Repeat Single Family Burglary
--Spatial and Temporal Patterns

Xiaowen Yang

Haihong Li

Objective

- Explore the spatial and temporal pattern of single family repeat burglaries through analyzing data from the Gainesville, Florida Police Department for residential burglaries from January 2000 to December 2003.
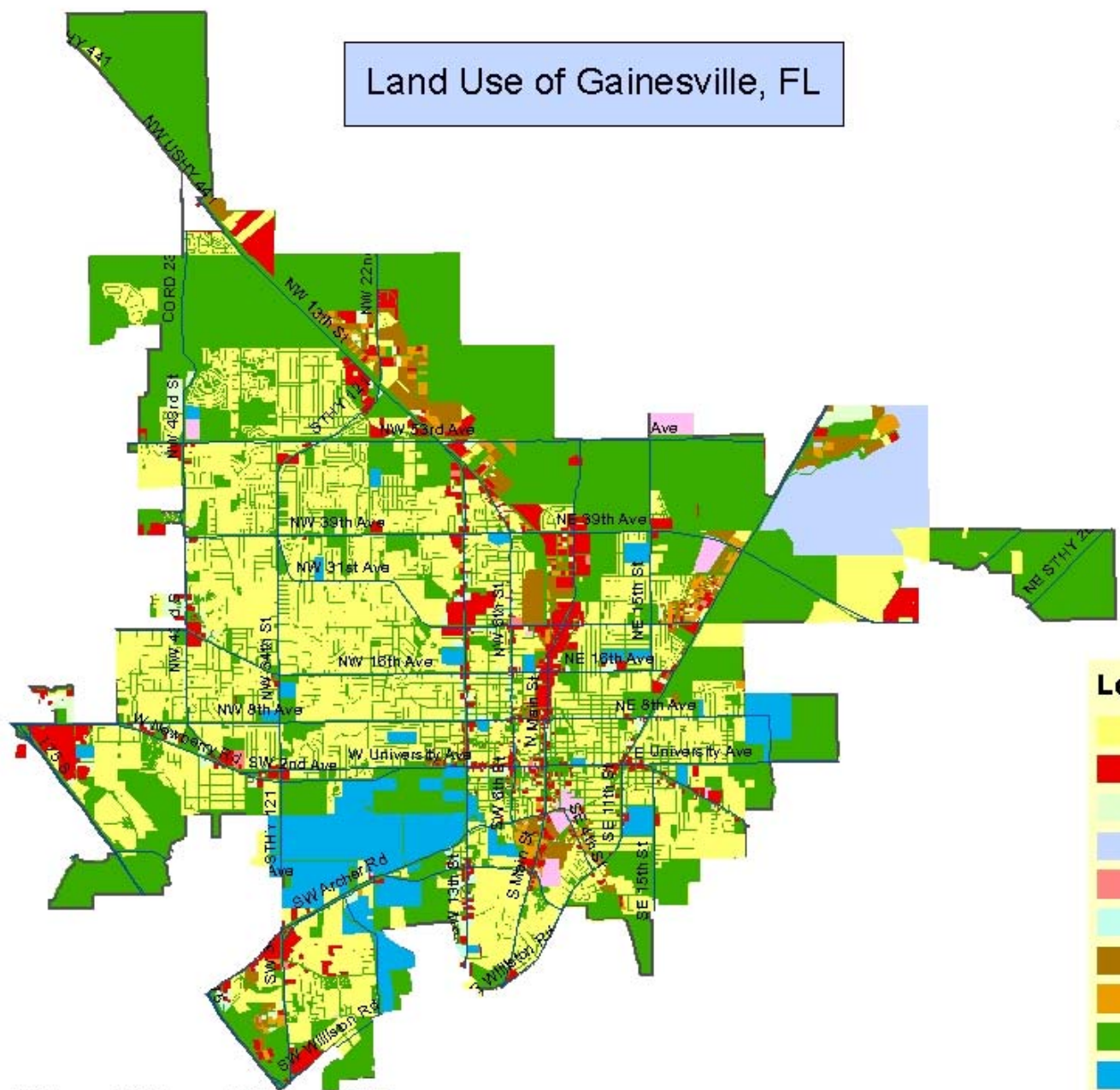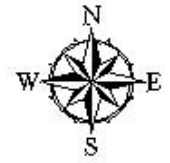
Repeat Burglary

- Definition:
  - Multiple victimization of the same household
- Findings:
  - Victimization is the best single predictor of further victimization
  - When victimization recurs, it tends to do so soon after the prior occurrence
  - Hot spots are the way they are primarily because of rates of repeat victimization

