

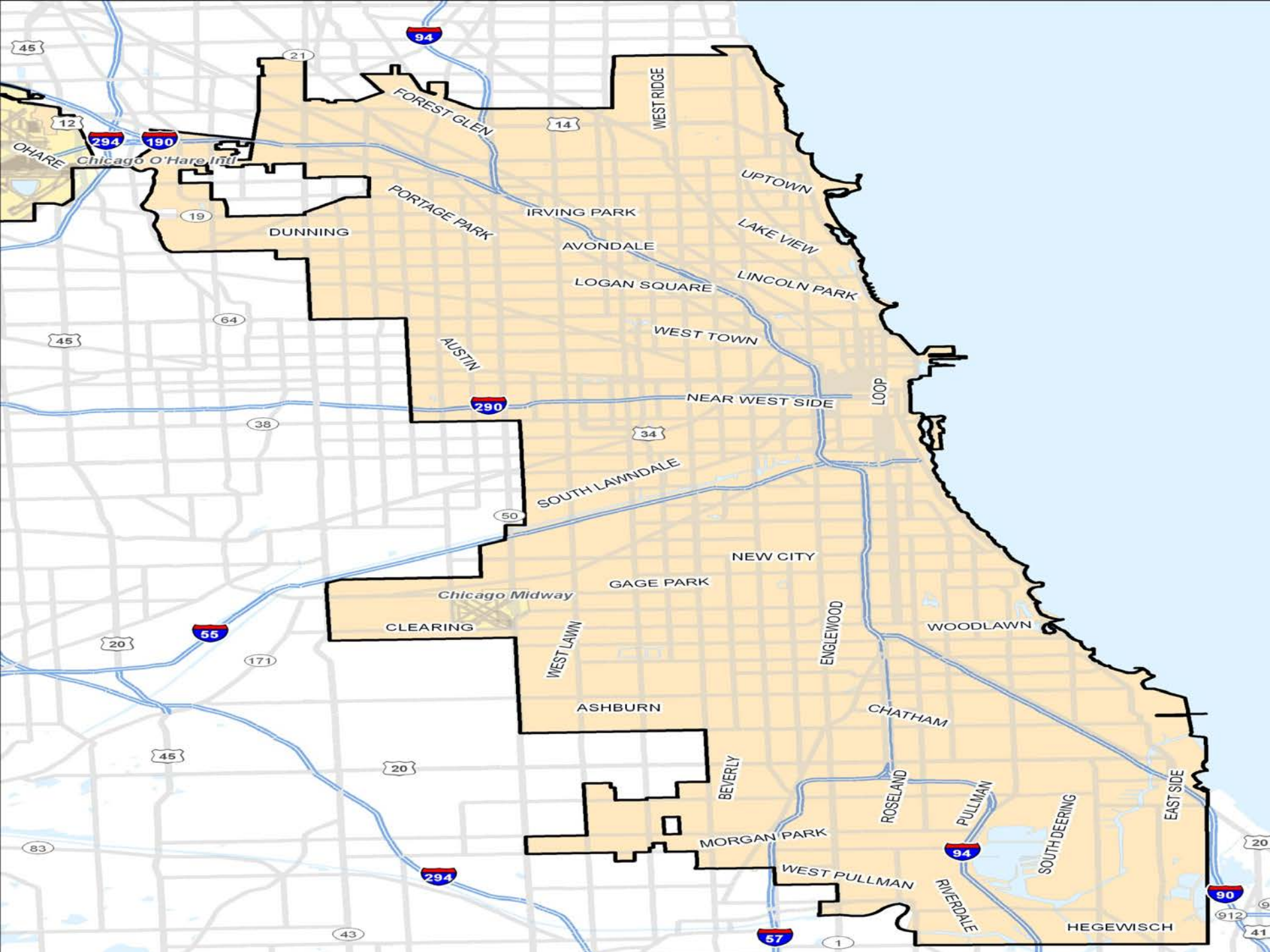
Living in your own private Idaho:
Egohoods as a new measure of
neighborhood

