

# USING GEOSPATIAL TECHNIQUES TO CONDUCT PROGRAM EVALUATION AND INFORM SERVICE DELIVERY

Symposium Chair: Rose Greene

Discussant: Lynn Warner

Presenters: Matt Vogel, LuAnn McCormick

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# BEYOND THE PUSHPIN: DESCRIBING THE SPATIAL DISTRIBUTION OF FAMILIES RECEIVING SERVICES IN A SYSTEM OF CARE COMMUNITY

Matt Vogel, MA

Research Associate

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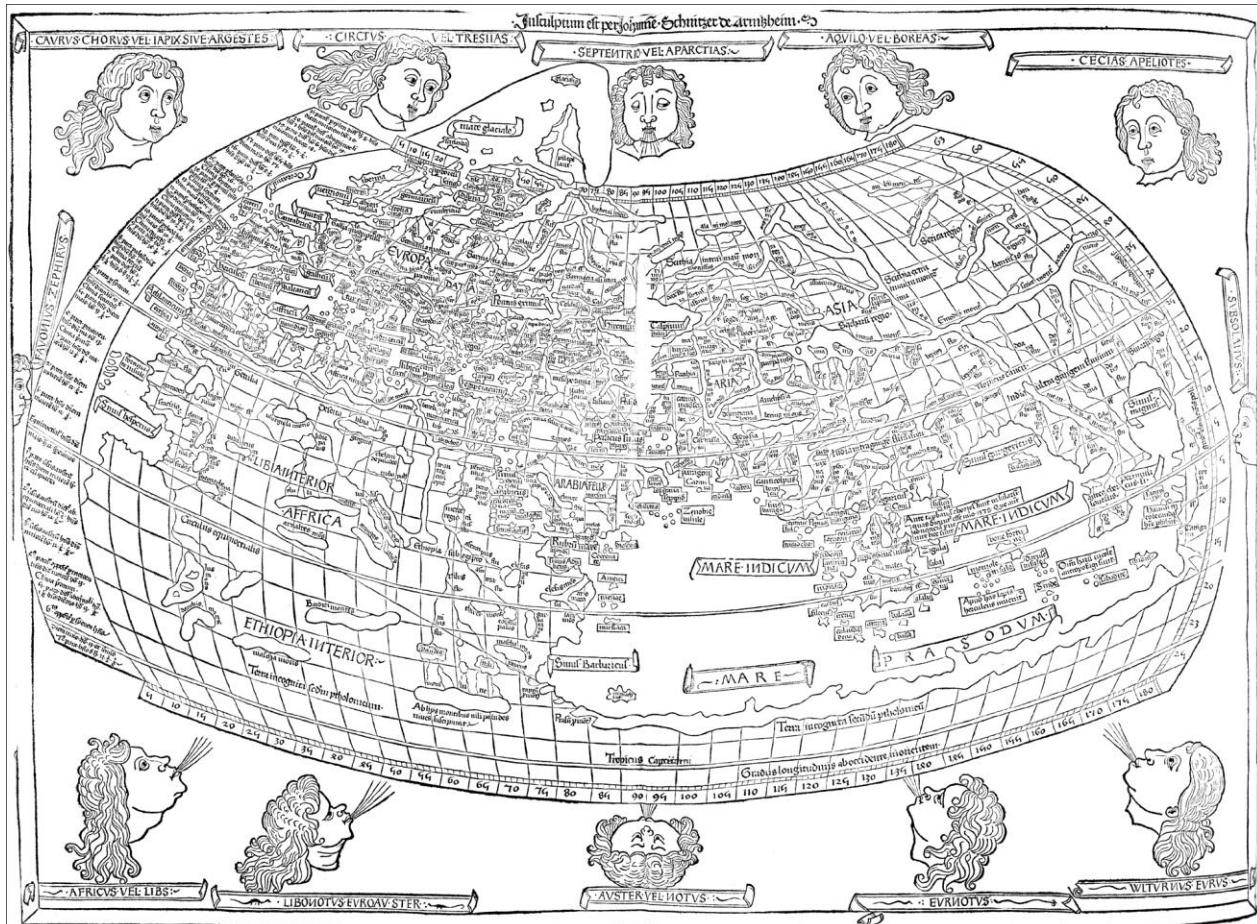
# Overview

- Mapping in the Social Sciences
- Mapping and Children's Mental Health
- Spatial Description of Families Presenting in the Albany County System of Care
  - ▣ Descriptive Statistics
  - ▣ Clustering of Families
  - ▣ Spatial Dependence



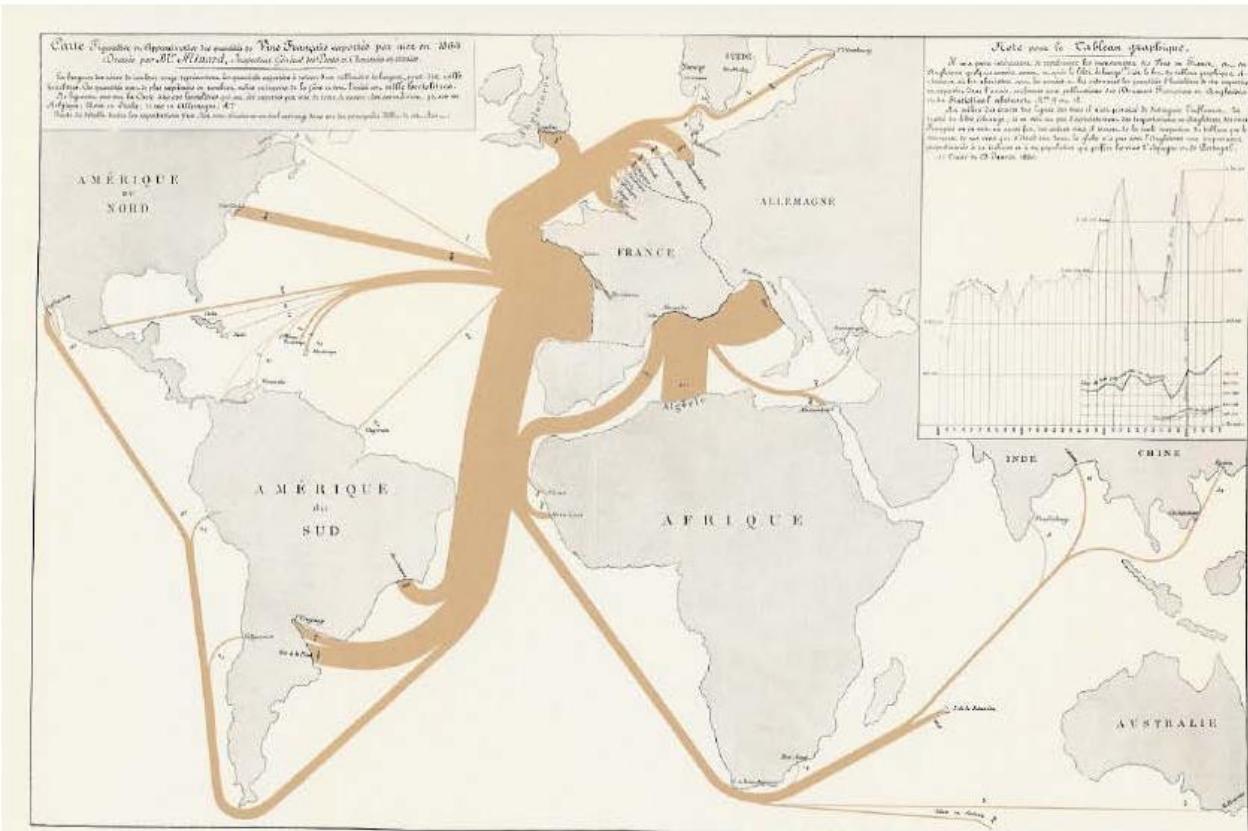
# Mapping in the Social Sciences

- Maps are the oldest means of evaluating social space



# Mapping in the Social Sciences

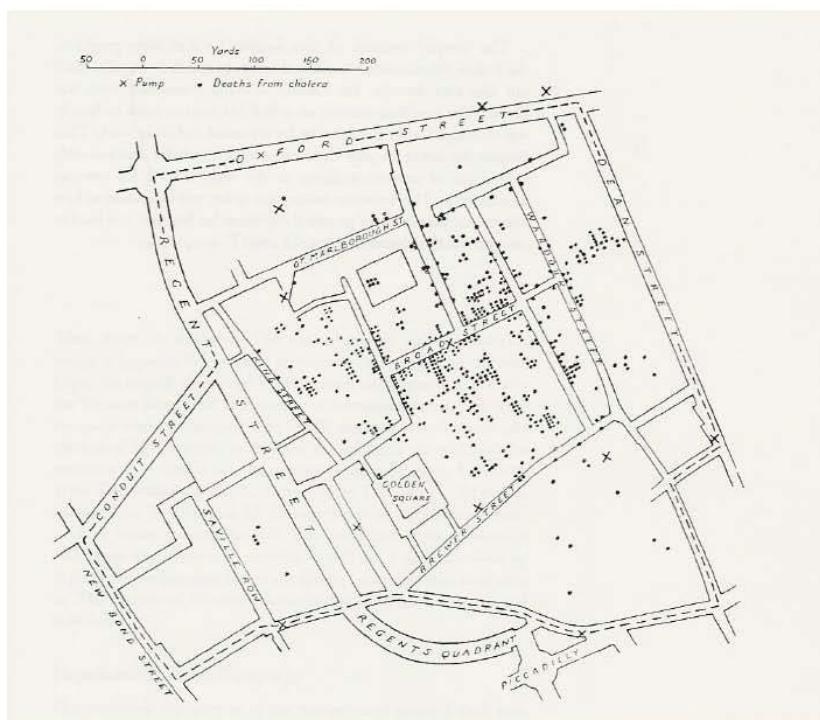
- Maps provide a powerful means to visualize data



Minard's map of French wine exports for 1864. (Source: Tufte, *The Visual Display of Quantitative Information*, p. 25)

# Mapping in the Social Sciences

- The use of spatial techniques predates statistics in the social sciences



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John Snow's 1854 event map of London cholera deaths around the Broad Street water pump.  
(Source: Wainer, *Visual Revelations*, p. 61)



# Mapping and Children's Mental Health

- How can mapping contribute to our understanding of children's mental health?
  - ▣ Identify target areas for at-risk populations
  - ▣ Inform service locations
  - ▣ Gain insight on service utilization
  - ▣ Provide more comprehensive description of populations served
  - ▣ Examine spatial patterns



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# Families Together in Albany County

- The papers in this symposium all use information from families presenting in the Albany County System of Care between January 1, 2006 and December 31, 2008.
  - ▣ Demographic information was taken from the EDIF
    - N = 1328
  - ▣ Family home addresses at intake were collected as part of our MIS tracking system
  - ▣ These addresses were geo-coded to latitude and longitude (N = 1195 matches)

# Describing the Area

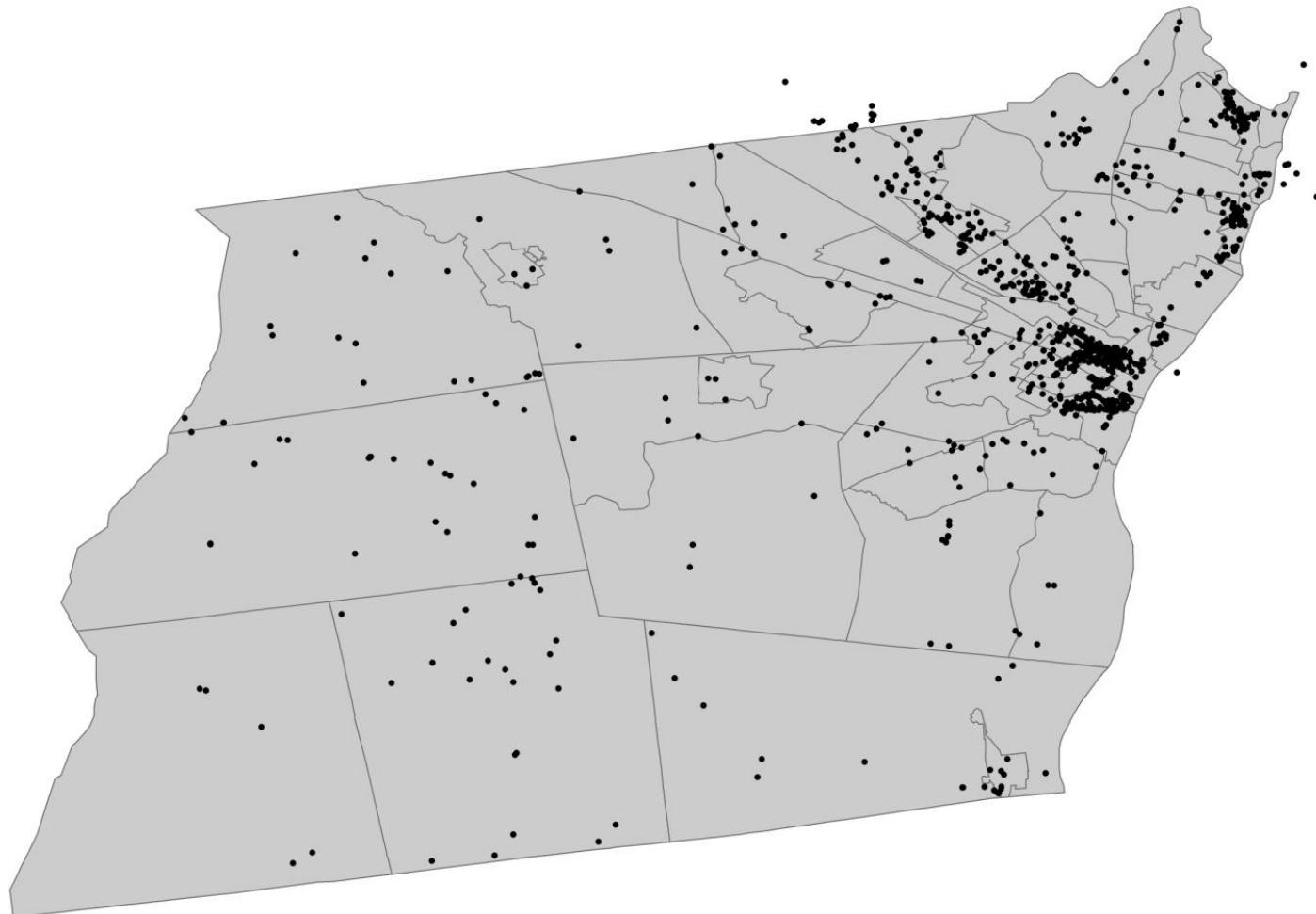
- Albany County, New York (2008)
  - Part of the Albany-Schenectady-Troy Metropolitan area
  - Population of roughly 300,000
  - 20 percent of the population is younger than 18
  - Median Household Income – \$57,000
  - 12 percent of families are below the poverty line
  - 10 percent of the population lives in rural areas

