

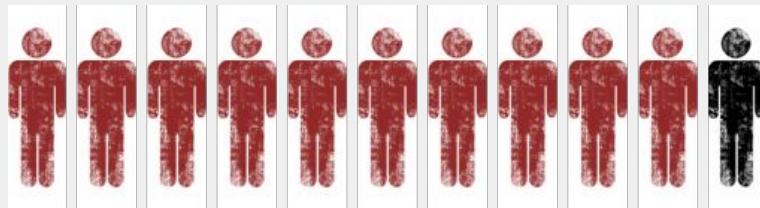


# **NYC NOISE - EXPLORING URBAN NOISE THROUGH 311 COMPLAINT DATA**

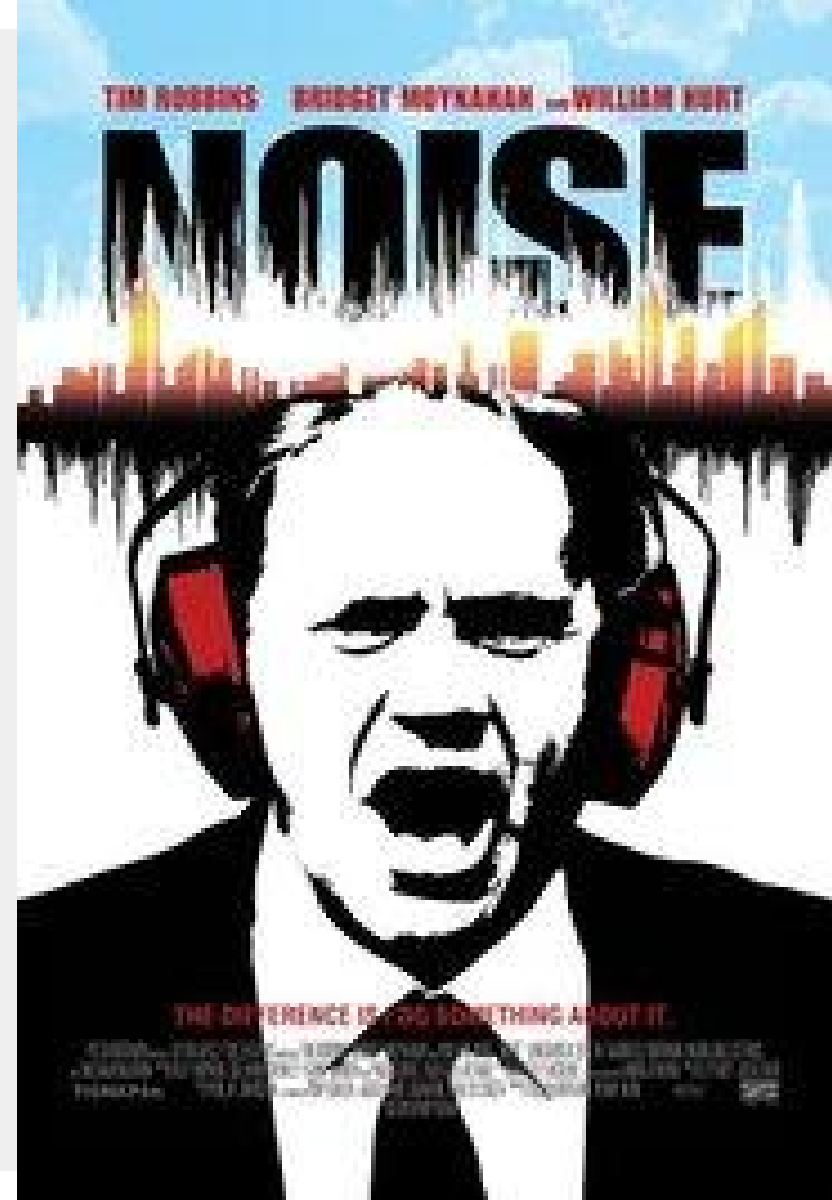
**By: Dongjie Fan, Kristin Korsberg, Jonathan Pichot, Vishwajeet Shelar, Timothy Sit,  
Ziman Zhou, Chongyang Chen, Shay Lehmann, Ekaterina Levitskaya, Philipp  
Ulbrich, Christian Rosado, and Avikal Somvanshi**

