

# Crime Spatial Analysis

## City of London, Ontario

The objective of this project was to expose the spatial and temporal distribution of break and enter crimes in the city of London, Ontario, using 5 different methods of analyses.

In order to join the crime data with the census data, the geocoding tool was used to place each crime inside the right block.

Map 1 shows a simple crime rate analyses of The number of crimes per number of household on each block of the Canada Census Data.

Mao 2 shows a Hot Spot analyses of the Crime Rates in the city using Local Indicators of Spacial Correlation.

Map 3 is a probability surface that uses the Inverse Distance Weighted Technique to identify areas that have a higher probability of crimes.

Using Demographic data that have relation to crime affected areas, such as income, education and unemployment, map 4 show what areas of the city have more or less Crime than expected.

Map 5 and 6 shows the emerging Hot Spot analysis that shows the spatial and temporal distribution of the crimes in 2 and 3 dimensions.

Map 6 shows a simple distribution of crimes in the Downtown area.

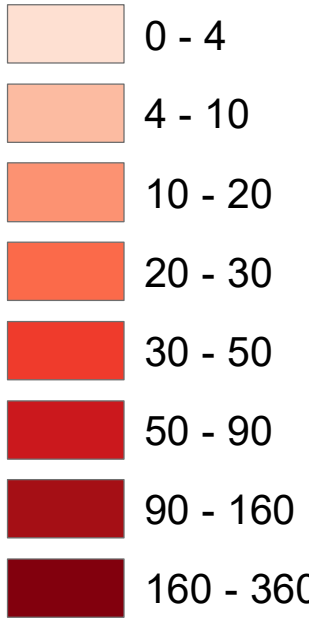
The results of this analysis shows a clear difference between the low crime northwest area, the high crime in the Downtown and east areas of the city.

The Analyses also shows that the demographic profile of these areas has a clear correlation with this trend.

