

# GIS Analysis of Crime in Howard County, Maryland: Destruction of Properties and Break-in

**Research Question:**

- Is there any spatial pattern of destruction of properties and break-ins in Howard county?
- Are those crime incidents are clustered in Howard County? (Outlier & Cluster analysis)

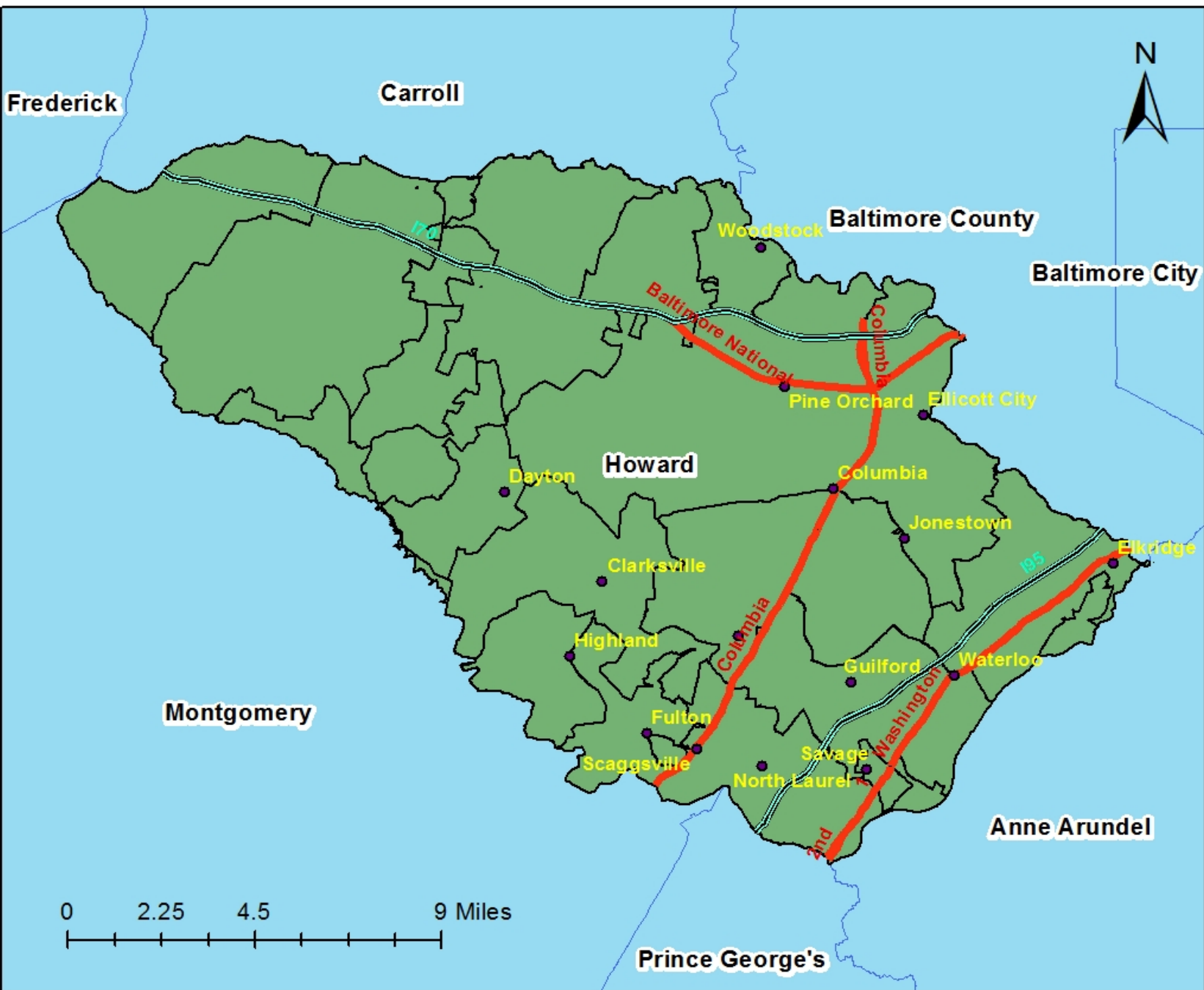
**Background Research:**

- There is a relationship between age and crime across race, gender, society and time (Hirschi and Gottfredson 1983).
- High schools presence is associated with increase in variety of crime types (Roncek and Faggiani 1985).
- Proximity of middle and high schools in Prince George’s County was associated with higher rate of violent crime at the block level (Roman 2004).
- Youths are more likely to be victims of crime (Rand and Catalano 2007).

