



RATATOUILLE RADAR

A Data Science Solution for
NYC Department of Health
Restaurant Inspections



Presented by: Crystal Huang
Metis Bootcamp Project III

Introduction

The backstory

Target Audience :
NYC Department of Health
Restaurant Inspectors

- **GOAL** of inspections: to **EDUCATE**, rather than punish restaurants and bars
- Checking for condition most associated with:
 - foodborne illness
 - pest conditions (rodents, etc.)
 - compliance with the city's COVID-19 guidelines

EAT ✕ SAFE

Introduction

The backstory

March
2020

NYC
Restaurants
shut down
Inspections
suspended

June
2020

NYC
Restaurants
returns with
outdoor dining

October
2020

Restaurant
Health
Inspections
resume

March
2021

Surge of
Rodent
Sightings
in NYC

Business

New York City Rat Complaints Surge as Urban Life Revives

By [Yueqi Yang](#)

April 10, 2021, 10:15 AM EDT

Updated on April 10, 2021, 3:30 PM EDT

- Return to office areas, restaurants for human and rodent alike
- Rats that survived a pandemic food shock are ready to eat

Problem

Why do we need this service?



Delay in restaurant
inspection due to
pandemic



High volume of
restaurants to inspect



Risk of undetected
rodent infestation and
public's exposure to
foodborne illnesses

Data Science Solution

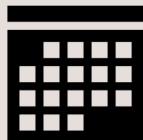
What can our service deliver?



PRIORITIZE high-risk restaurants for inspection with
311 rodent sighting reports



Identify **WHICH** restaurants are at most risk for **rodent violations** to spread food-borne illness



Identify **WHEN** restaurants may have higher risk of encountering **rodent infestation**

Impact Hypothesis

With Ratatouille Radar, you can...



Identify the same or
a greater number of
violations with
fewer inspections



Better targeting
city resources at what
appears to be
ratty-kitchen



Increase conversion
and safer restaurants
for public

Key Elements

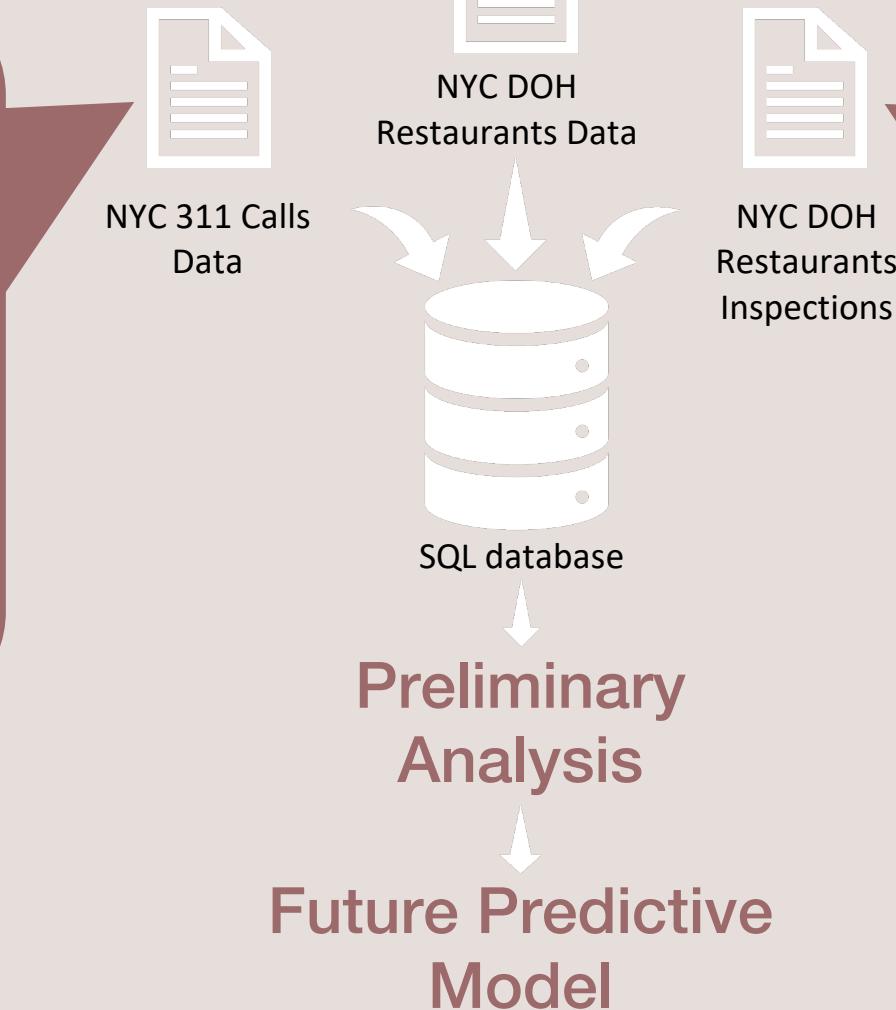
How does the service work?

