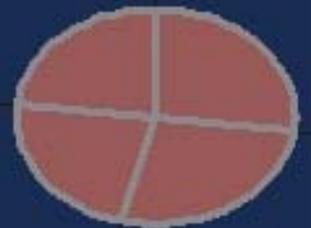


# Assessing the Impact of Hurricane Katrina

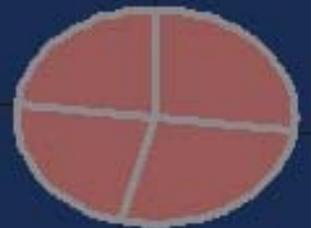
on Space-Time Clusters of  
Crime Patterns in Houston

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# Hurricanes Katrina and Rita

- Hurricane Katrina
  - Landfall on August 29<sup>th</sup>
  - Category 3
  - 125 mph Winds
- Hurricane Rita
  - Landfall on September 24<sup>th</sup>
  - Category 3 Hurricane
  - 115 mph Winds



# Media Surrounding Katrina

Press coverage following both Hurricane Rita and Katrina have been far from flattering

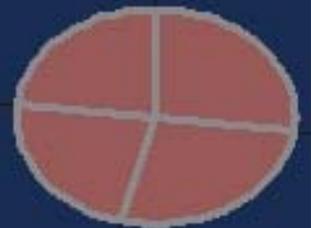
The Hurricanes have been associated with:

- increased violent crime
- increased drug crime
- introducing a ‘criminal’ element into Houston