# Research Question # 1

- How are families presenting for SOC services distributed across Albany County?
  - ▣ We have data on the home addresses of all individuals who come in contact with the SOC
  - ▣ By overlaying home addresses over a map of Albany County, we can begin to form an idea of how families are distributed



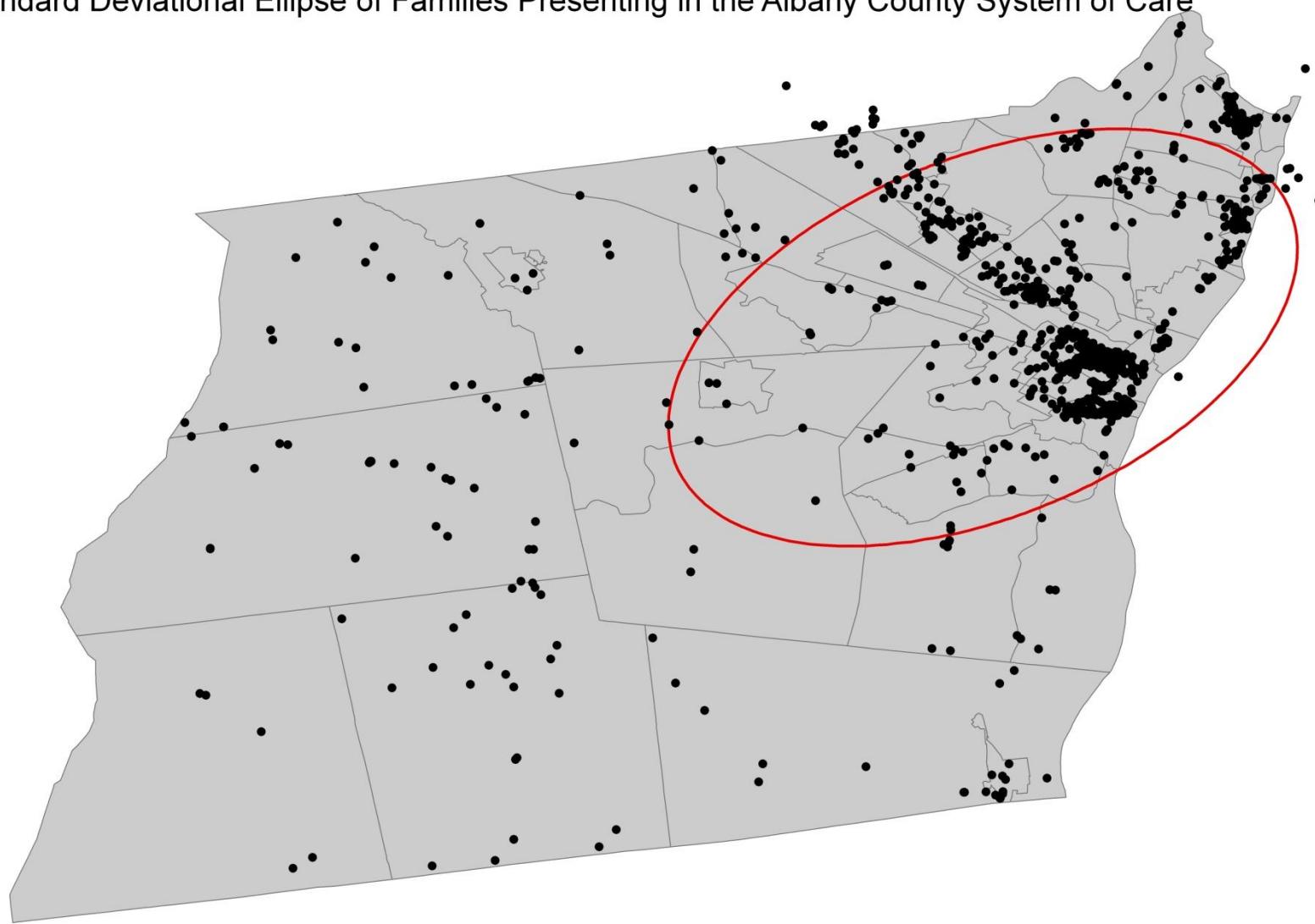
## Home Addresses of Families Presenting for Services in Albany County January 1, 2006 – December 31, 2008



# Spatial Description

- We now have a rough idea of where families are coming from...
- As with ordinary data, we can apply descriptive statistics to spatial data to provide a more concise assessment of patterns
  - ▣ Mean
  - ▣ Standard Deviation

## Standard Deviational Ellipse of Families Presenting in the Albany County System of Care



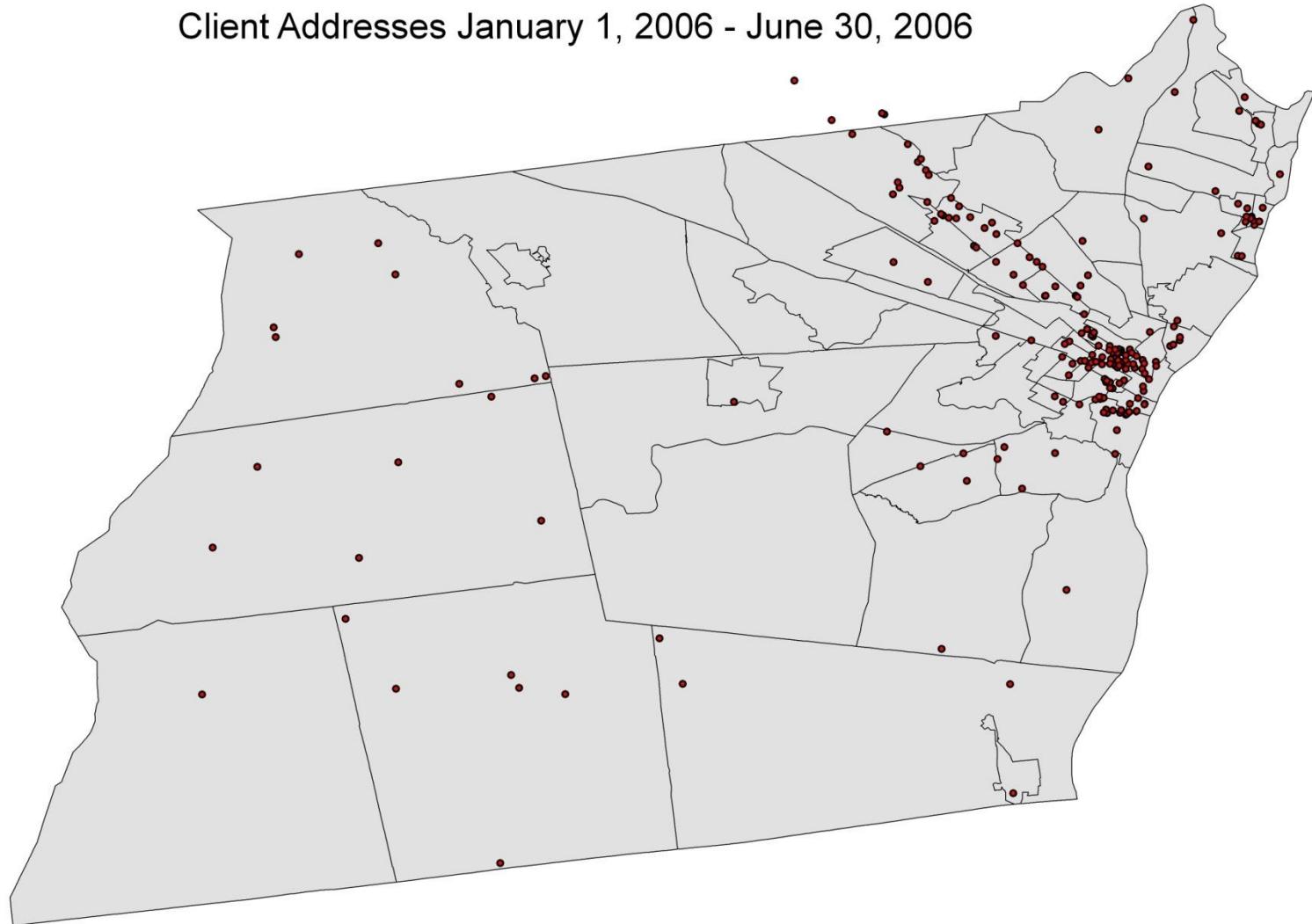
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# Research Question #2

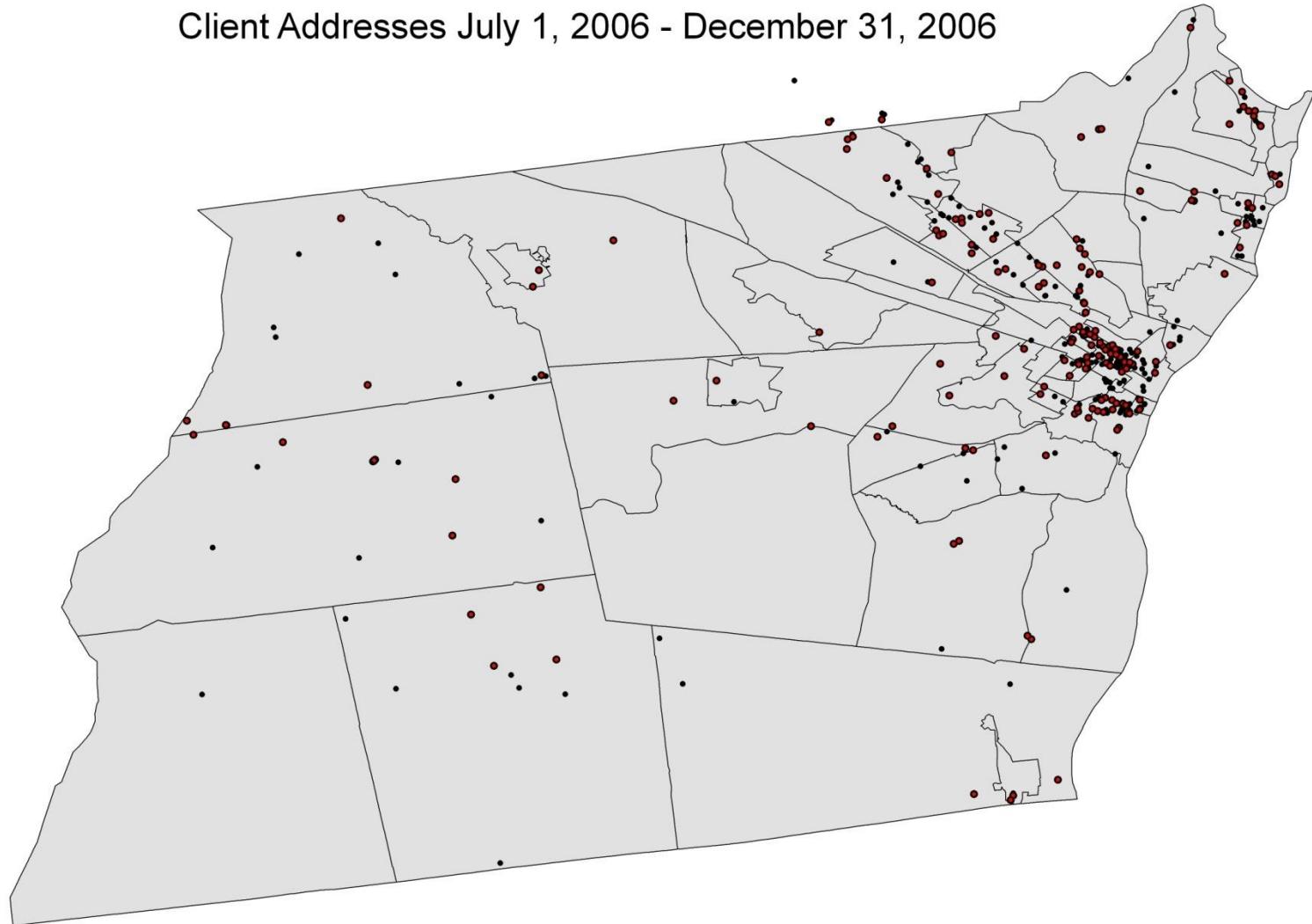
- We now have a visual and statistical description of how families were distributed over the entire length of the program
- In order to understand process it may be worthwhile to examine these trends over time
- Research Question:
  - ▣ How has the distribution of families presenting for services in the Albany County System of Care changed over time?