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45

94

21

14

12

294

190

OHARE Chicago O'Hare Intl

19

DUNNING

PORTAGE PARK

IRVING PARK

AVONDALE

UPTOWN

LAKE VIEW

LINCOLN PARK

LOGAN SQUARE

WEST TOWN

AUSTIN

290

NEAR WEST SIDE

LOOP

45

64

38

34

SOUTH LAWNDALE

50

NEW CITY

GAGE PARK

Chicago Midway

CLEARING

WEST LAWN

ENGLEWOOD

WOODLAWN

20

55

171

45

20

ASHBURN

CHATHAM

83

294

BEVERLY

MORGAN PARK

ROSELAND

PULLMAN

SOUTH DEERING

EAST SIDE

43

57

1

94

WEST PULLMAN

RIVERDALE

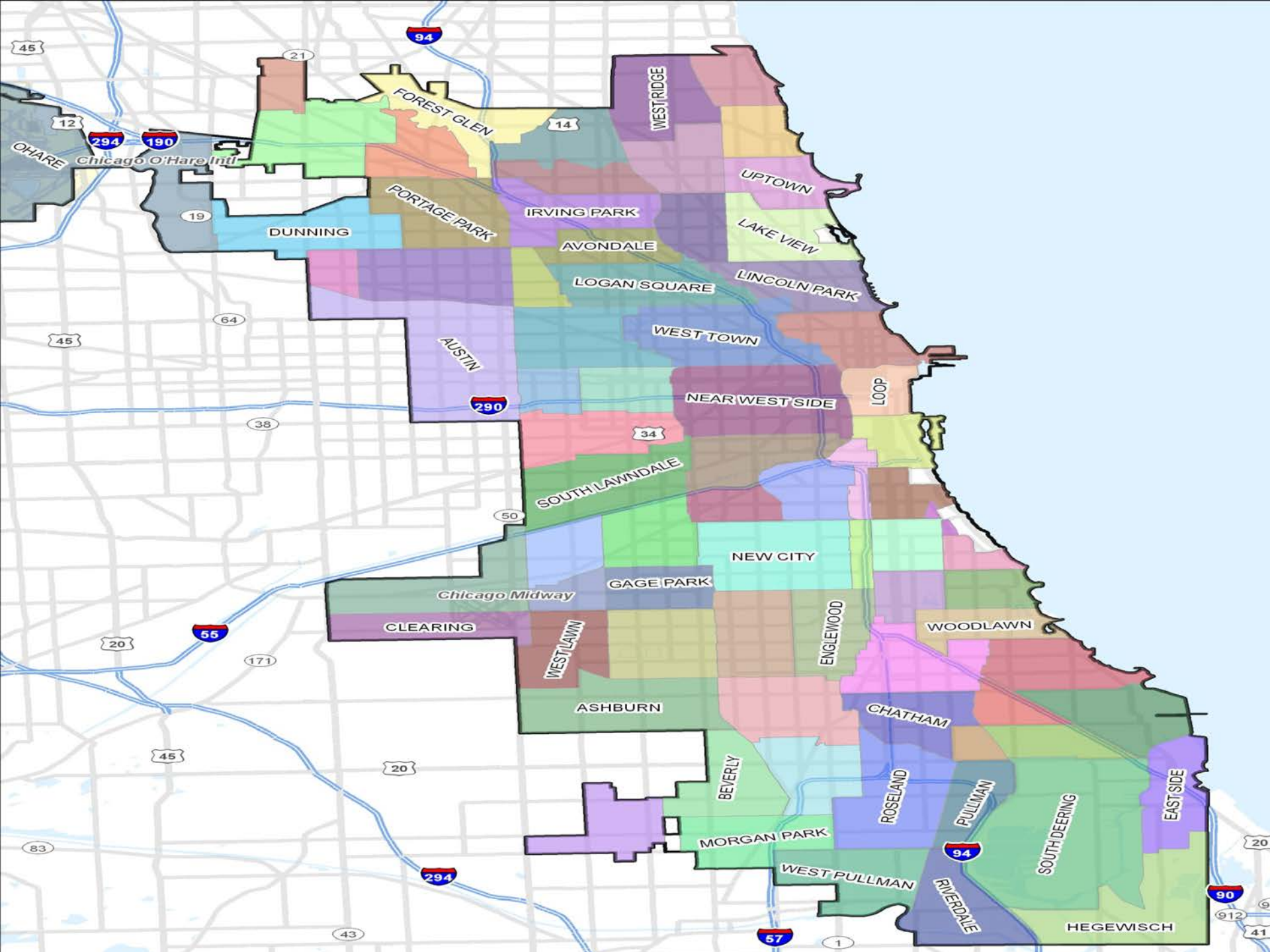
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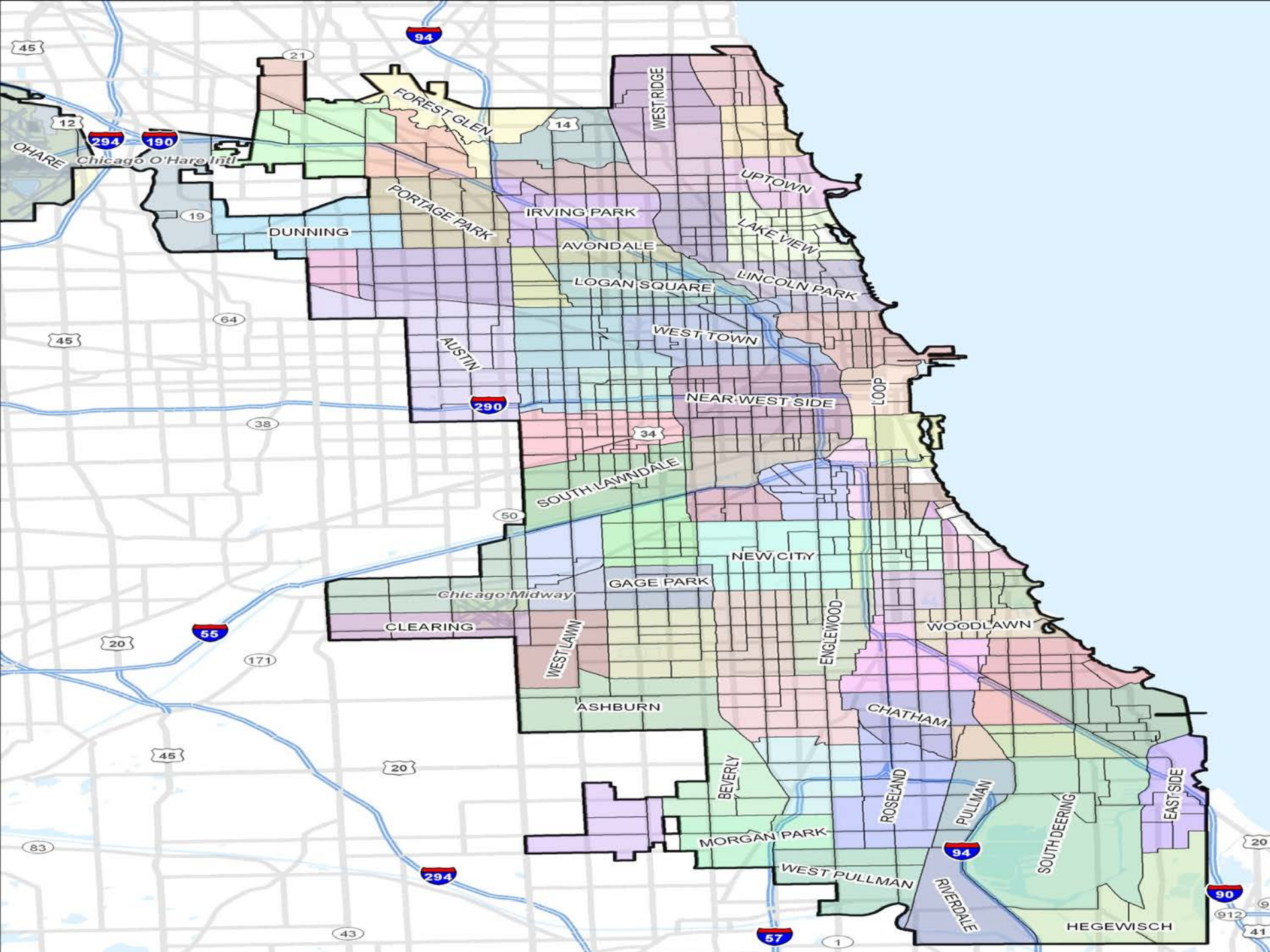
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90

