

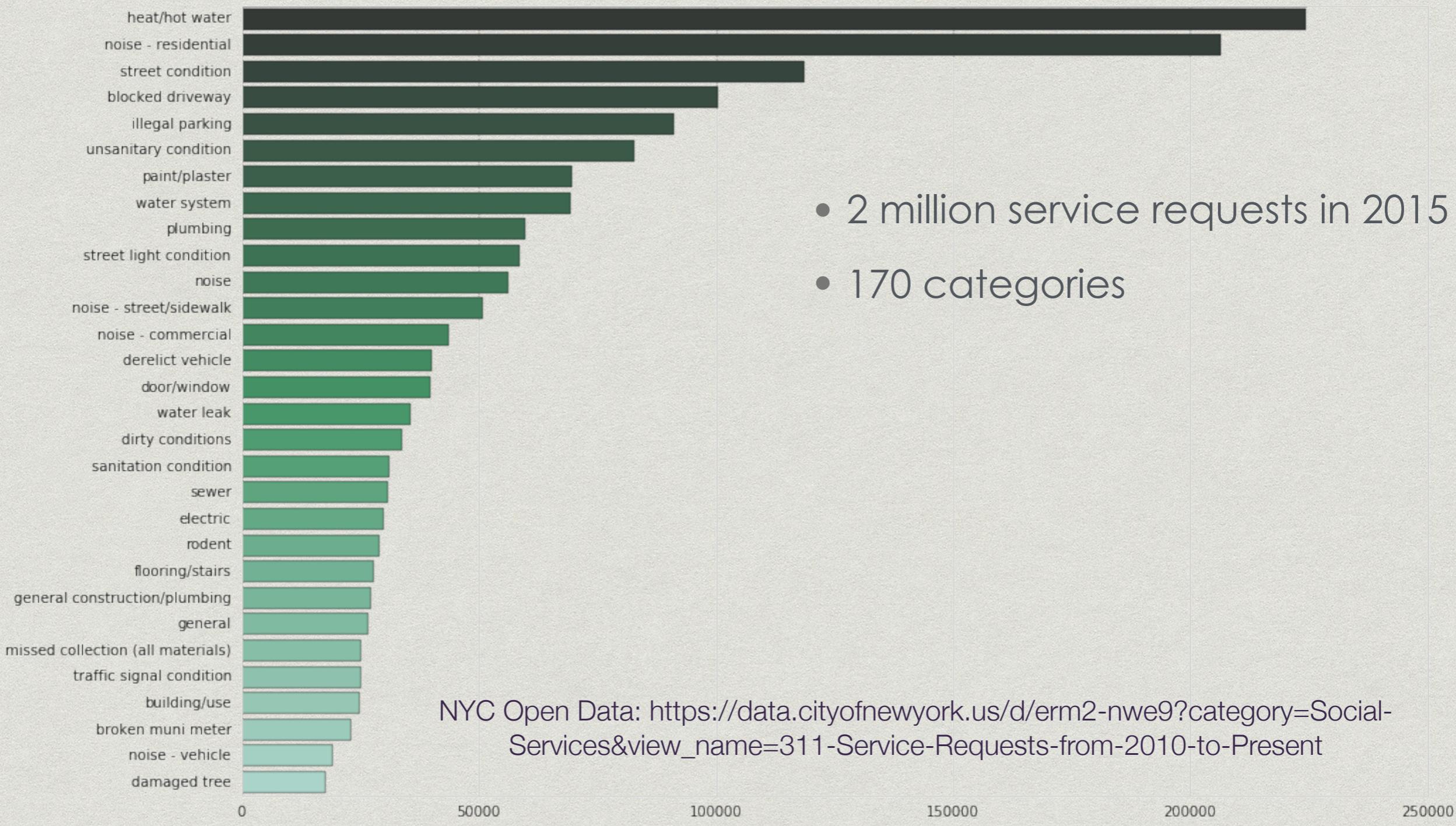


NYC 311 COMPLAINTS

Improving city services

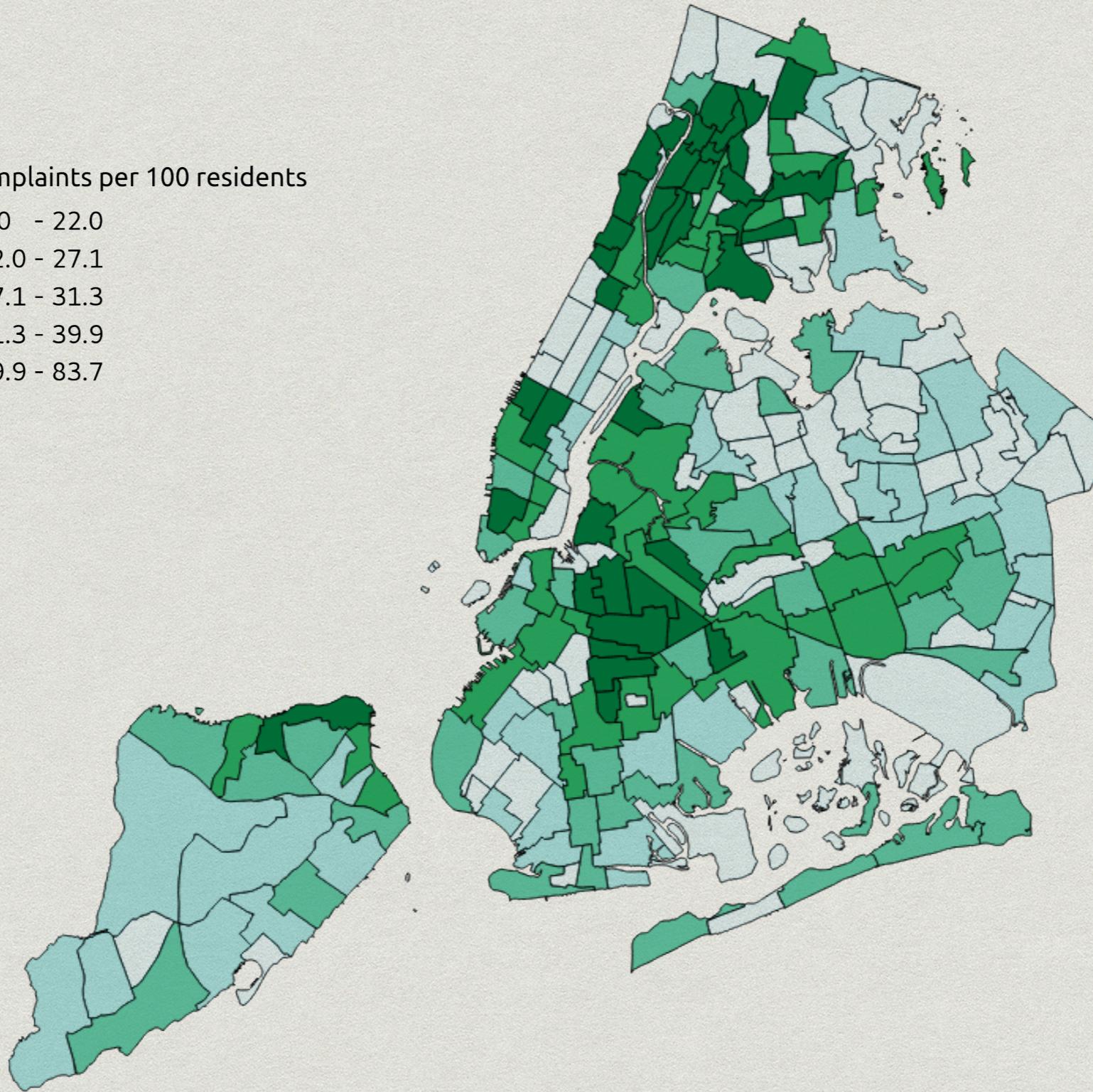
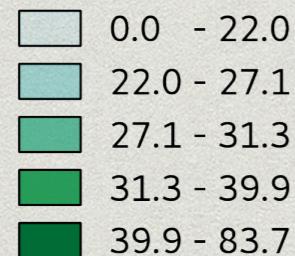
- Aggregation: neighborhood-level
 - Complaint patterns: **what** are the most pressing issues?
 - Spatial patterns: **where** do they occur?
- Explanation: underlying geographic/demographic factors
 - **Who** contacts the city and **why**?
- How can we make city services more responsive?