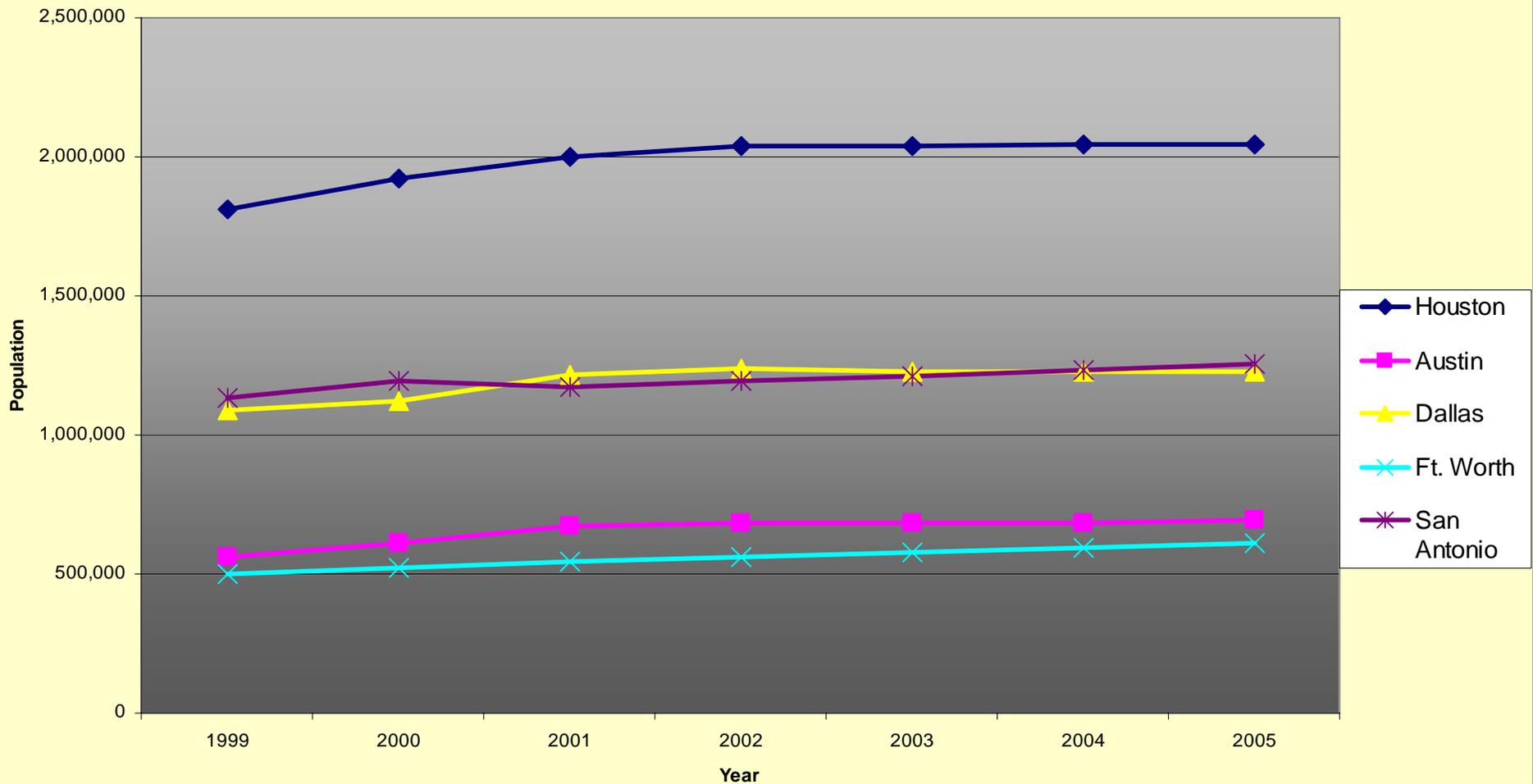


# Houston Police Department

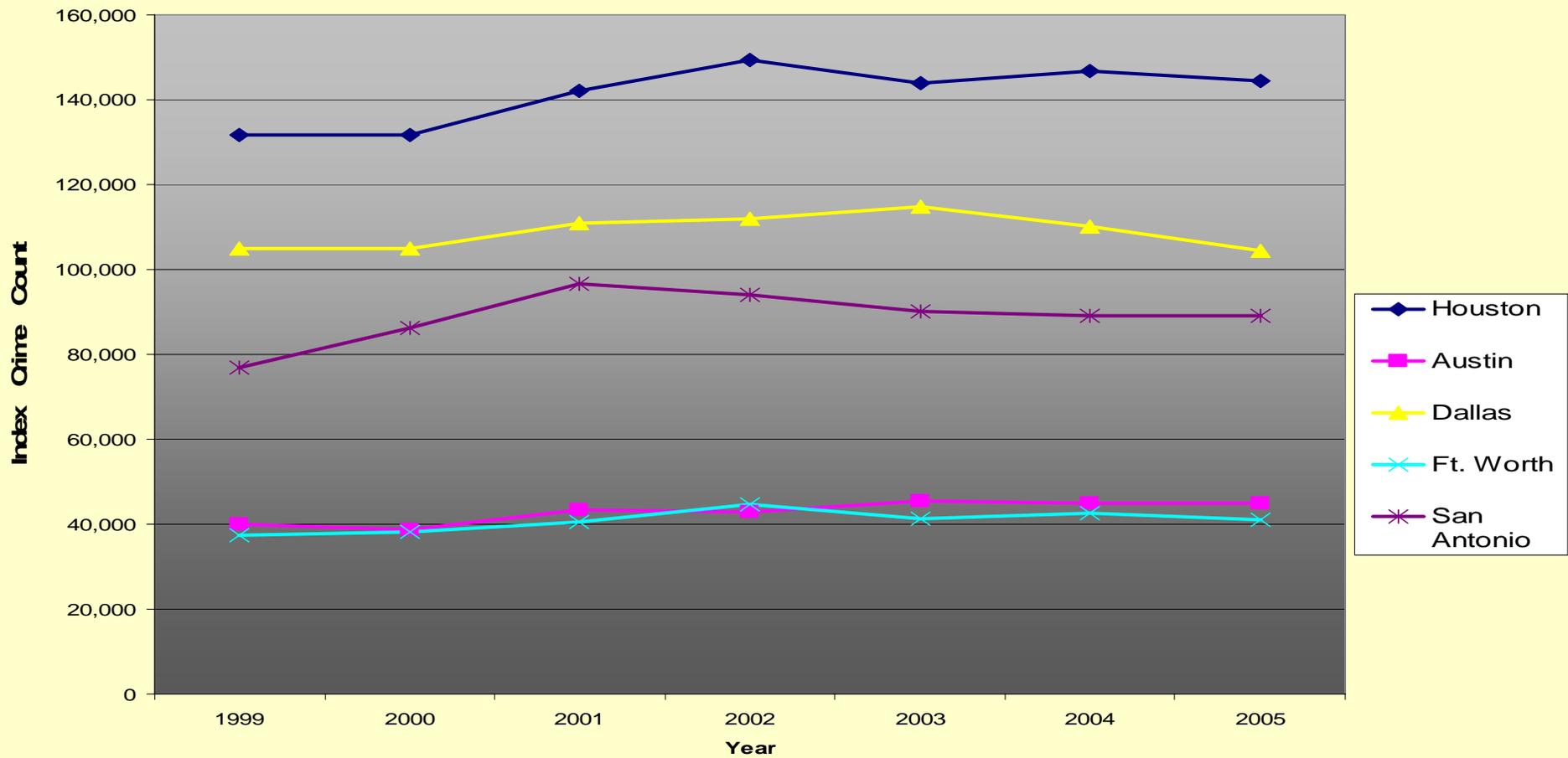
- One of the 10 'largest' Police Agencies in the U.S.
- Over 5500 Sworn Full-Time Police Officers
- Over 1500 Non-sworn Full-Time Employees
- Serving a population of over 2 million