## Client Addresses January 1, 2006 - June 30, 2006

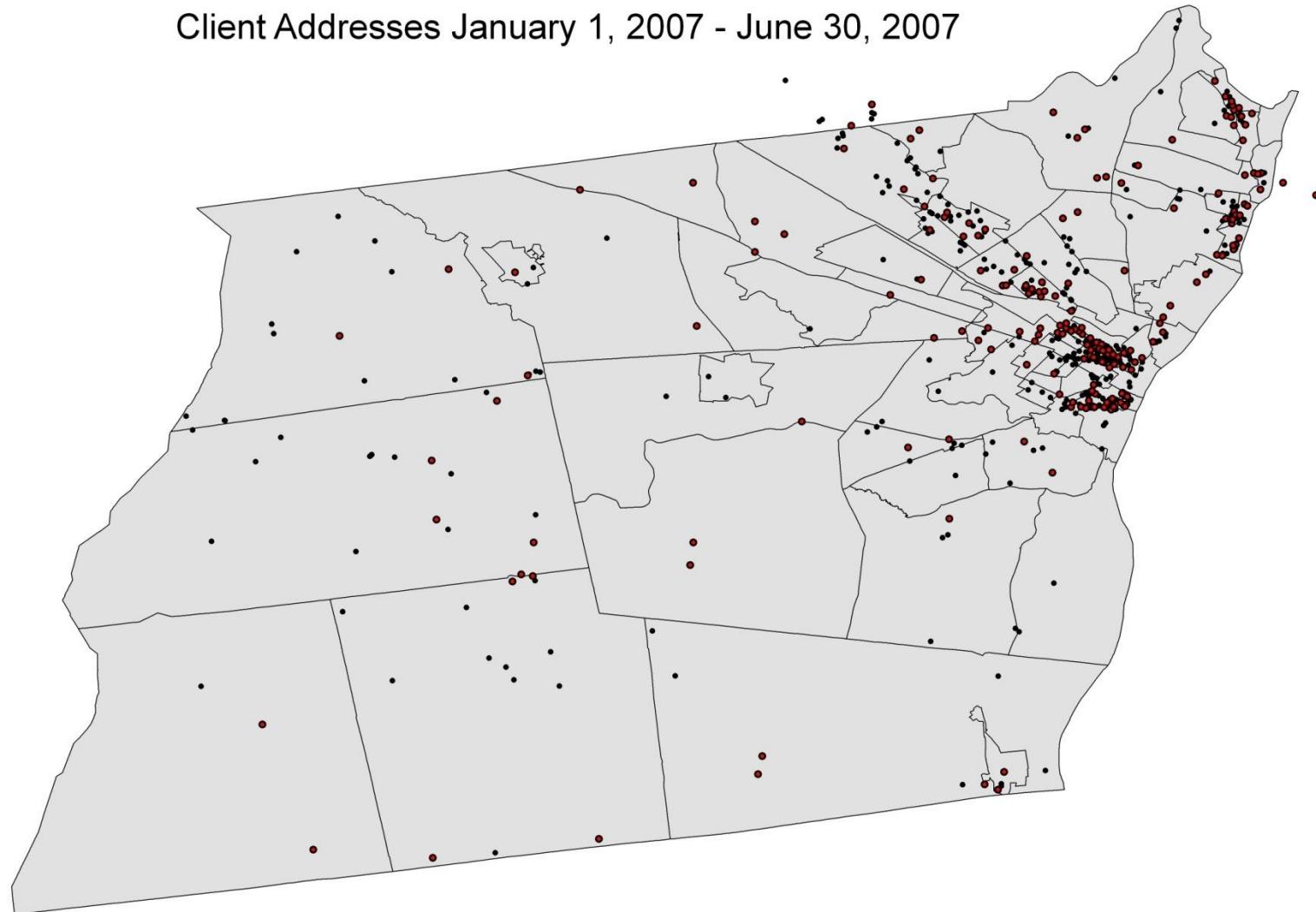


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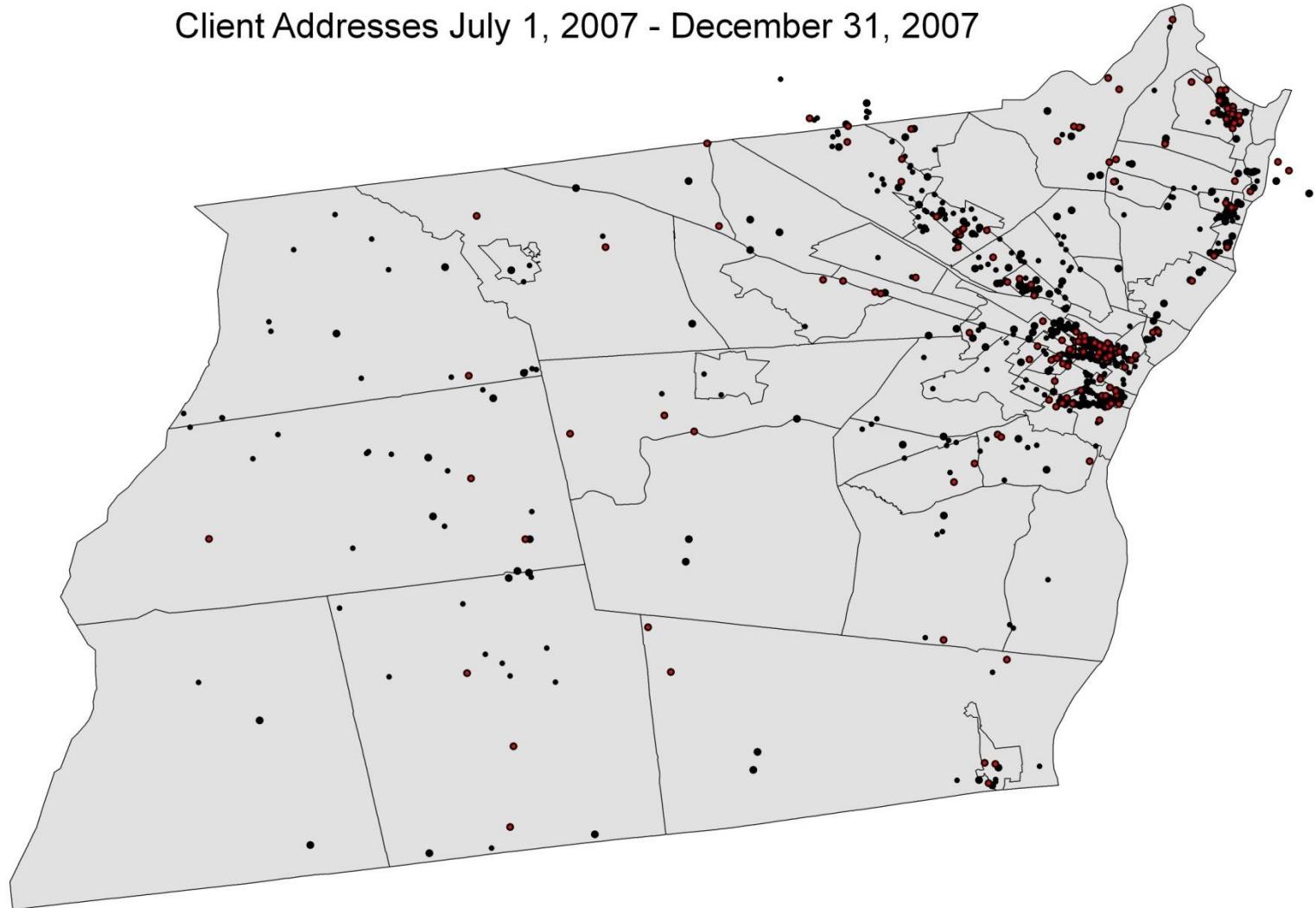
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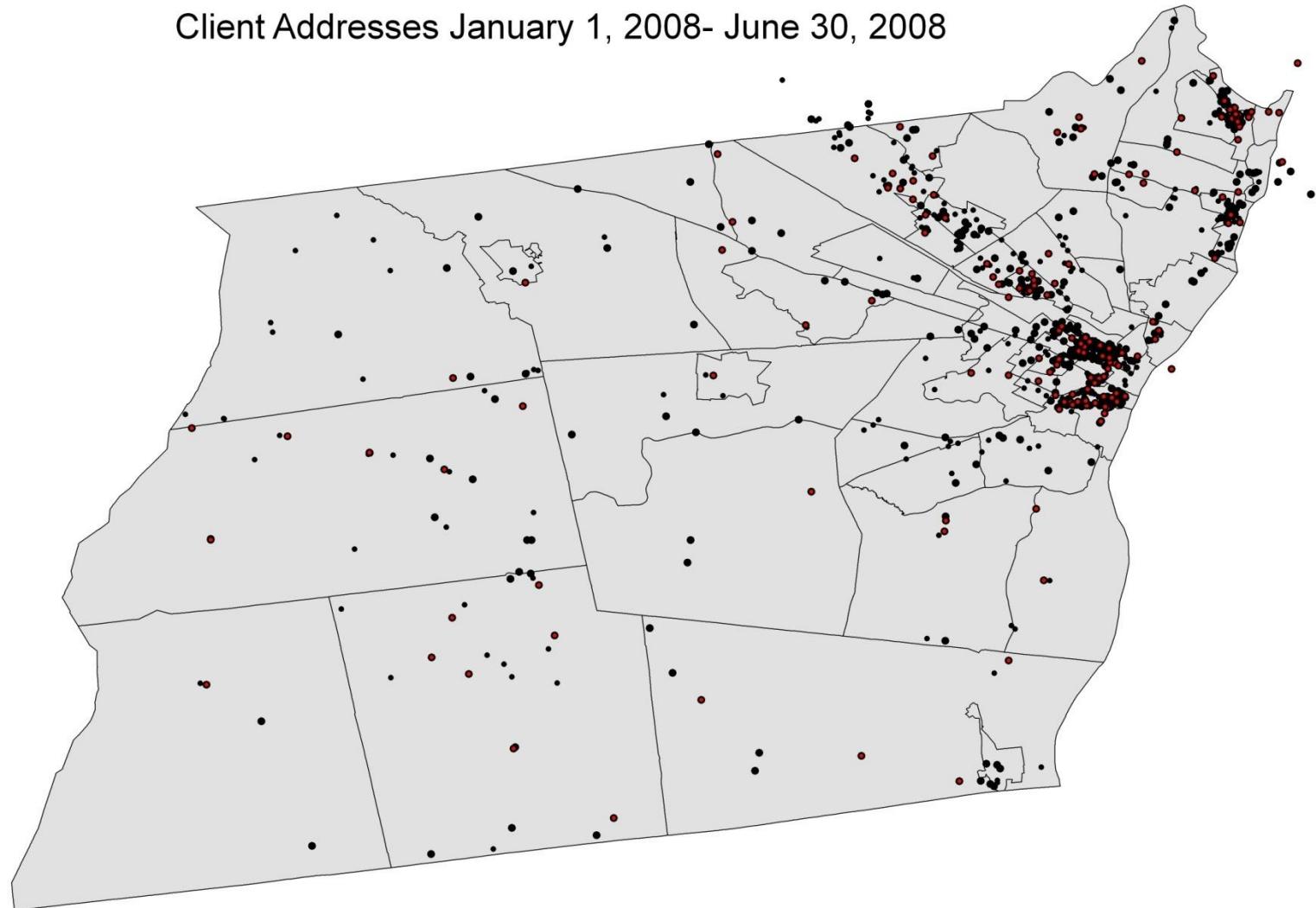
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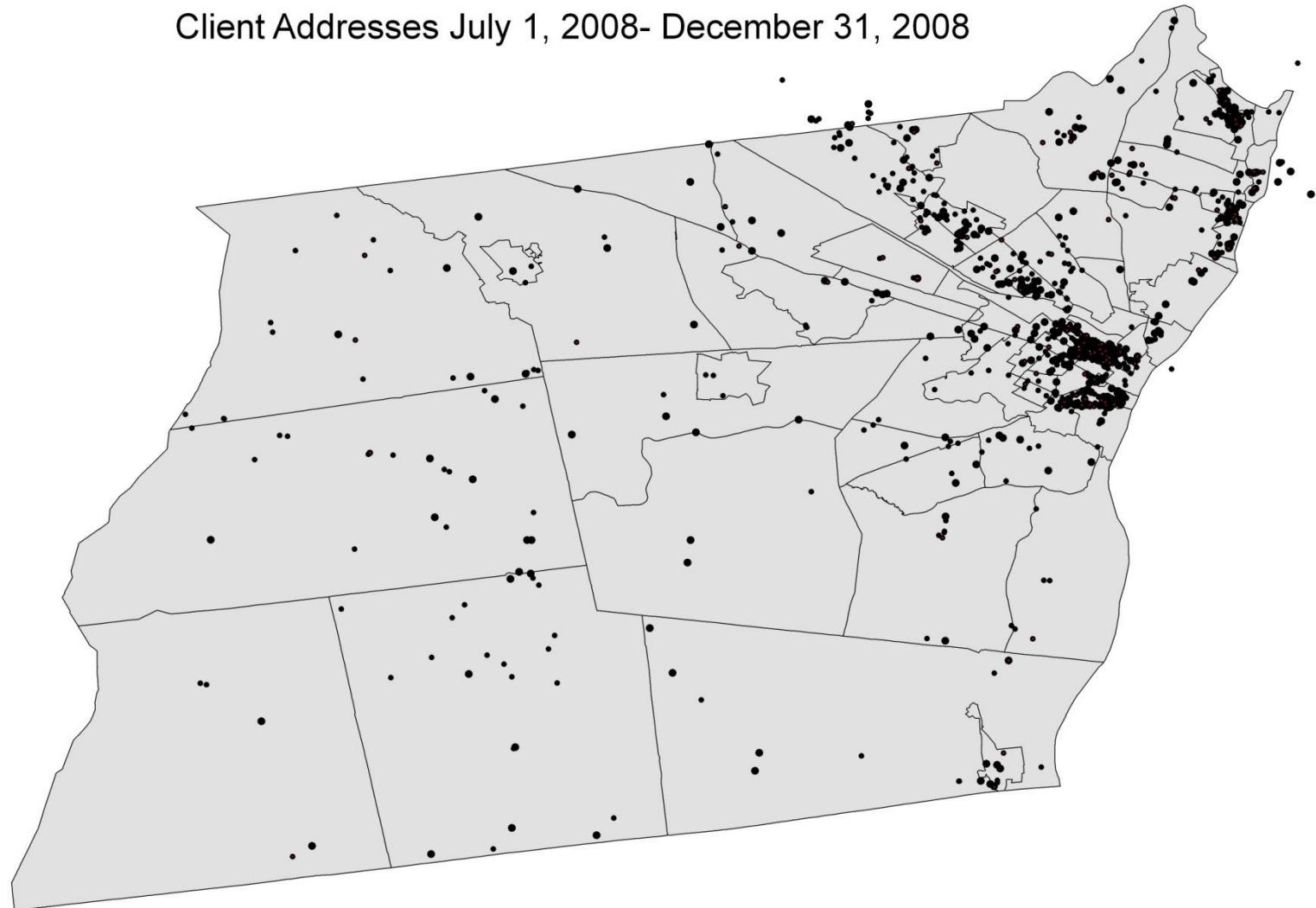
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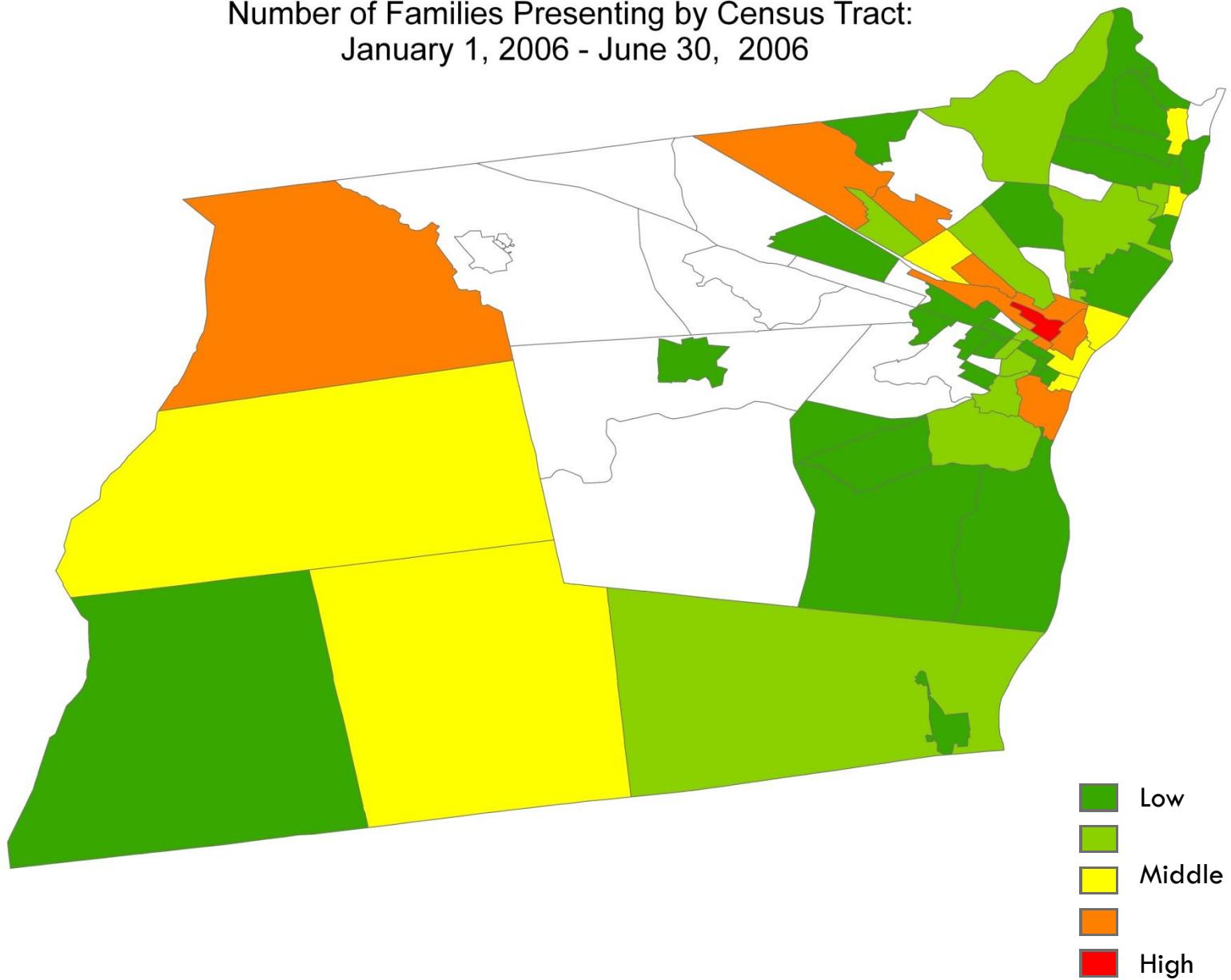
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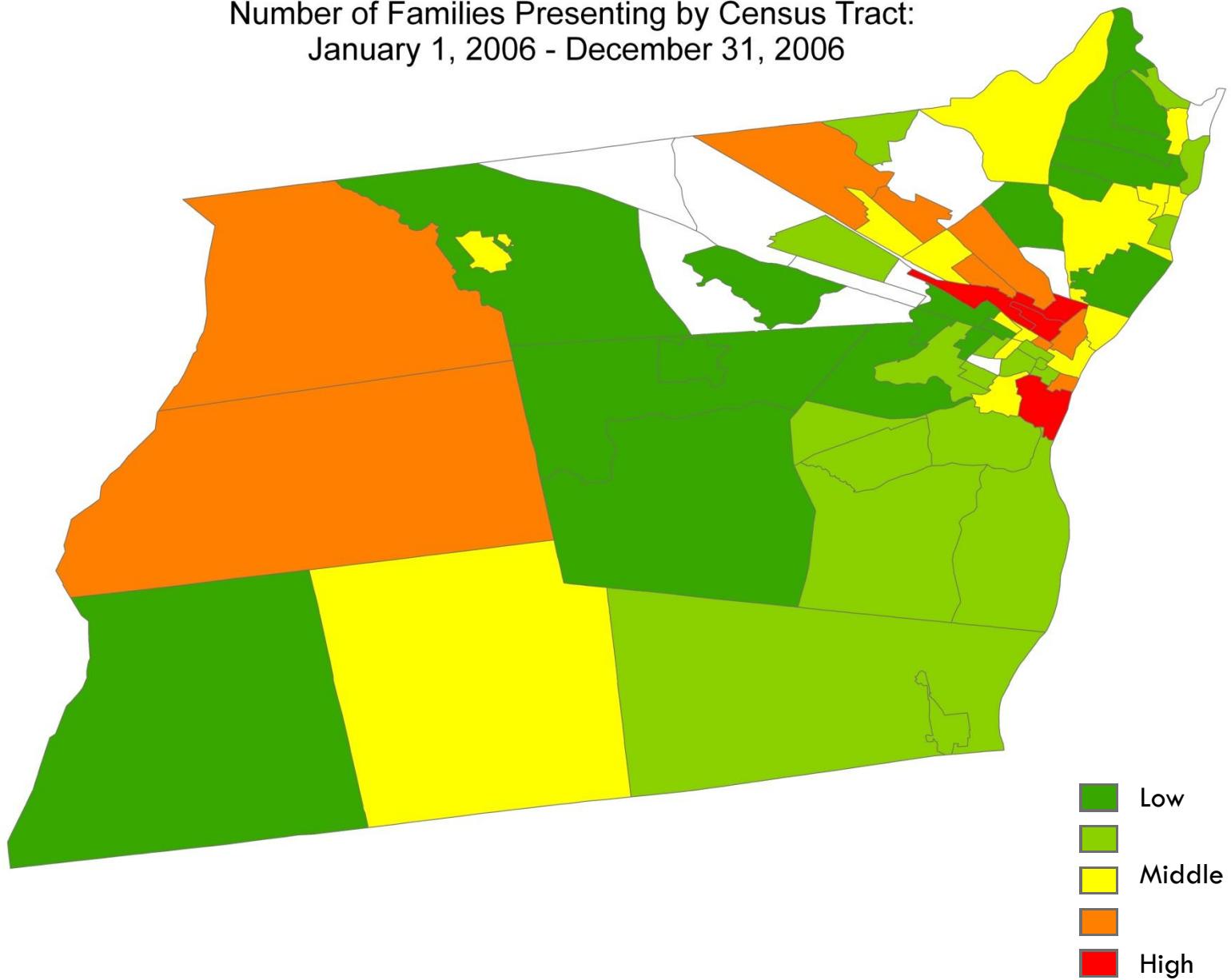
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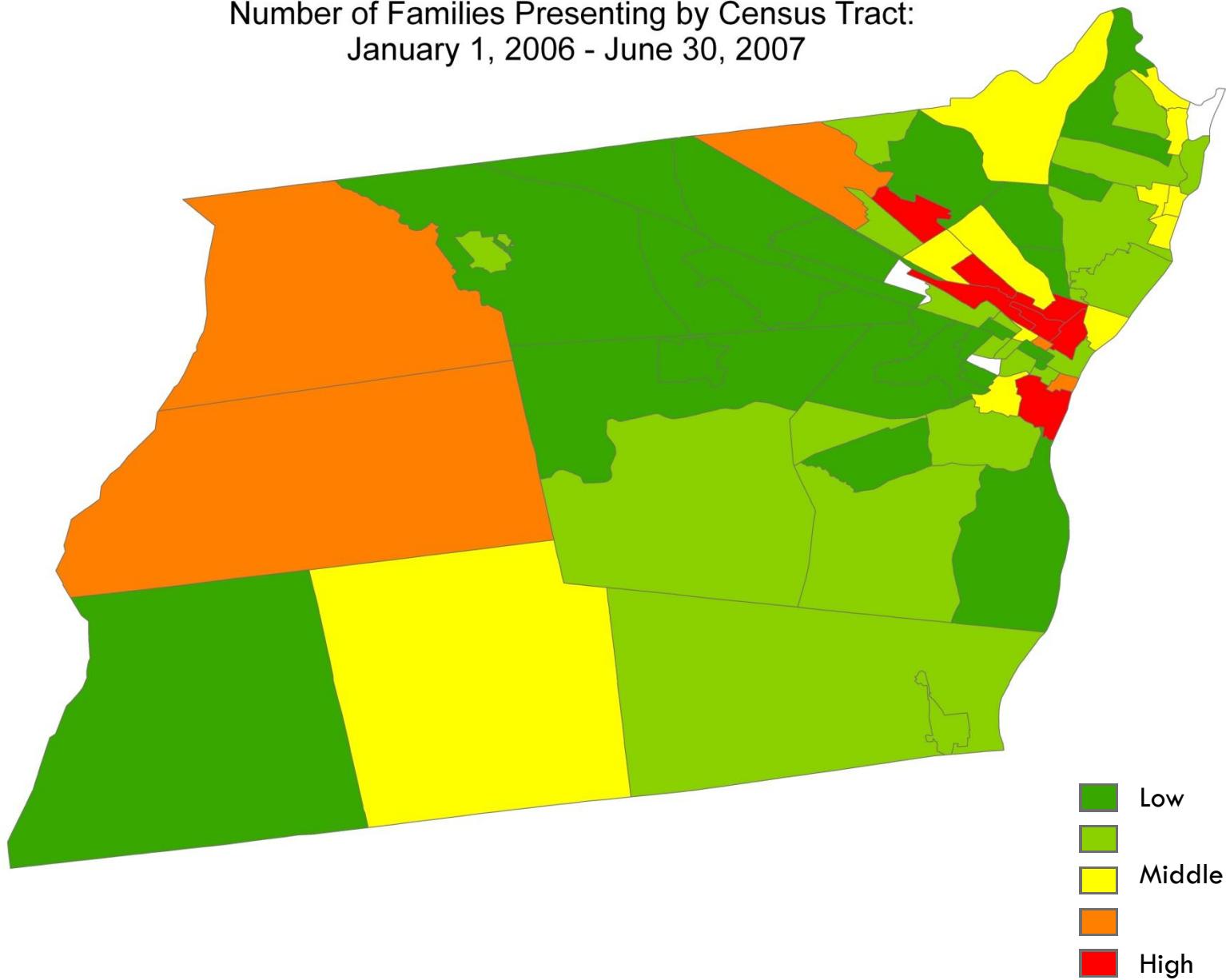
Number of Families Presenting by Census Tract:  
January 1, 2006 - June 30, 2006



