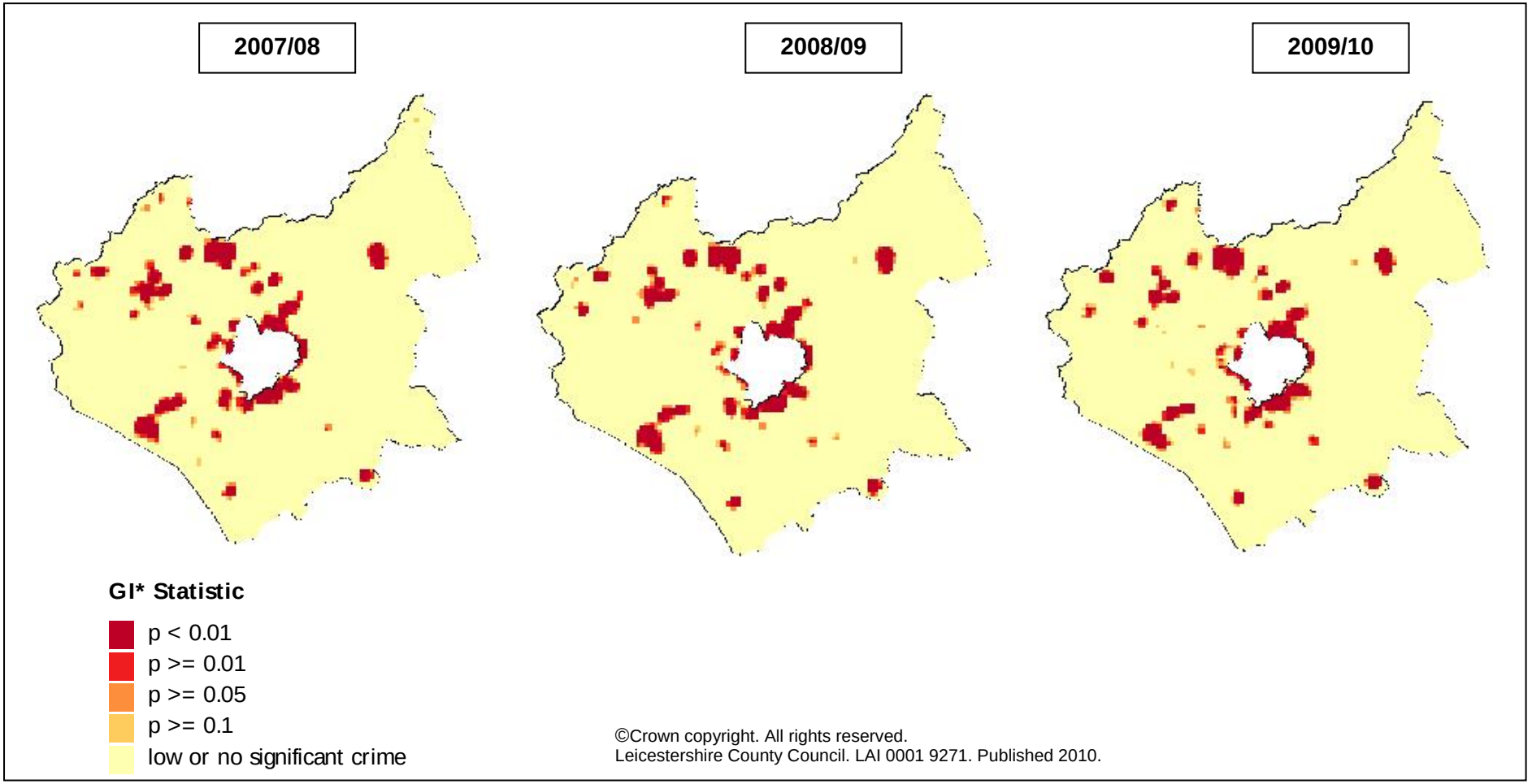

Figure 1. ABH Hot Spots in Leicestershire County

Across Leicestershire, ABH hot spots are focused on the main towns and in the urban area adjacent to Leicester city, covering Thurmaston and Syston and Oadby and Wigston borough. Elsewhere there are small isolated hot spots across North West Leicestershire and the Soar Valley in Charnwood borough. This pattern has remained fairly constant since 2007/08, with small changes in the size and intensity of hot spots around Coalville, Enderby and Quorn being the only noticeable changes.

