What is Crime Mapping?

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What is mapping?

- Presentation of information spatially
- Easy to understand
- Patterns in space revealed
- Brings 'dry' figures to life
  - "A picture paints a thousand words"
- Data integration
  - Geography as the common denominator

What is *crime* mapping?

- Exactly the same as mapping, BUT
- Crime information is the focus
- Reveal spatial and spatial-temporal patterns and trends
  - A crime and disorder incident has a location **where** it occurred and a date and time **when** it occurred

Why map crime?

- Understand:
  - Where crime happened
  - When crime happened
  - Who was affected

- Contribute to:
  - Understanding how
  - What can be done
  - Consultation

Further benefits

- Inform tactical & operational policing
  - Targeting of resources
- Decision making and strategy creation
- Promote discussion
- Informed responses with evidence
- Measurement & evaluation
- Break down barriers
  - Information sharing
  - Promotes partnership working and public interaction

What are we mapping?

- Crime data
  - Police recorded information
  - Supporting partner information that may not include official recorded crime information
    - Emergency service callouts (Police, Fire, Ambulance)
    - Offender treatment providers (YOT, Probation)
    - Local authority data
- Geographic base data
- Demographic information
  - Census
  - Deprivation
  - Geo-demographic information (e.g. ACORN, MOSAIC)

Examples

- Point mapping - example
- Area based mapping
  - Small scale (e.g. ward based mapping)
  - Large scale (e.g. burglary repeats)
- Hotspot mapping - example
- Mapping of offenders - example
- Monitoring
  - E.g. CCTV
- Mapping of spatial-temporal patterns - example

Good crime mapping involves:

- Understanding the purpose / hypothesis & data required
- Spatially accurate data & regular supply
    - Agreed information sharing
    - Good understanding of data available
- GIS for analysis and presentation
- Skills in using & manipulating spatial data
    - Application of appropriate analysis
- Understanding the audience
- Basic knowledge of geography and mapping principles

Putting crime mapping into perspective

- Crime mapping can be poor
  - Improper use of techniques
  - Lack of understanding of techniques
  - Lack of skills
  - Poor data and poorly understood data
  - Inaccurate interpretation
  - It does not provide all the answers

It is not the 'be all and end all'

- Crime mapping is only one aspect of understanding crime
  - But it is a growing discipline with new techniques emerging
    - Early warning systems
    - Hotspots in time
    - Integration of techniques from other disciplines
- More than a 'blob' on a map
- Understand spatial areas requiring crime reduction resources
- Integrate with intelligence & theories
  - E.g. use of SARA model

SARA methodology for problem solving

- **SCANNING – What is the problem?**
  - How Much? How Often? Where? When? How Costly?
- **ANALYSIS – What generates the problem?**
  - Why does it occur? How does it occur?
  - What are the risk factors (determinants of crime)?
- **RESPONSE – What should be done about it?**
  - What action should be taken? How, when and where?
- **ASSESSMENT – What impact do measures have?**
  - What is being done? (how, when and where?),
  - What needs to change? (how, when and where?)
  - What impact are interventions having? (how, when and where?)

So where does GIS fit in?