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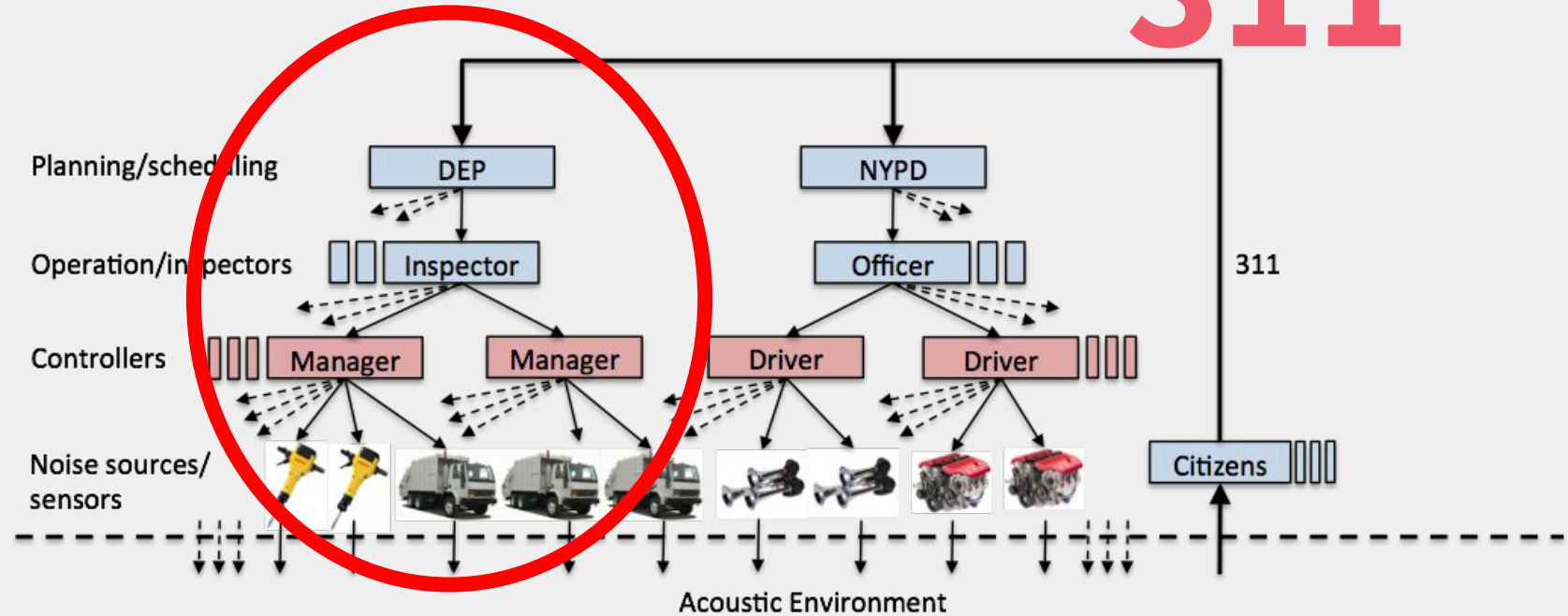
*It has been estimated that 9 out of 10 adults in New York City (NYC) are exposed to excessive noise levels.*



**hypertension**  
**Loss of hearing**  
coronary heart disease  
**psychological stress**  
**annoyance**  
sleeping disorders  
**cognitive impacts**