- Approximately 600 square miles
- Making it the 4<sup>th</sup> largest city in the U.S.



# Population Over Time

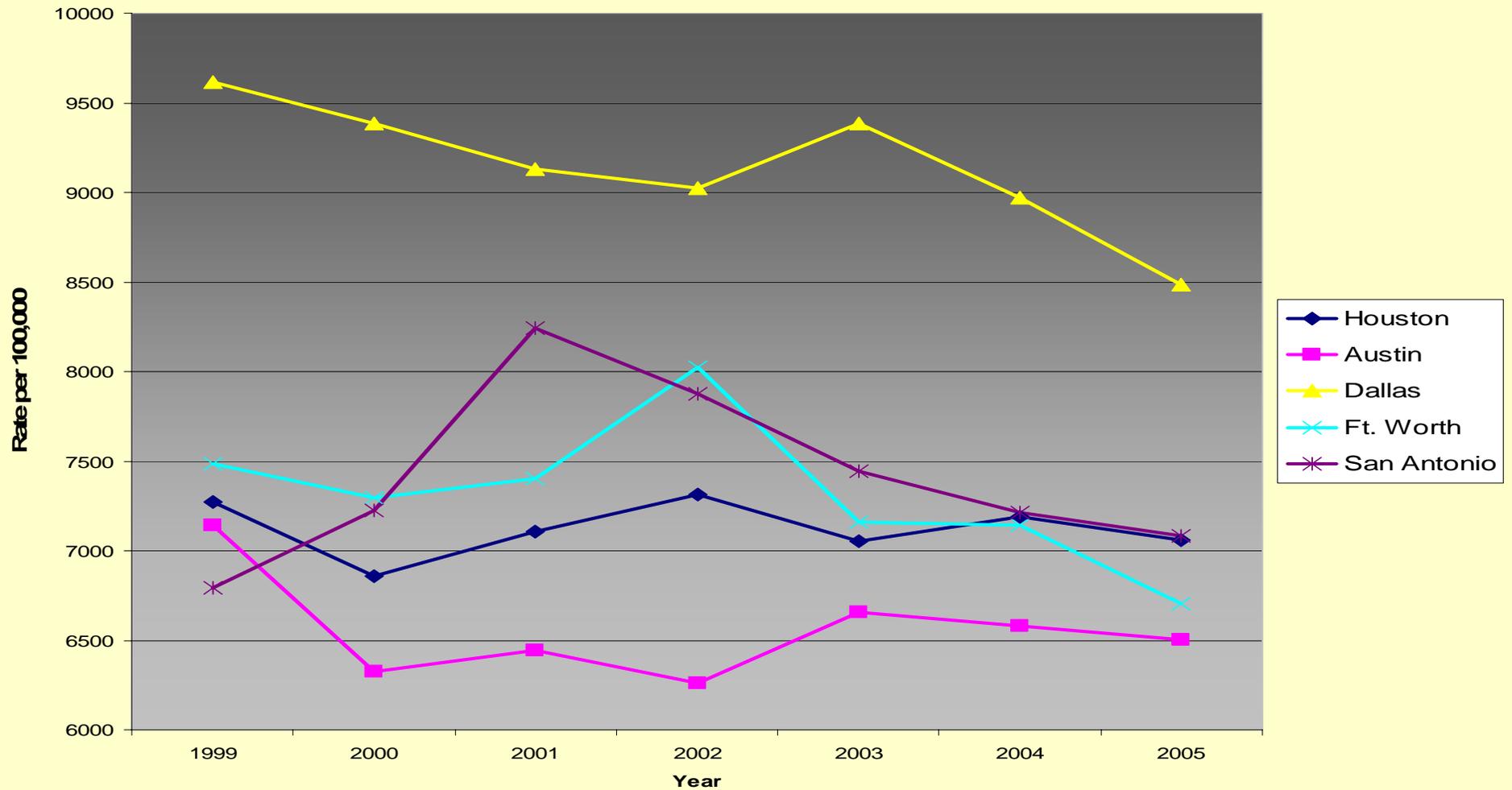


# Index Crime Counts\* over Time



\*UCR Reported Counts of: Murder, Aggravated Assault, Rape, Robbery, Burglary, Larceny and Auto Theft