- **S**CANNING
  - identifying the scale and distribution of crime & disorder
  - developing Early Warning Systems of emerging problems
- **A**NALYSIS
  - exploring relationships between crime and the environment (physical & social)
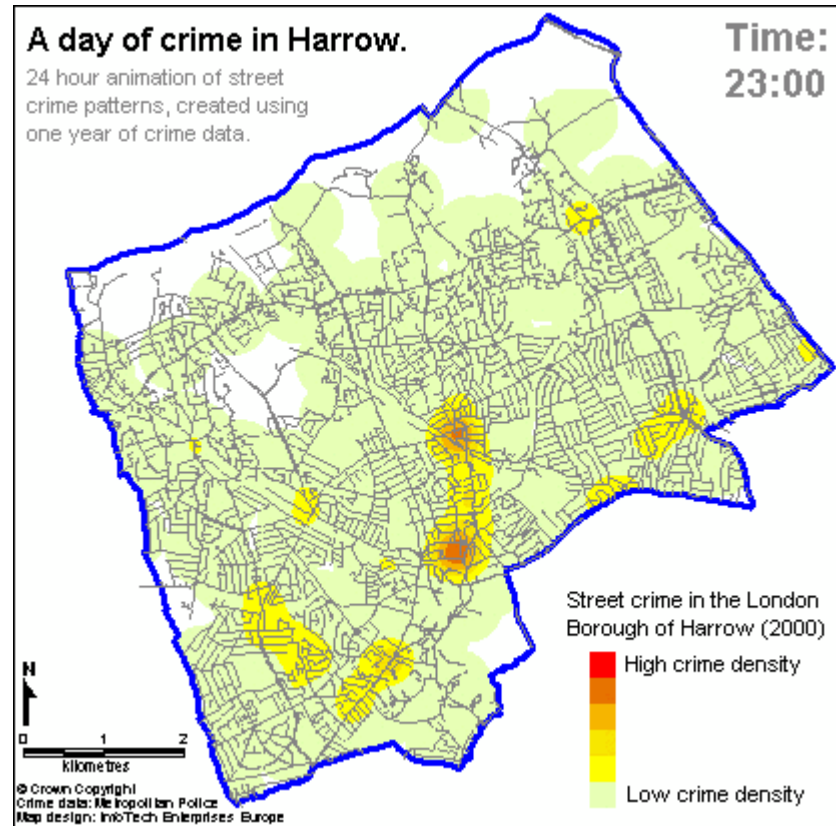- **R**ESPONSE
  - targeting resources for crime prevention
  - informing police operations/apprehend offenders
- **A**SSESSMENT
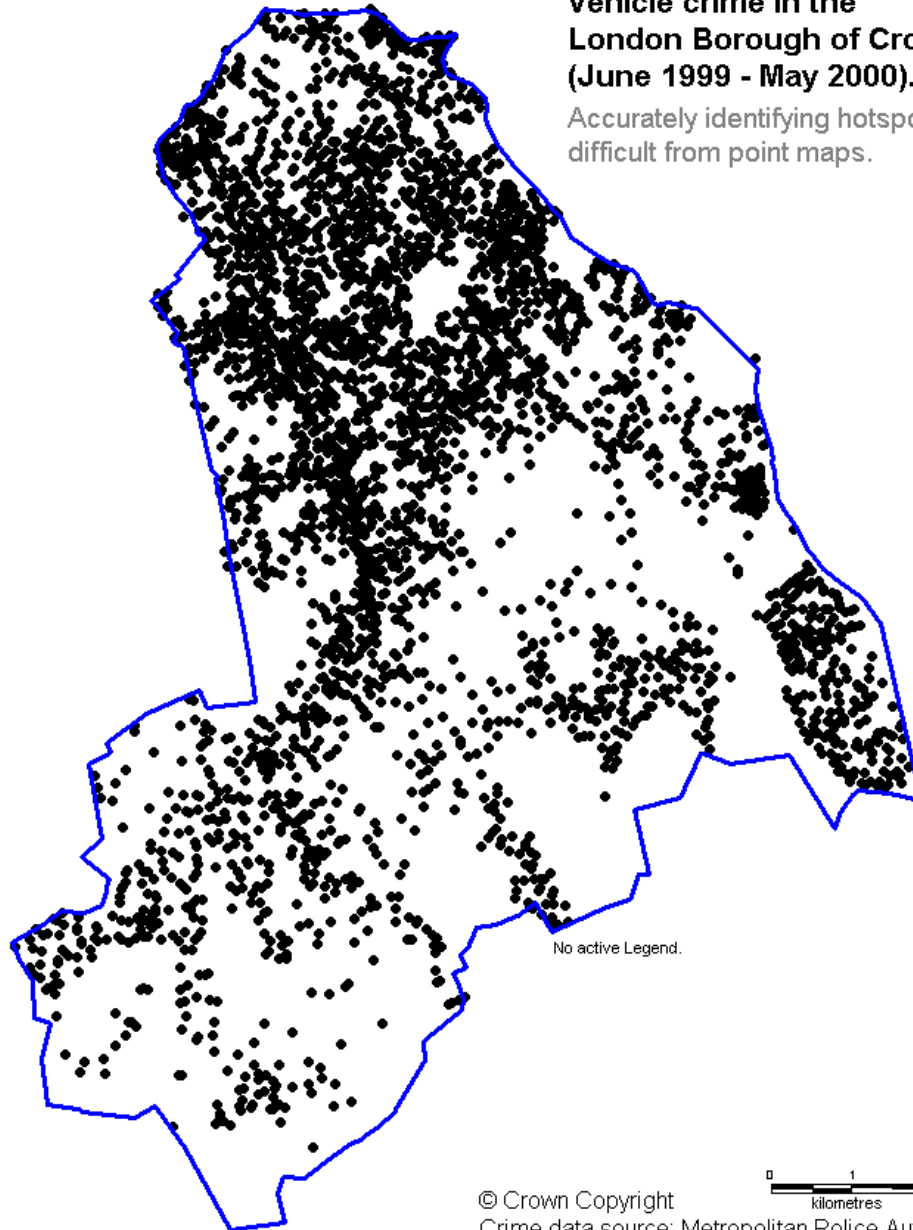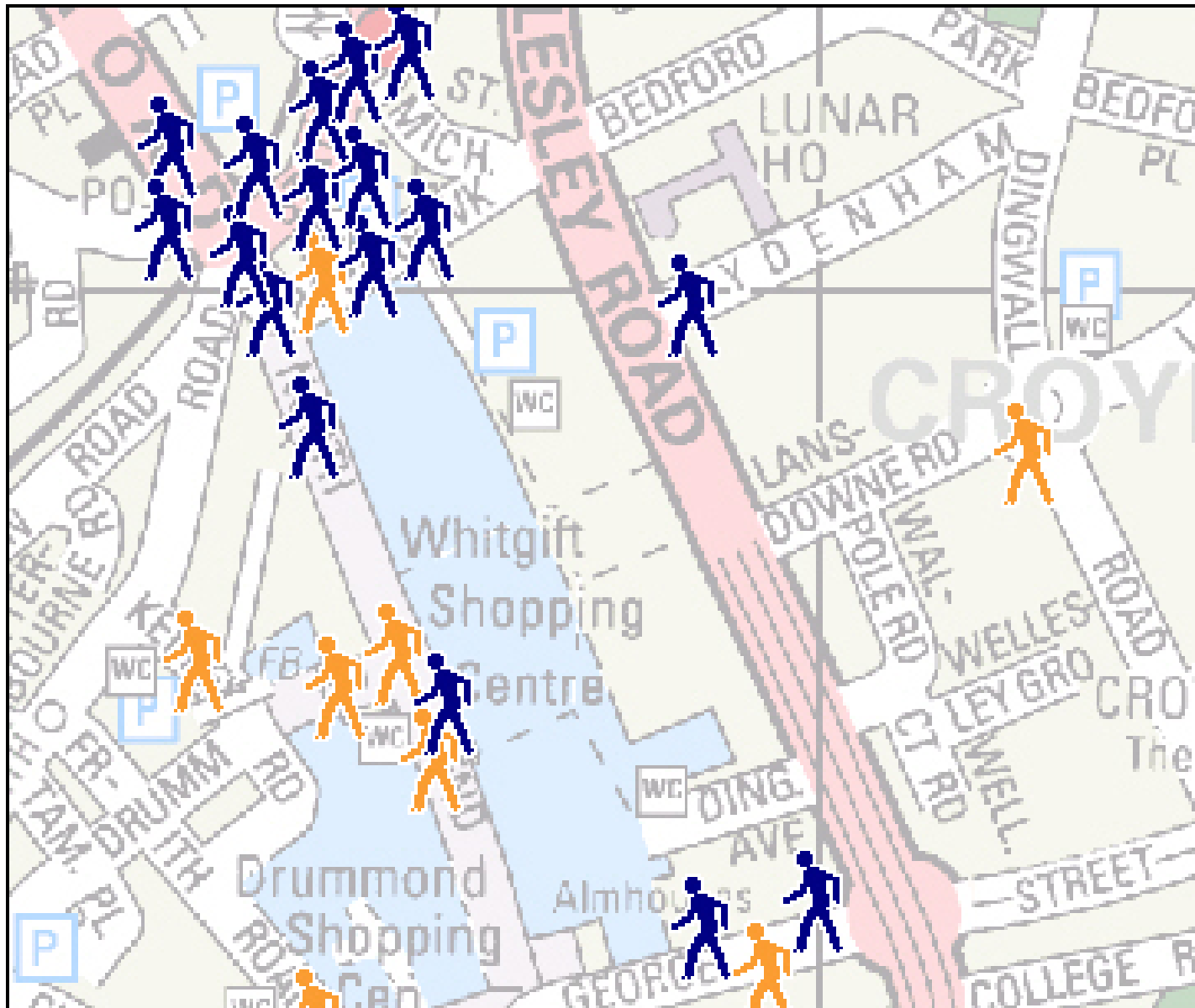 - evaluating the impact of crime prevention