# 311



Since 2003

**Over 3.4 million  
complaints**

**half were inspected**

**Less than 20% ticketed**

**50 inspectors**

**1 million buildings**

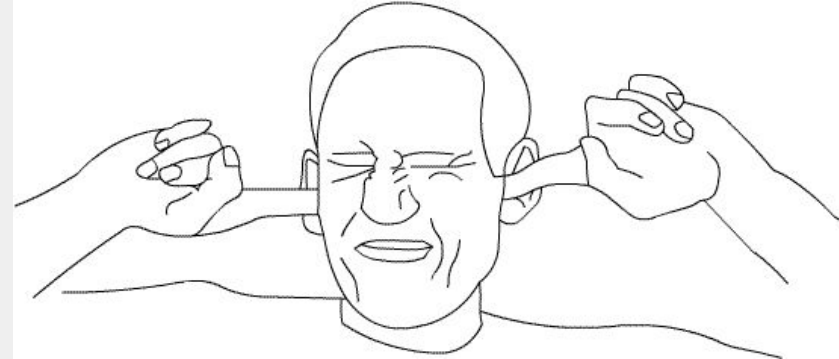
**8 million people**

## Datasets in Use

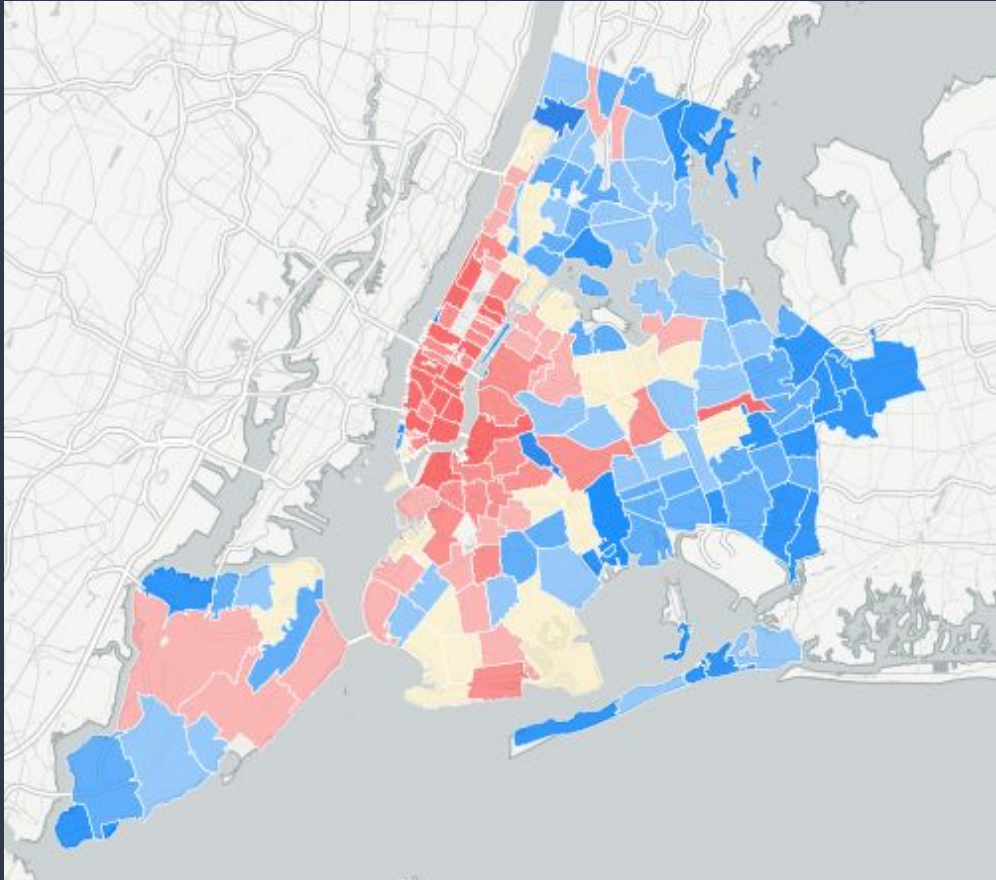
- US Census Data
- 311 Service Requests by DEP (filtered by “Noise”)
- NYC Open Data - Permit issuance
- National Oceanic and Atmospheric Administration’s Open Data
- NYC Open Data - Directory of business improvement districts