# Index Crime Rate\* over Time

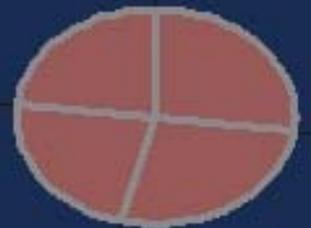


\*Index Crimes per 100,000 based on Yearly Population Estimates

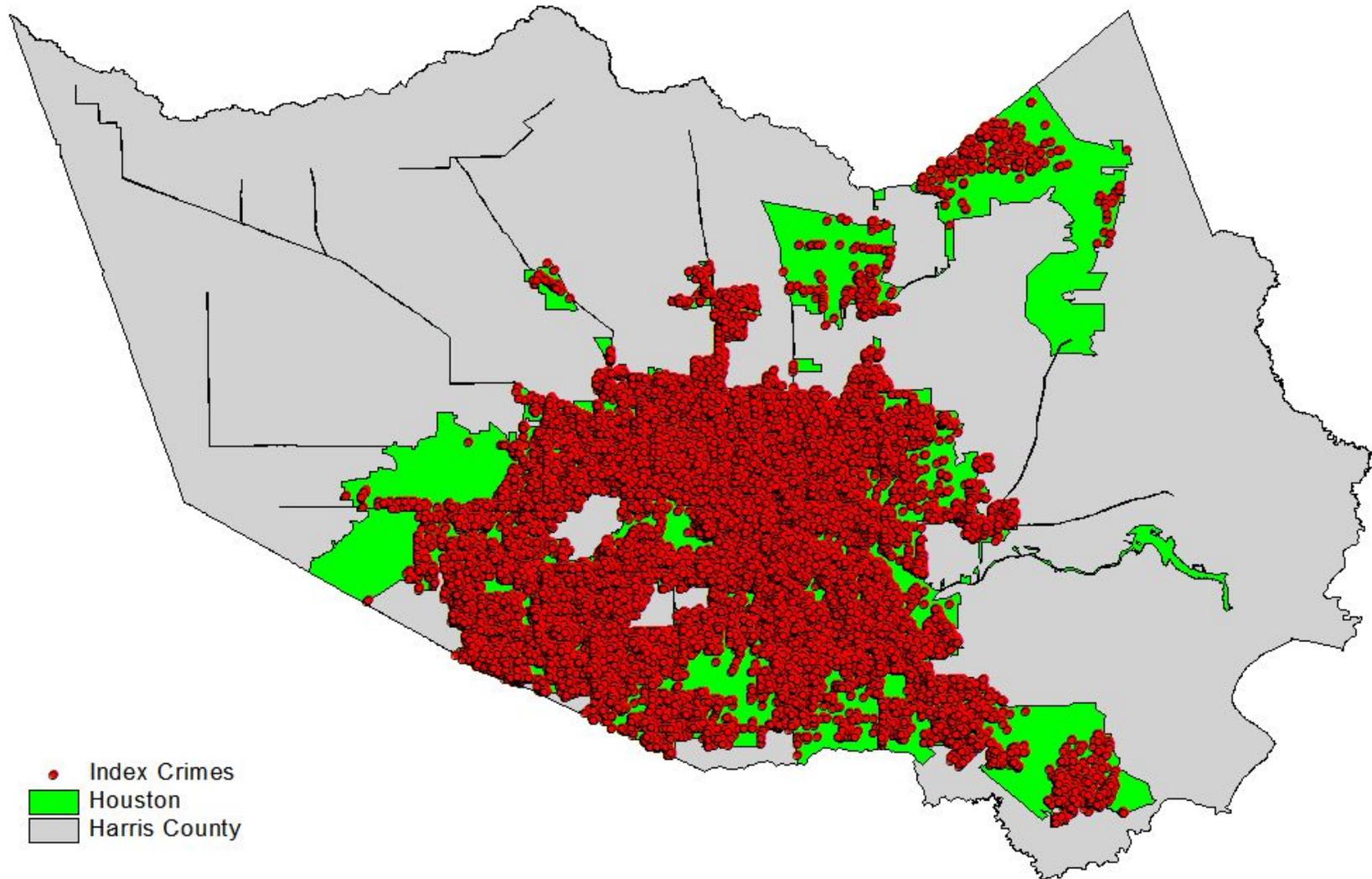
# 2005 Houston Crime

Crime Type	Frequency	Percent
Murder and Manslaughter	341	0.50%
Forcible Rape	854	1.17%
Robbery	11157	15.29%
Aggravated Assault	11627	15.94%
Burglary	27507	37.70%
Auto Theft	21453	29.41%

Data obtained from the Houston Police Department  
January 1<sup>st</sup>, 2005 to December 31<sup>st</sup>, 2005



# Index Crime across Houston (2005)



# 2005 and 2006 Crime Data

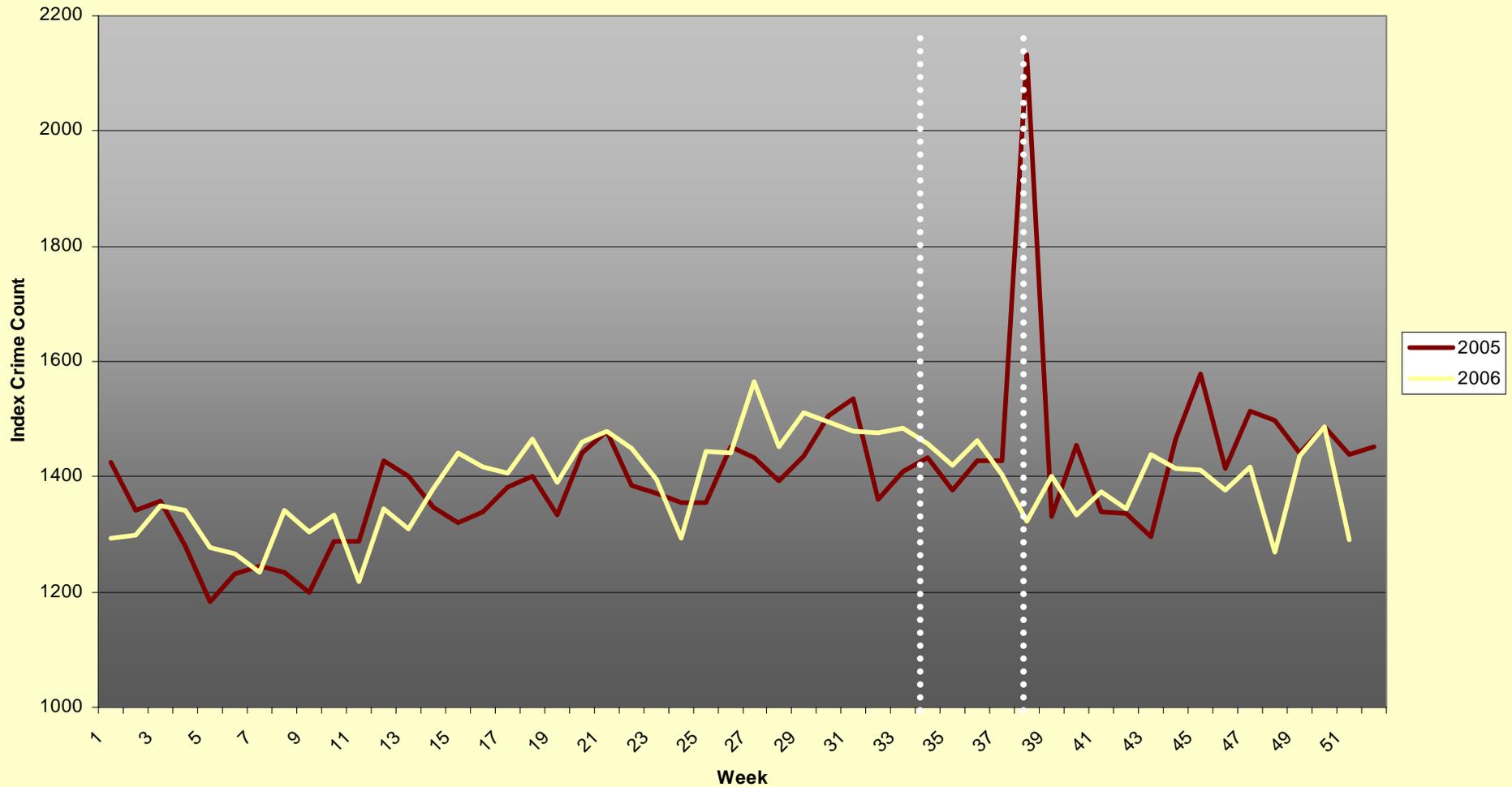
Weekly crime data was geo-coded for both 2005 and 2006.