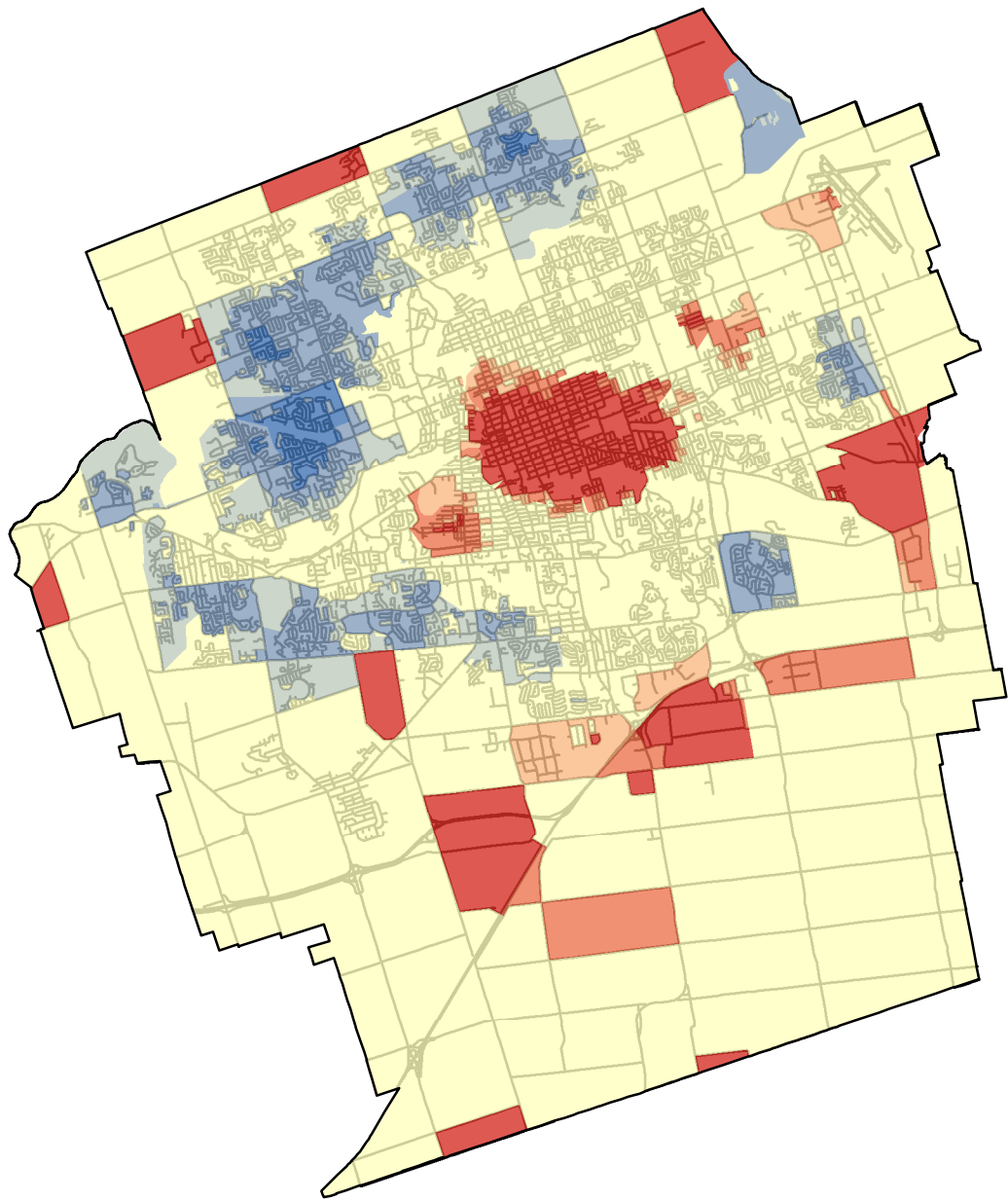