Repeat Burglary & Housing Type

- Single-family house
  - the dominant housing type
  - at higher risk than other housing types
- Multifamily house
  - difficult to identify precise unit
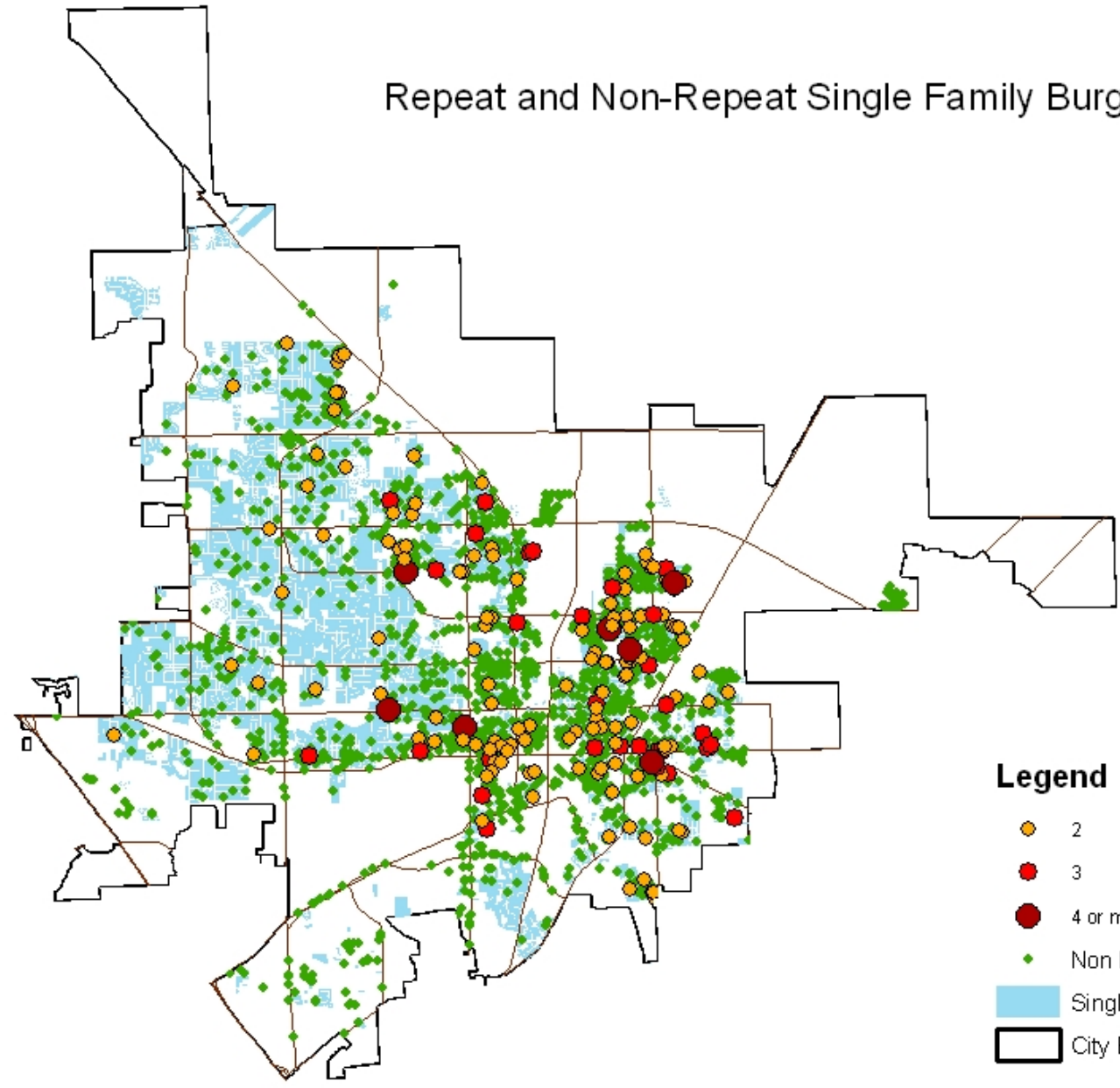 - more likely to inflate about the repeats

Land Use of Gainesville, FL

Legend

- Residential
- Commercial
- Office
- Airport
- Entertainment
- Hotels
- Industry
- Warehouse
- Greenland
- Education
- Utility
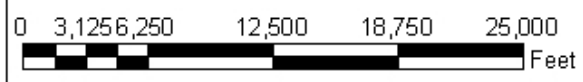
1,900 950 0 1,900 3,800 5,700 7,600

Meters

Repeat and Non-Repeat Single Family Burglary in Gainesville

Legend

- 2
- 3
- 4 or more
- Non Repeat Burglary
- Single Family Parcel
- City Boundary

0 3,125 6,250   12,500   18,750   25,000
Feet

Study Area -- Gainesville

- Residential burglary in Gainesville , FL
  - Based on reported burglaries from Gainesville Police Department
  - From Jan 2000 to Dec 2003
  - Residential burglary: **3,262**
  - Verified single family burglary: **1,639**
  - Unique addresses for single family burglary: **1,420**
  - Repeat Residential Burglaries Count: **389 (23.73%)**
  - Addresses with Repeat Residential Burglaries: **170 (11.97%)**