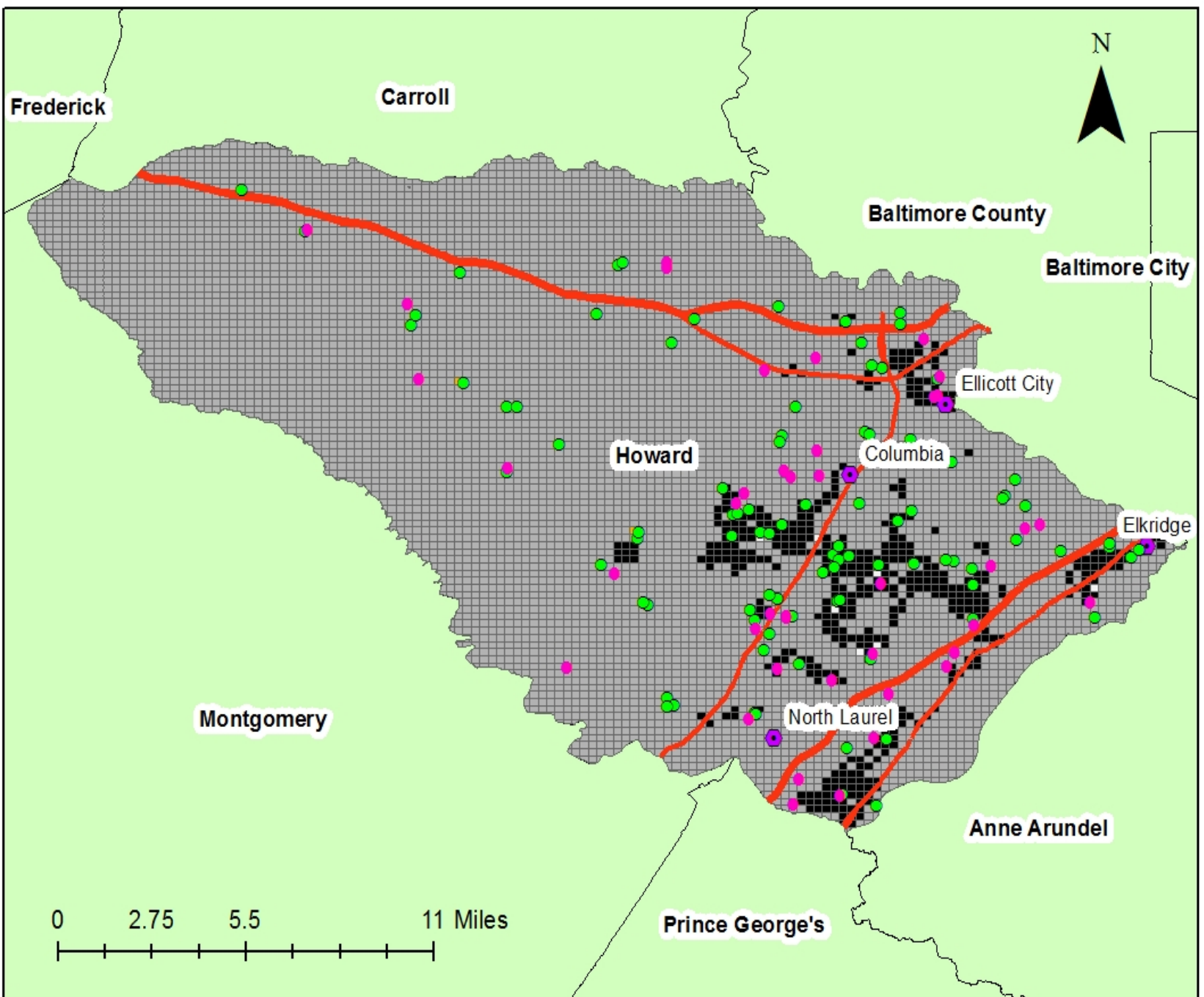
**Conclusions:**

- The two choropleth maps reveal that most of destruction of properties and break-in have occurred in cities, especially Columbia Town Center and along the route one.
- Those crime incidents are also clustered in these areas. There are very few outliers.
- As shown in these maps, there might be co-location between schools and these incidents. Further investigation is needed to identify the relationship between schools and crime.