# Limitations of Data

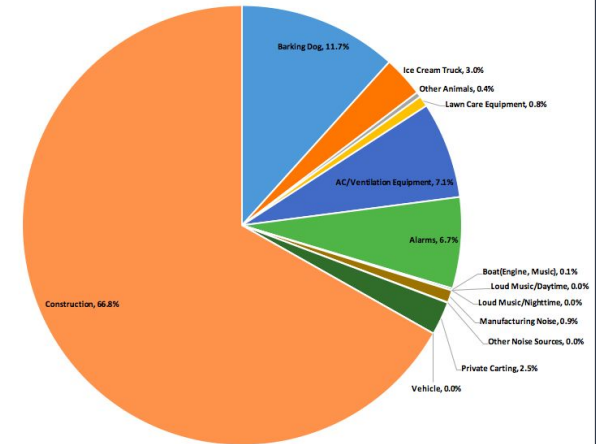
- Subjectivity
- Spatial differences
- More data and research needed



# Noise Complaints by Zipcode: 2015-2016



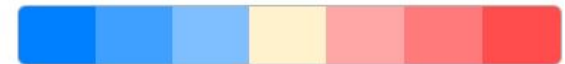
Noise Complaints Handled by the Department of Environmental Protection  
August 29, 2015 - August 29, 2016



## DENSITY OF NOISE COMPLAINTS

LESS

MORE





**Construction Noise:**  
**66.8%** of total noise complaints handled by DEP  
(2015-2016)

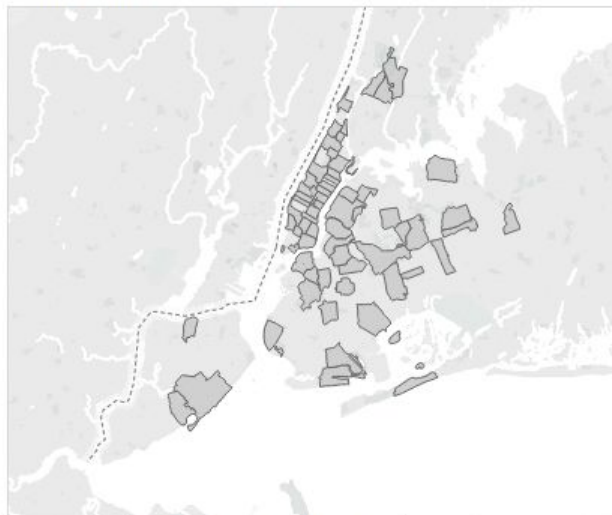
**Recommendations:**

- 1. Deploy inspectors to zip codes with high volume of complaints (10128, 10016, 10019, and 11201)**
- 2. Quantifying the level of dissatisfaction in each neighborhood by creating new metrics using the complaint data (sensitivity index)**
- 3. Prevent complaints by inspecting construction sites in zip codes with high index scores for adherence to noise mitigation protocols**