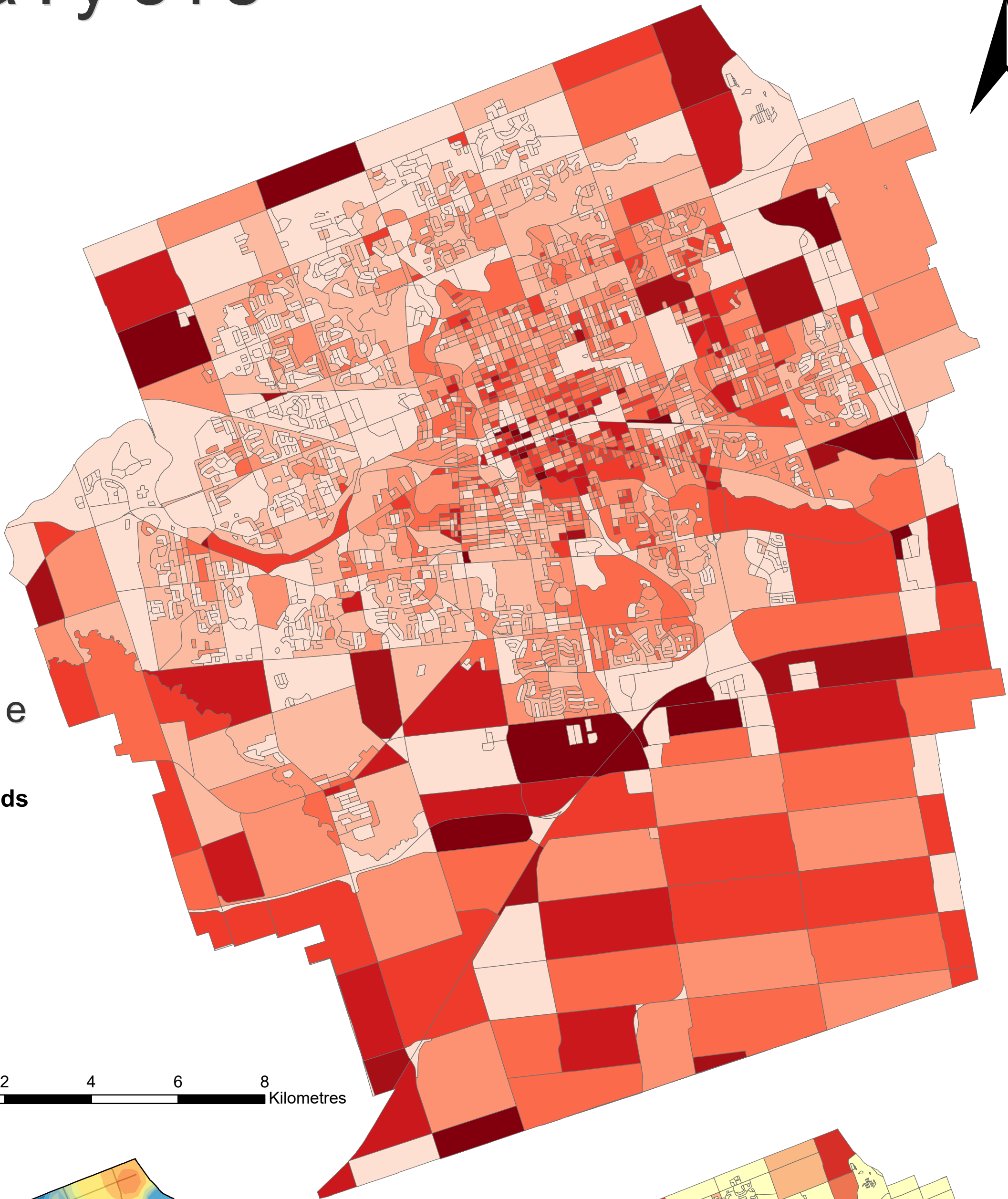
Map 1  
Crime Rate