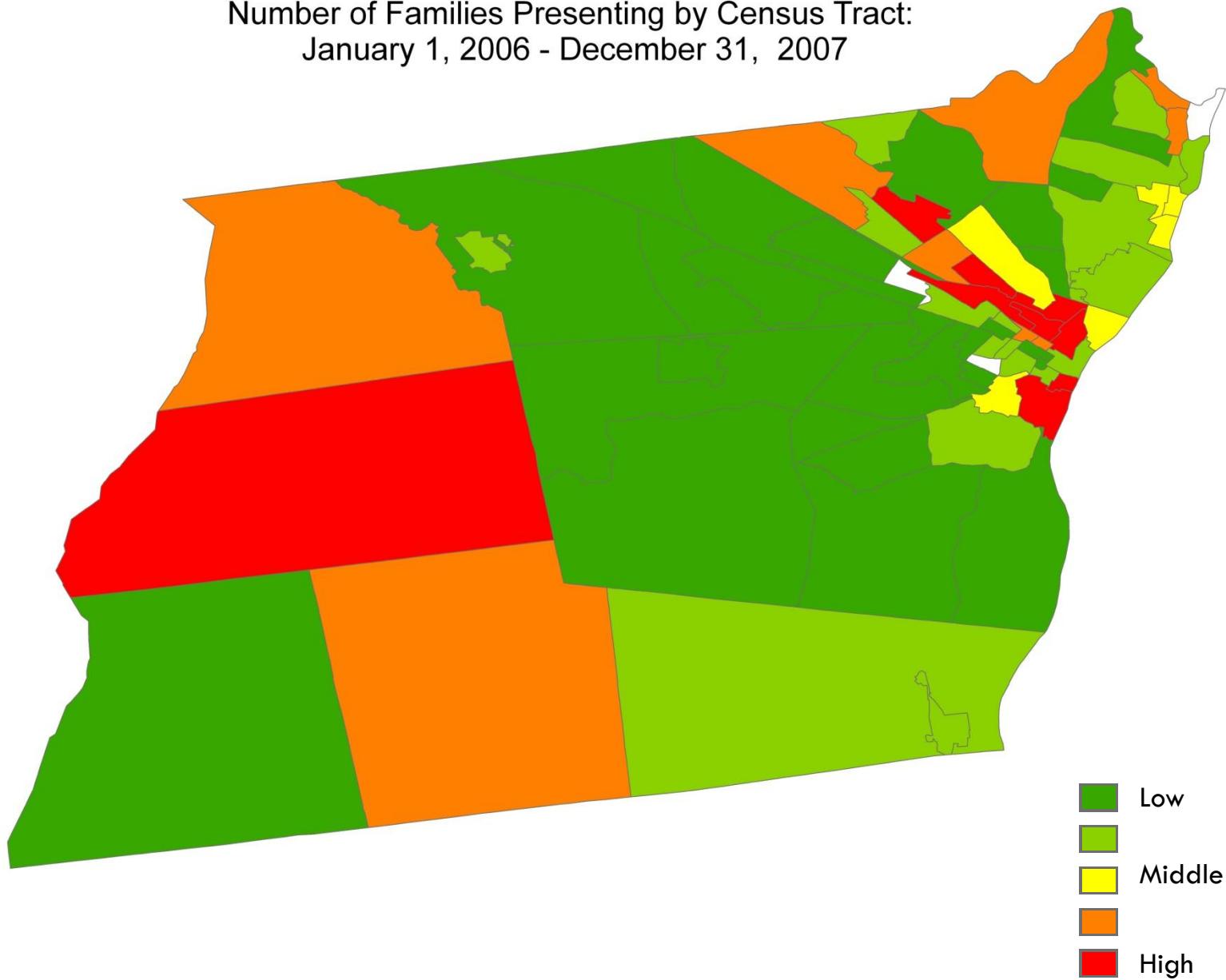
Number of Families Presenting by Census Tract:  
January 1, 2006 - December 31, 2006