2005 crime data was analyzed to examine the impact of the Hurricanes.

2006 crime data was analyzed as a comparison group to the 2005 data.



# Weekly Index Crime Counts\*



\*UCR Reported Counts of: Murder, Aggravated Assault, Rape, Robbery, Burglary and Auto Theft

# Analysis of Hot Spots of Crime

Nearest Neighbor Hierarchical Spatial Clustering  
Single Standard Deviation Ellipses

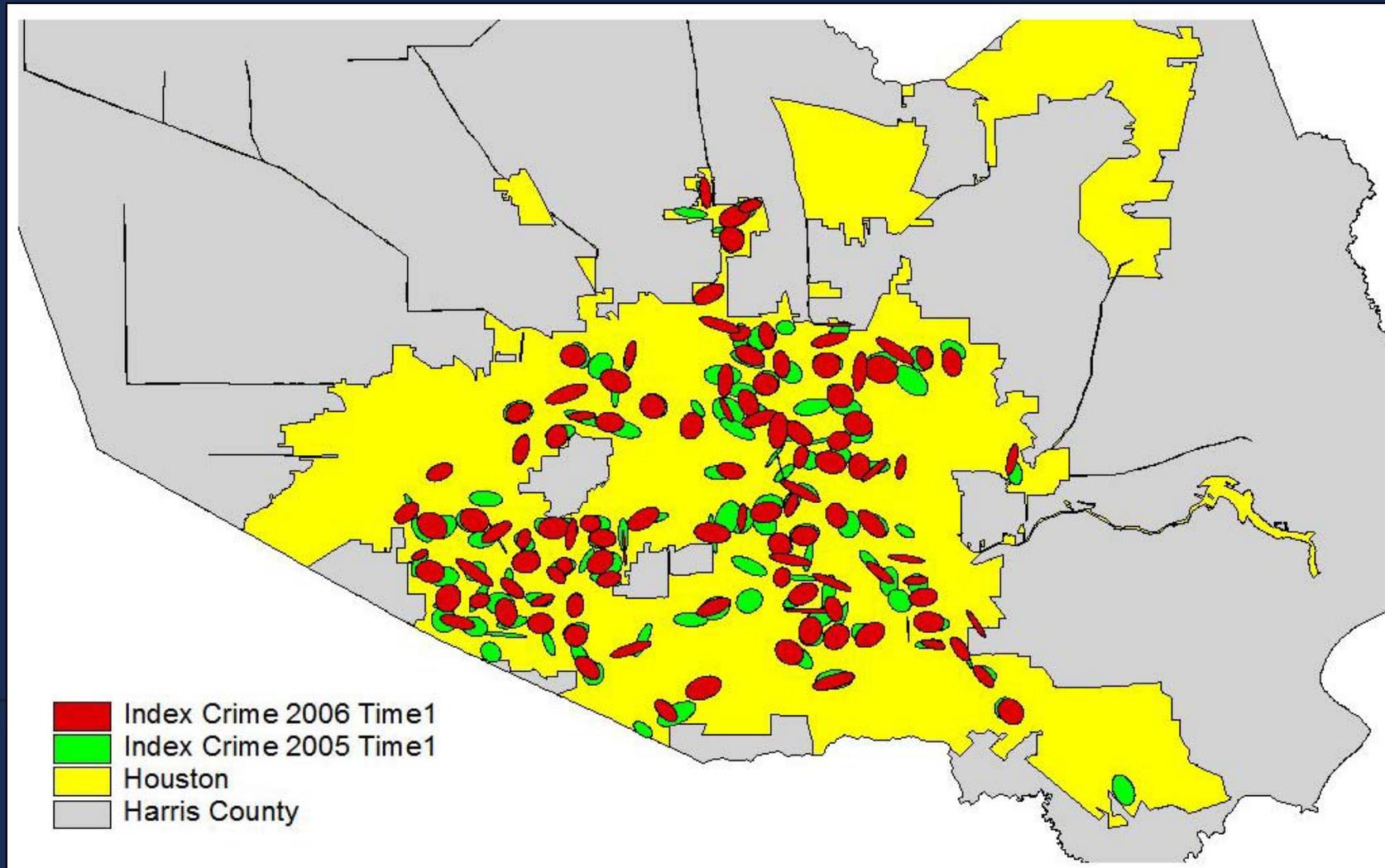
Index Crimes for 2005 and 2006 separately

1. Weeks 1-34 (Pre-hurricanes)
2. Weeks 35-43 (During-immediately following hurricanes)
3. Weeks 44-52 (Post-hurricanes)

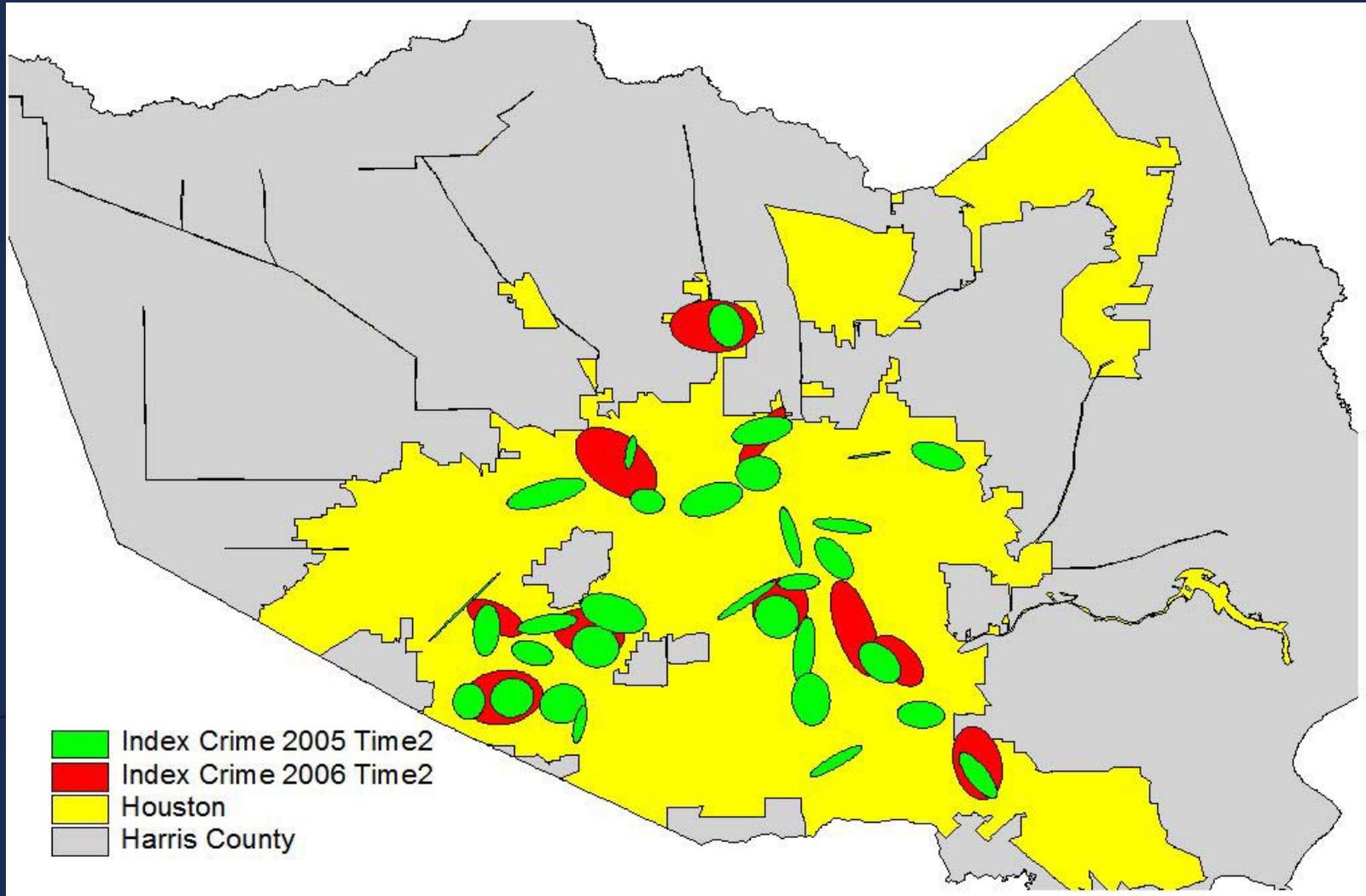
Crimestat 3.0 was used to construct the 'Hot Spots'