Anti-Social Behaviour

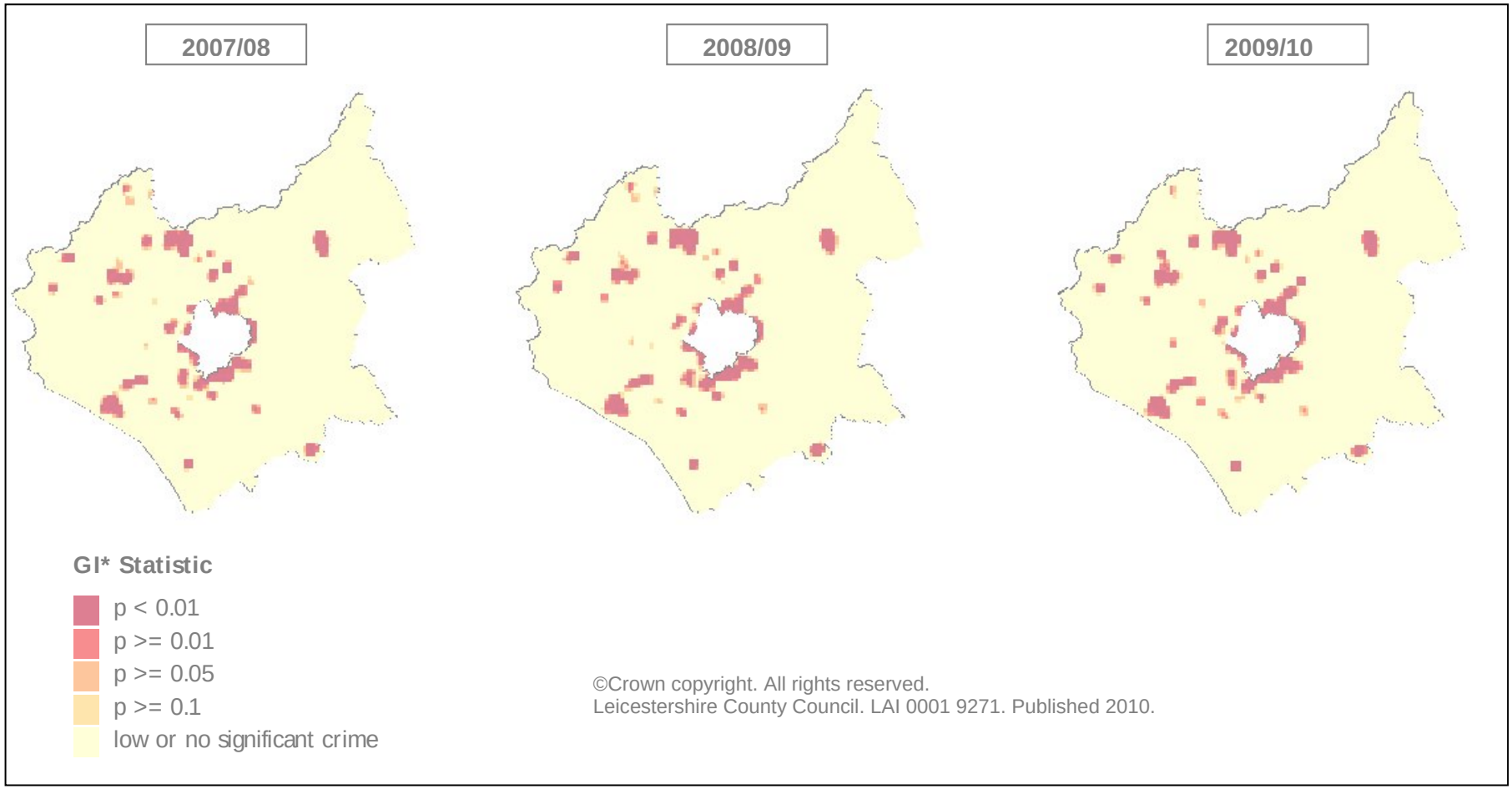

Figure 2. Anti Social Behaviour Hot Spots in Leicestershire

Removing Leicester City and Rutland from the analysis has little impact on the ASB hot spots that are identified in Leicestershire in 2009/10. The pattern remains largely unchanged from that of the sub-region with the major towns and settlement locations being areas of concern. The edge effect of the City can also be clearly identified. The only real difference is a slight increase in intensity of some of the hot spots that cover the smaller settlements such as Mountsorrel and Sileby.