### Legend

#### Crimes/100Households



0 1 2 4 6 8 Kilometres

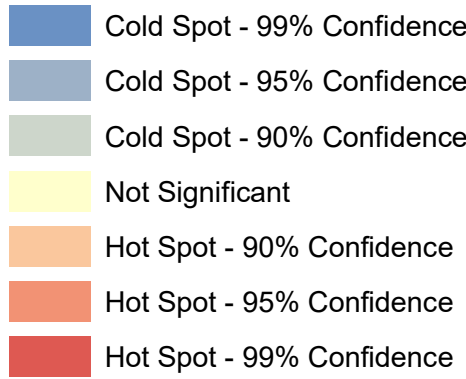


Map 2  
Crime Hot Spots

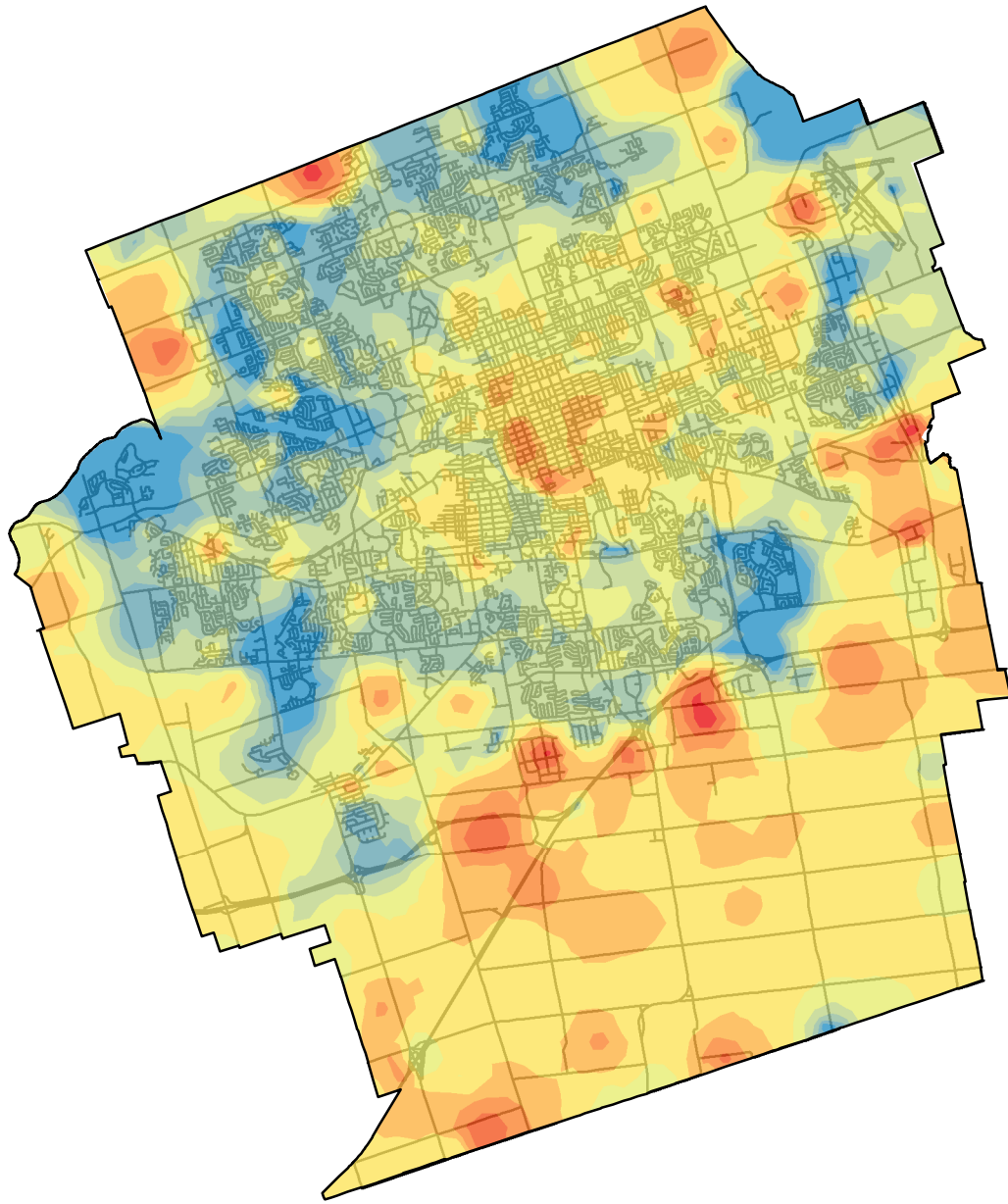
### Legend

— Road

#### HotSpots



0 1 2 4 6 8 Kilometres