Thank you

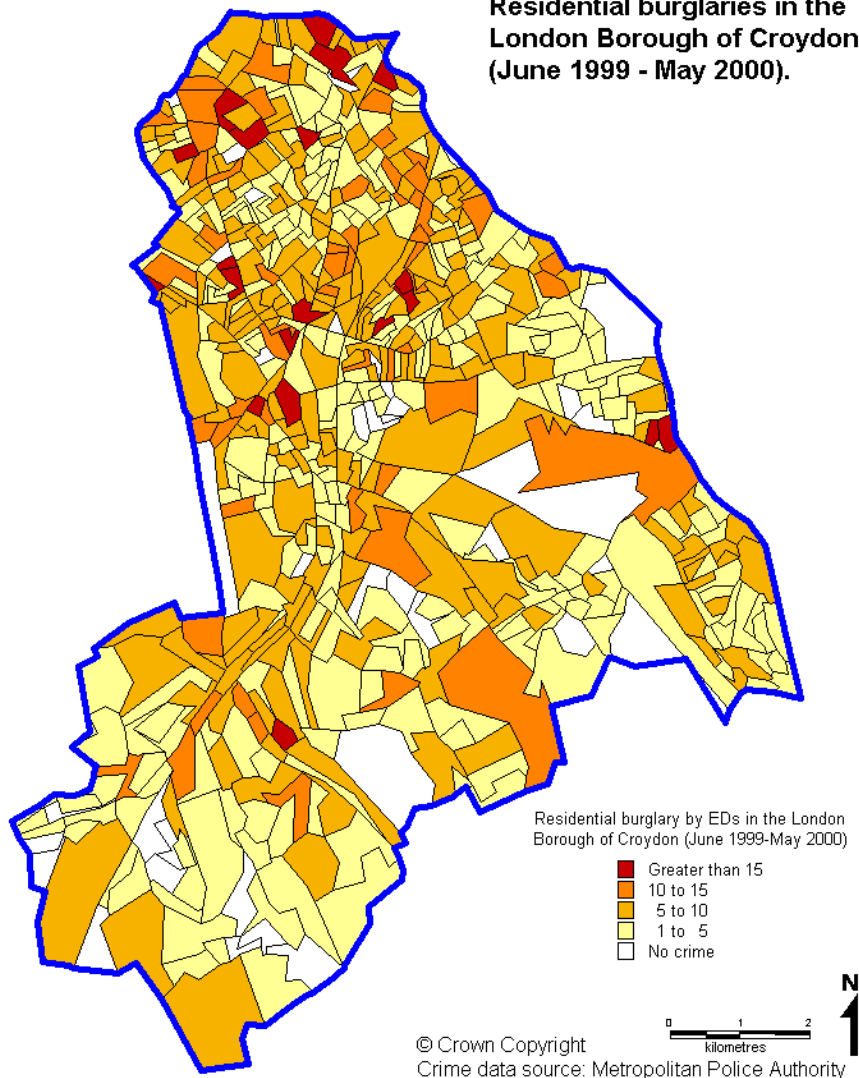**Andy Gill**
Email: agill.gol@go-regions.gsi.gov.uk
Phone: 020 7324 3018