Burglary Dwelling

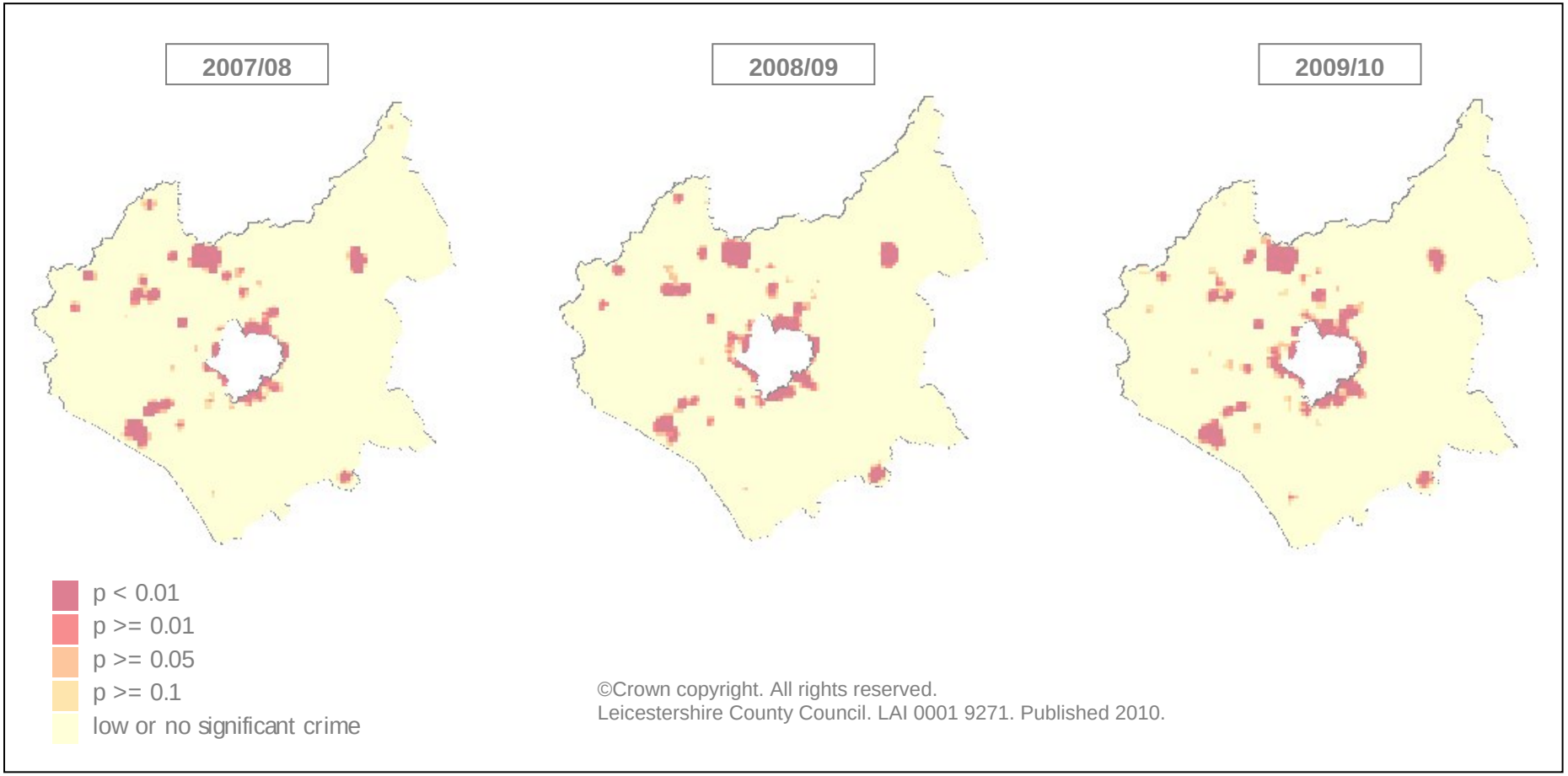

Figure 3. Burglary Dwelling Hot Spots in Leicestershire

Considering Leicestershire in isolation from Leicester City and Rutland does not significantly change the areas of high levels of domestic burglary from that presented for the entire Force Area. Removing the city from the analysis means that some of the smaller settlements appear to be significantly higher, but this is only a relative change e.g. Desford, Market Bosworth and Newbold Verdon. The edge effect of the city is also evident on the Leicestershire map with all areas surrounding the city show as significantly high for domestic burglary.