Identifying Single Family Burglary & Repeats

- Inconsistency of location type code in police data

- Appraisal parcel data contains accurate land use type codes

- Linking burglarized household address to parcel site address

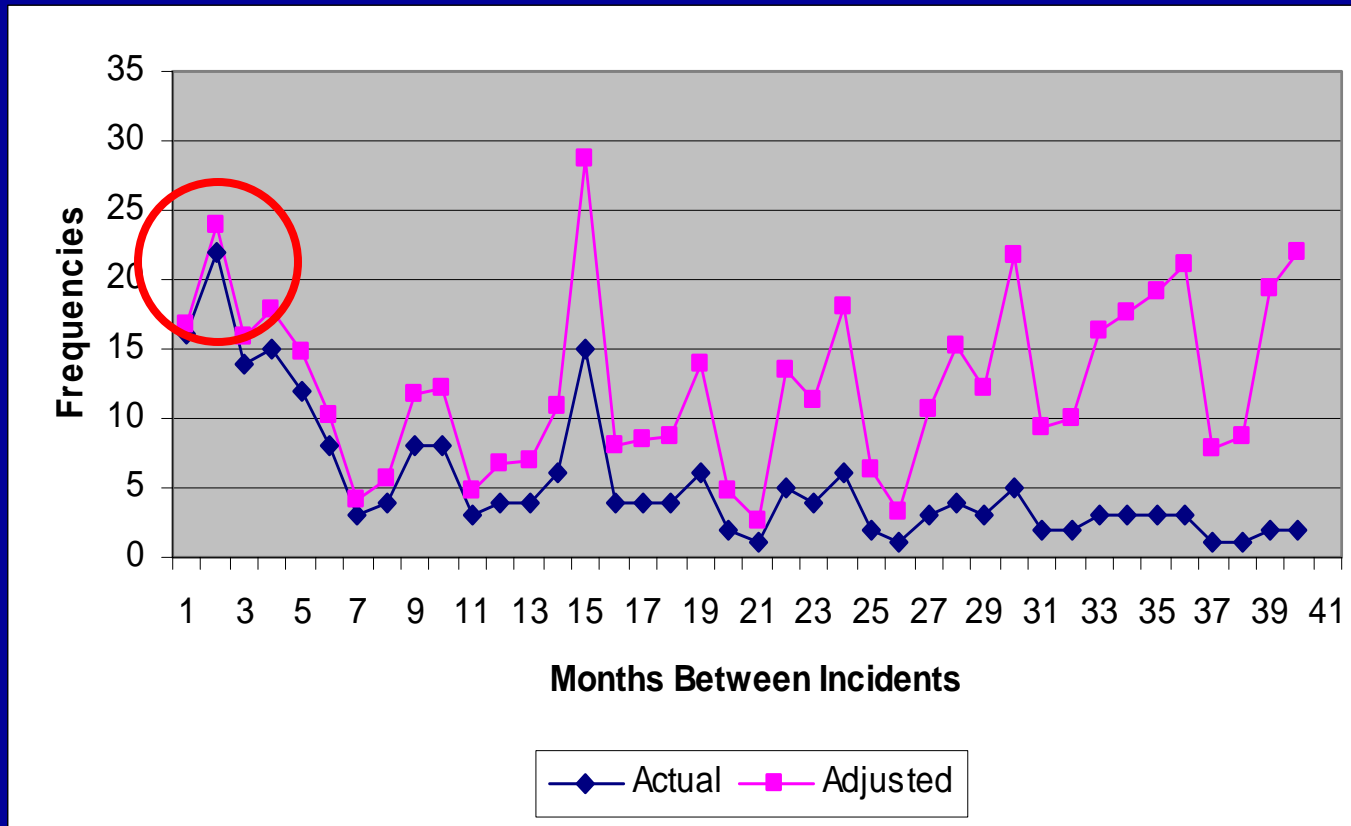# Identifying Single Family Burglary & Repeats
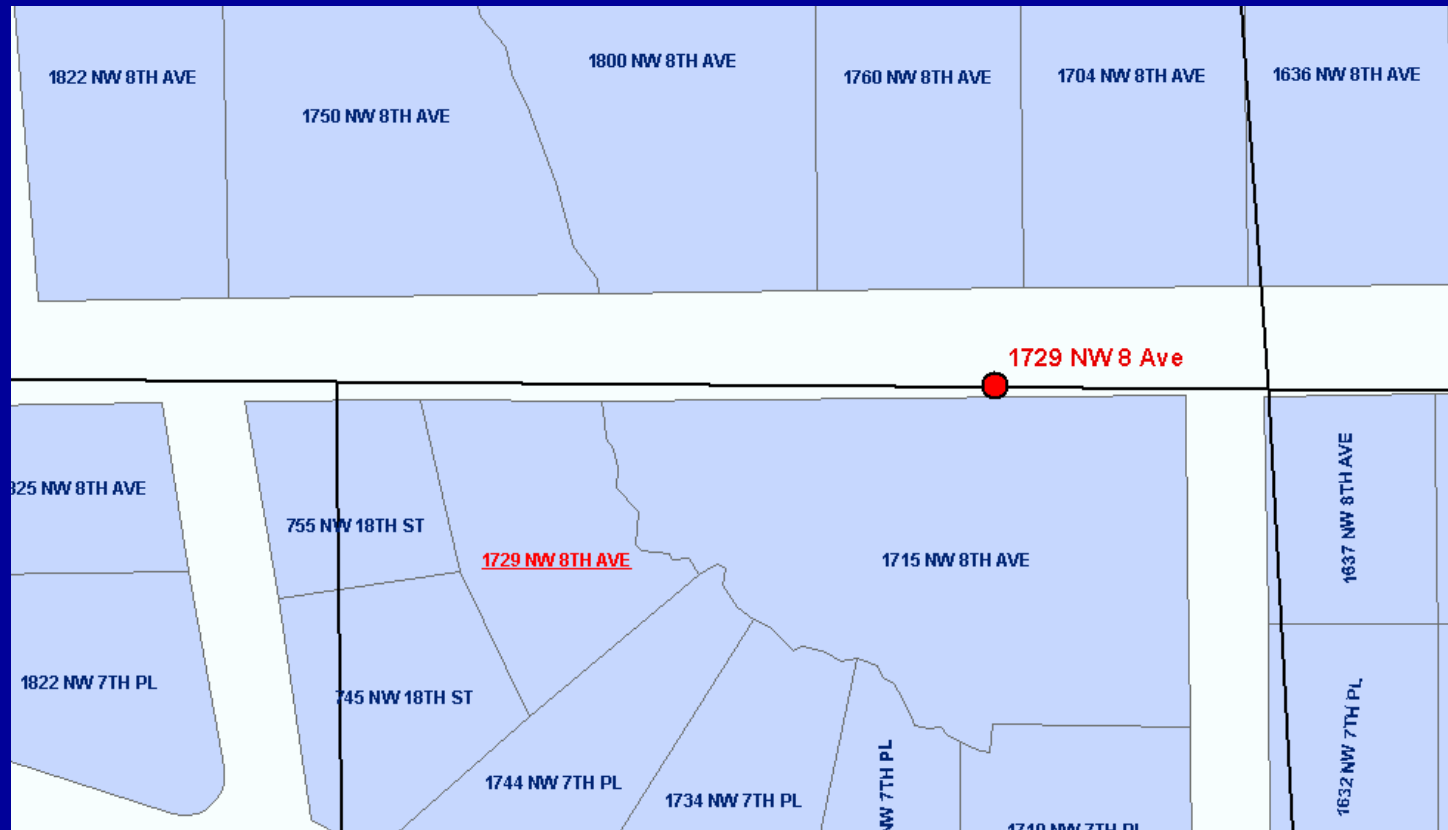
- Address matching instead of geocoding
  - Standardize parcel addresses
  - Standardize burglary incidents' addresses
  - Text string comparison
  - Match rate is **80.6%** for the current research