Vehicle crime in the
London Borough of Croydon.
(June 1999 - May 2000).

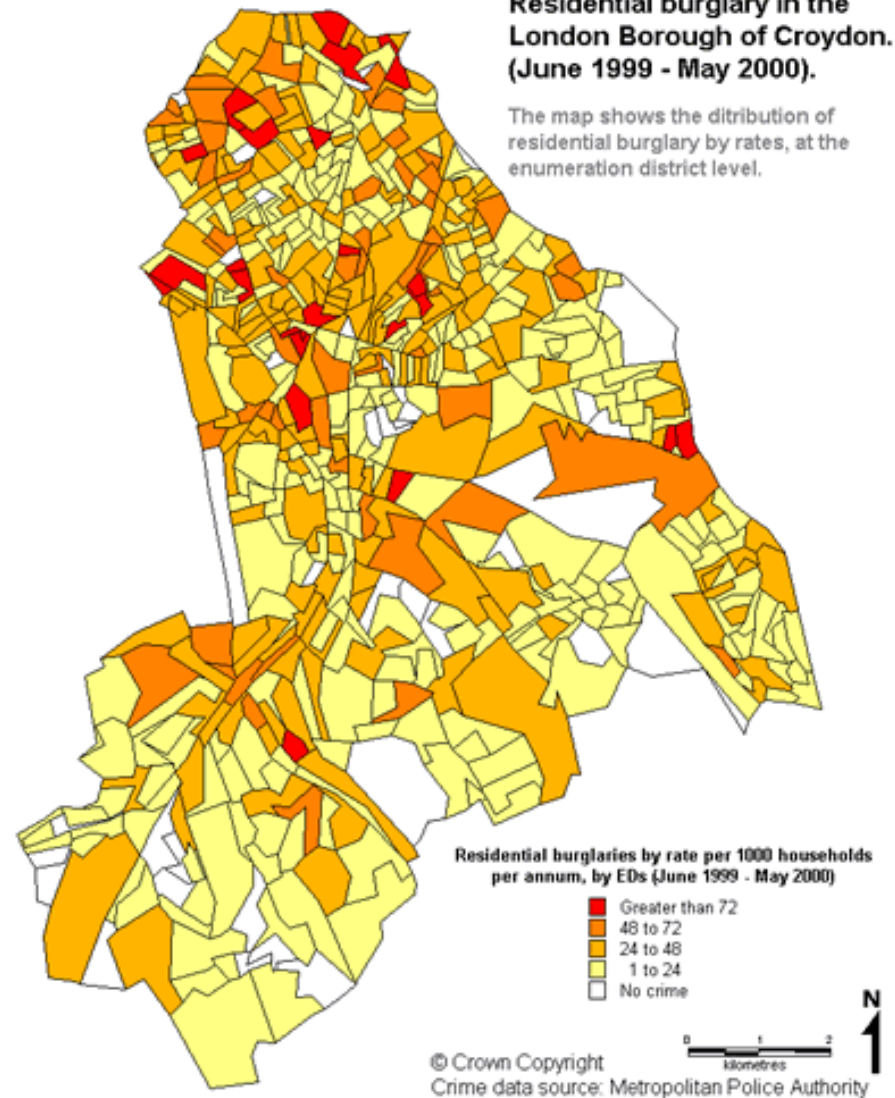Accurately identifying hotspots is
difficult from point maps.

No active Legend.

N

0   1   2
kilometres

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Crime data source: Metropolitan Police Authority

Residential burglaries in the London Borough of Croydon. (June 1999 - May 2000).