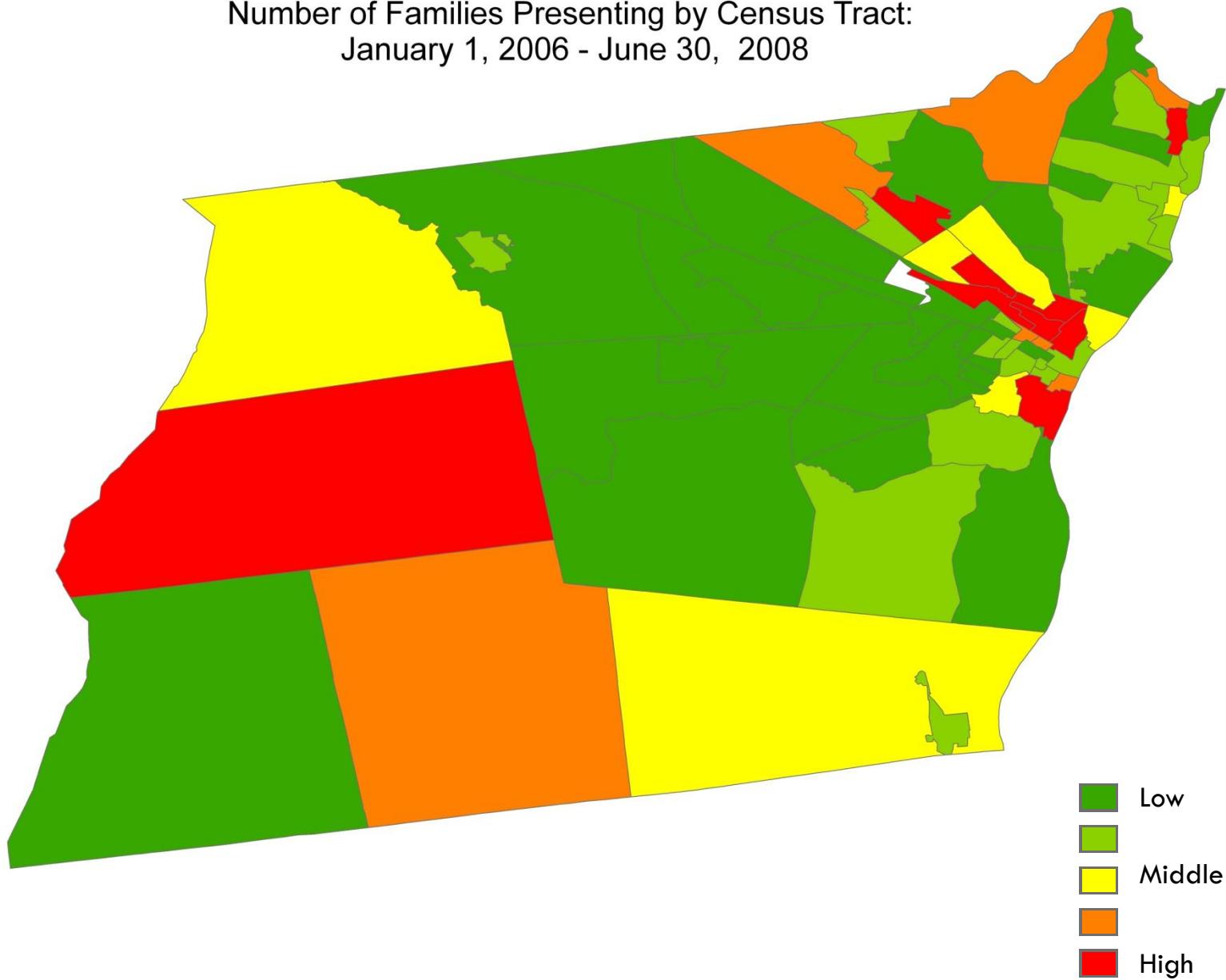
Number of Families Presenting by Census Tract:  
January 1, 2006 - June 30, 2007



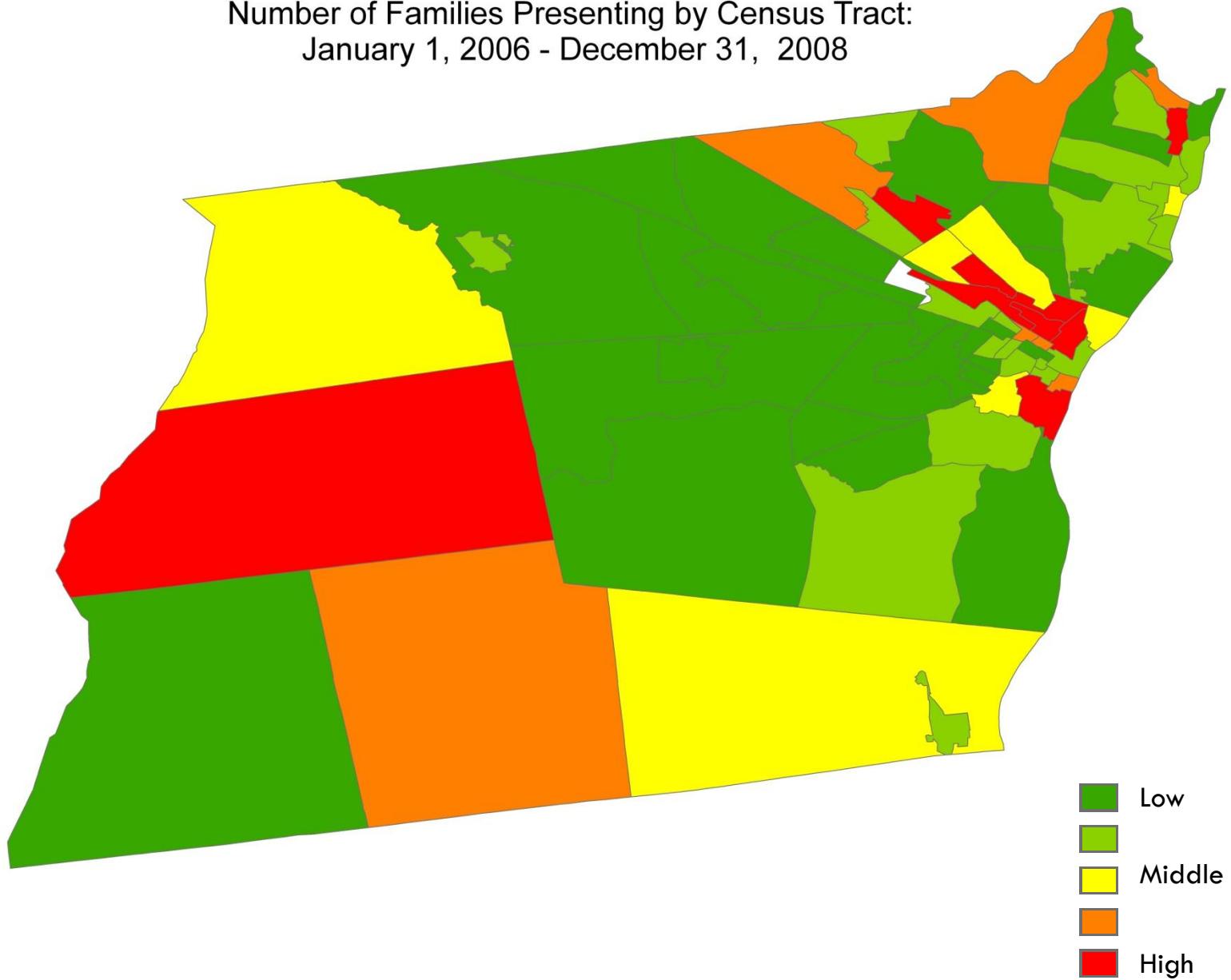
Number of Families Presenting by Census Tract:  
January 1, 2006 - December 31, 2007



Number of Families Presenting by Census Tract:  
January 1, 2006 - June 30, 2008



Number of Families Presenting by Census Tract:  
January 1, 2006 - December 31, 2008



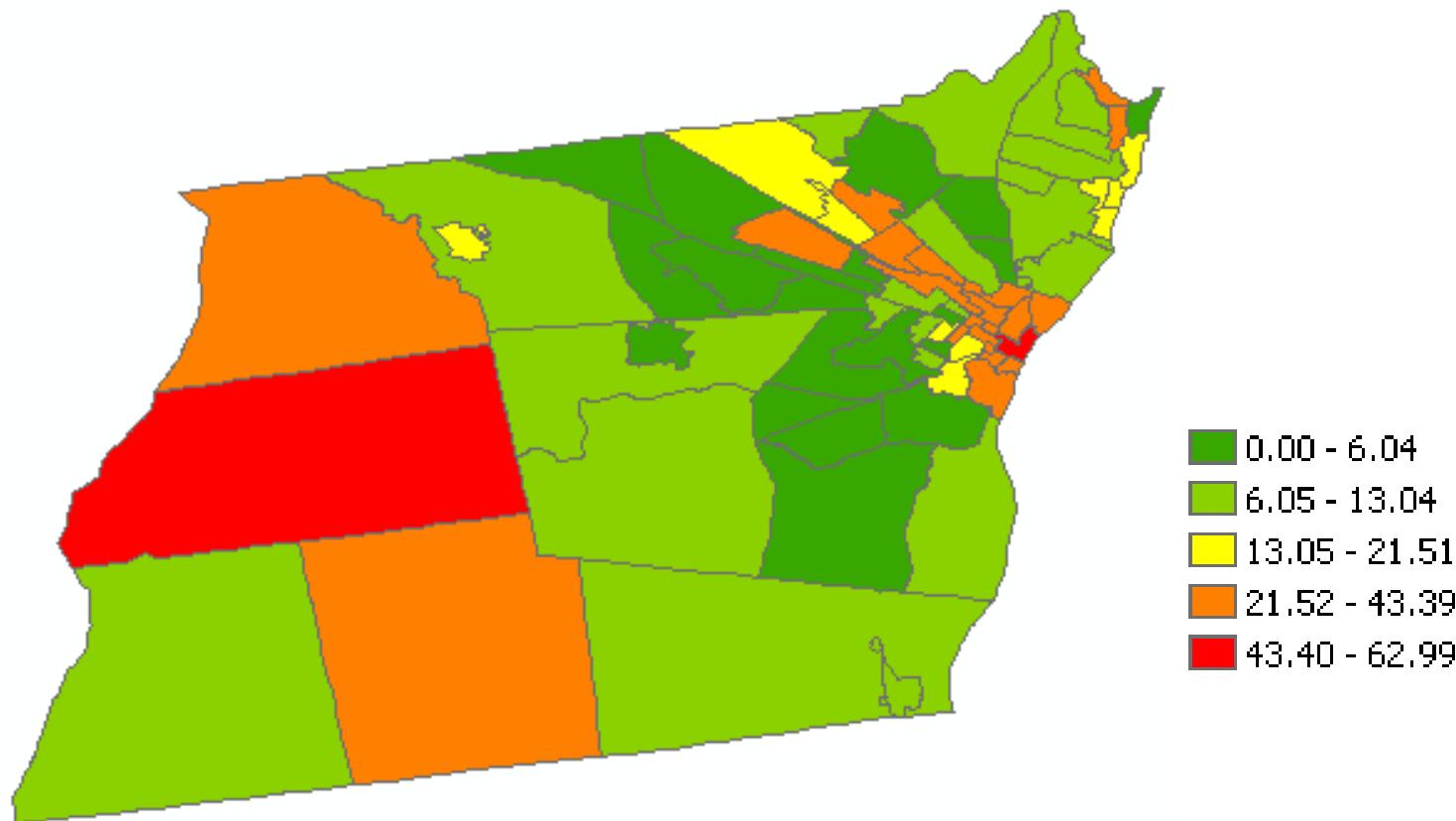
# Research Question # 3

- Does the number of families presenting from urban areas reflect the larger population of youth in this area?
- Let's divide Albany County into census tracts and examine the RATE of youth presenting relative to the number of youth residing in the area
  - 2000 Census tract level information

$$\left( \frac{\text{# of youth presenting to Albany County SOC}}{\text{# of youth } \leq 21 \text{ years of age in 2000}} \right) * 1,000$$

# Rate of Youth Presenting in Albany County SOC

## January 1, 2006 – December 31, 2008



# Brief Conclusions

- Majority (66%) of families are presenting in the area of the Albany City Proper
- There are two primary clusters where a large number of families are entering relative to the population of eligible aged youth
  - ▣ Rural and Urban Settings
- There is something unique about where families are coming from in Albany County
  - ▣ Probably due to proximity to service center



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# USING SPATIAL TECHNIQUES TO EXAMINE RURAL/URBAN DIFFERENCES IN SERVICE USE IN A SYSTEM OF CARE

Matt Vogel, MA

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# RESEARCH INTO ACTION: USING MAPS TO INFORM PRACTICE

LuAnn McCormick, PhD

Lead Evaluator

Albany County, NY and Orange County, NY  
Systems of Care

Presented at the 23<sup>rd</sup> Annual Children's Mental Health Research & Policy Conference :: Tampa, FL :: March 8, 2010

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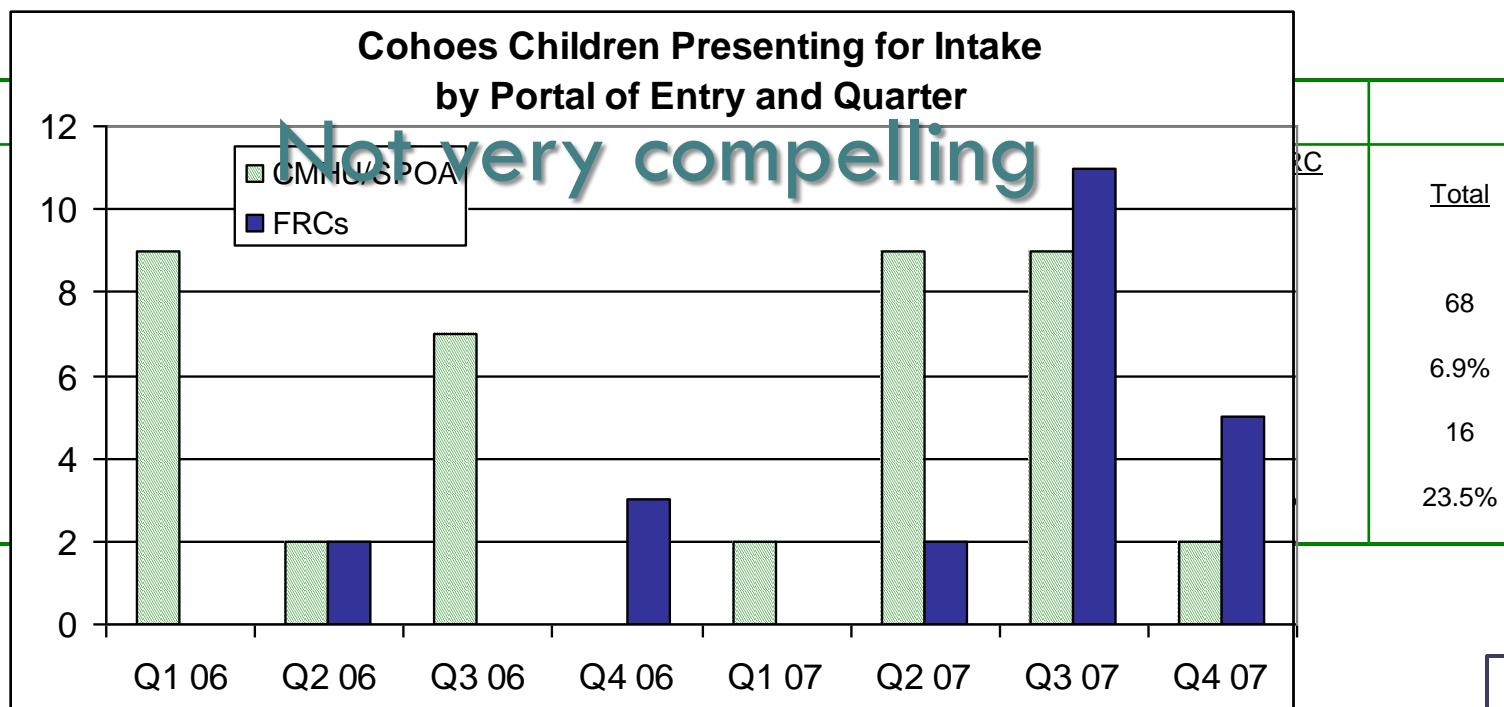
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# 2 Examples of Informing Practice