912

41





How to measure a neighborhood?

- Presence of social ties?
- Perceived cohesion?
- Geographic area?

- Discrete units?
- Nested units (Suttles)?

Discrete units

- Tracts
- Block groups
- City-defined “neighborhoods”
- T-communities (Grannis)
- Clustering techniques in Geography (based on similarity of residents)
 - What characteristics to use?
 - How large should the units be?

Measuring “neighborhood”

- We distinguish between research focusing on the:
 - 1) perception of the neighborhood
 - 2) social consequences of living within a particular ecological unit

Insight from other research traditions

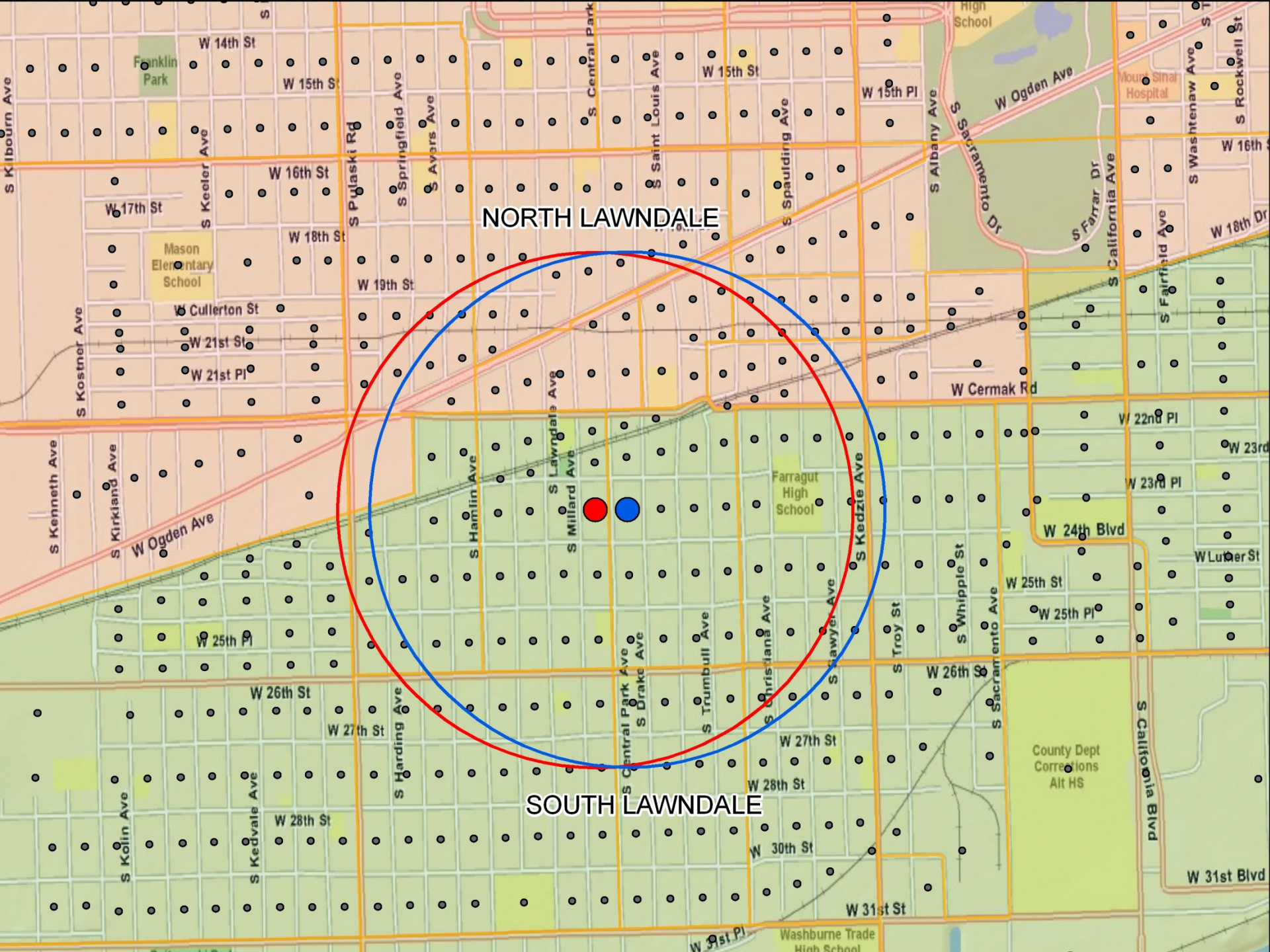
- Presence of social ties
 - Tie probability decays over distance
- Daily activities literature
 - Where do you spend your time?
- Mental mapping literature
 - Where do you place *yourself* in your neighborhood?
- Travel to crime literature