Residential burglary by EDs in the London Borough of Croydon (June 1999-May 2000)

- Greater than 15
- 10 to 15
- 5 to 10
- 1 to 5
- No crime

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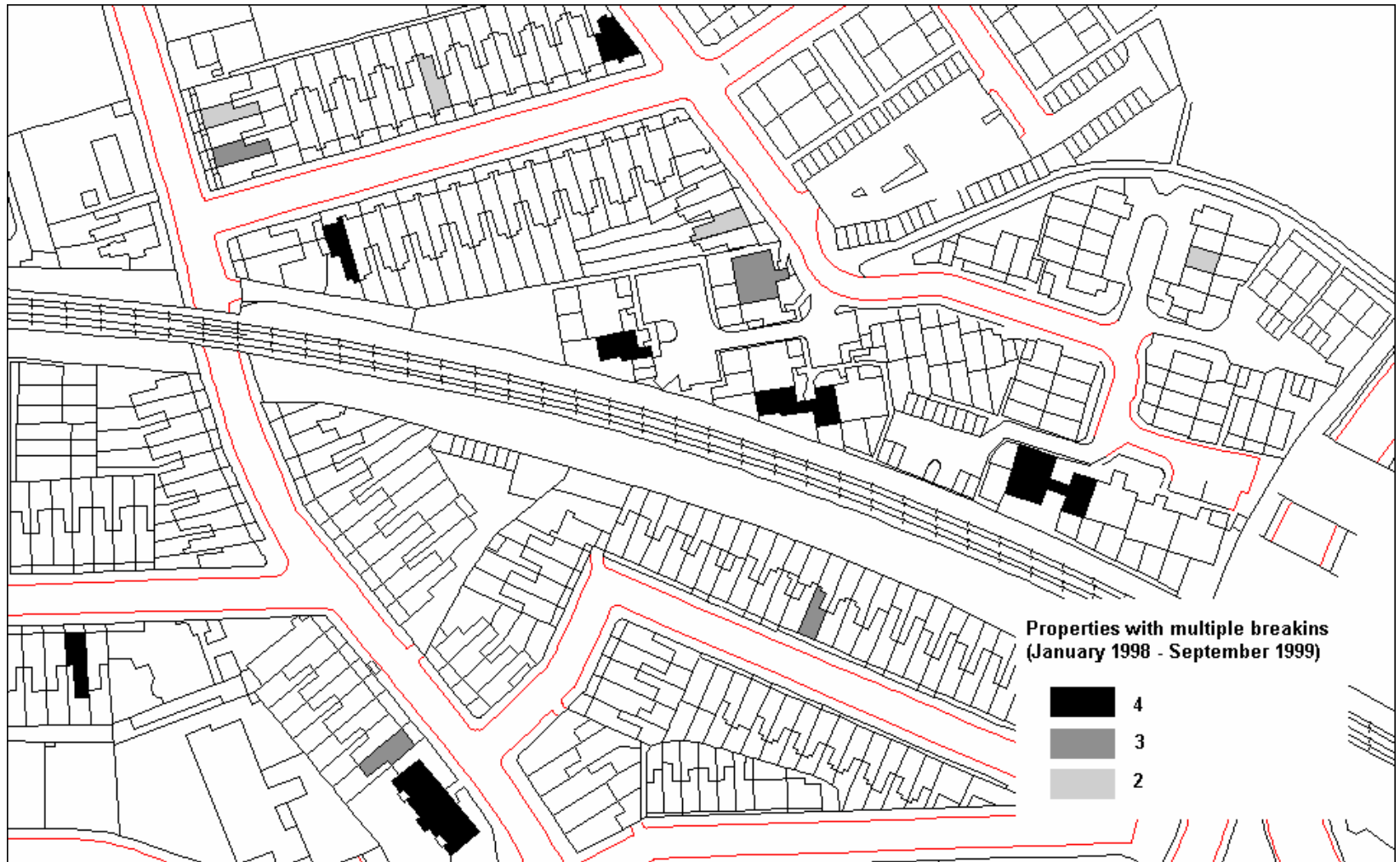Crime data source: Metropolitan Police Authority

Residential burglary in the London Borough of Croydon. (June 1999 - May 2000).

The map shows the ditribution of residential burglary by rates, at the enumeration district level.

Residential burglaries by rate per 1000 households per annum, by EDs (June 1999 - May 2000)

- Greater than 72
- 48 to 72
- 24 to 48
- 1 to 24
- No crime

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Crime data source: Metropolitan Police Authority