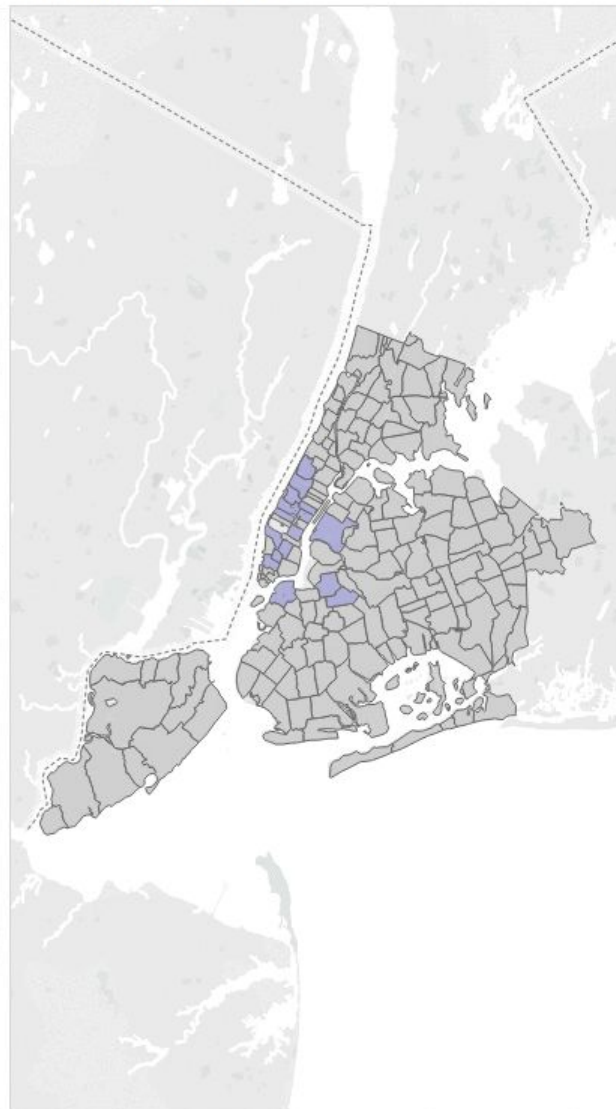
Index - 9/12/15



Daily Complaints - 9/12/15



Current Permits - 9/12/15



Date

< 9/12/15 >



Show History

Index

0.10 100.00

Current Permits

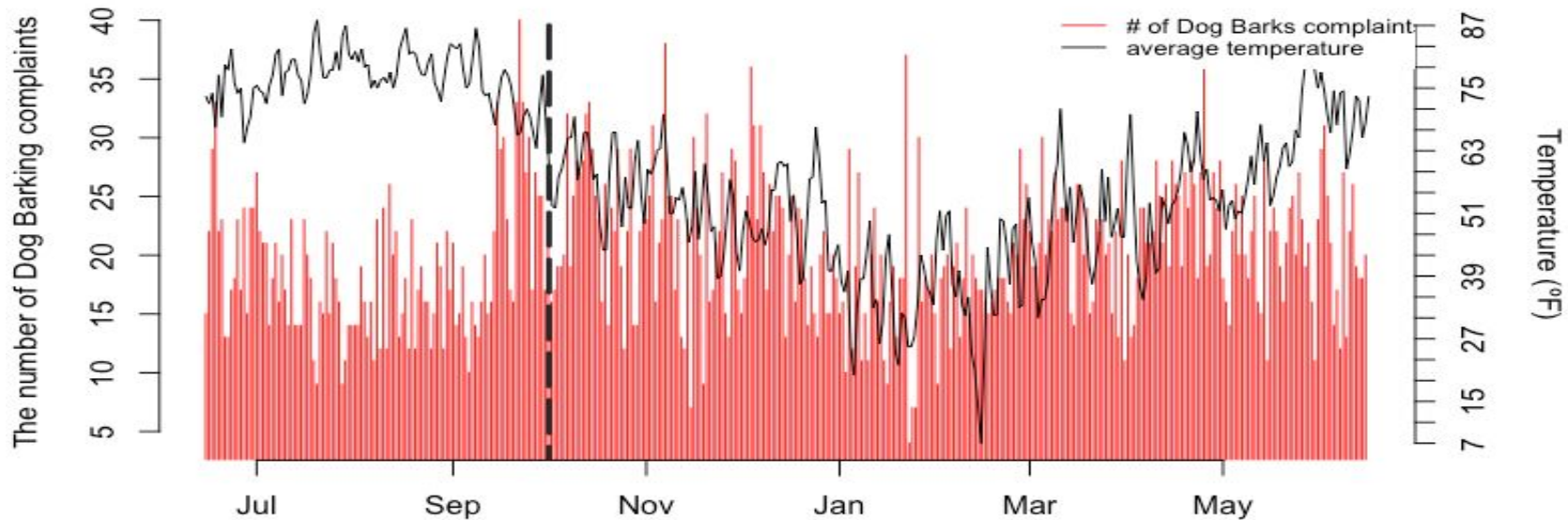
1 3,559

Complaints

1 75

# Temporal Analysis

# of Dog Barking complaints V.S. average temperature

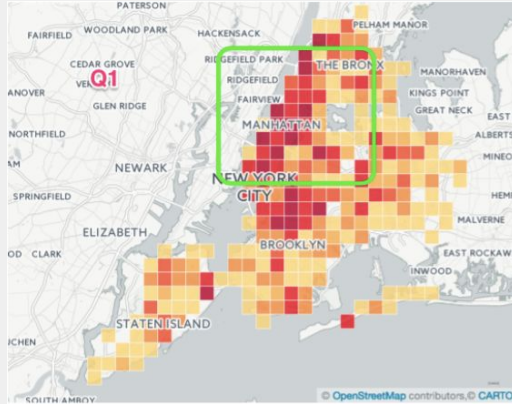


- The number of complaints is proportional to temperature during Spring, Fall and Winter.