Subset:

- Rodent Sighting Reports
- Commercial buildings

Assumptions:

- Most of the sightings are **reported** through 311
- Most of the Restaurants are in **Commercial** buildings



List of current NYC open restaurants

Subset:

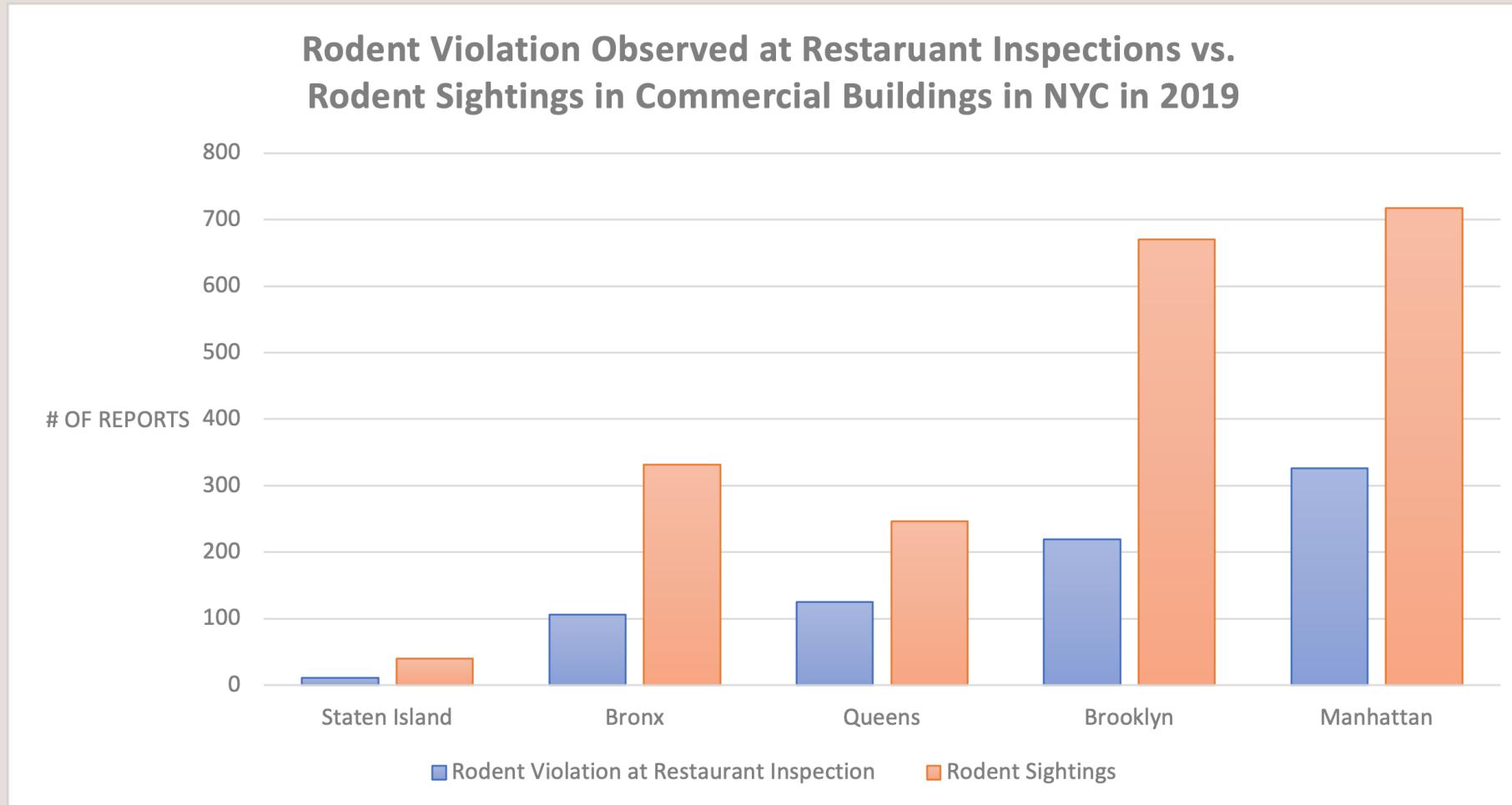
- Rodent Violation
- 2019

Assumptions:

