Identifying road accident hotspots is a key role in determining effective strategies for the reduction of high density areas of accidents. This paper presents (1) a methodology using Geographical Information Systems (GIS) and Kernel Density Estimation to study the spatial patterns of injury related road accidents in London, UK and (2) a clustering methodology using environmental data and results from the first section in order to create a classification of road accident hotspots. The use of this methodology will be illustrated using the London area in the UK. Road accident data collected by the Metropolitan Police from 1999 to 2003 was used. A kernel density estimation map was created and subsequently disaggregated by cell density to create a basic spatial unit of an accident hotspot. Appended environmental data was then added to the hotspot cells and using K-means clustering, an outcome of similar hotspots was deciphered. Five groups and 15 clusters were created based on collision and attribute data. These clusters are discussed and evaluated according to their robustness and potential uses in road safety campaigning.