Center of your world

- We live at the center of our “own” neighborhood (an *egohood*)
 - Social ties decrease with distance
 - Our daily activities often are centered on our block
 - We perceive ourselves at the center of the neighborhood (Hunter, 1974)
- Block is the center of the egohood

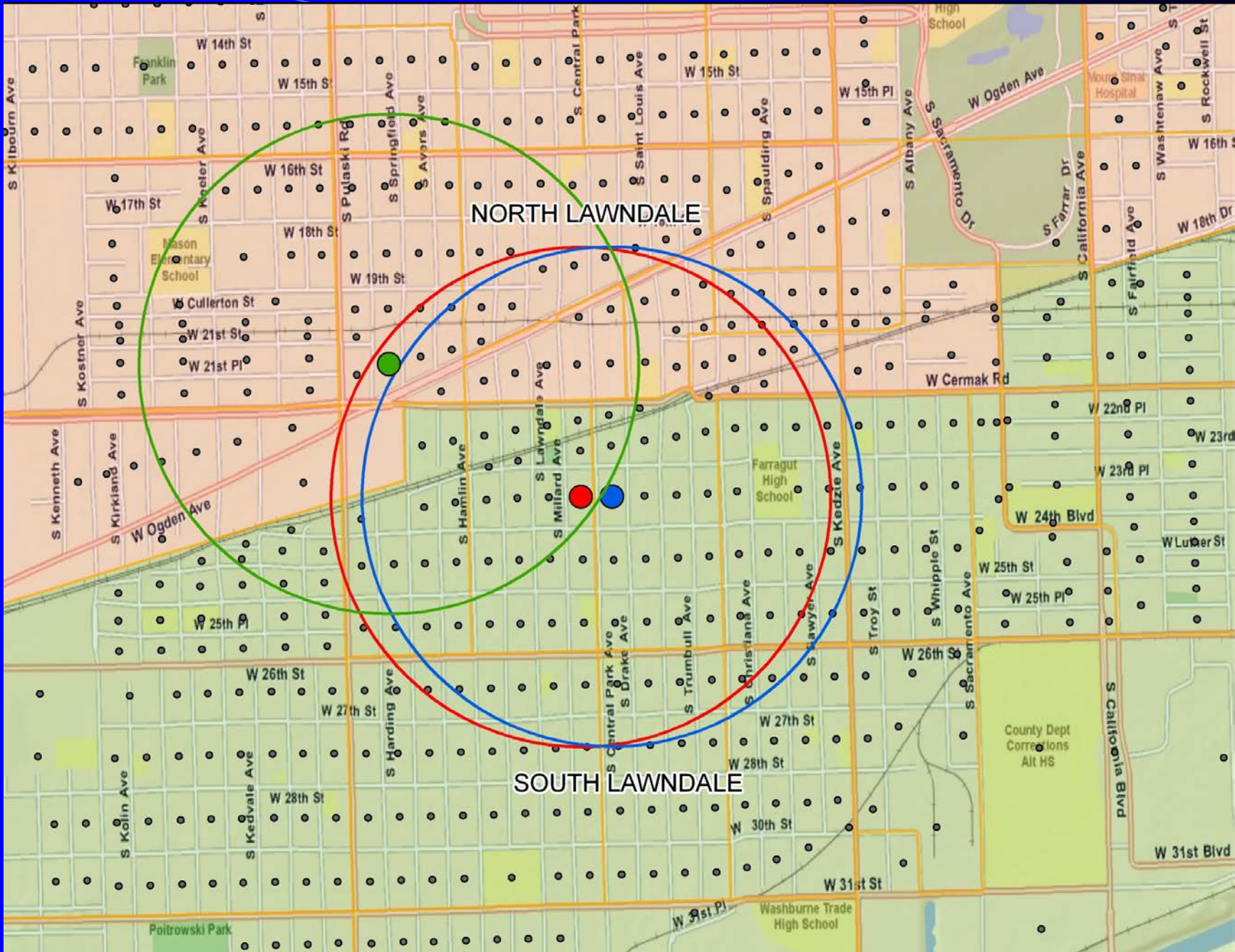
Center of your world

- Public health literature: buffers around persons
- “Neighborhoods” around plants:
 - Silander, John A. Jr., and Stephen W. Pacala. 1985. "Neighborhood Predictors of Plant Performance." *Oecologia* 66(2):256-263.
- Reardon, Lee, Firebaugh et al in segregation literature