Criminal Damage

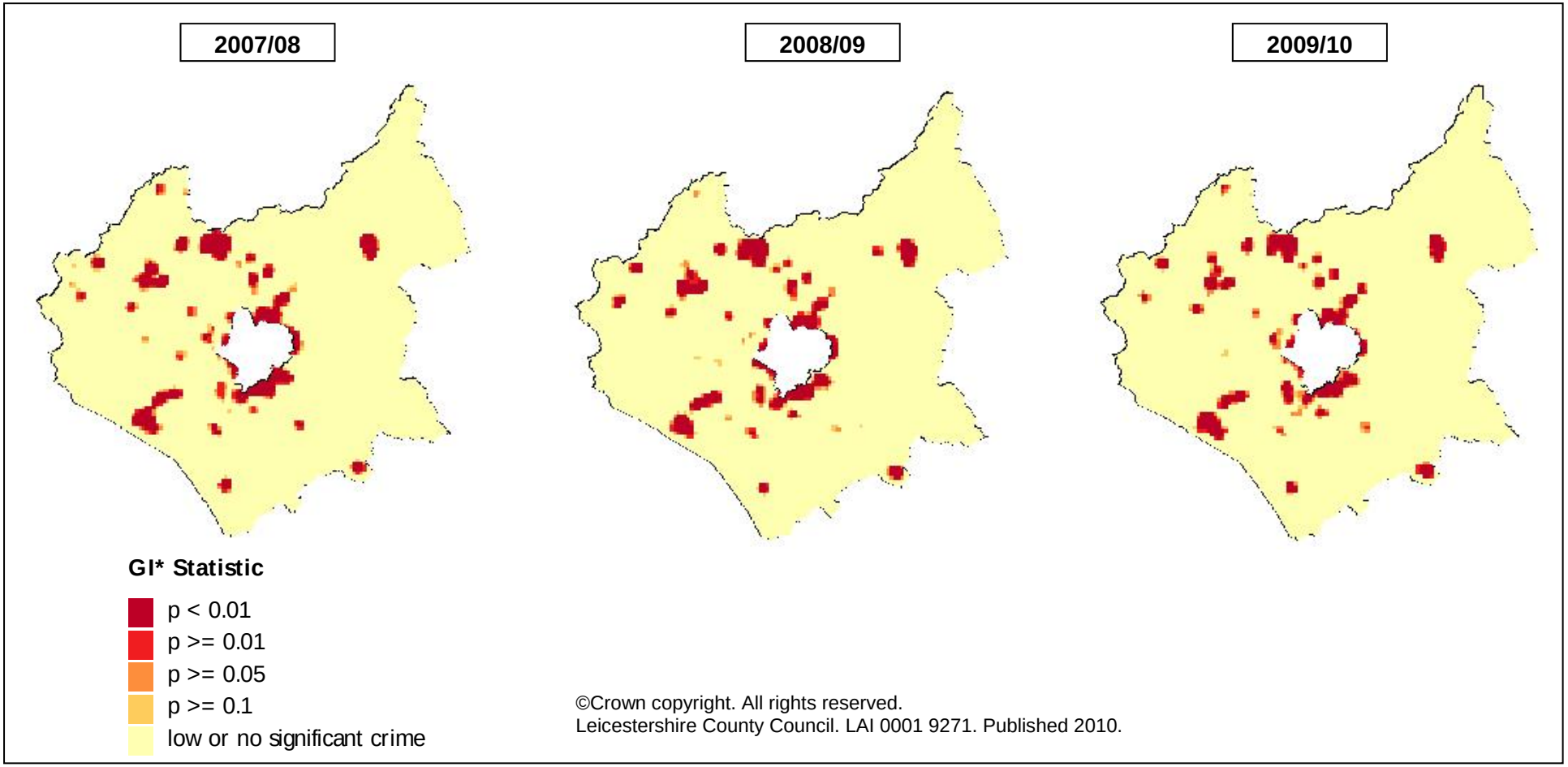

Figure 4. Criminal Damage Hot Spots in Leicestershire County

Within the county, the main criminal damage hot spots are focused around main towns and key centres north and south of the city, especially along the A607 through Thurmaston and Syston and in Oadby and Wigston borough. The hot spots within the county have remained relatively stable between 2007/08 and 2009/10. Asfordby emerged as a hot spot for 2008/09 and receded for 2009/10 while Groby and Ratby reduced in intensity during 2008/09 but have since become a hot spot again in 2009/10.