What people complain about



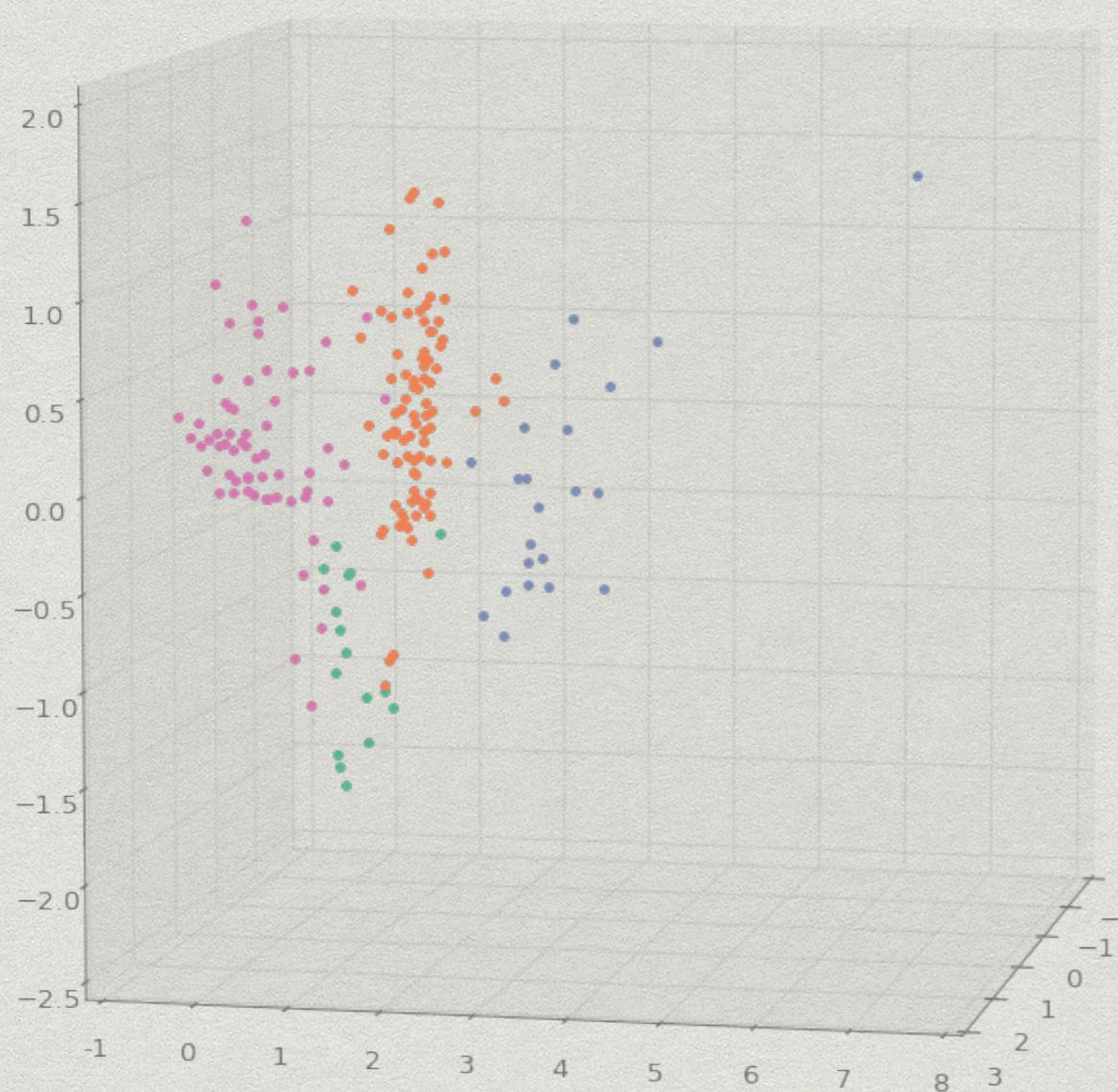
Where people complain

311 complaints per 100 residents



Clustering complaints

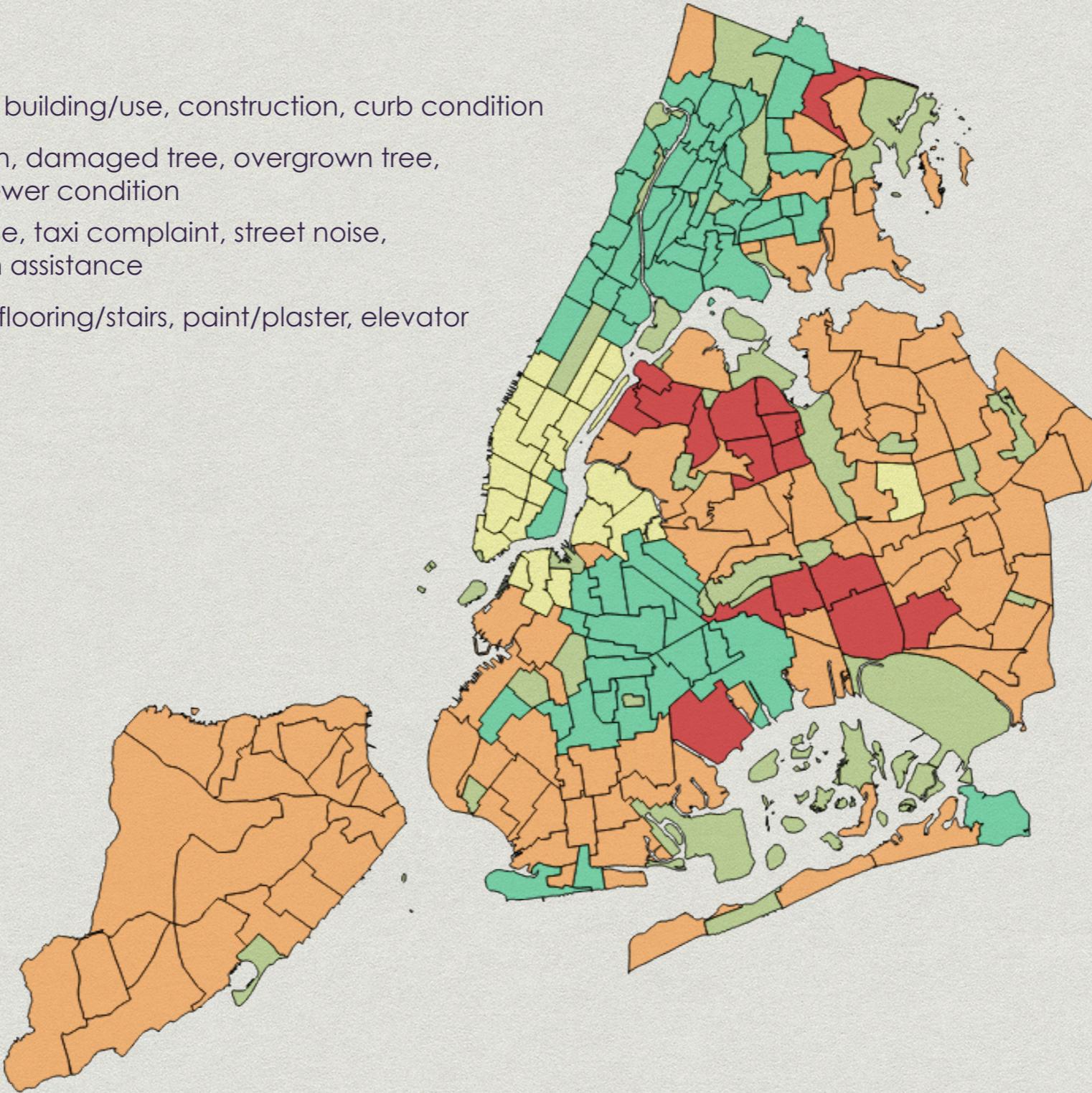
	air quality	animal abuse	asbestos	blocked driveway	broken meter	...
BK09	0.06	-0.12	-0.01	-0.24	0.22	...
BK10	-0.02	0.01	0.03	0.08	0.00	...
...



- Non-negative matrix factorization clustering
- Visualization in three PCA dimensions

How people complain

- █ derelict vehicle, building/use, construction, curb condition
- █ missed collection, damaged tree, overgrown tree, root/sidewalk/sewer condition
- █ commercial noise, taxi complaint, street noise, homeless person assistance
- █ heat/hot water, flooring/stairs, paint/plaster, elevator
- █ parks



Why people complain

complaint rate = demography + geography

Demographic

median income
median age
percentage minority
percentage male
unemployment rate
percentage below poverty line
percentage renter-occupied
percentage family households
same home last year

Geographic

number housing units
percentage vacancy
percentage built before 1939
median rent
number of households