# Hot Spots of Index Crime- Time 1

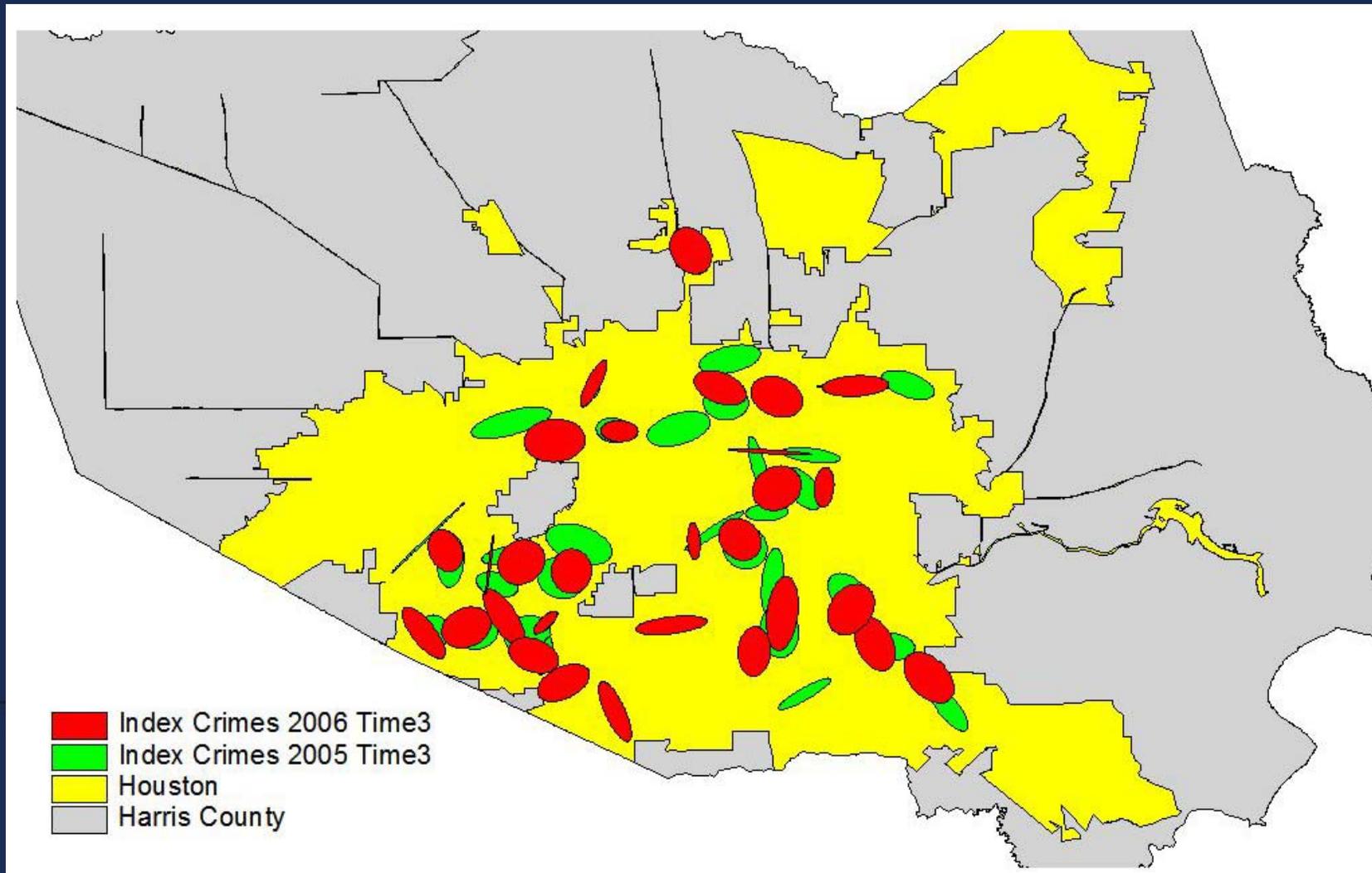


# Hot Spots of Index Crime- Time 2



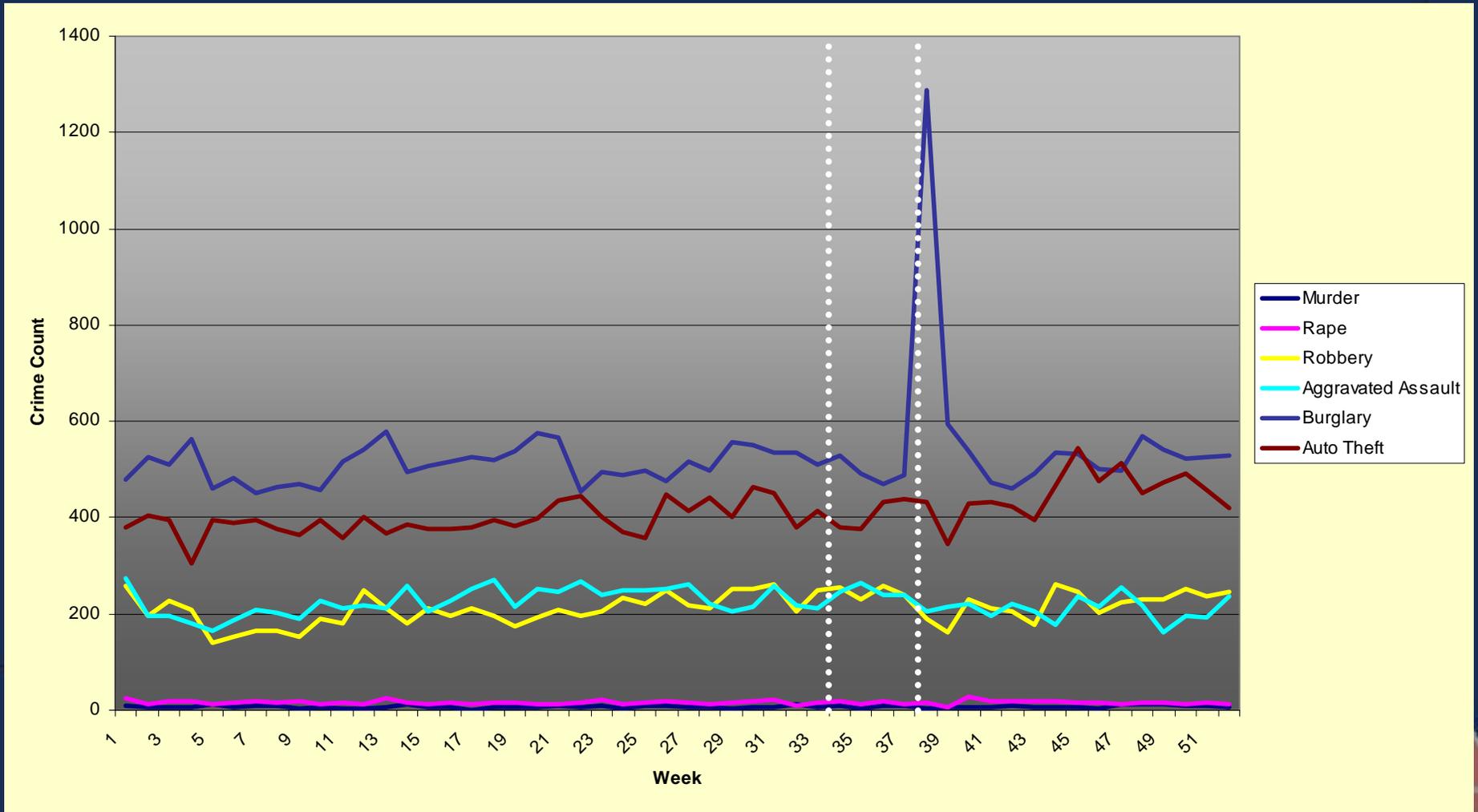
Weeks 35-43

# Hot Spots of Index Crime- Time 3



Weeks 44-52

# Weekly Counts by Crime Type



Philadelphia Police Data- 2005

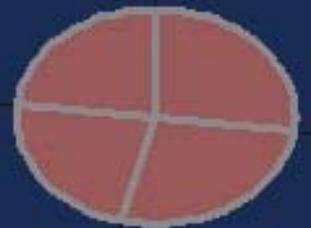
# Knox Index of Burglaries (2005)

	Chi-Square	95% Simulation Chi-Square
Time 1 (Weeks 1-33)	21.92***	2.72
Time 2 (Weeks 35-43)	58.10***	61.79***
Time 3 (Weeks 44-52)	8.11**	4.19*
Total	28.12***	23.78***