Vehicle Crime

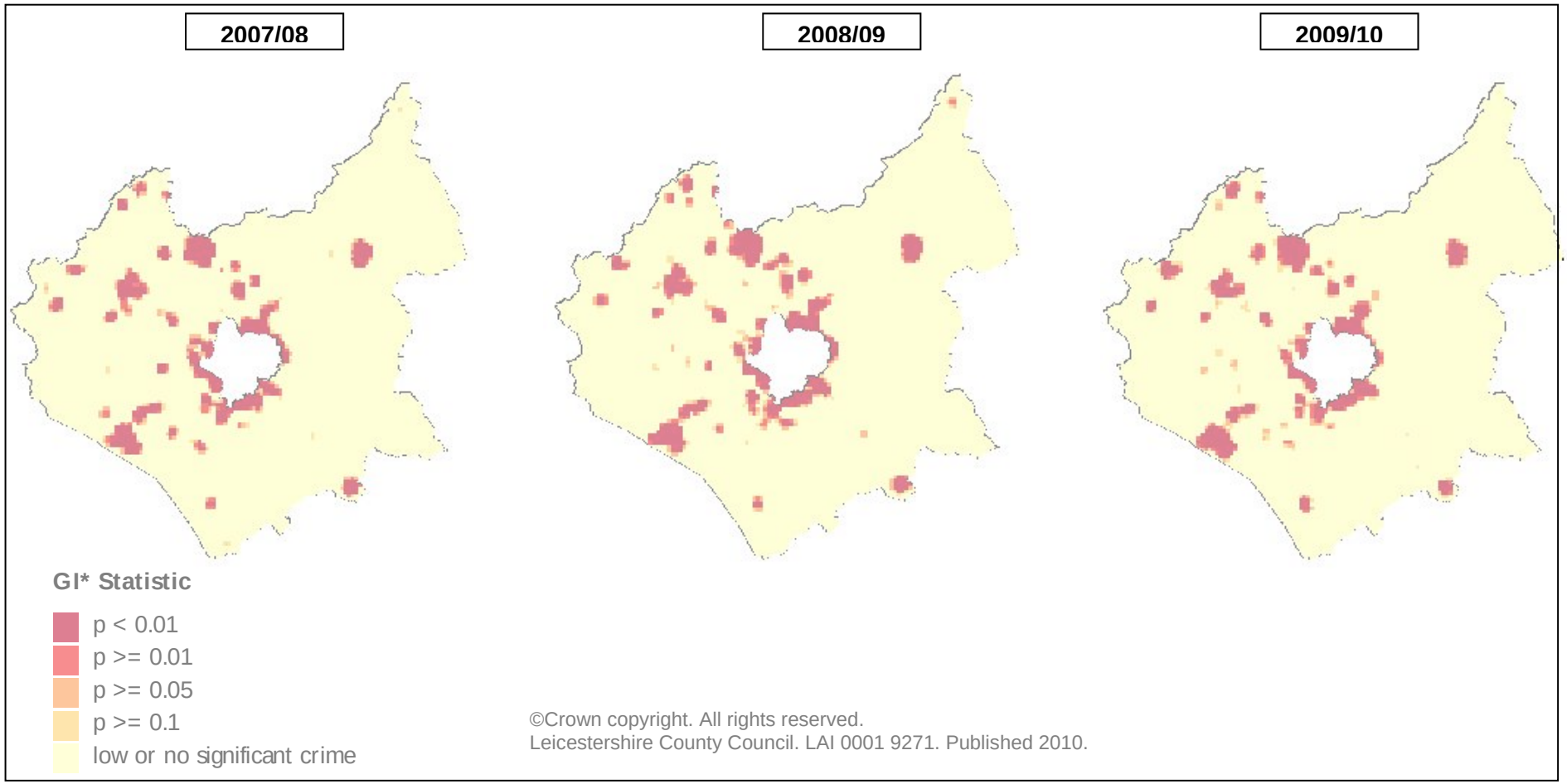

Figure 5. Vehicle Crime Hot Spots in Leicestershire County

Without the dominating effect of the Leicester city hot spot, smaller, more localised hot spots within the county become more apparent. These are focused around the Soar Valley and parts of rural North West Leicestershire. These areas have remained relatively stable between 2007/08 and 2009/10, although there has been some change in the Soar valley area; since 2007/08 Quorn has become a more intense hot spot, while Barrow has receded in intensity.

Mapping Methodology

The maps cover five different crime types identified as being of interest to the Partnership Strategic Assessment 2010: Actual Bodily Harm, Anti-Social Behaviour, Vehicle Crime, Criminal Damage and Domestic Burglary. Due to methodology employed it was necessary to provide separate maps at all levels of geography covering the Leicestershire Constabulary Force Area, Leicester City, Leicestershire County, each of the seven districts, and Rutland.

The maps operate on a 500m grid resolution and use a spatial statistic to test for local spatial autocorrelation, or how closely near-by areas resemble each other in terms of the volume of crime. The statistic used is the Getis and Ord (1996) GI* statistic[1] which was run via the Rook's Case[2] add-on for Microsoft Excel. The volume of crime in each individual grid square is compared to the values in the eight squares that immediately surround it. These values are then compared to the global average for the area under consideration. A high positive value for the GI* statistic means that lots of high crime grid-squares are grouped together, whereas very low, negative, GI* values mean that lots of low crime areas are group together. For the purpose of the PSA mapping these low grid squares were classified together with areas of no crime.