Results -- General

- The observed rate of repeats is 3.7 times the expected rate.

Times burglarized	Number of single family addresses	Percent of single family addresses	Number of burglary incidents	Percent of burglary incidents
0	20,540	93.53	0	0
1	1,250	5.69	1,250	76.27
2	132	0.60	264	16.11
3	31	0 **11.97 %**	93	**23.73%**
4 or more	7	0.03	32	1.95
Total	21,960	100	1,639	100

Results – Temporal Analysis

- Although repeat victimization tends to occur soon after the first incident, repeat residential burglary for single-family housing tends to have a short break rather than occurring immediately after the prior burglary
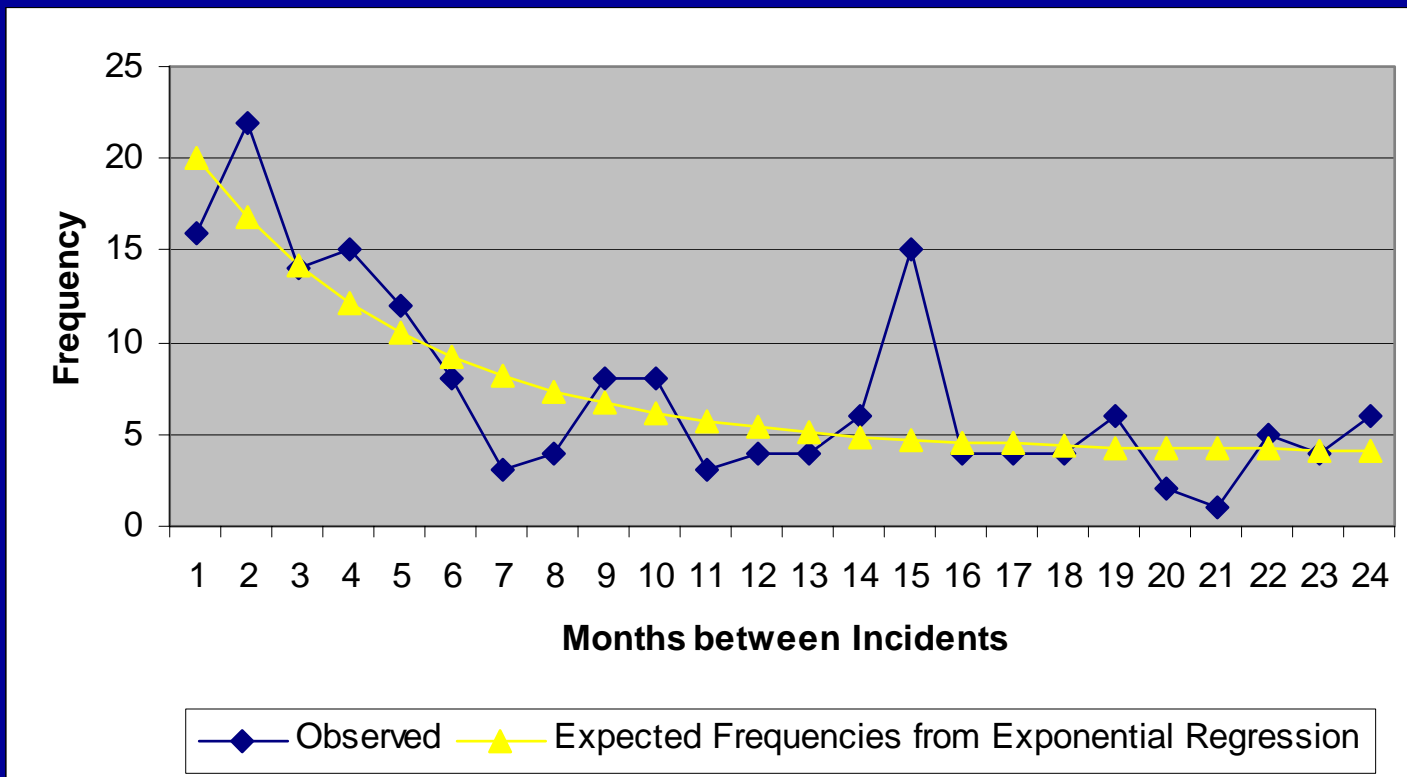
Results – Temporal Analysis
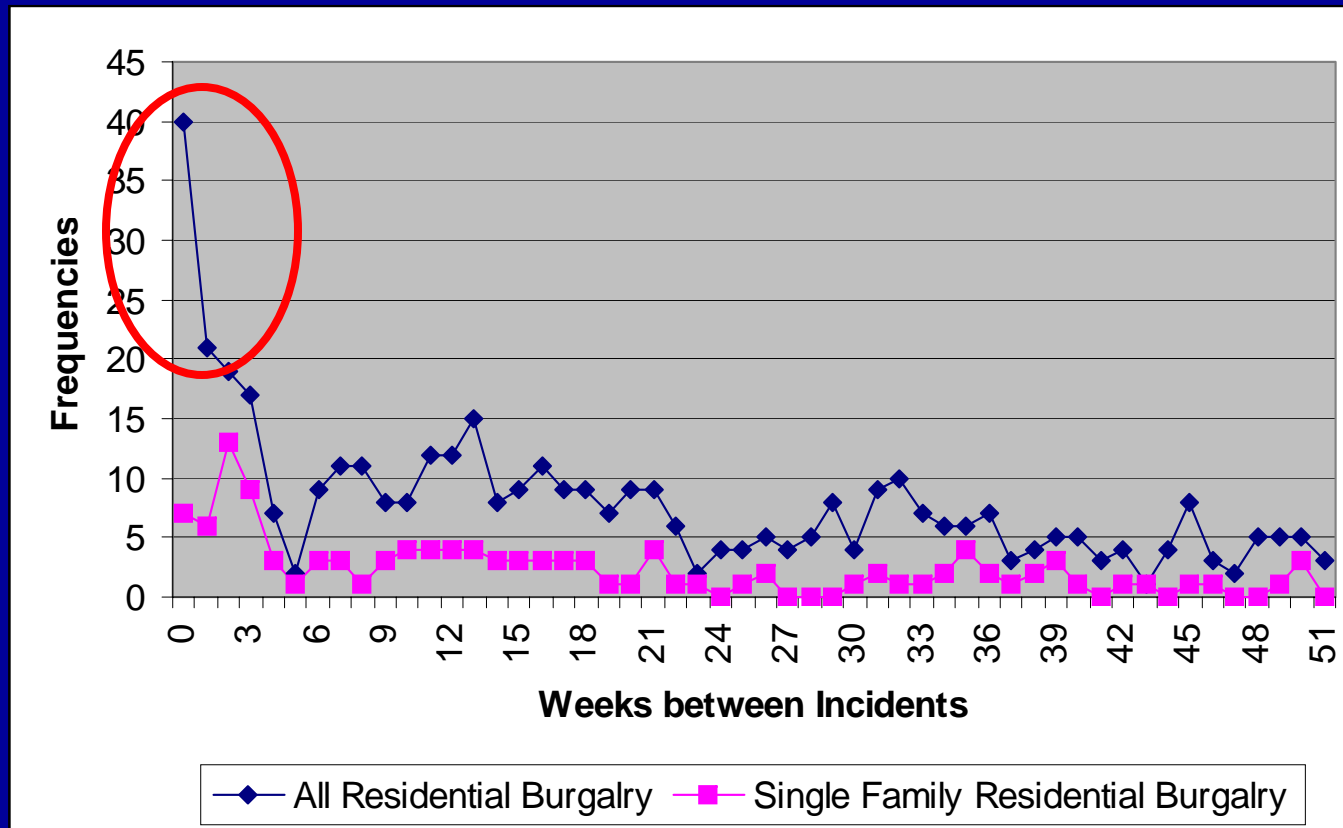
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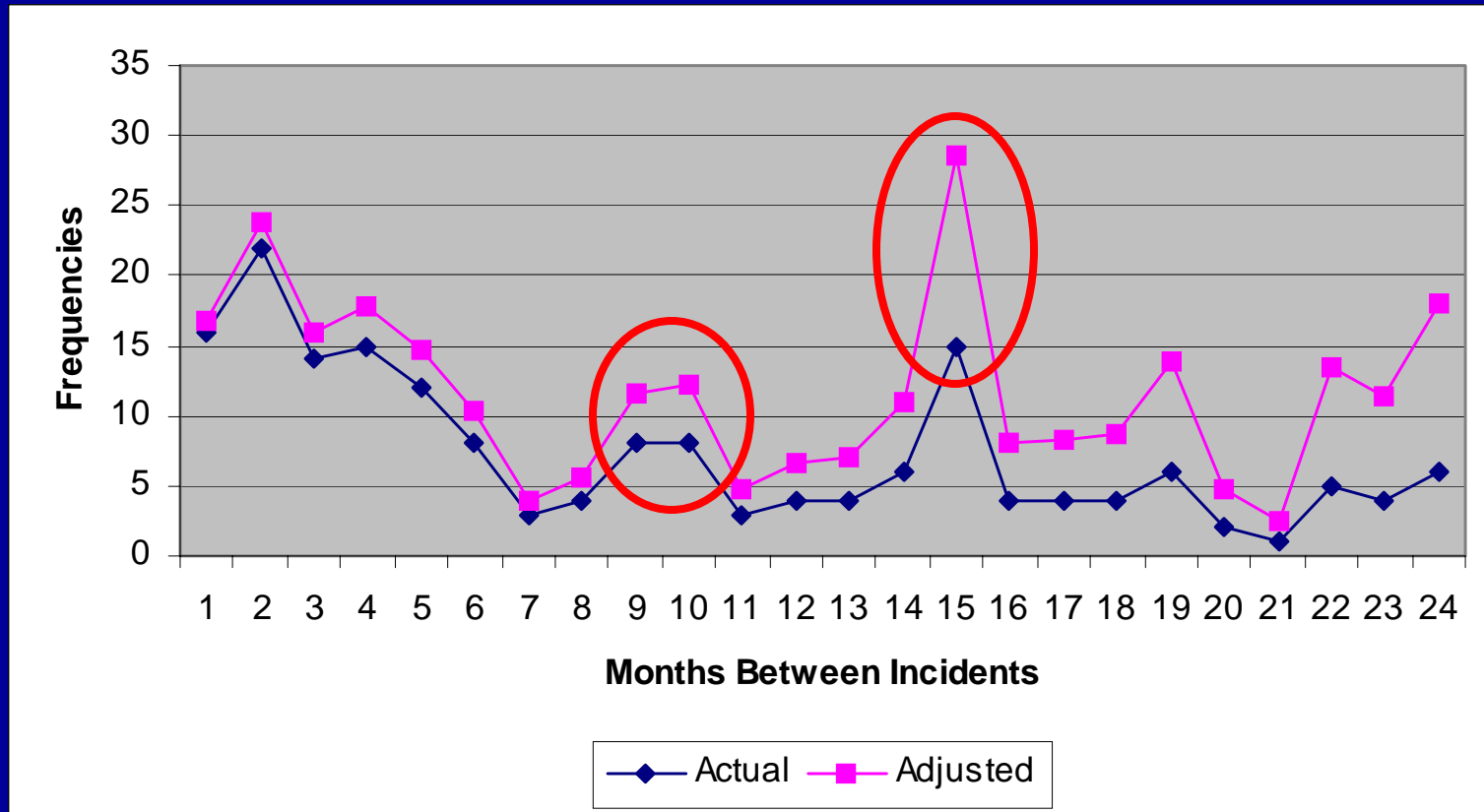
Results – Temporal Analysis