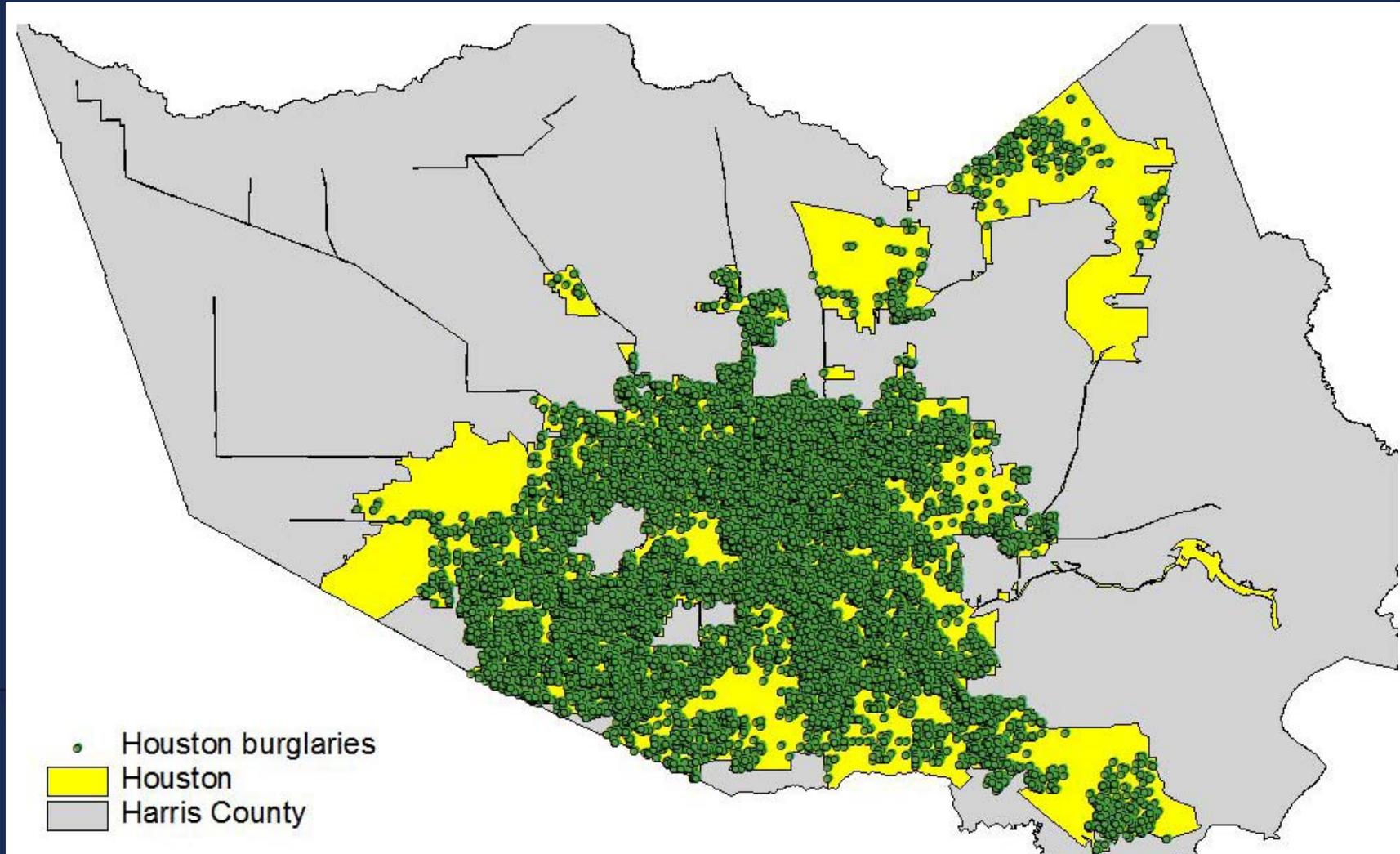
\*\*\*  $p < .001$

\*\*  $p < .01$

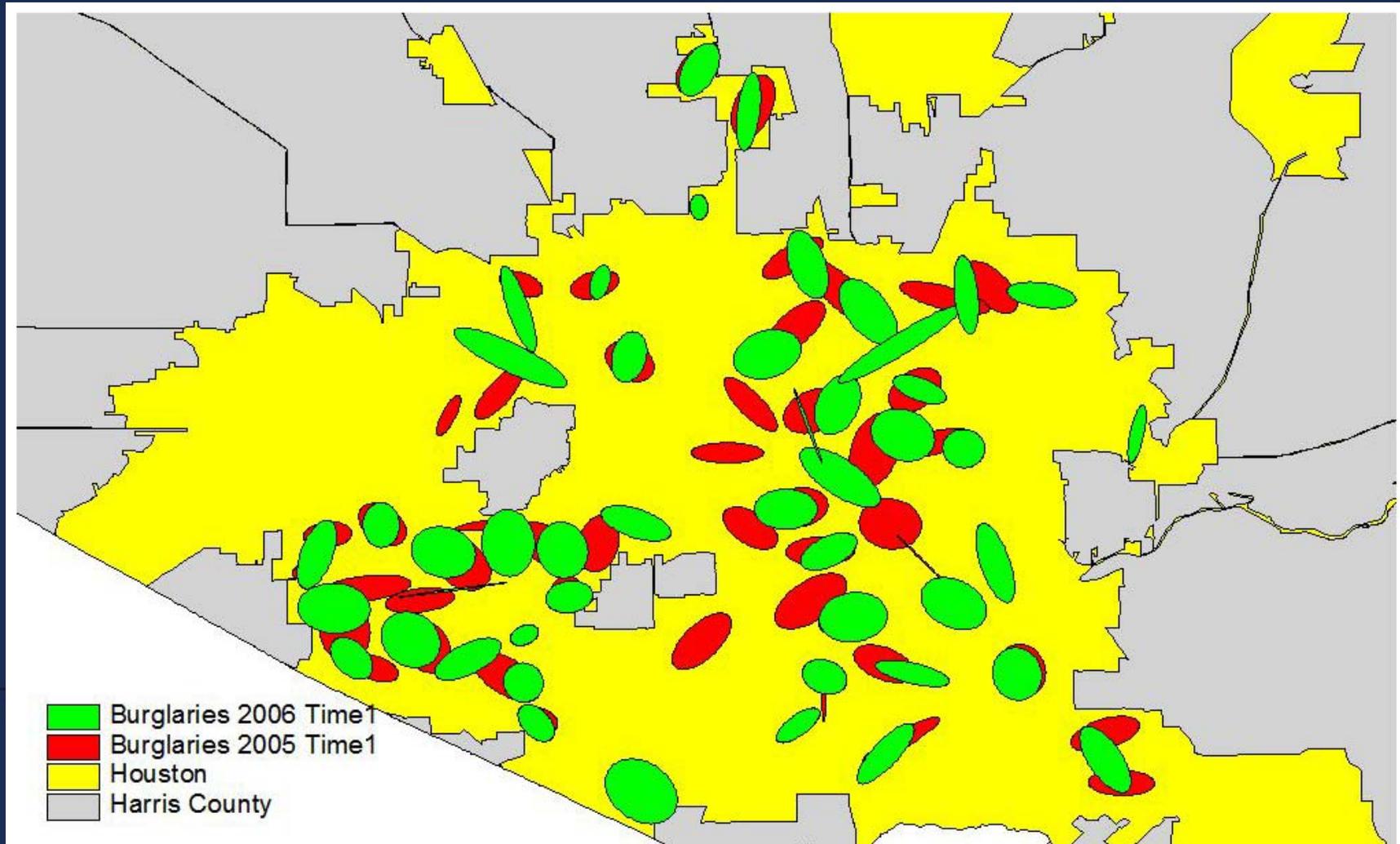
\*  $P < .05$



# Houston Burglaries (2005)

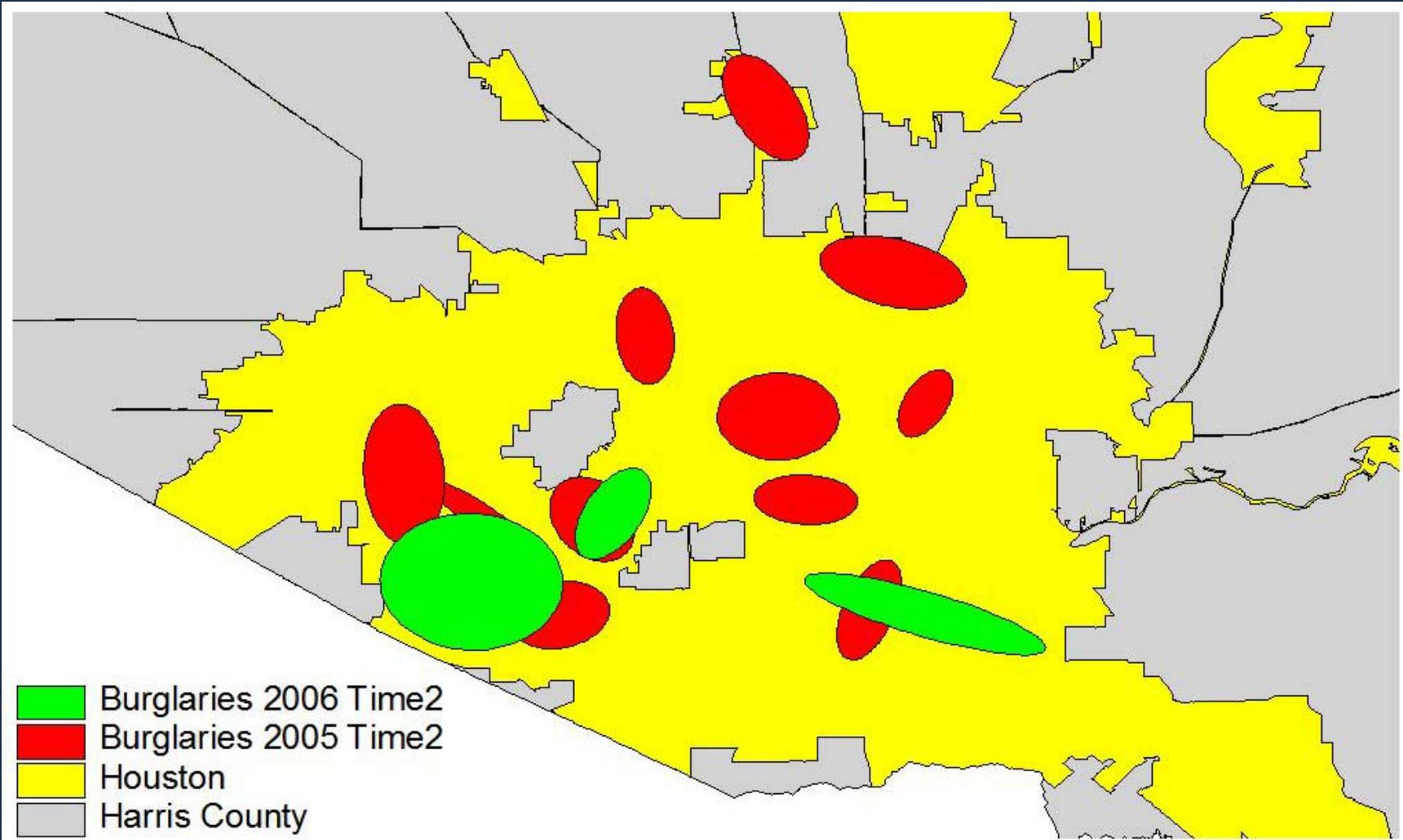


# Hot Spots of Burglaries- Time 1

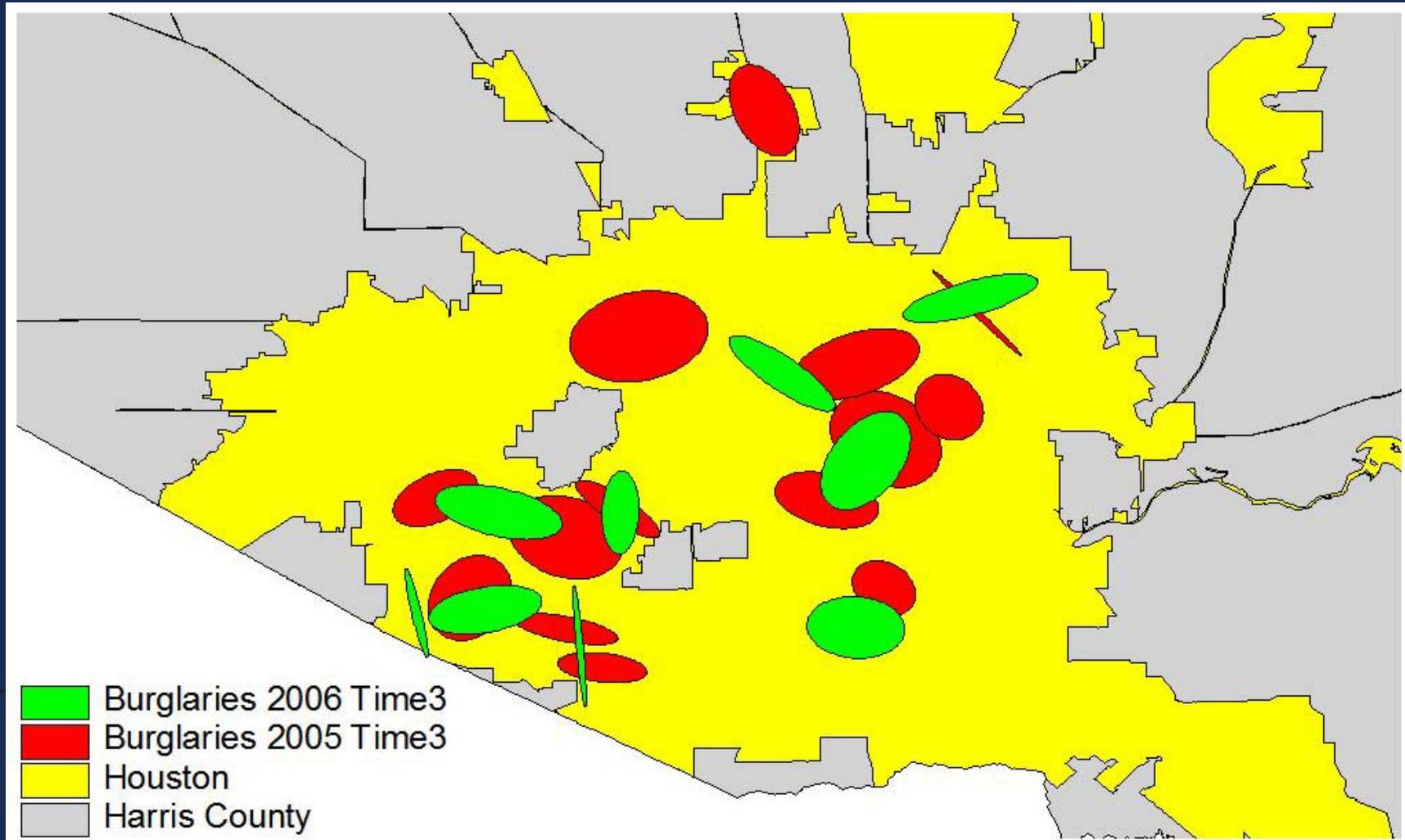


Weeks 1-34

# Hot Spots of Burglaries- Time 2



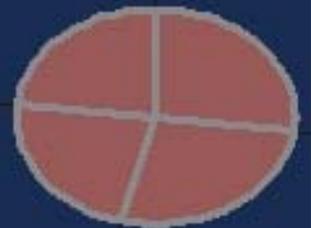
# Hot Spots of Burglaries- Time 3



# Patterns across Houston

No evidence was found to suggest that Hurricane Rita or Katrina resulted in increased violent crime or drug crime as suggested by the media.

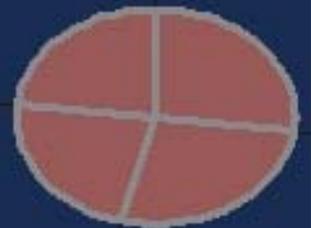
Evidence does show a 'limited' longitudinal impact of the Hurricanes on property crime, specifically burglary.



# Burglary Patterns

The most common explanation for the change in crime patterns has been to blame the increase on displaced residents from New Orleans.

A great deal of media coverage has highlighted the poverty and criminal records of many of those displaced to Houston.



# Popular Conceptions

“One in every five homicides in the city involves a Katrina evacuee as a suspect, victim or both”.