NORTH LAWDALE

SOUTH LAWDALE

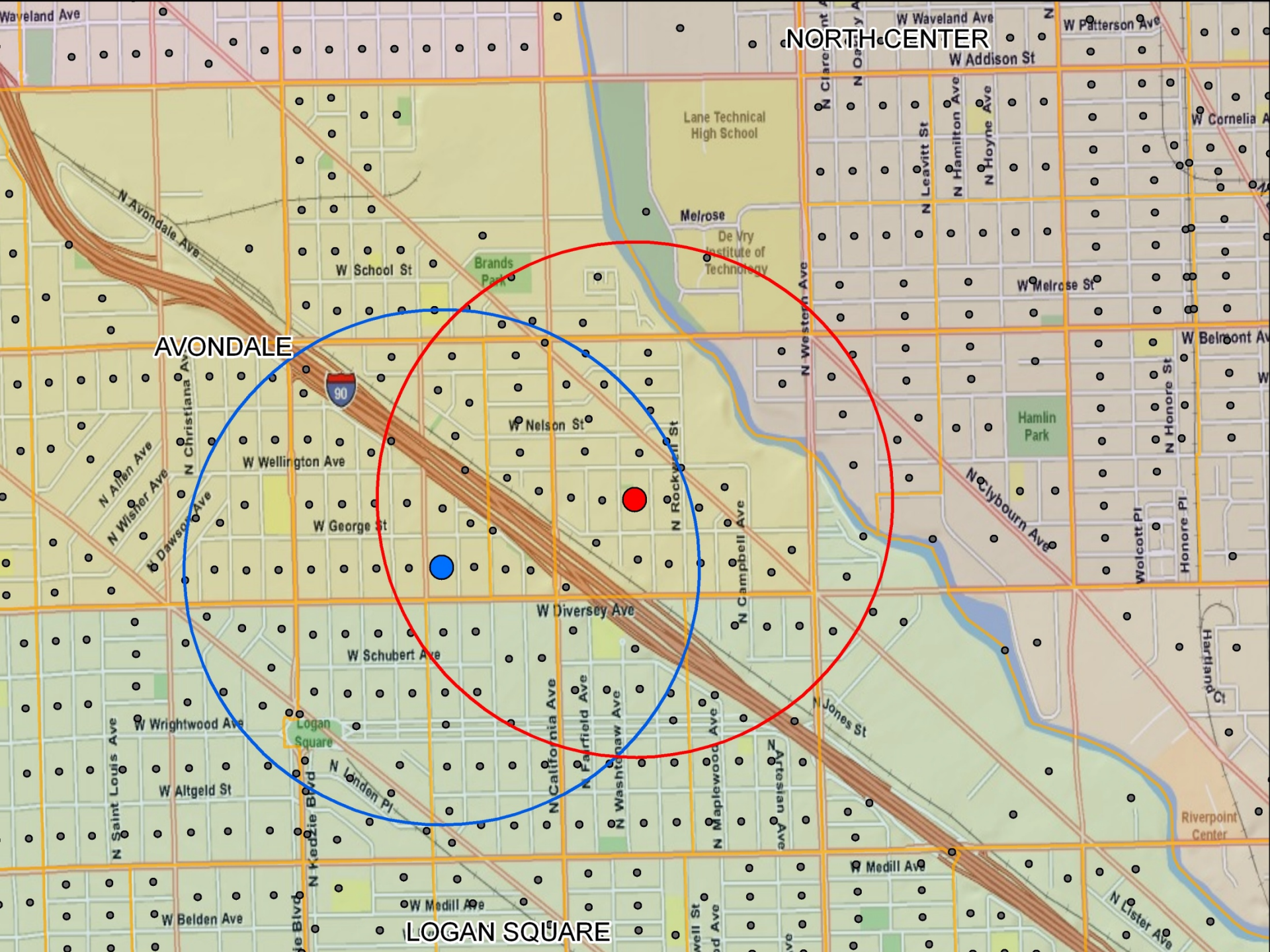


NORTH LAWDALE

SOUTH LAWDALE

Egohoods

- If everyone is in the center of their own egohood, then we're also in *other persons'* egohoods
- So, not discrete units
- Physical boundaries might matter also
 - Rivers, freeways, etc
- Social boundaries might matter also
 - School districts
 - Shopping areas
 - Churches