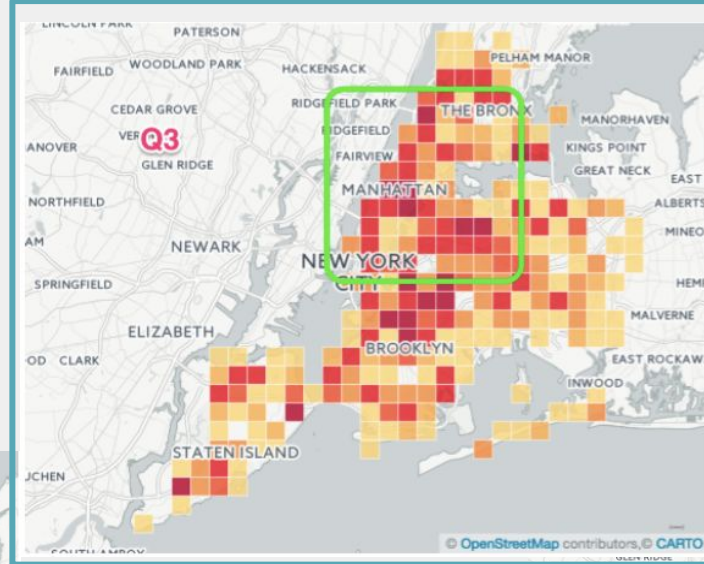


# Temporal Analysis

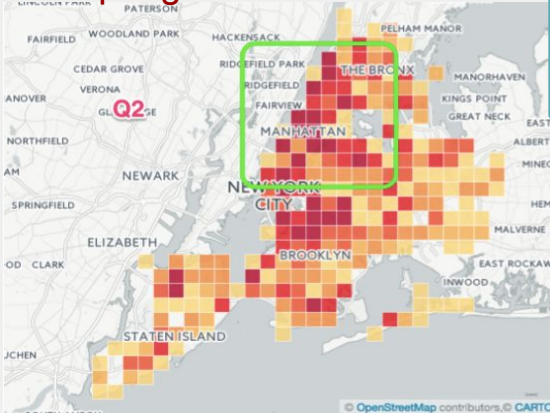
Q1-Winter



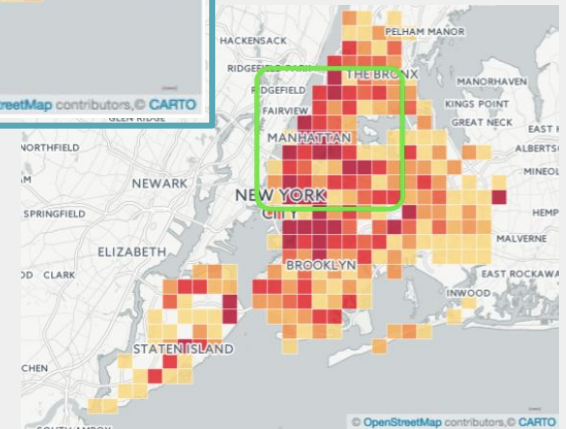
Q3- Summer



Q2-Spring



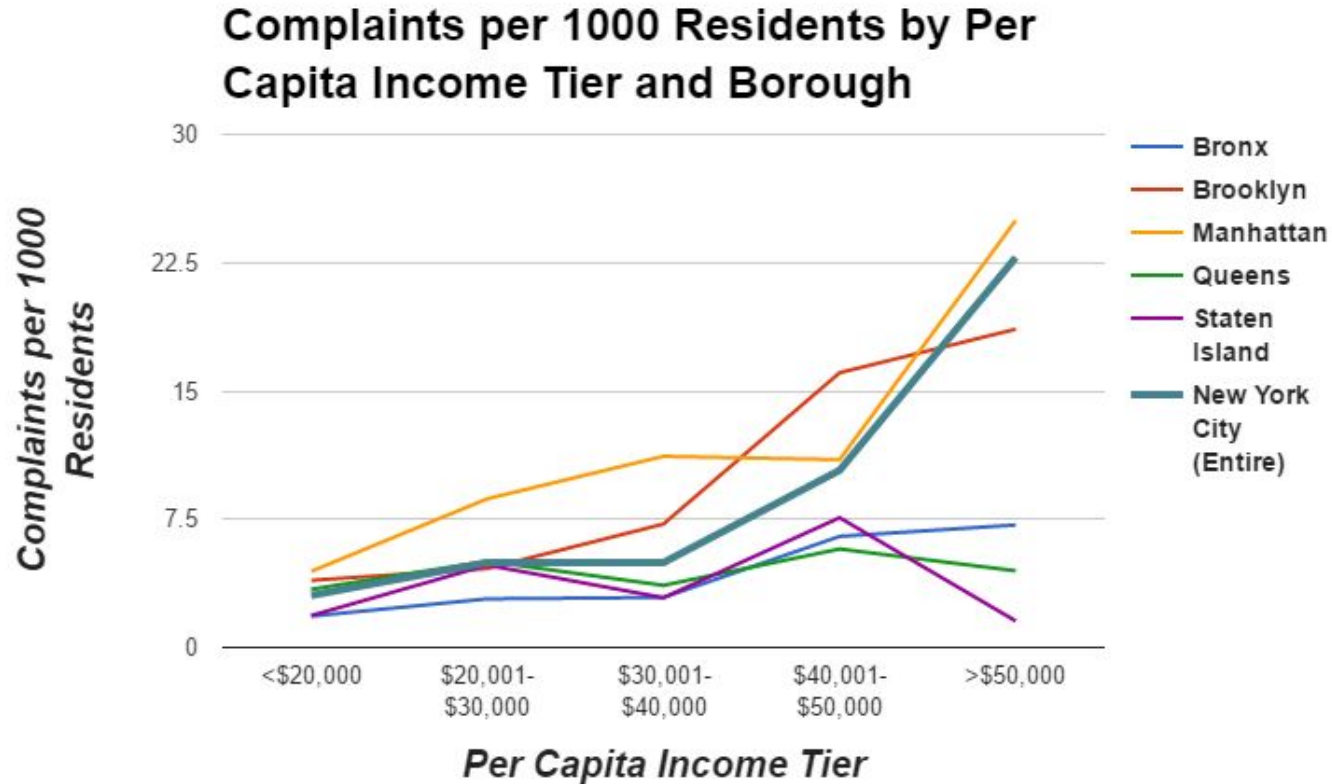
Q4-Fall



## Suggestions for DEP

- Assign inspectors on other tasks in summer
- Remind dog keepers to take better care of their dogs
- Build and relocate dog playgrounds

# Socio-Economic Aspects



- **Per capita complaints appear broadly related to income**
- **Sensors to identify potential underreporting in lower income brackets**
- **For underreporting - awareness campaigns and community led noise mitigation**