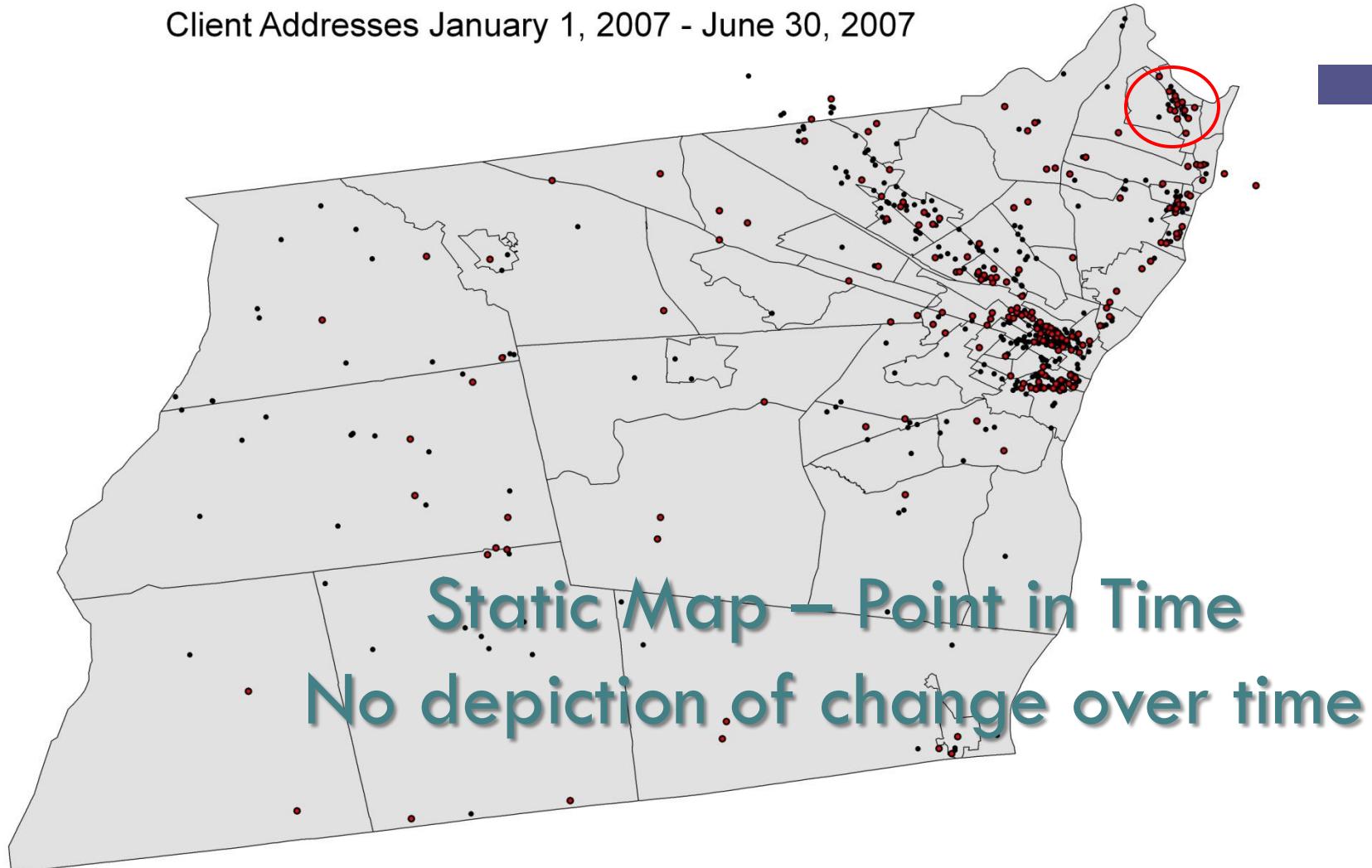
- 1. Identifying High Needs Areas for Outreach & Services**
  - As part of evaluation's continuous feedback loop
- 2. Targeting Suicide Awareness to High-Risk Areas**
  - Response to local critical incident

# Example 1: Identifying High Needs Areas

- Multiple analyses and products
  - ▣ First, descriptive analysis of zip codes indicated increases in intakes from a specific community
    - Presented # and % increases in table and bar chart format



Client Addresses January 1, 2007 - June 30, 2007

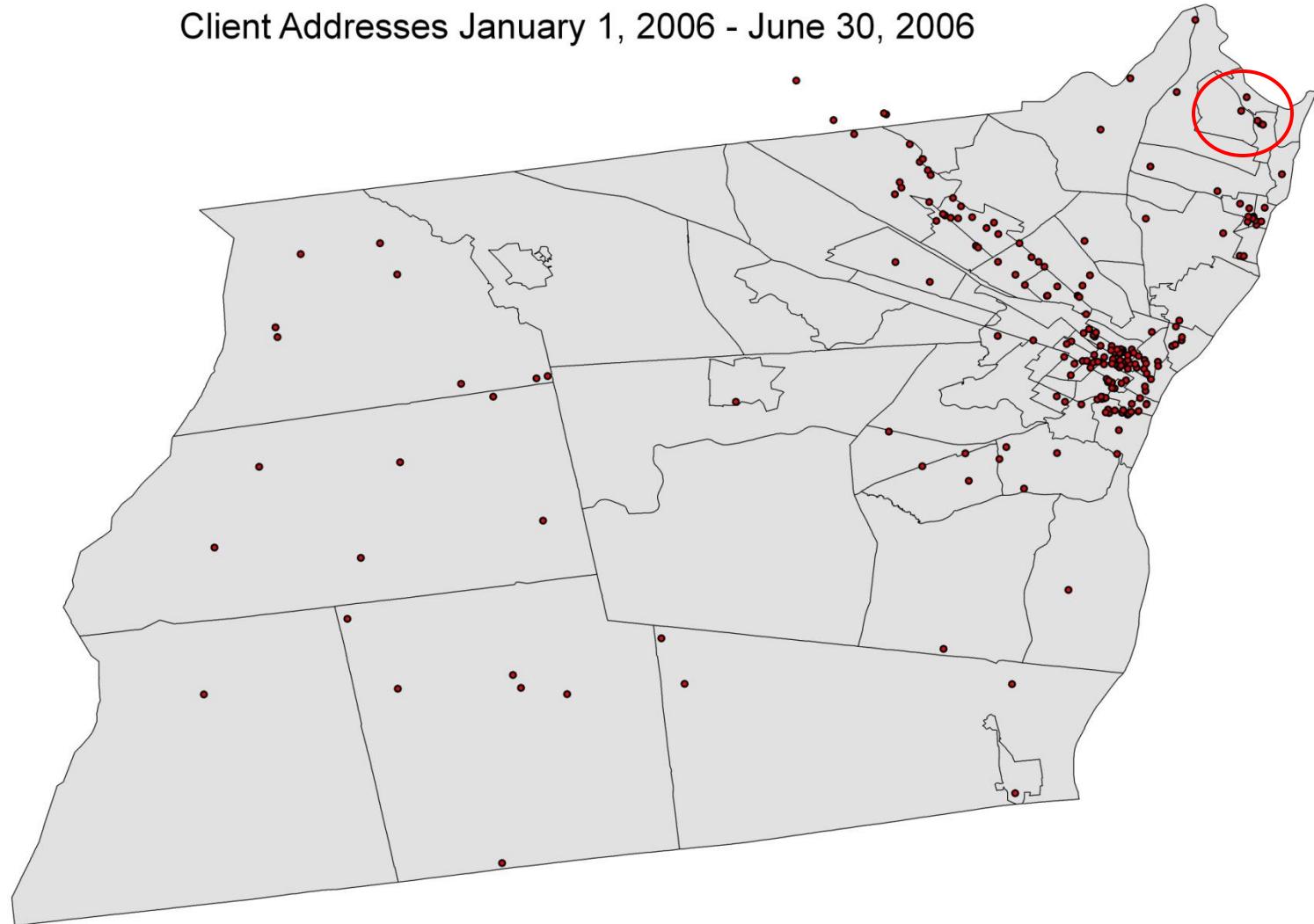


# Example 1: Identifying High Needs Areas

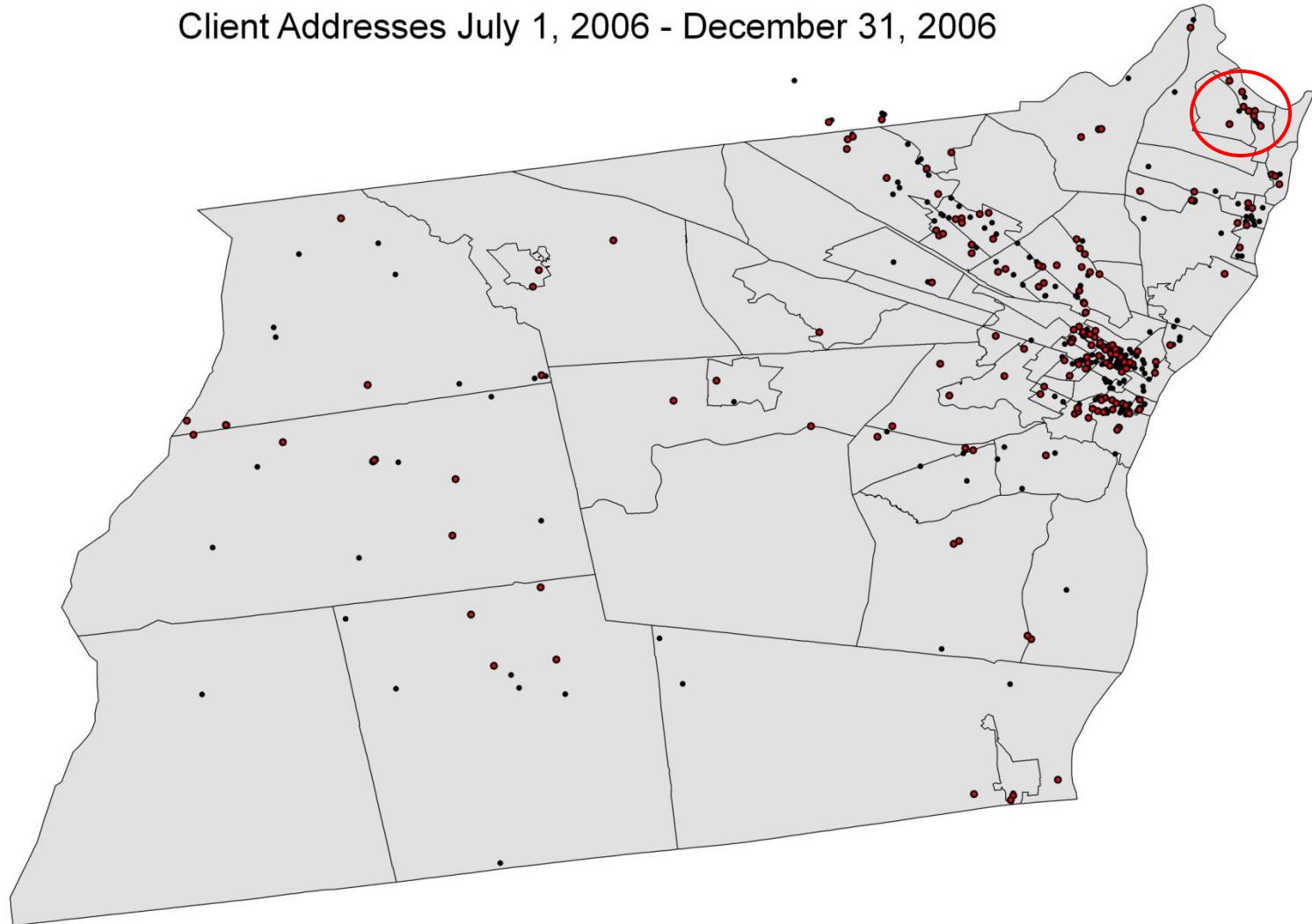
- Multiple analyses and products
  - ▣ Later, geo-spatial analyses to map trends over time
    - Visually displayed increases over time on animated maps