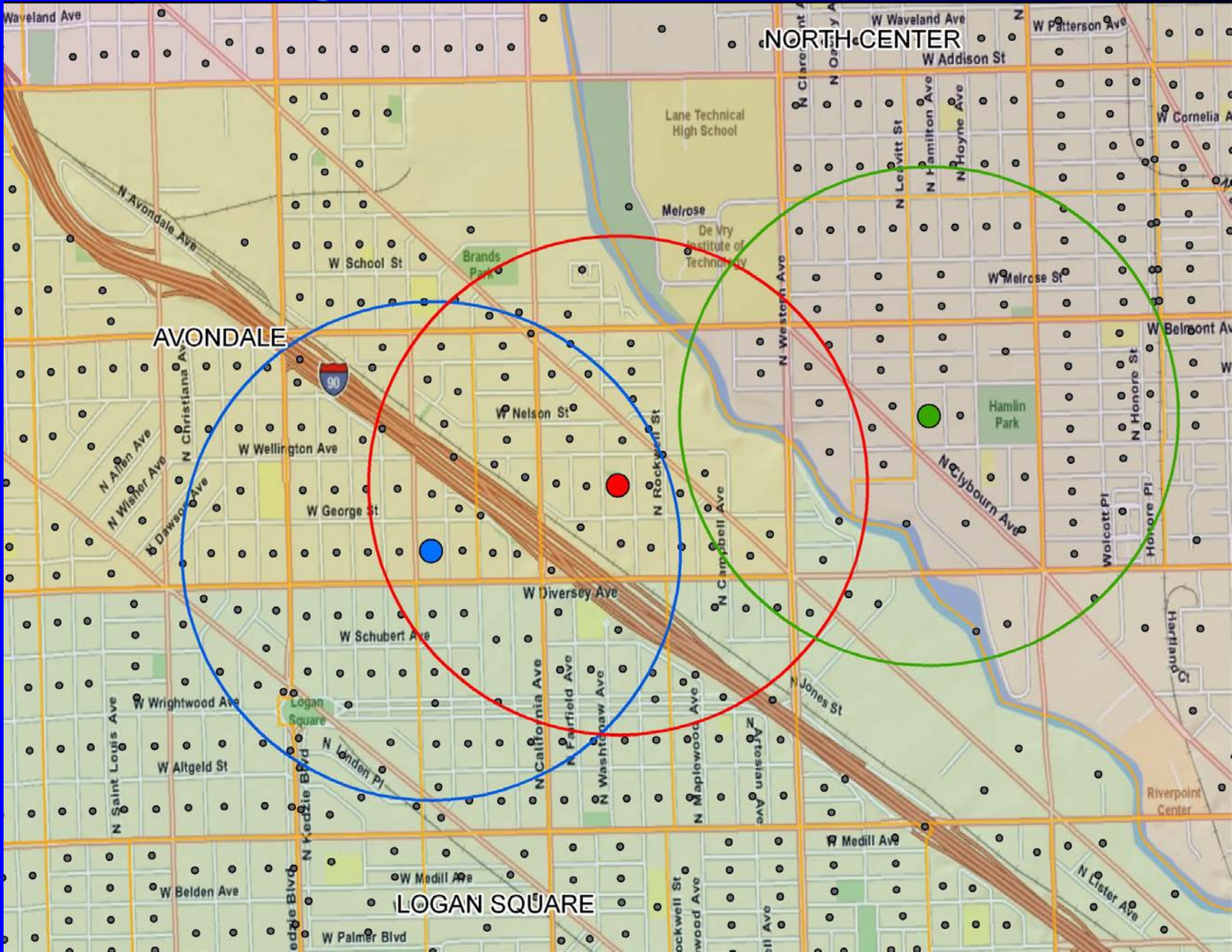


NORTH CENTER

AVONDALE

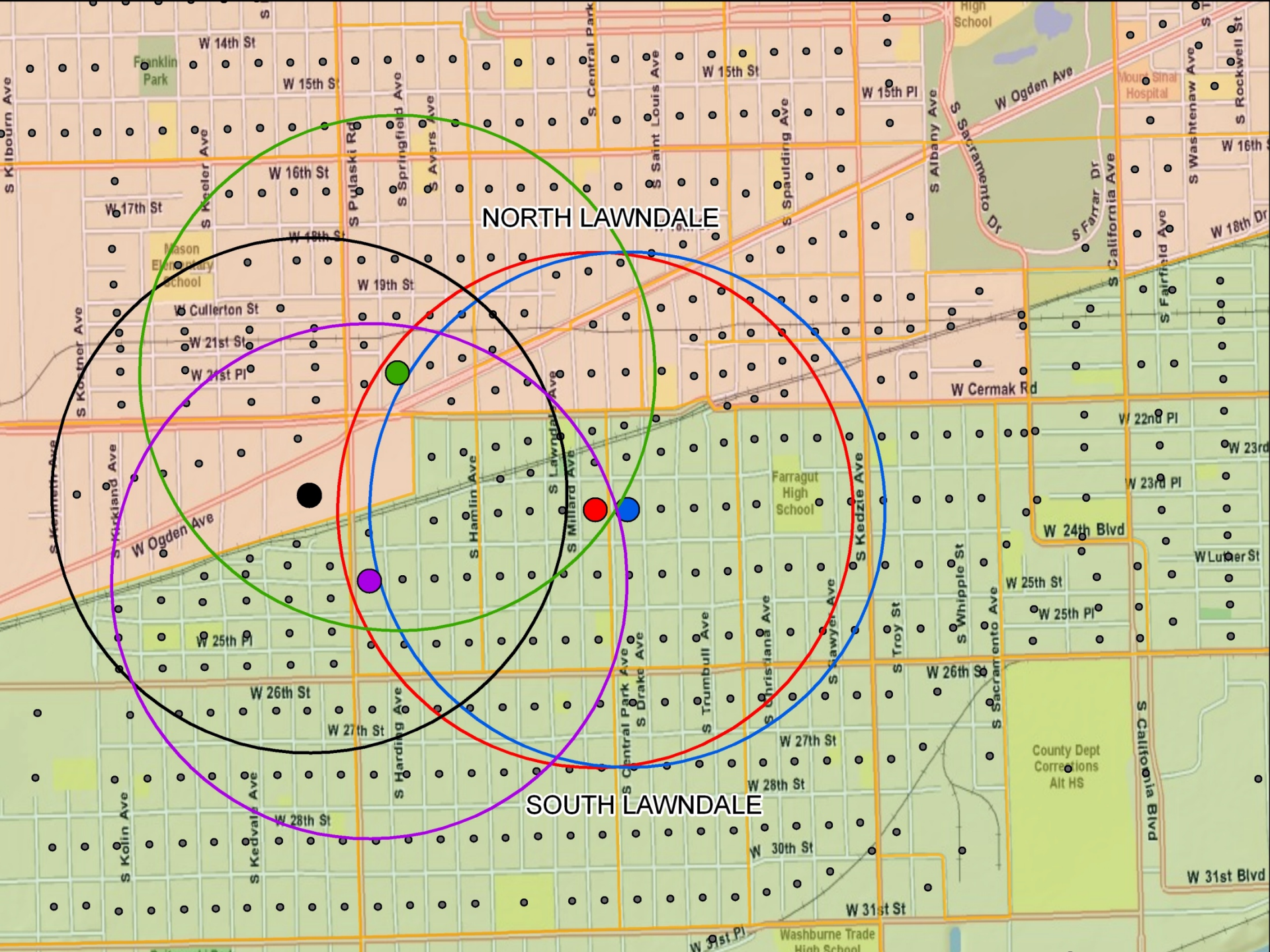
LOGAN SQUARE





Egohoods

- Neighborhoods as waves washing across the surface of the city



NORTH LAWDALE

SOUTH LAWDALE

Data

- Point crime data for 7 cities in 2000:
 - Buffalo, Cincinnati, Cleveland, Dallas, Los Angeles, Sacramento, Tucson
- Used 3-year averages of crime data
- Counts of crime types