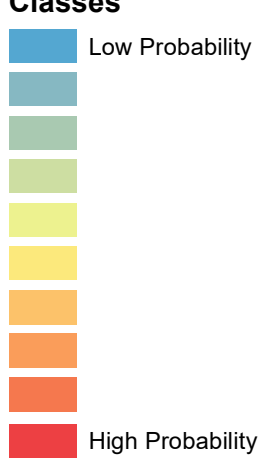


Map 3  
Crime Probability Surface

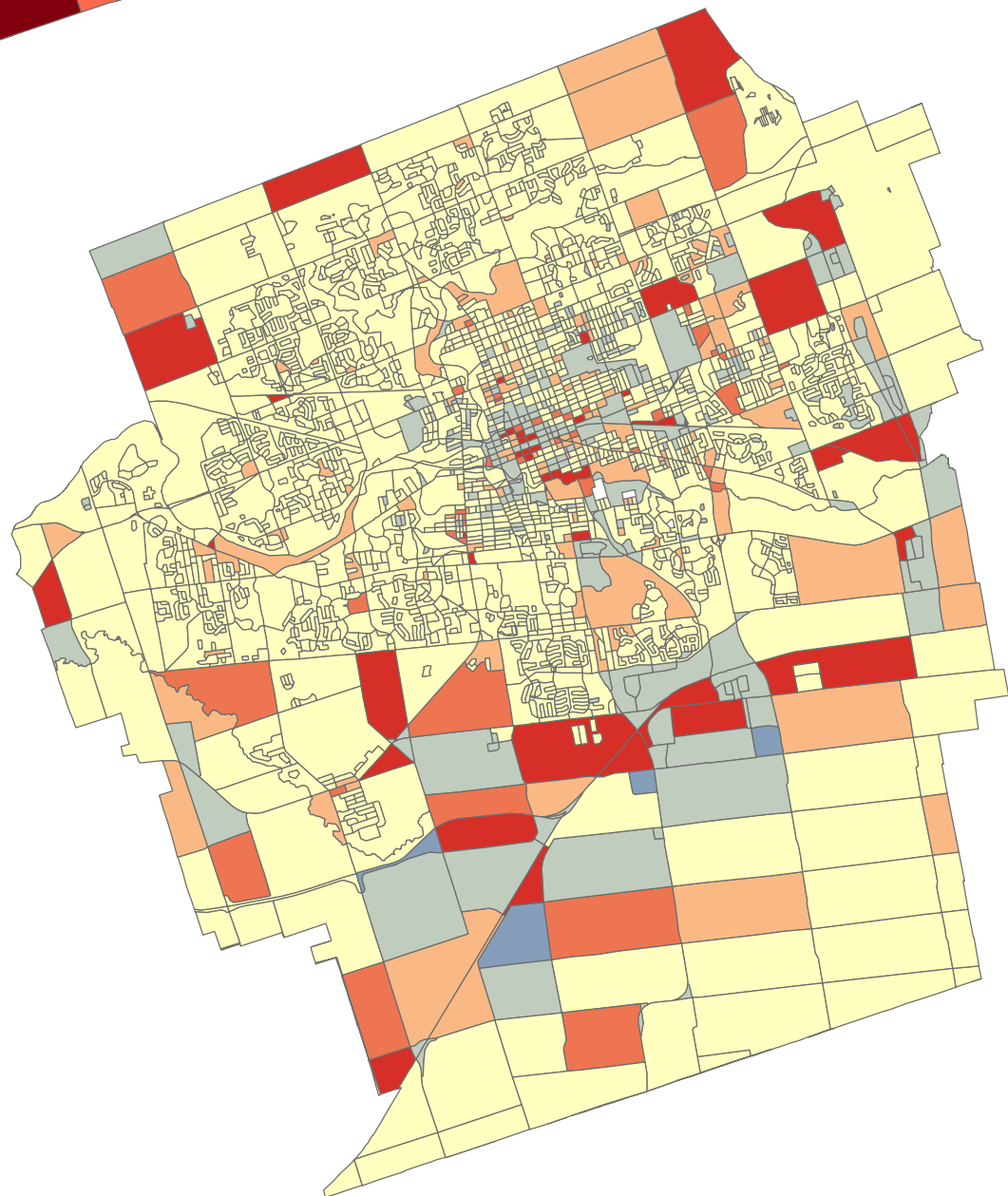
### Legend

— Road

#### Crime Probability Classes



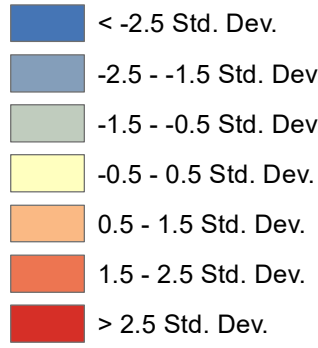
0 1 2 4 6 8 Kilometres



Map 4  
Demographic Profile  