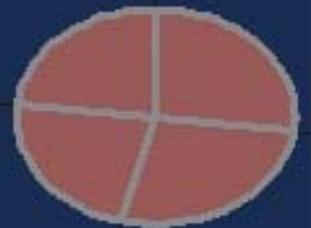
– LA Times

“Houston is full”

– Houston Mayor Bill White

“It’s time for them to go home”

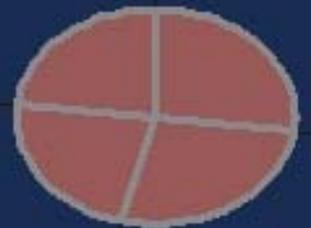
-Citizen Interview



# Conclusions

It seems unlikely that we can assign the blame for the burglary increase on displaced New Orleans residents.

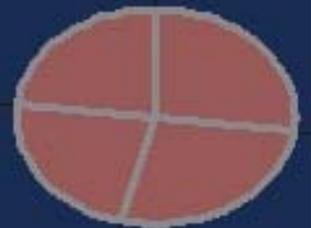
A reason survey of law enforcement agencies (TELEMASP, 2006) suggests that only three (3) burglary arrests, in the six months following Katrina, can be attributed to displaced New Orleans residents.



# Why the Impact of Katrina?

Immediately following Katrina we fail to see an increase in criminal activity. However, the media coverage demonstrated the inability of the police to focus on law enforcement efforts during the crisis.

It seems that the lessons learned from Katrina may have demonstrated to crime 'prone' individuals that immediately following a natural disaster was an ideal time to engage in property crime.



# Assessing the Impact of Hurricane Katrina

on Space-Time Clusters of  
Crime Patterns in Houston

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