Unique neighborhoods = unique complaint context

“

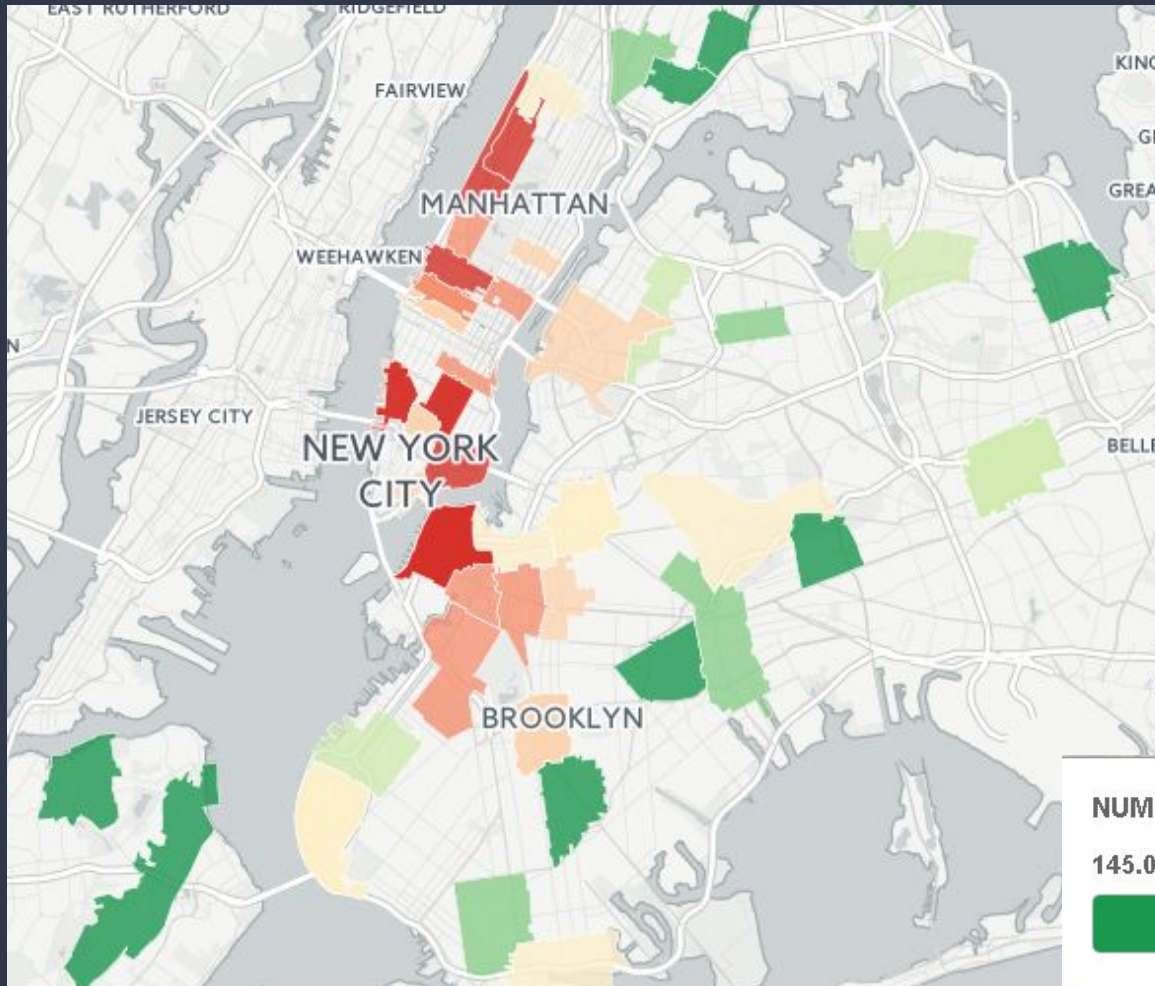
*Agencies should develop **customized solutions** for the different parts of the city—whether the problem is idling engines in Park Slope or loud talking in the East Village.*

## Local stakeholders - Noise-controllers

- **Business Improvement Districts** (67)
- **Community Boards** (59)
- **Block Associations** (only in Manhattans Upper East Side
  - around 60 block associations)
- **Local art organizations**



# Business improvement districts and noise complaints (2015-2016)



## The noisiest BIDs:

1. Fifth Avenue
2. Court-Livingston-Schermerhorn
3. MetroTech
4. DUMBO Improvement District
5. Fulton Mall Improvement Association

NUMBER OF NOISE COMPLAINTS (2015-2016)

145.00

1654.00



## **Suggestion: Local Noise Mitigation Network - Self-regulation**

- **Business Improvement Districts**
- **Community Boards**
- **Block Associations**
- **Local art organizations**



Self-regulation through:

- **Best practices sharing**
- **Ranking system**
- **Raising urgency/awareness campaign**

## Summary

- Construction Noise
- Weather and dog-barking
- SocioEconomic
- Local Stakeholder/Noisecontrollers  
Involvement and Self-regulation



Thanks!  
Any questions?