“Neighborhoods”

- Aggregate crime points to:
 - Block groups
 - Tracts
 - 0.25 mile radius egohoods
 - 0.5 mile radius egohoods
 - 0.75 mile radius egohoods
- Census data to egohoods:
 - Aggregated block data when available
 - Otherwise, assign block group data proportionate to population

Average population size of egohoods

Radius	Population
0.25 mile	1,100
0.5 mile	4,131
0.75 mile	8,809
1.5 mile	30,866
2.0 mile	50,931
3.0 mile	100,886

Predictor variables

- Percent vacant units, owners
- Average household income
- Percent black, Latino
- Percent aged 16 to 29
- Percent living in crowded households
- Inequality (standard deviation of logged income)
- Racial/ethnic heterogeneity

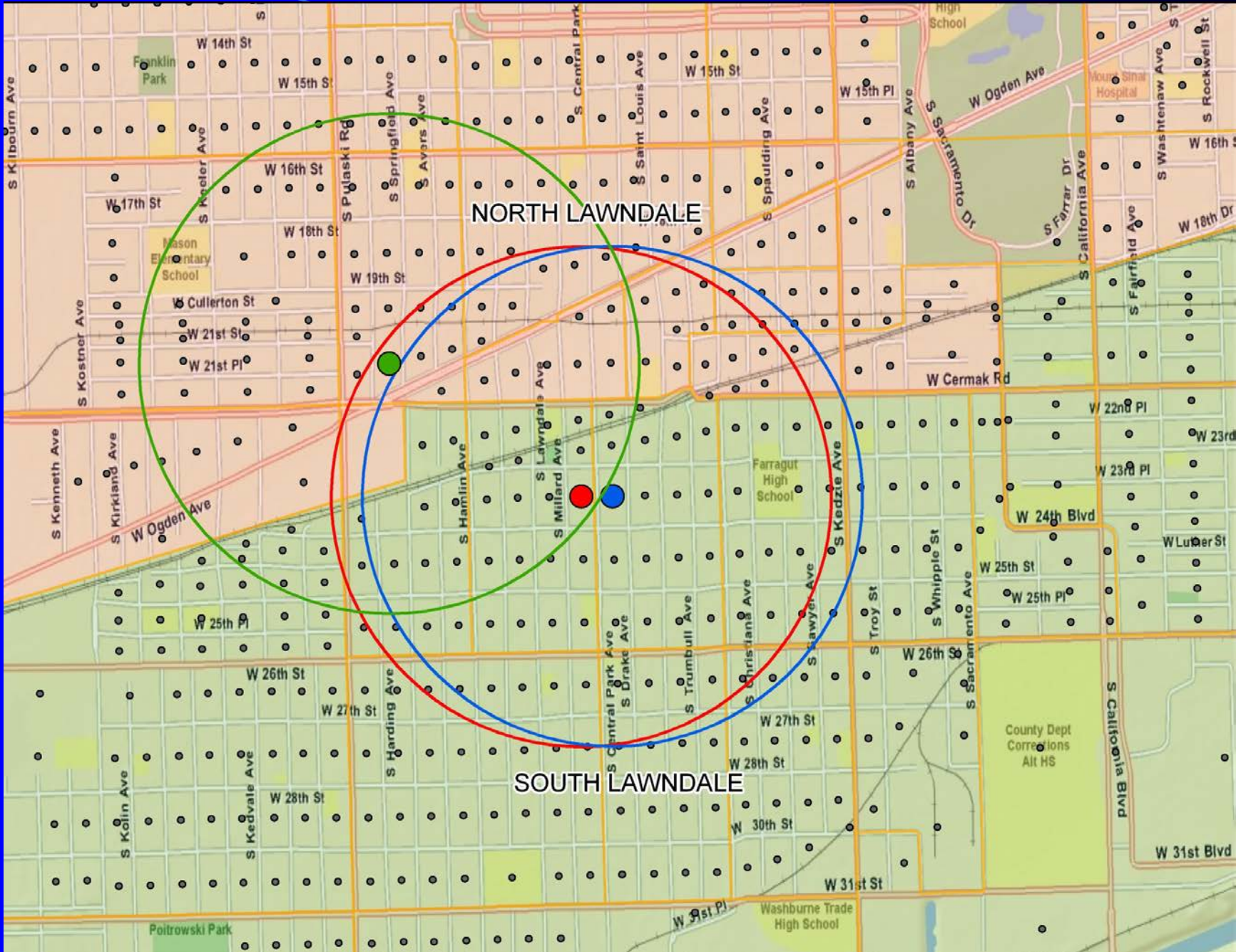
- And... spatial lags (distance decay) for block group and tract models

Methodology

- Negative binomial or Poisson regression
- Population as offset
- Egohoods: would need spatial error model
- Collinearity not a problem here
Increases with larger radii