Burglary repeats

Properties with multiple breakins
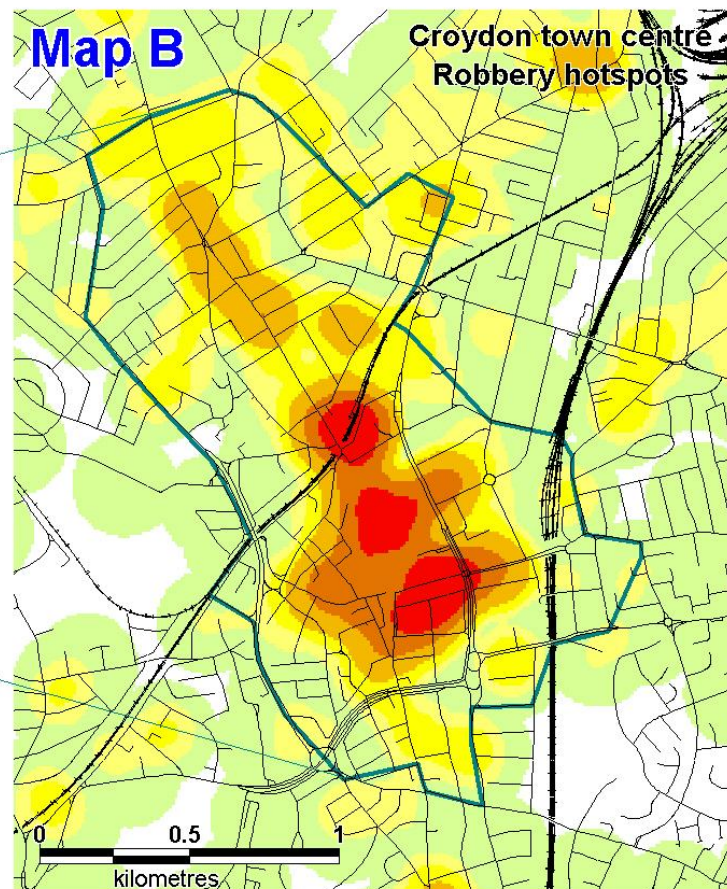(January 1998 - September 1999)