- The time course of repeat single-family residential burglary victimization conforms to an exponential model, consistent with other studies.
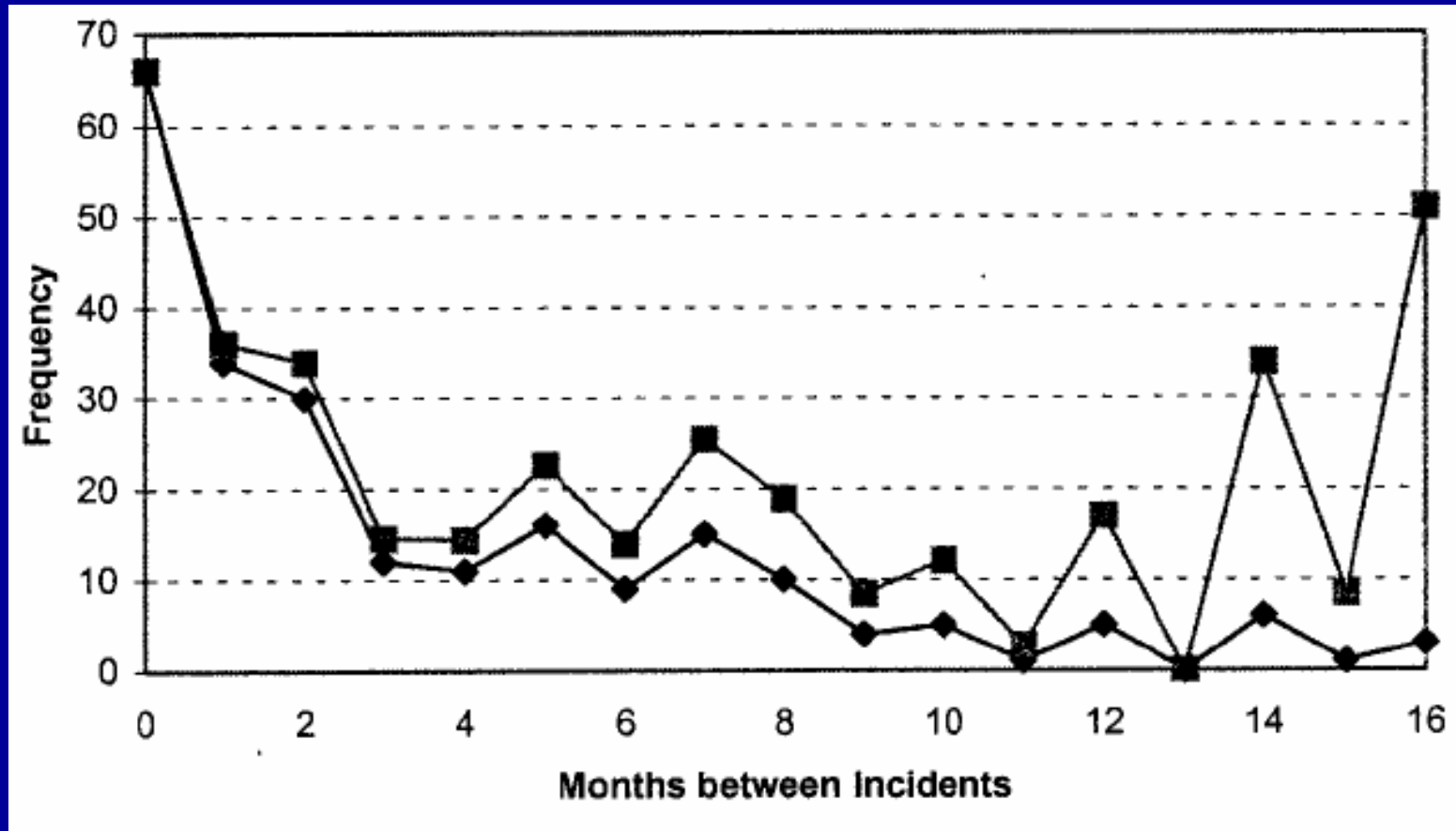
Results – Temporal Analysis