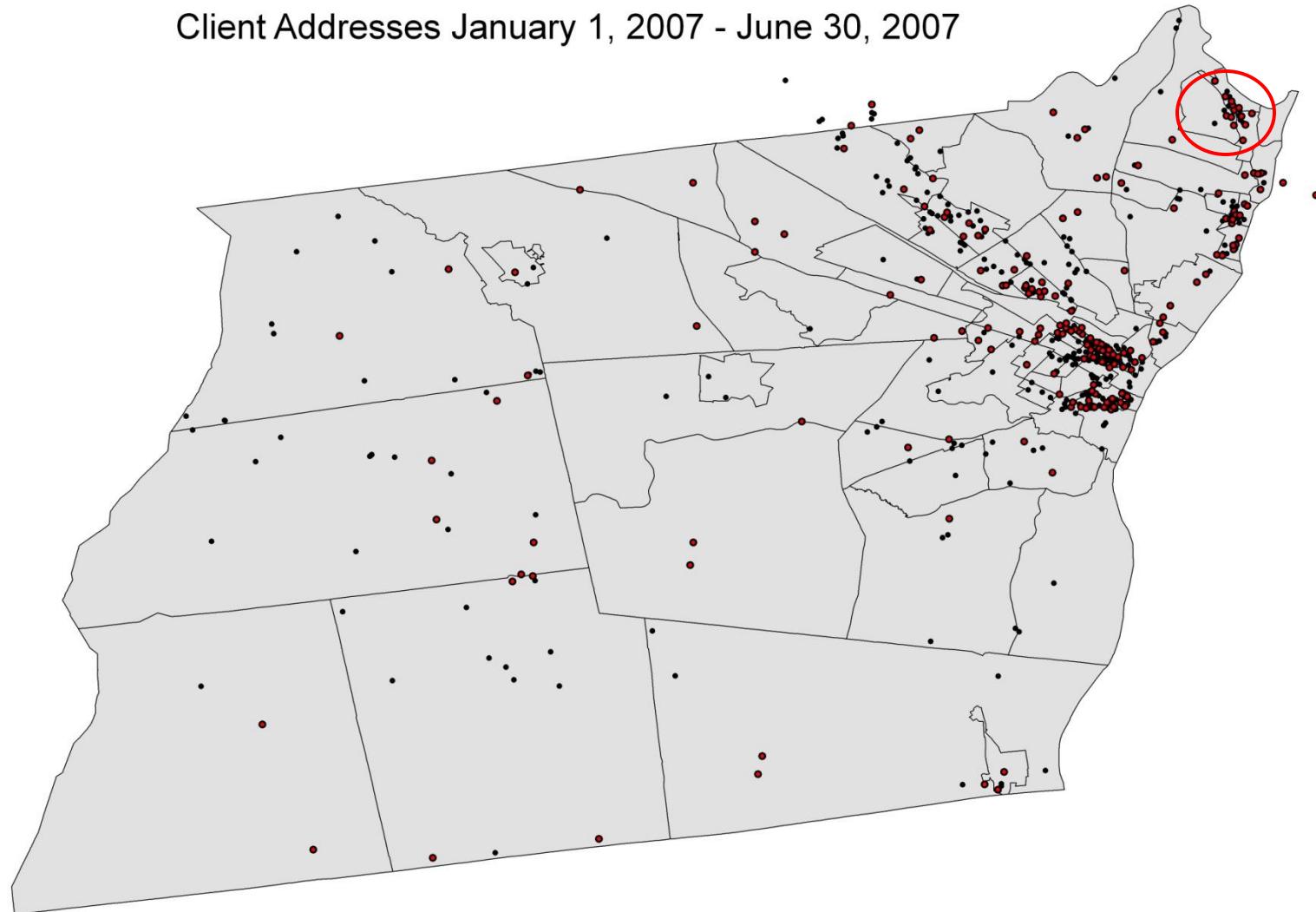
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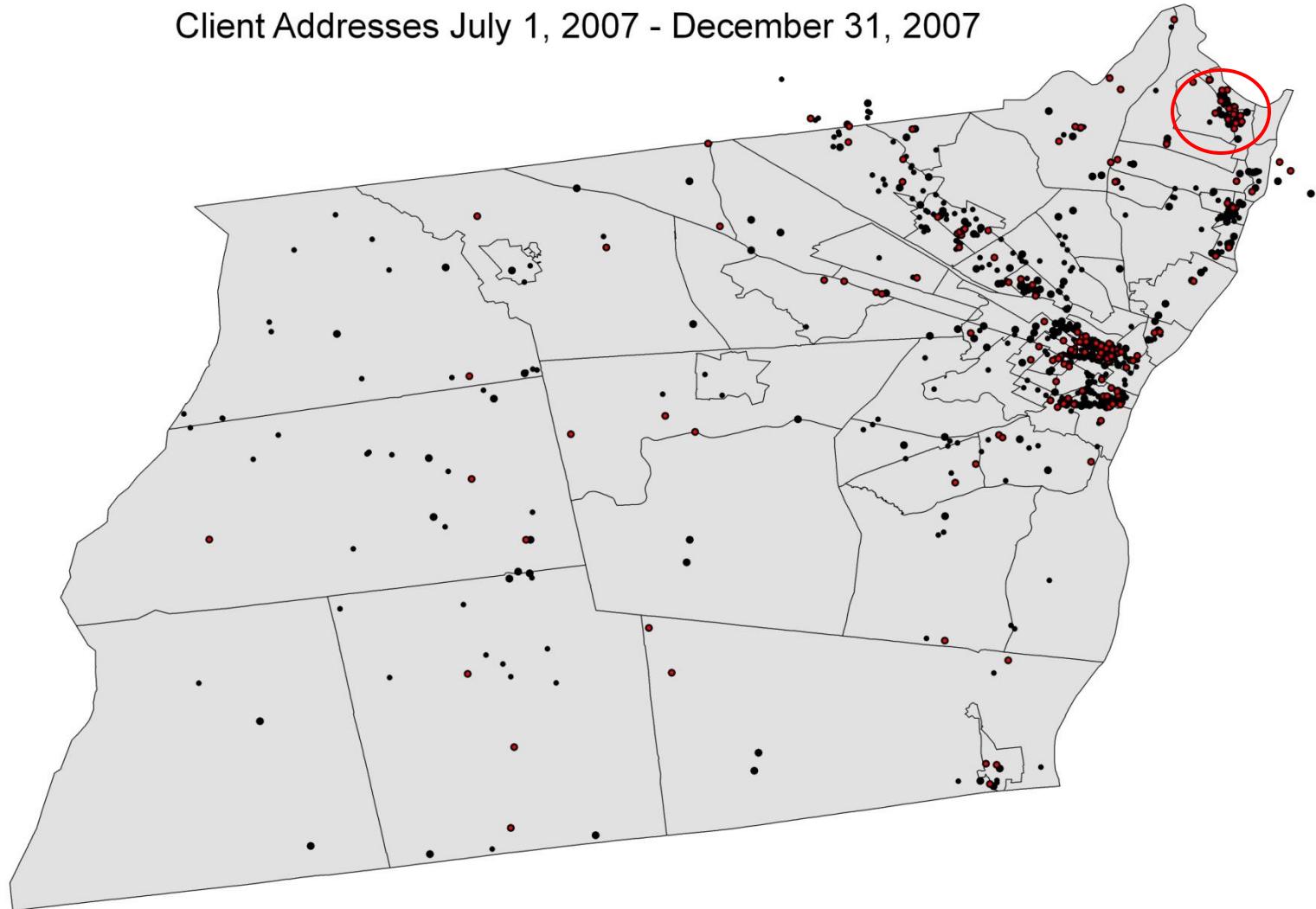
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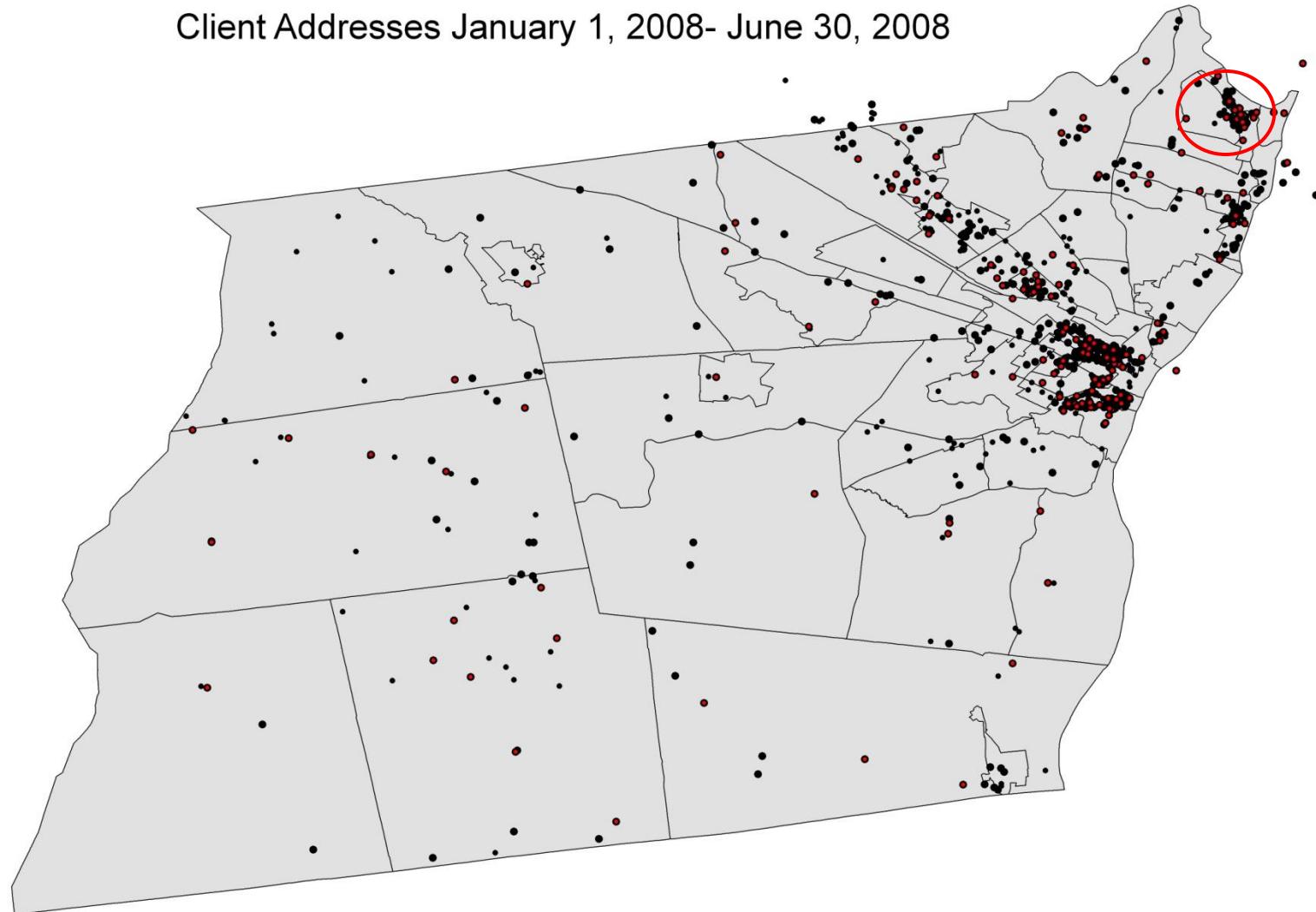
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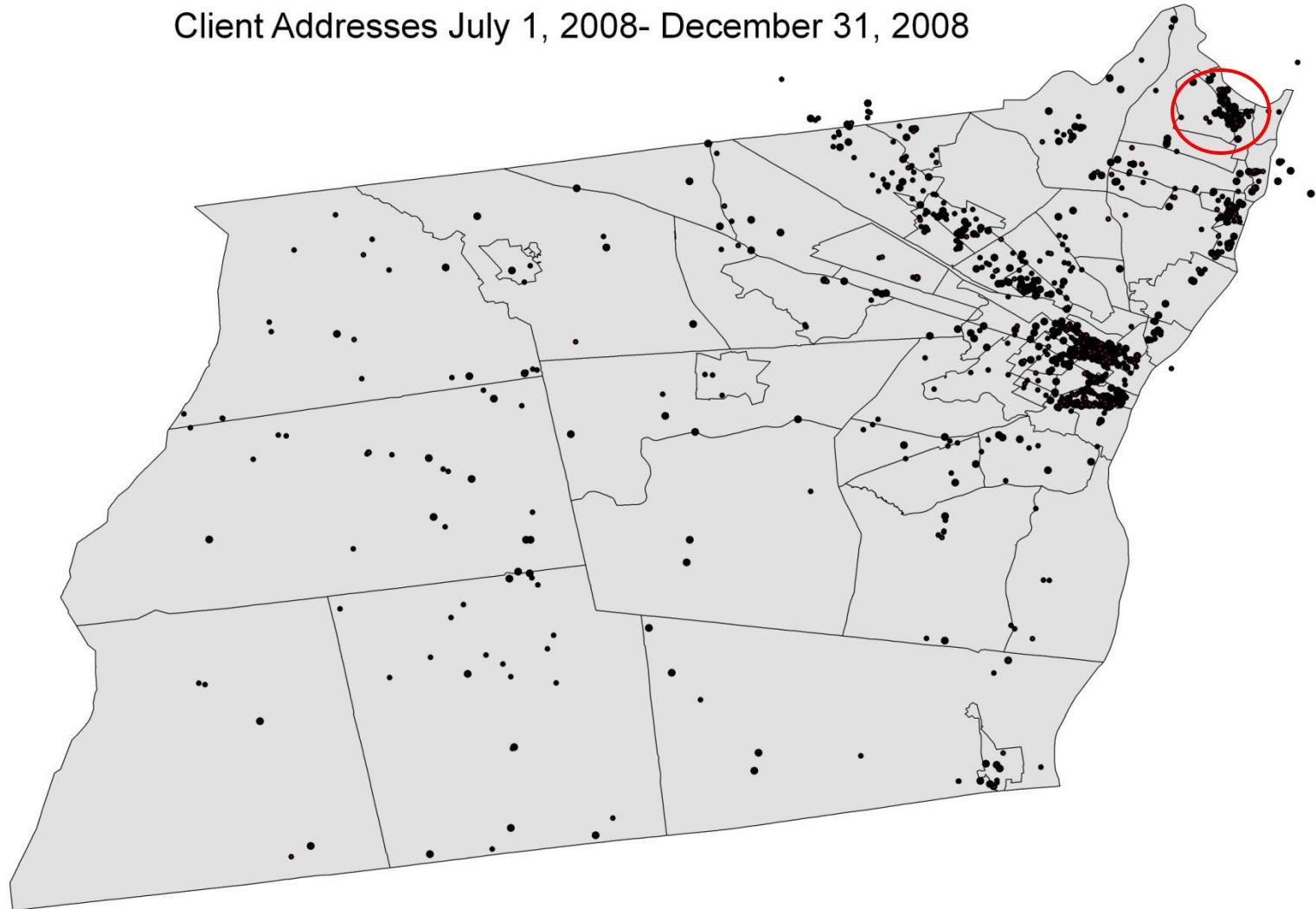
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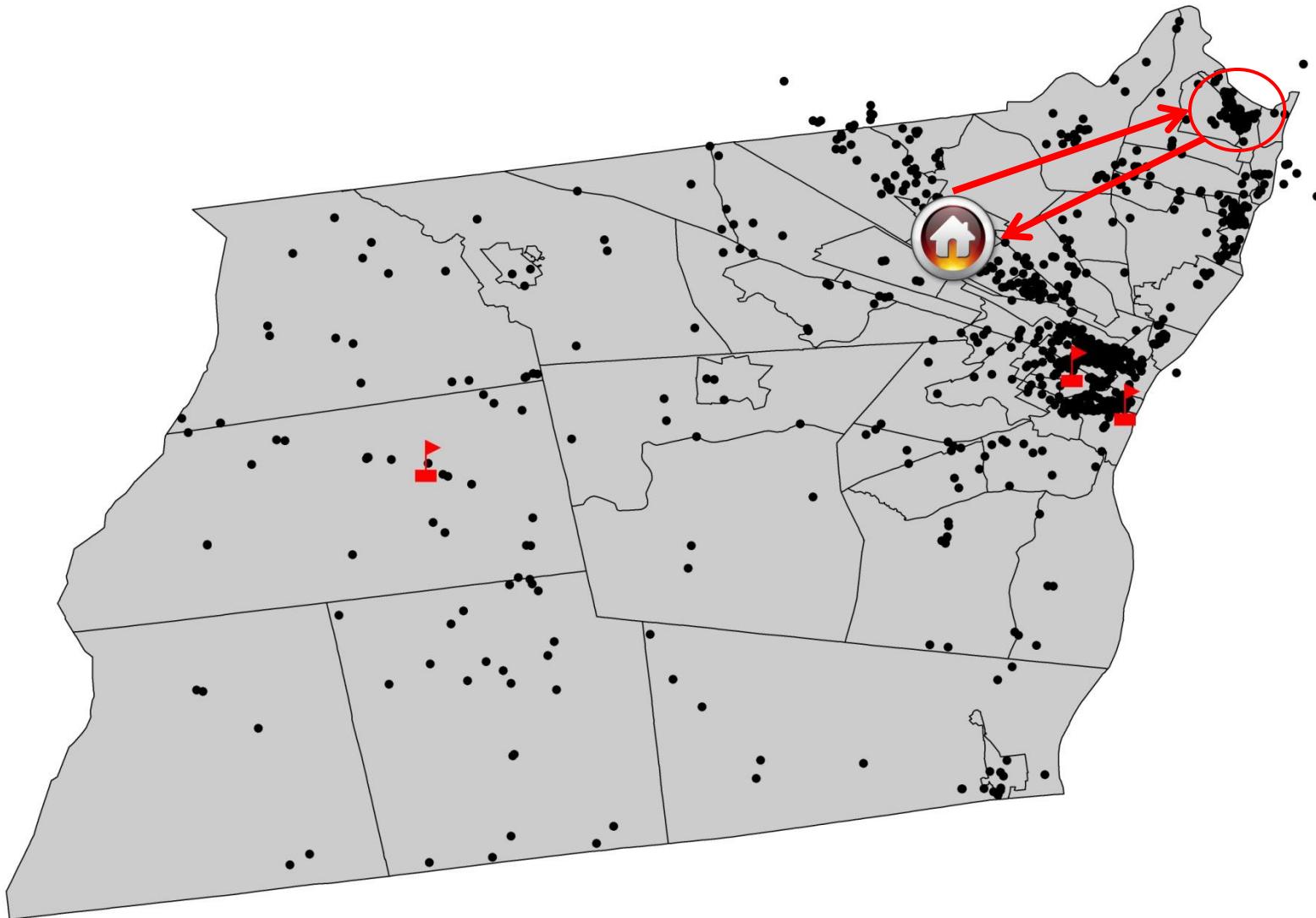
Client Addresses January 1, 2008- June 30, 2008