- 4
- 3
- 2

Map A

London Borough of Croydon Robbery hotspots

(June 1999 - May 2000)
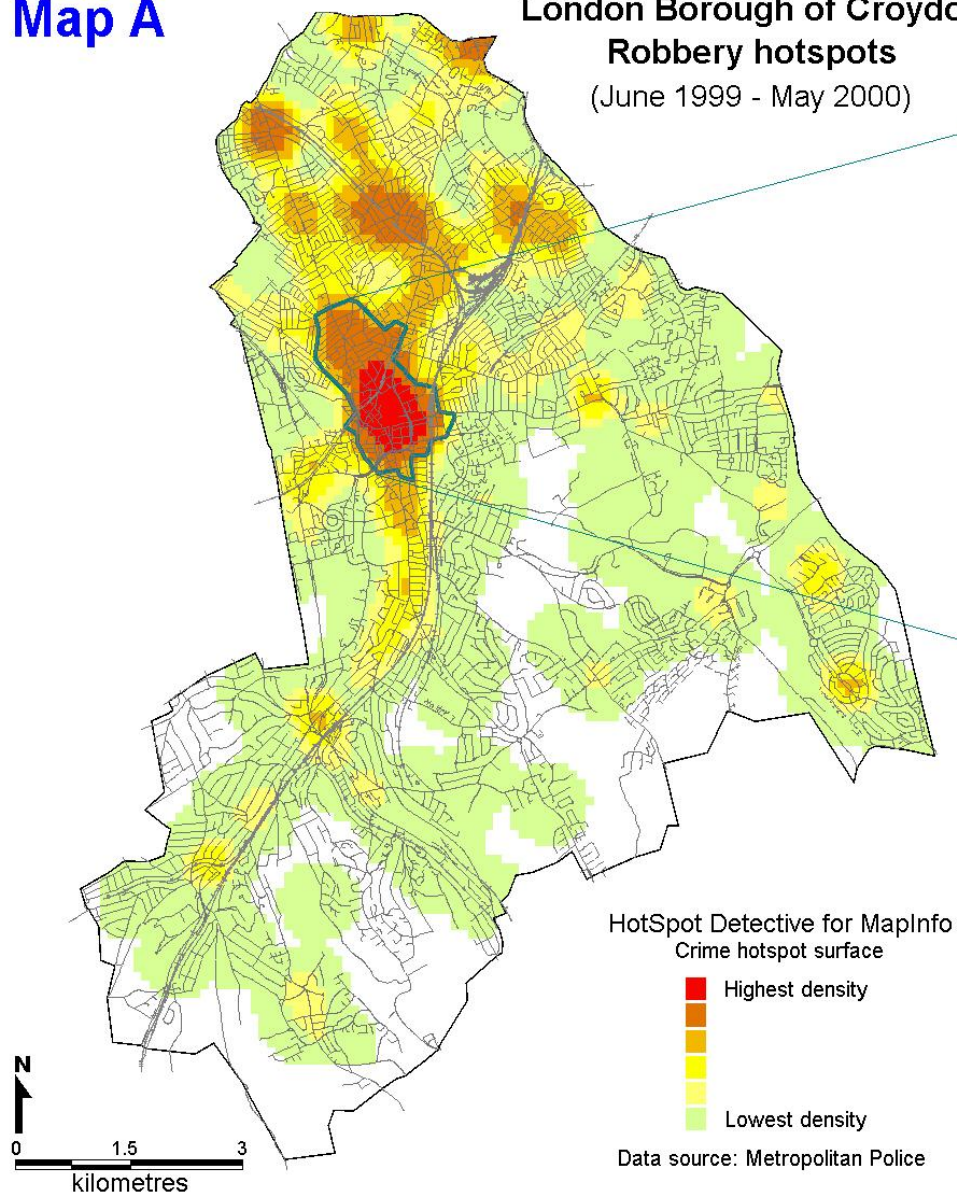
Map B

Croydon town centre Robbery hotspots

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kilometres

HotSpot Detective for MapInfo
Crime hotspot surface

- 🟥 Highest density
- 🟩 Lowest density

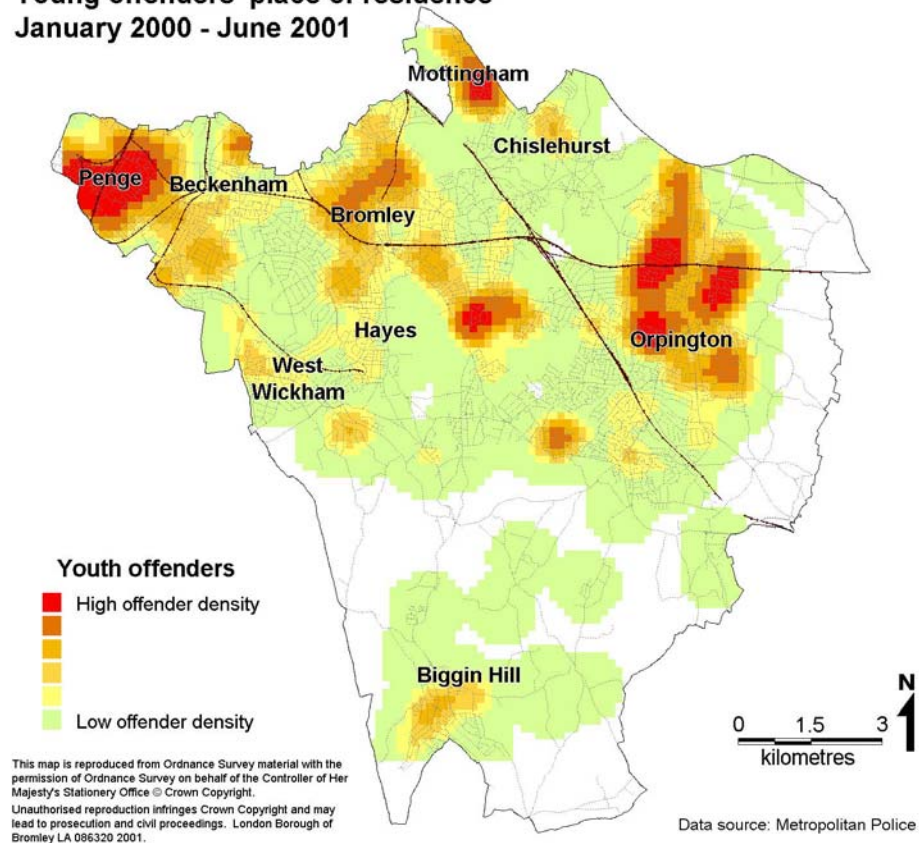Data source: Metropolitan Police

Map A shows the dominant robbery hotspot in Croydon town centre when viewed at the borough scale. Zooming into the town centre and reprocessing data for just this area reveals the three main hotspots within the general town centre high crime area (Map B)

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0   1.5   3
kilometres

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London Borough of Bromley
Young offenders' place of residence
January 2000 - June 2001

Mottingham

Chislehurst

Penge **Beckenham**

Bromley

Hayes

Orpington

West Wickham

Youth offenders

High offender density

Low offender density

Biggin Hill

N

0   1.5   3
kilometres

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Data source: Metropolitan Police

London Borough of Bromley Crime and Diroder Audit (1998 - 2001).

Youth crime in Bromley.

- 34% of crimes in Bromley were committed by young people between the ages of 10-17 years of age.

- The most common crimes that young people commit are shoplifting, violence against the person and vehicle crimes.

- Shoplifting tends to be carried out by younger youth offenders, reducing at 16 years of age. Girls between the ages of 13-15 were more likely to shoplift than boys.

- 83% of violent crimes committed by youths were committed by males, of which 85% are committed by male youths between the ages of 14-17 years old.

- Bromley town centre accounted for approximately 1 in 3 offences committed by youths.

- Fridays and Saturdays were the peak days of the week for all youth crime (mainly linked to shoplifting), with 3.00pm and 4.00pm being the main periods of activity in a day (linked to events after the end of the school day).