As well as comparing local and global averages, a significance test is applied to the result for each grid-square that identifies if the local pattern of crime is significantly different to what is generally observed across the whole study area. The Rook's Case software reports this result as a standardised z-score which can then be converted into a probability. Where the probability is equal to 0.1 it means there is only a 10% chance that the differences observed occurred by chance rather than any real statistical difference in the grid pattern. The probabilities range between 0.1 and 0.01.

Standard thematic maps by grid square are used to display these probabilities in MapInfo and the following analysis is based on these maps. It is important to note that because of the way the statistic works: it considers only the distribution of values at a given point in time for a given area; direct comparison over time is not possible. Where comments have been made about changes over time, it is because either further analysis has been used within the GIS to work with the volume of crime, or the discussion relates to relative changes through time regarding emerging or improving hot spot locations. For the most part, the analysis is based only on the mapping evidence (particularly for the individual districts) and it should be noted that the volume of crime in these areas can be at very low levels, even in the identified hot spots. However, when considered in the context of each district individually, these areas are picked out as being statistically different from others by the mapping statistic.

[1] Getis, A. and Ord, J.K. (1996) Local Spatial Statistics: An Overview. *In* Longley, P. and Batty, M. (eds.) *Spatial Analysis: Modelling in a GIS Environment*. (pp. 261-277). Cambridge, England: GeoInformation International.
[2] http://www.lpc.uottawa.ca/data/scripts/index.html