Crime Pattern

### Legend

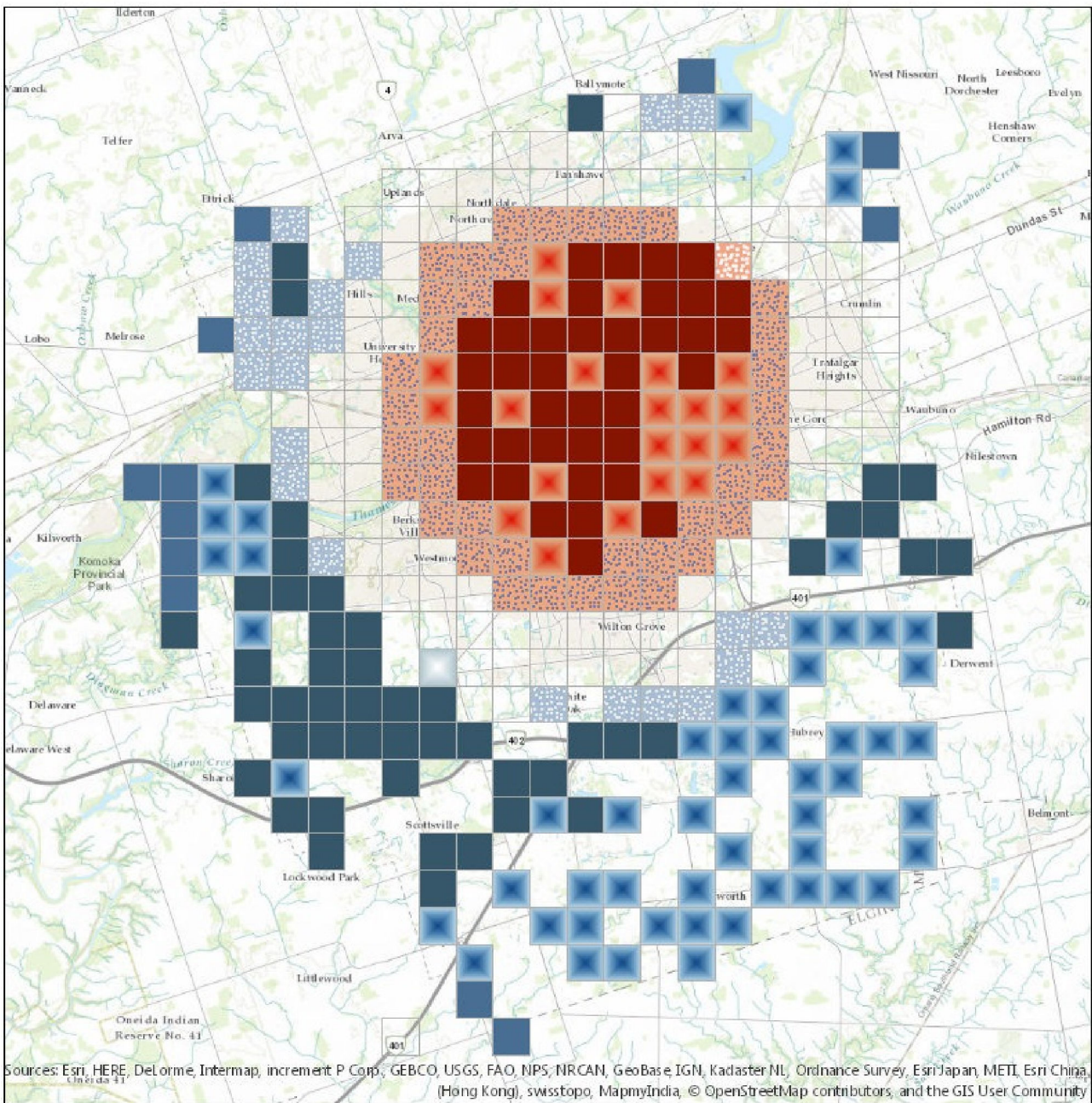
#### GeographicallyWeightedRegression3



0 1 2 4 6 8 Kilometres

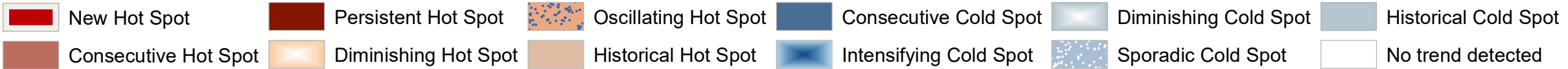
Map 5  
Emerging Hot Spots

0 1 2 4 6 8 Kilometers



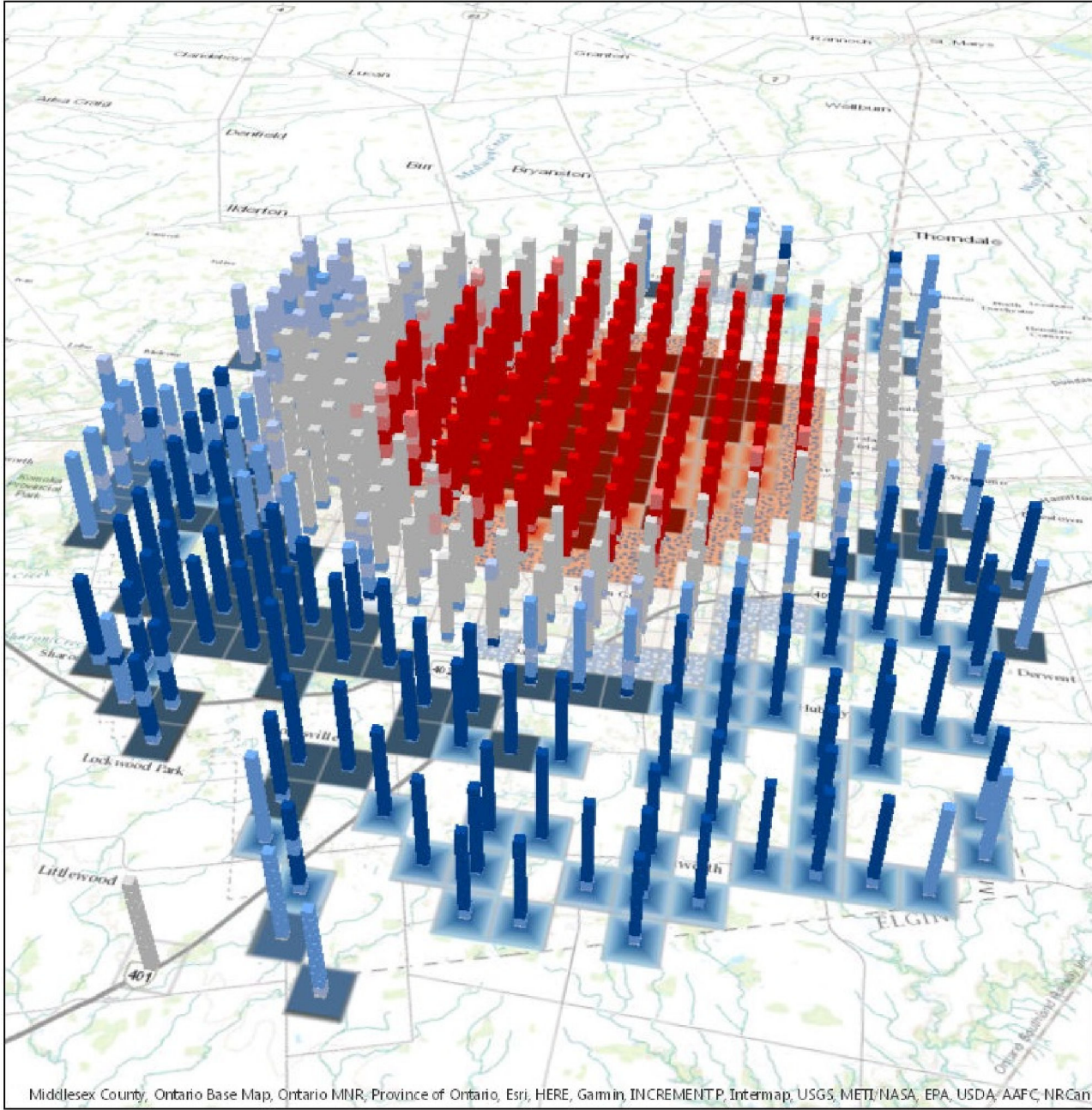