- The majority of youth crime victims were other youths (accounting for 33% of all victims)

CCTV Monitoring

March
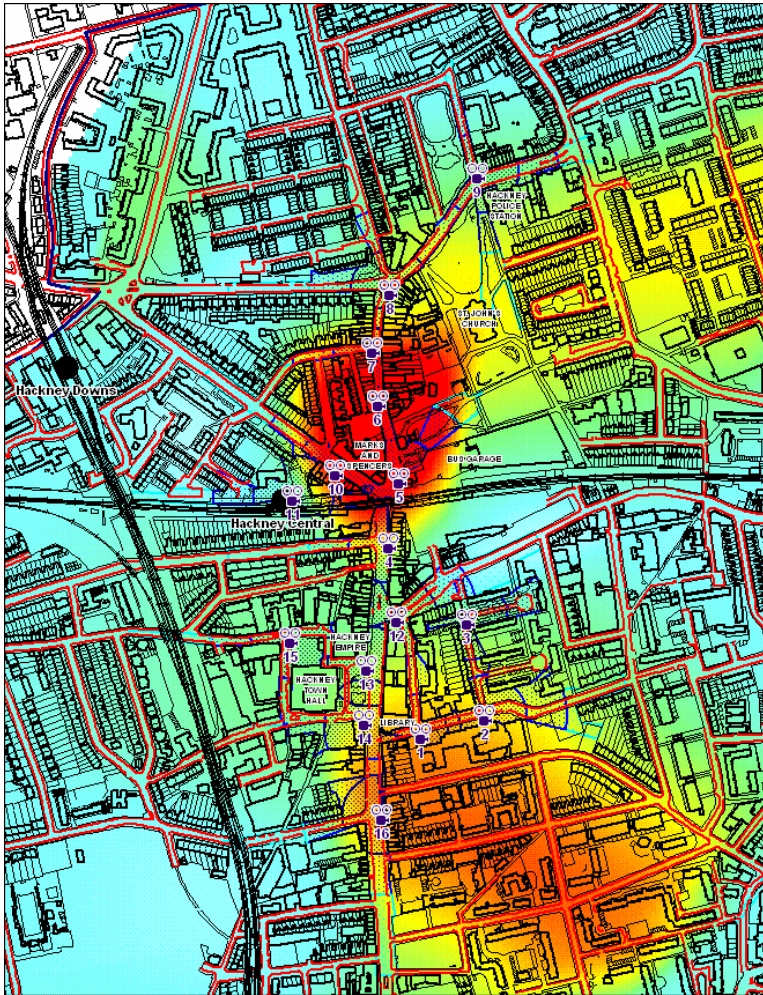
April
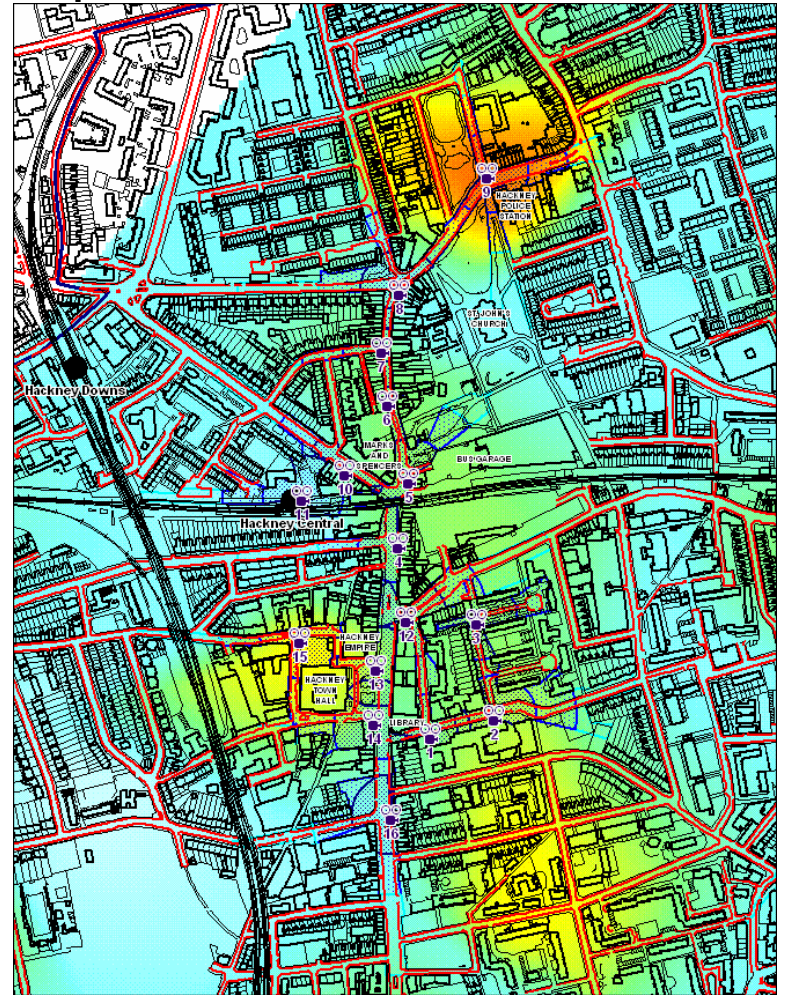
A day of crime in Harrow.

24 hour animation of street crime patterns, created using one year of crime data.

Time: 23:00

Street crime in the London Borough of Harrow (2000)

High crime density

Low crime density

N

0   1   2
kilometres

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Map design: InfoTech Enterprises Europe

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