- Most Violation were caught in the year without pause in inspections

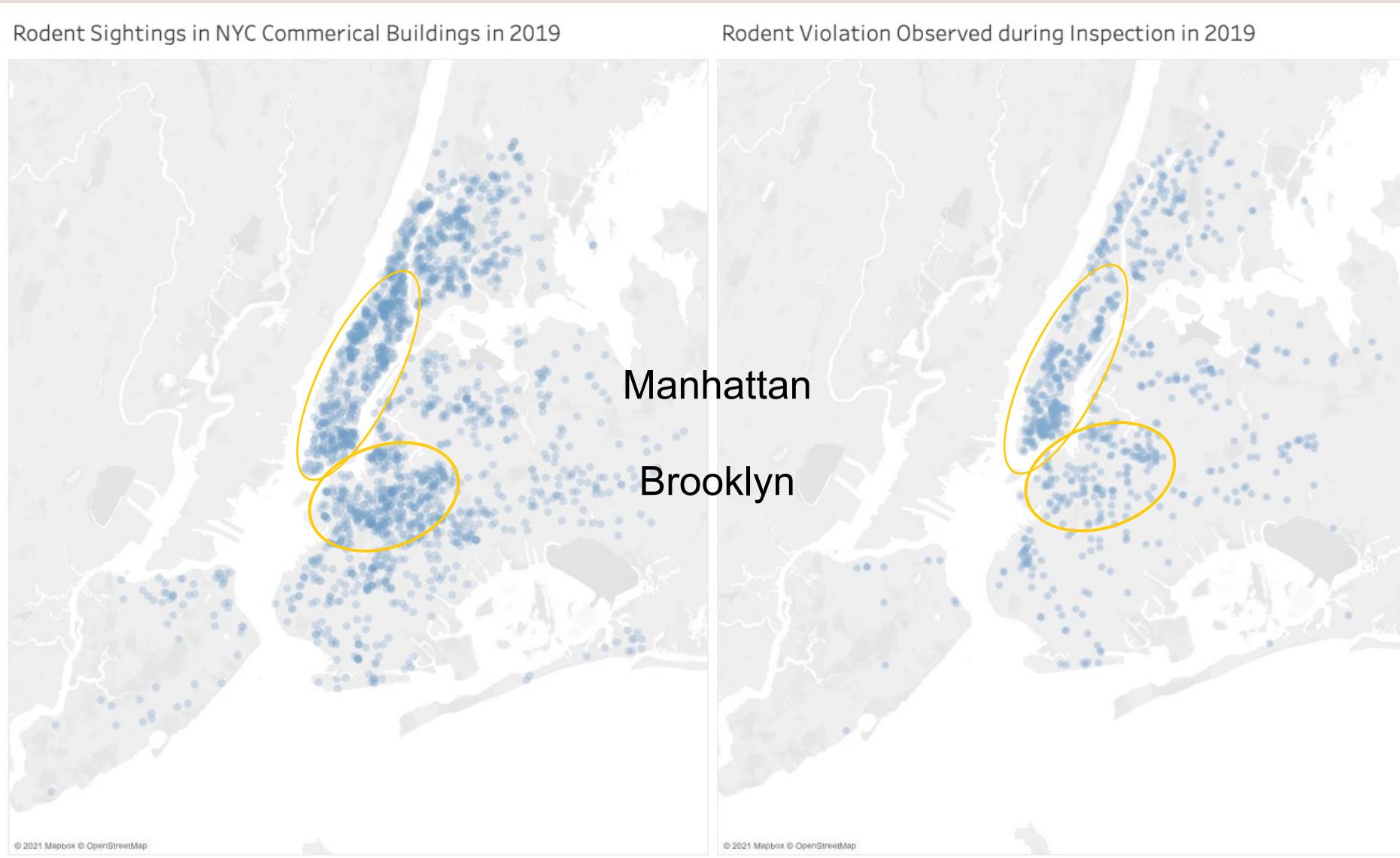
Preliminary Analysis

Can we use rodent sighting calls to predict rodent violation in restaurants?