### Emerging Hot Spots

#### PATTERN

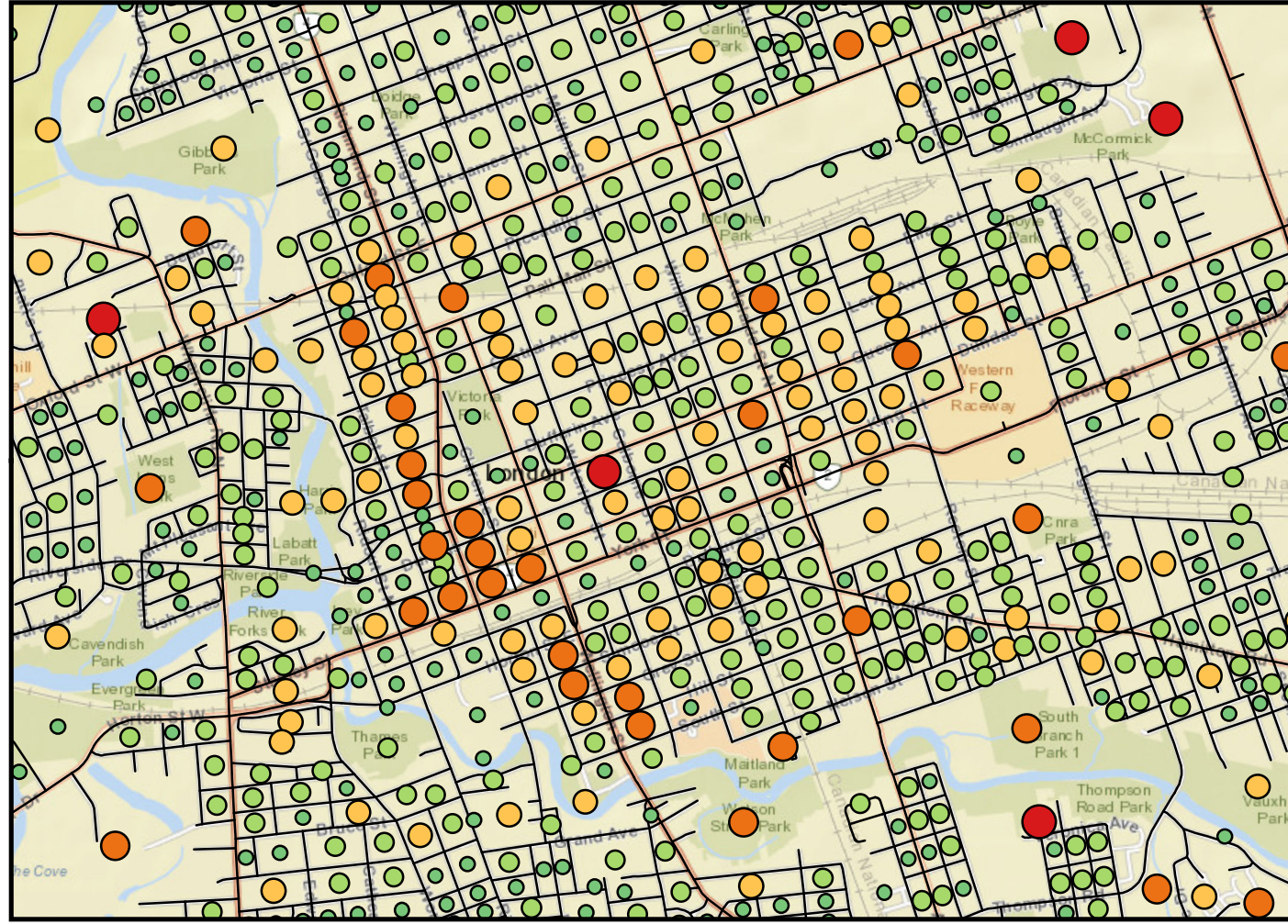


Map 6  
Hot Spots Space Time Cubes

0 0.5 1 2 3 4 Kilometers

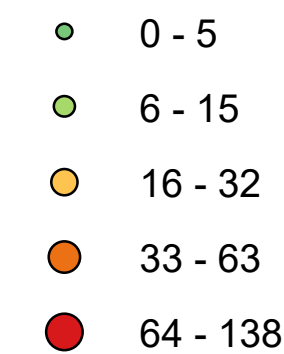


Map 7  
Downtown Crime Distribution



### Legend

#### Number of Crimes



0 0.5 1 2 Kilometres

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Year: 2017  
Source of the Data: City of London,  
Stats Canada and ESRI  
Coordinate System: NAD 1983 UTM Zone 17N  
Projection: Transverse Mercator