- Two "humps" are present for single-family repeat residential burglary in Gainesville, whereas most previous research found only one "hump" at around 4 to 5 months.
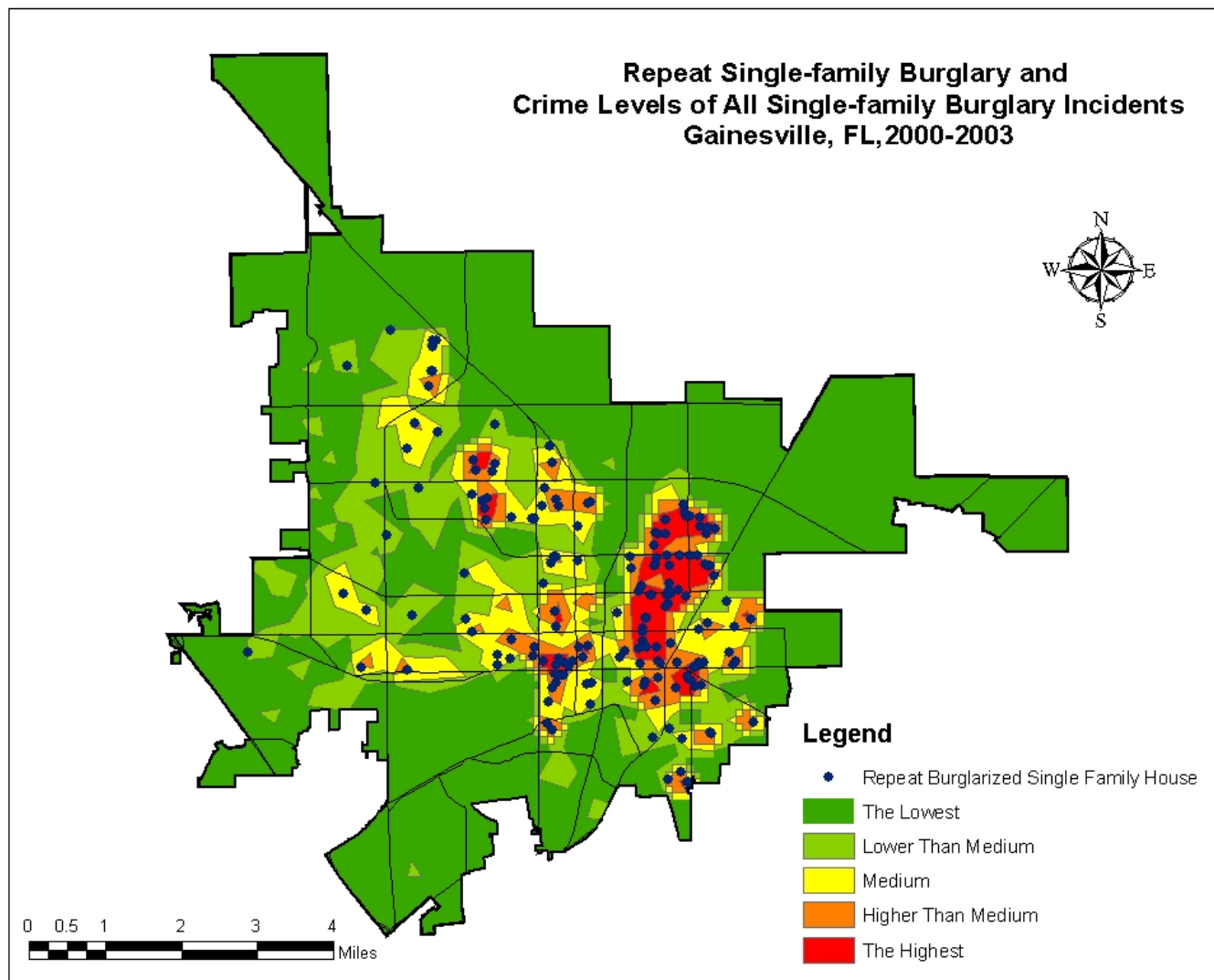
Results – Temporal Analysis

Time course for residential properties, Beenleigh, June 1995 to November 1996 (inclusive).