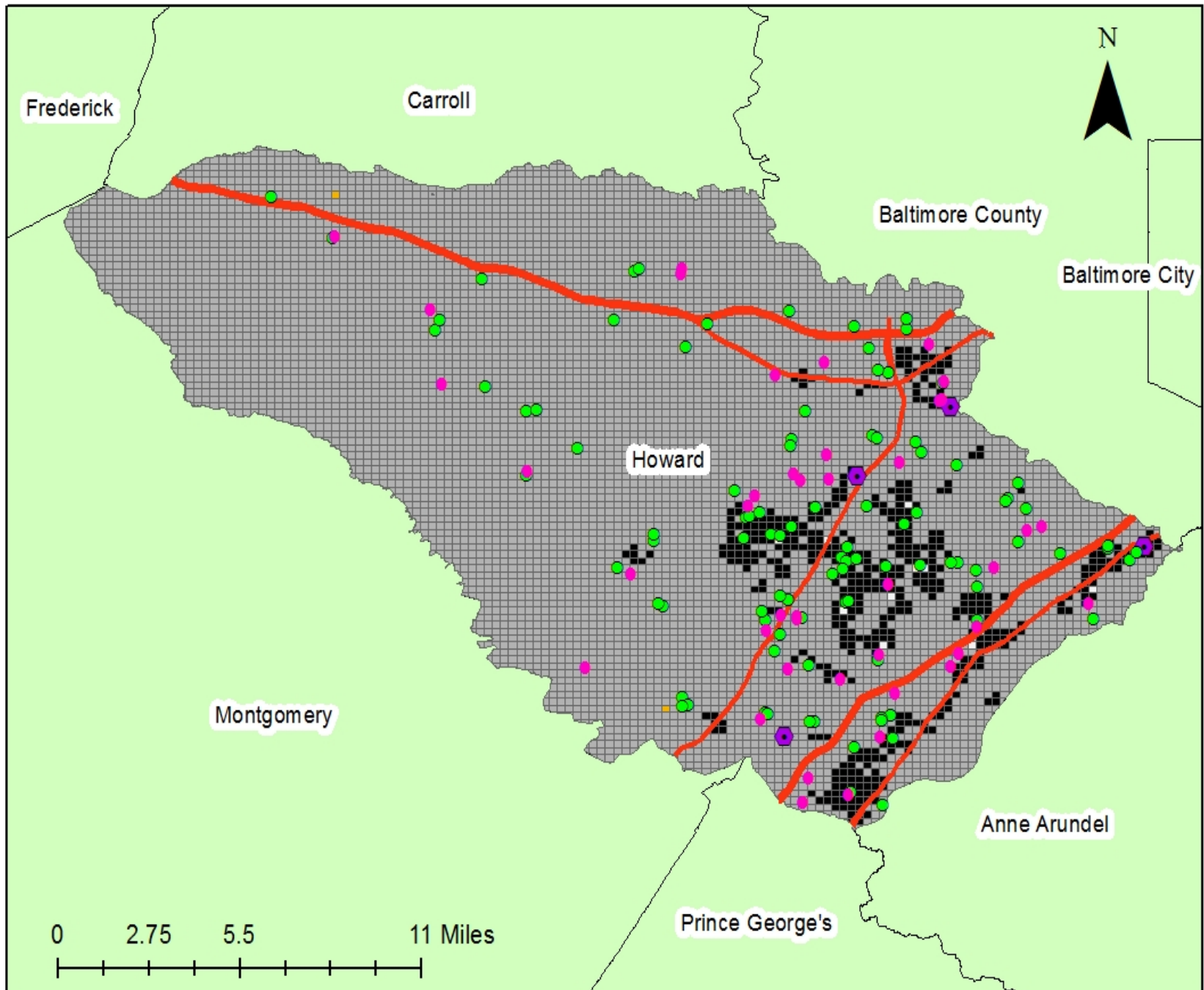
**BASIC MAP OF HOWARD COUNTY, MARYLAND**