Client Addresses July 1, 2008- December 31, 2008



# Connection with a Family Resource Center



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# Actions

- Presented to Multiple Audiences
  - ▣ SOC project leadership
  - ▣ Parent Partners and supervisors
- Evaluation Team Recommendations
  - ▣ Target outreach to this area
- Program Actions
  - ▣ Hired Parent Partner from the area to target services
  - ▣ Acquired shared space for intakes and services
    - local doctor's office, library, in-kind space at school
  - ▣ Satellite clinic of local psychiatric hospital

# Example 2: Targeting Suicide Awareness to High-Risk Areas

## □ Background

- Suicide Cluster in neighboring county
  - 4 teen suicides in 5 months, Winter '08
  - All Black females, same method
  - From same high school
- Raised questions about where Albany County SOC stands in terms of suicide risk, community awareness efforts, and current strategies in place
- Concern about contagion, how to educate the community, where to start?

# First Step: Describe the Problem

- Data Brief: “Teens Thinking About Suicide When Entering the Albany County System of Care”
  - ▣ 1 in 4 youth present with suicidal ideation
  - ▣ Black females most likely to present with SI
  - ▣ 1/3 younger than middle school
  - ▣ Caregiver characteristics
    - Youth of caregivers with SA are 2x more likely to present with SI
    - Youth living with depressed caregivers in past 6 months are 19% more likely to have attempted suicide
  - ▣ 25% with SI at intake attempt within 6 months
  - ▣ Neighborhood and social context
    - Youth who report witnessing a crime are 5% more likely to enter SOC with SI than those who have not
- Presentations and broad distribution of printed brief



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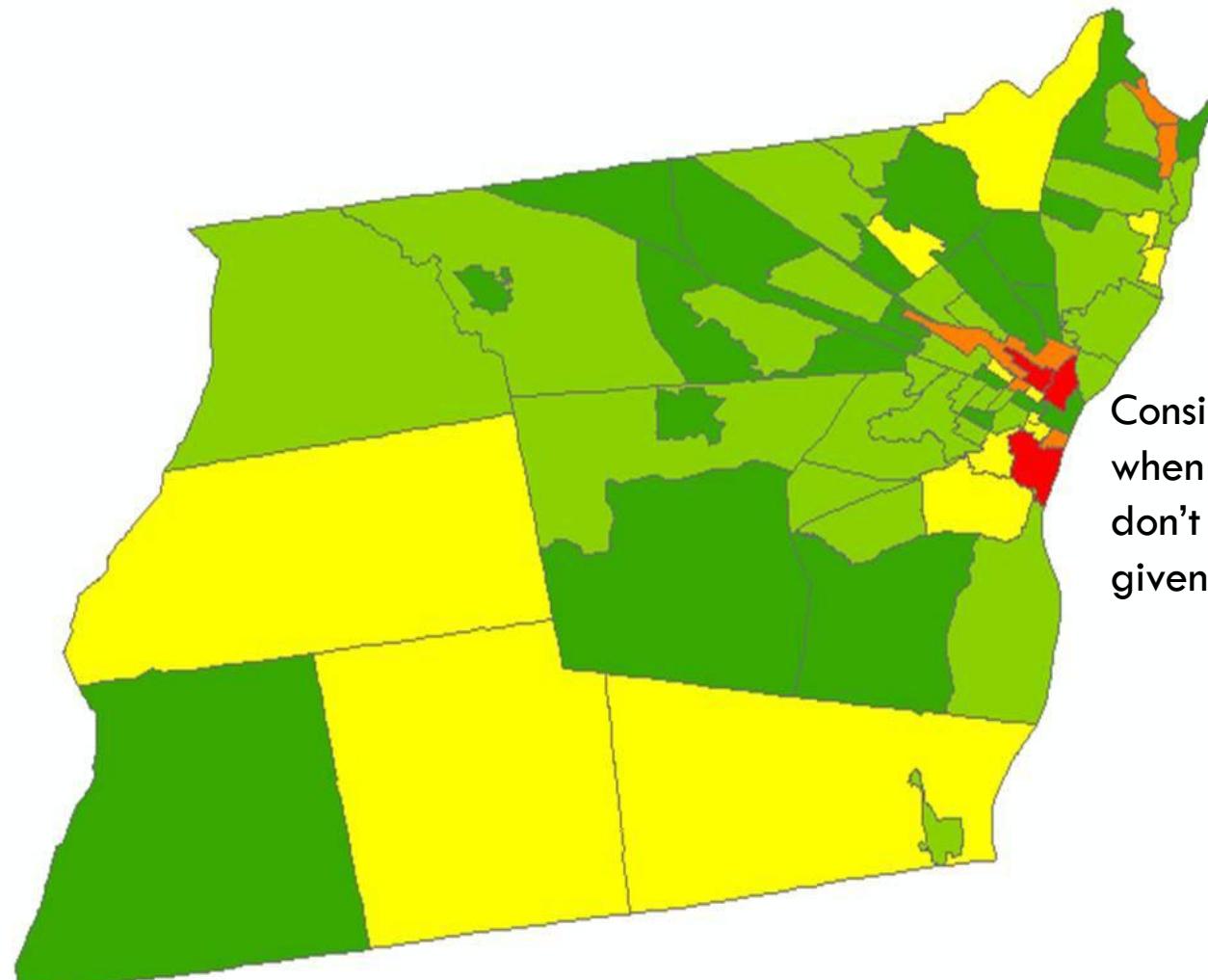


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# Second Step: Map the Incidence

- Question 1: Where are youth with SI living when they are referred for SOC services?
  - Geocoded home addresses to census tract level

## Incidence of Suicidal Ideation Among Youth Presenting for SOC Services in Albany County by Census Tract (Number of Youth)



Consider confidentiality concerns when presenting these data (e.g., don't report less than X youth in a given tract).



# Mapping Resources

- Question 2: Where should we start?
  - ▣ Schools are a logical first step for getting information out to children and families
  - ▣ Schools are resource-rich
    - Trained professionals (social workers, teachers)
    - Informal contacts, confidantes (hall monitors, custodians)
  - ▣ Plotted schools in high-risk areas and overlaid on map



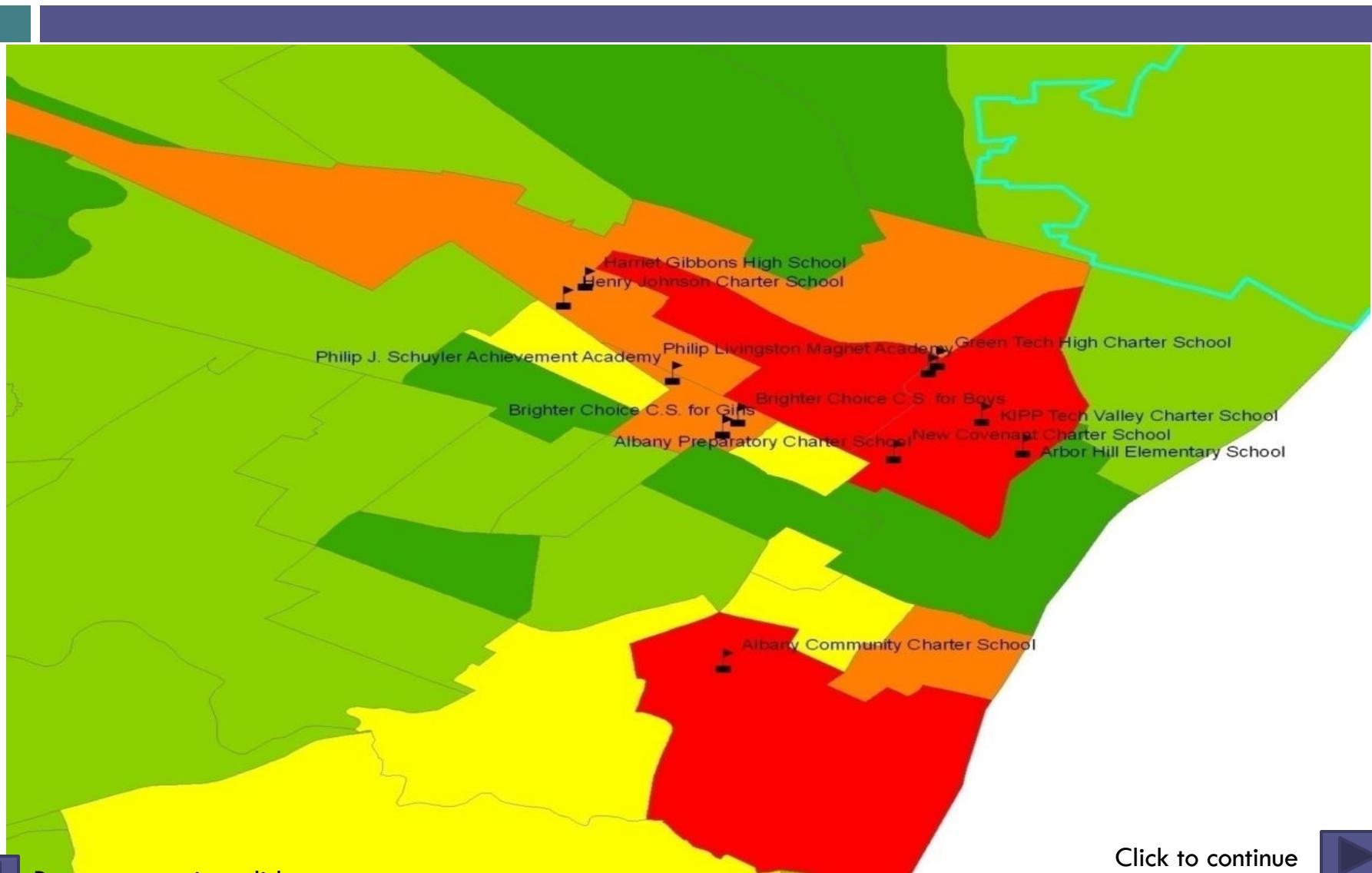
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## Albany Schools in High-Risk Areas

Red areas represent the highest incidence of suicidal ideation among youth entering the SOC



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# Third Step: Get the Information Out

- Many presentations to various audiences

- SOC project leadership and staff

- Cross-systems county leaders

- Community groups, educators, families and youth

- Recommendations

Target schools and surrounding communities in high-risk areas for outreach and community education

- Enhance screening at intake, watch for risk factors at intake and beyond

- Provide training for staff at all levels

- Explore universal screening tool and evidence-based interventions for youth at risk for suicide

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# Program Actions

- Coordinated with neighboring county on resources and strategies
- Established Suicide Prevention and Education Committee
  - Provider and community members
- Community Education Efforts
  - Education Forum in City of Albany planned
  - S.A.F.E. Talk Training
- Clinical trainings
  - “Recognizing and Responding to Suicide Risk” (AAS)
  - A.S.S.I.S.T.
- Collaborating with Safe Schools/Healthy Students
- Exploring screening tools, EBP, and additional community education programs

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# In Sum

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- + Combination of analyses
  - + Simple yet powerful visual displays
  - + Presented to various audiences
  - + Specific recommendations
- 
- Action





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