Source: (Townsley, Homel et al. 2000)

Results – Spatial Analysis

Repeat Single-family Burglary and
Crime Levels of All Single-family Burglary Incidents
Gainesville, FL, 2000-2003

Legend

- Repeat Burglarized Single Family House
- The Lowest
- Lower Than Medium
- Medium
- Higher Than Medium
- The Highest

Results – Spatial Analysis

- Repeat burglary incidents tend to concentrate in high crime districts.

Burglary Density	Non-repeat Single Family Burglary		Repeat Single Family Burglary	
	Observed	Expected	Observed	Expected
The Lowest	31	24	0	7
Lower than medium	248	210	28	66
Medium	328	308	76	96
Higher than medium	316	348	140	108
The Highest	327	360	145	112

Notes: Chi-square (4) = 9.71, p<0.01.
Expected numbers have been rounded to the nearest integer

Results – Spatial Analysis

- Compared to low crime districts, high crime districts have not only more number of repeat burglary incidents, but also more number of heavily victimized addresses

Burglary Density	Address burglarized once	Address burglarized twice	Address burglarized three times	Address burglarized four times or more
The lowest	31	0	0	0
Lower than medium	248	14	0	0
Medium	328	27	6	1
High	316	44	14	2
Very High	327	47	11	4

Notes: Chi- square (12) = 34.63, p<0.01.

Results – Spatial Analysis

- Eliminating repeat victimization may diminish crime hotspots.
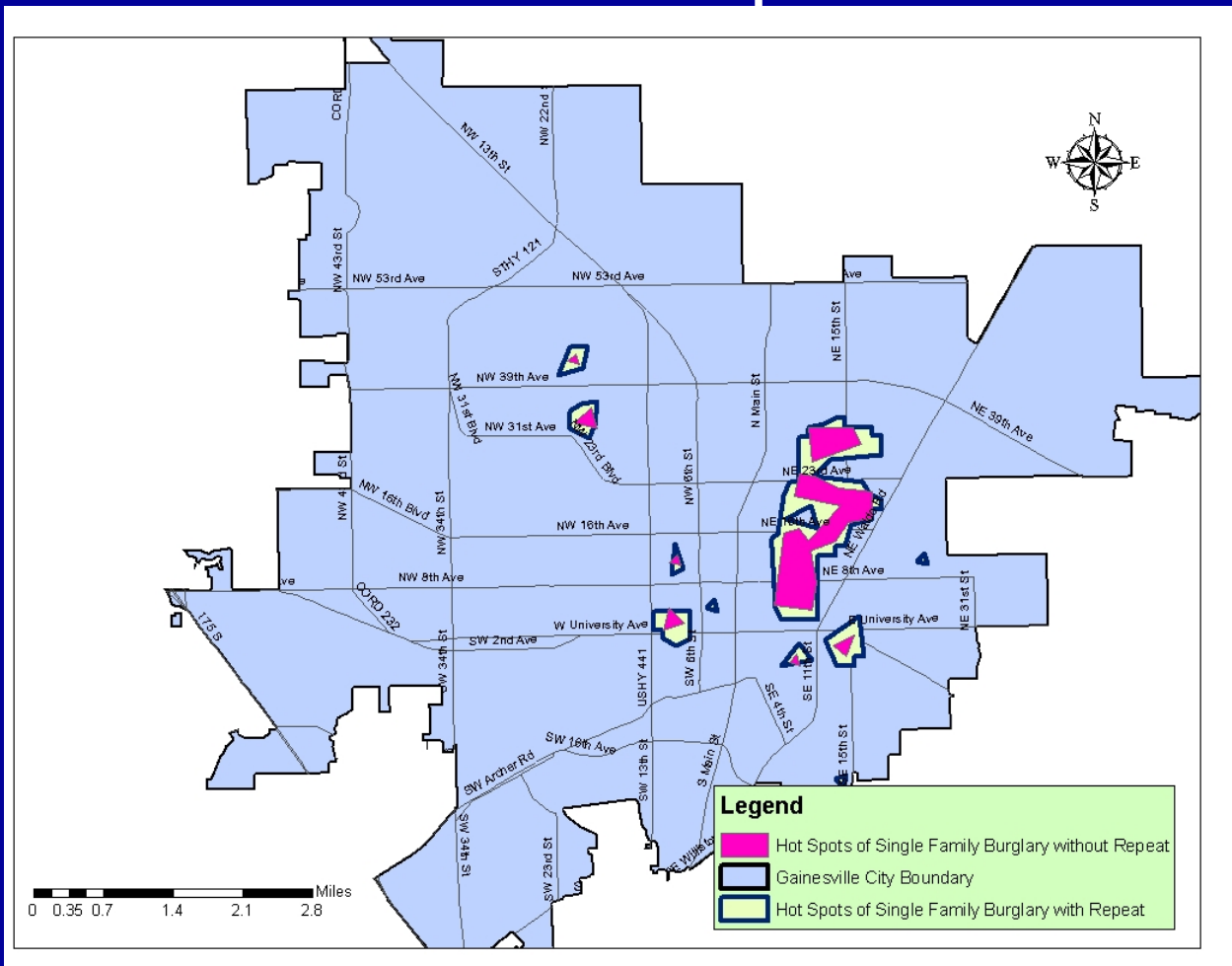
Acknowledgement

Gainesville Police Department, FL

Geoplan, UF

Questions?