Why people complain

housing complaints (600k), R-squared = .76

Demographic

median income

median age

percentage minority -

percentage male

unemployment rate

percentage below poverty line +

percentage renter-occupied -

percentage family households

same home last year +

Geographic

number housing units

percentage vacancy +

percentage built before 1939 +

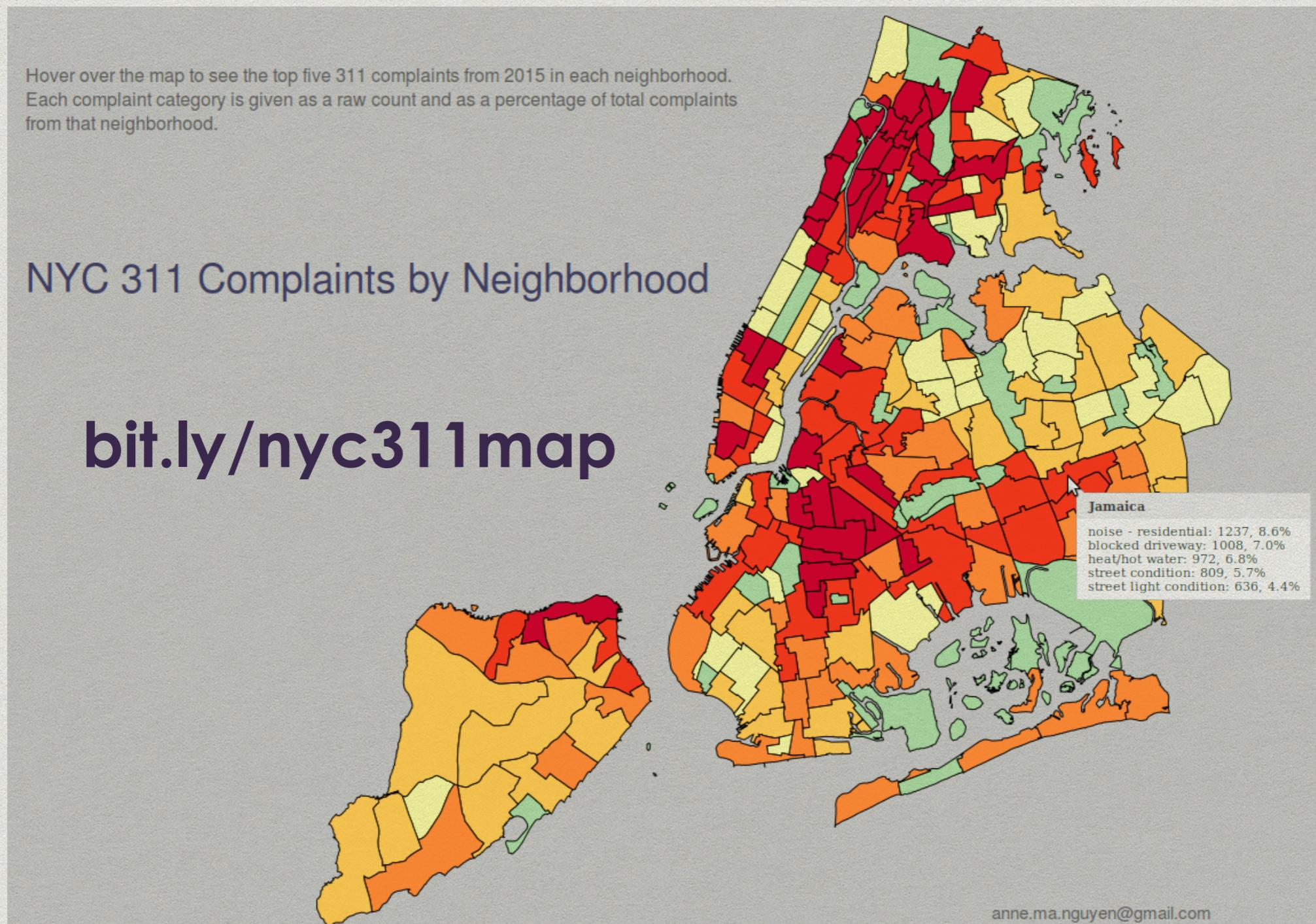
median rent

number of households

What to do about complaints

- Neighborhoods:
 - Proactively target high-complaint areas & likely problems
- Residents:
 - Understand differences in residents' reactions to city conditions
 - Explain patterns in civic engagement
 - Focus outreach on less vocal demographics

Top five complaints



Thank you very much!

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