Assessing fit

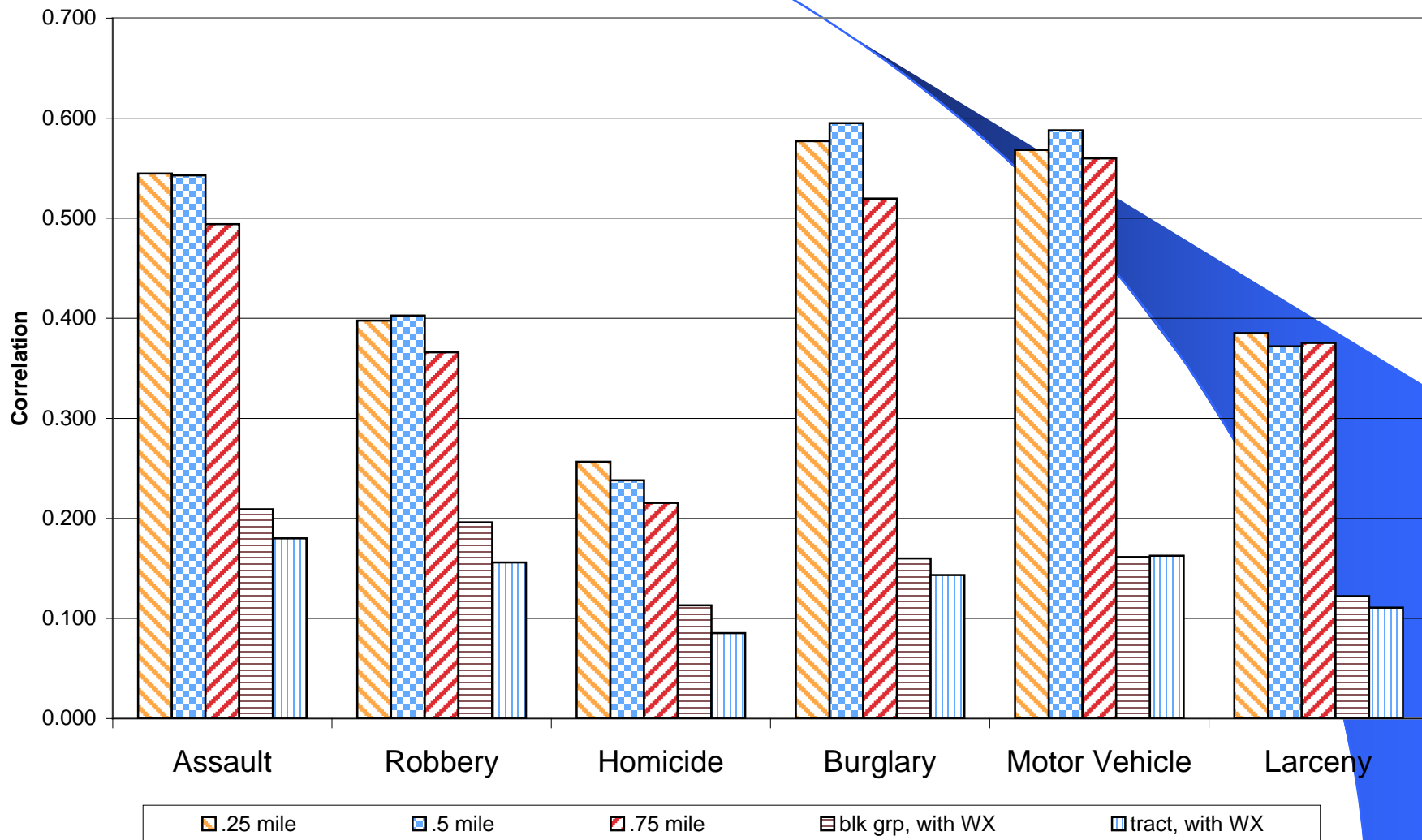
- Cannot just use R-square
- We use common units (blocks):
 - Get predicted mean for unit of analysis in model
 - Apportion mean to the *blocks* within the unit (proportionate to block populations)
 - Compute the correlation of this mean with the actual crime count in each block
- A bit more complicated with egohoods:



NORTH LAWDALE

SOUTH LAWDALE

Figure 2. Average over seven cities: correlation between crime count and expected mean across blocks



Vacancies and owners

- The only two measures with strongest effects when aggregated to $\frac{1}{4}$ mile egohoods (instead of $\frac{1}{2}$ mile)

Vacancies

- Aggregating vacant units to $\frac{1}{2}$ mile radius egohoods instead of the BG's or tracts:
 - 8% to 31% stronger for aggravated assault
 - about 10% larger for robbery
 - 25% to 68% larger for homicides
- When aggregating vacant units to $\frac{1}{4}$ mile radius egohoods instead of the BG's or tracts :
 - Between 26% - 100% larger for 3 violent crime types
 - 60% stronger for burglary
 - 40% stronger for MV theft
 - 40% stronger for larceny

Owners

- Aggregating owners to ½ mile radius egofoods instead of the BG's or tracts:
 - 12% to 55% stronger for aggravated assault
 - 10% to 20% larger for robbery
 - 20% to 85% larger for homicides
- Even stronger when aggregating to ¼ mile radius egofoods
 - 30 to 50% stronger for aggravated assaults and robberies
 - 50% stronger for burglary
 - 70% stronger for MV theft
 - 30% stronger for larceny

Distribution measures: heterogeneity

- Stronger positive effect when aggregated to tracts rather than block groups
- Even stronger when aggregated to ½ mile radius egohoods
- Aggregating heterogeneity to ½ mile radius egohoods instead of tracts:
 - 11% stronger for aggravated assault
 - 27% larger for robbery
 - 17% larger for homicides
- Relatively inconsistent results for property crimes

Distribution measures: inequality

- Aggregating inequality to ½ mile radius egohoods instead of tracts:
 - 500% stronger for aggravated assault
 - 300% larger for robbery
 - 20% larger for homicides
 - 420% stronger for burglary
 - 320% stronger for MV theft
 - Strong positive effect for larceny (neg for tracts)

Other measures

- Income: consistently negative, regardless of aggregation
- Other measures were inconsistent over cities, regardless of aggregation

Conclusion

- Should not think of “neighborhoods” as discrete units
- We propose overlapping neighborhoods (*egohoods*)
 - We’re all at the center of our own egohood
 - But we “belong” to many others
 - More effective predictions of crime
- What is the proper radius of egohoods???
- Important differences in the effects of inequality on crime