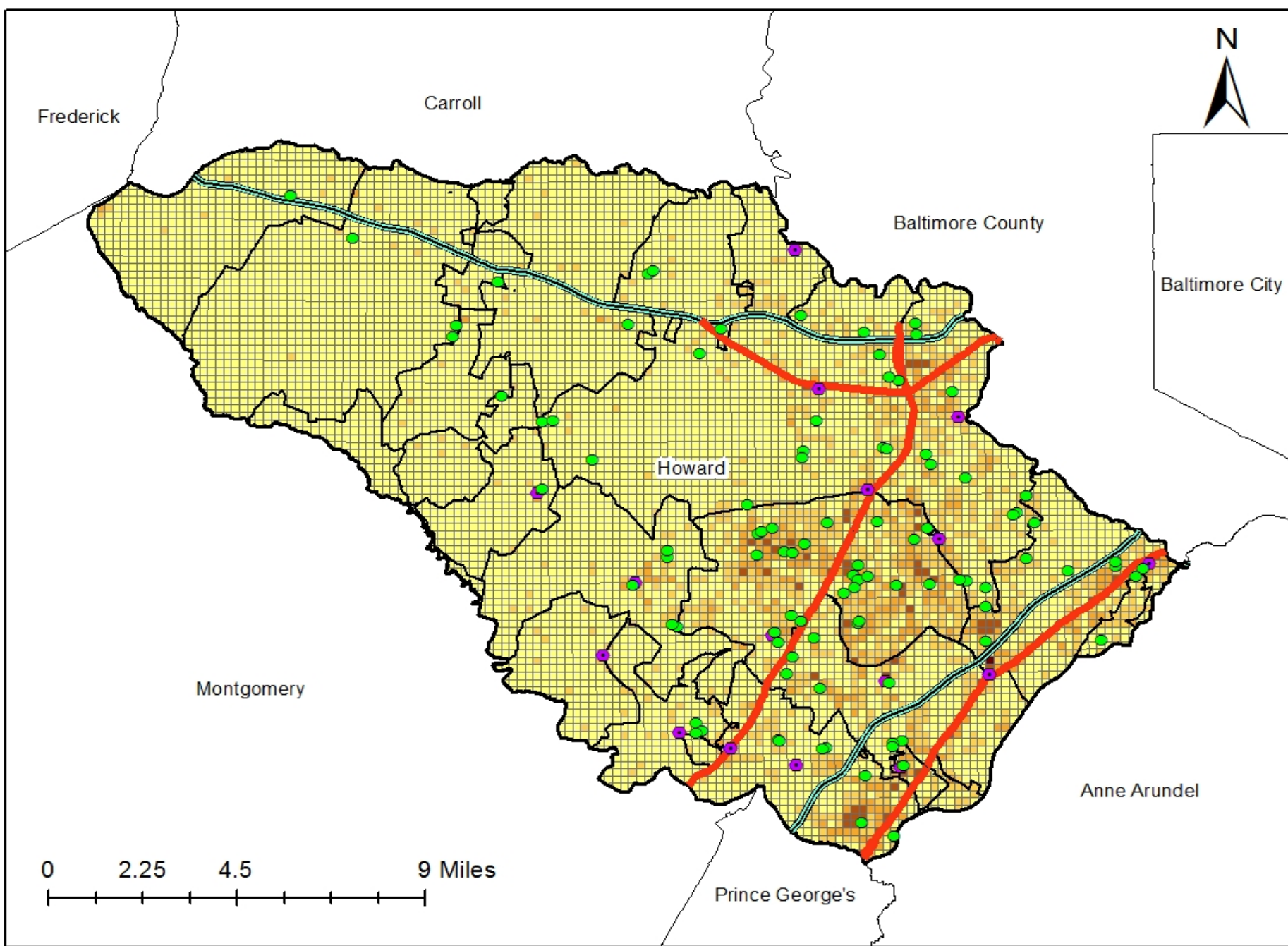
**CLUSTER AND OUTLIER ANALYSIS: DESTRUCTION OF PROPERTIES, 2005-2015**



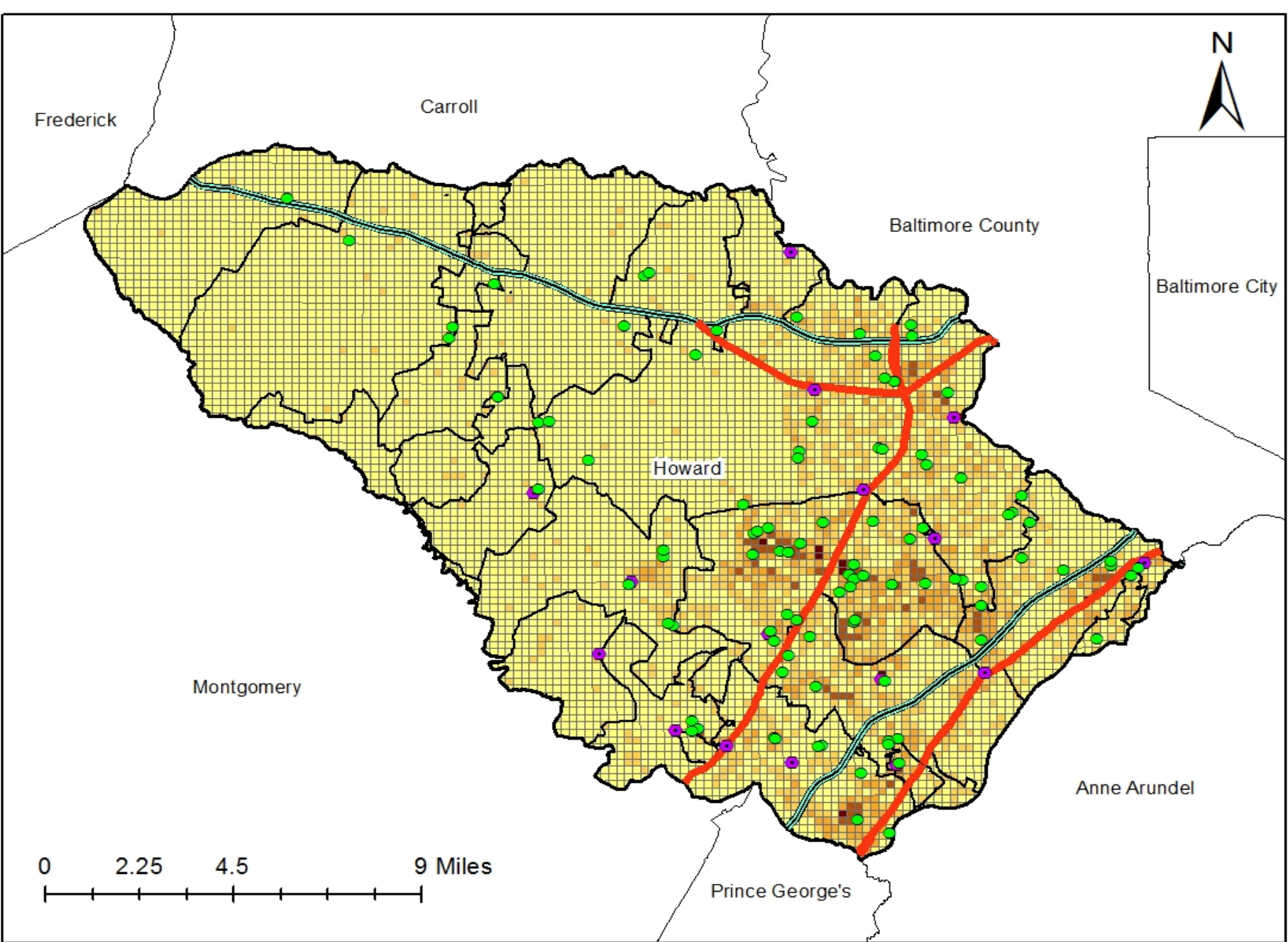
**CLUSTER AND OUTLIER ANALYSIS: BREAK-IN, 2005-2015**



**CHOROPLETH MAP: BREAK-IN, 2005-2015**



**CHOROPLETH MAP: DESTRUCTION OF PROPERTIES, 2005-2015**



**References:**

Hirschi, T., & Gottfredson, M. (1983). Age and the explanation of crime. *American journal of sociology*, 552-584.  
Roncek, D. W., & Faggiani, D. (1985). High schools and crime: A replication. *The Sociological Quarterly*, 26(4), 491-505.  
Roman, C. G. (2004). *Schools, neighborhoods, and violence: Crime within the daily routines of youth*. Lexington Books.  
Rand, M., & Catalano, S. (2007). *Criminal victimization*, 2006. *Ncj*, 219413.