Preliminary Analysis

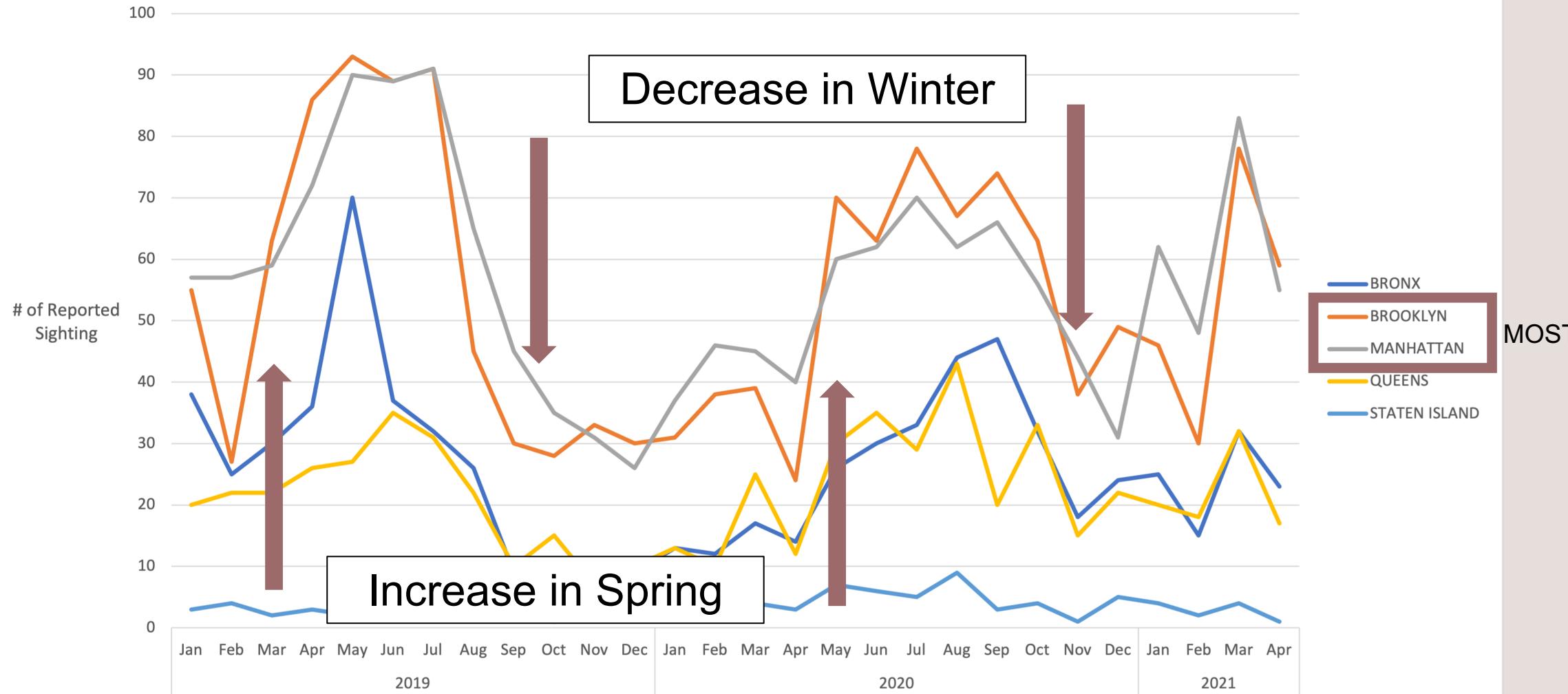
Can we use rodent sighting calls to predict rodent violation in restaurants?



Preliminary Analysis

Rodent Sighting vs. Time

Reported Rodent Sighting in NYC Commercial Area (2019-Present)

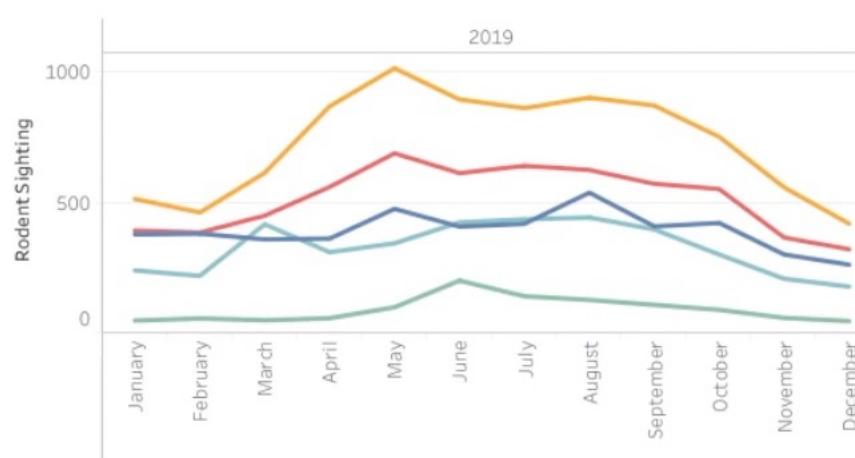


Analysis Takeaways

- 311 rodent sighting calls shows similar pattern as rodent violation seen during restaurant inspection in 2019
- In NYC commercial buildings, Manhattan and Brooklyn have higher rodent sightings
- Trend shows the number of sightings increase in spring and decrease in winter

Ratatouille Radar

Rodent Sightings in NYC Over Time



Date

2020

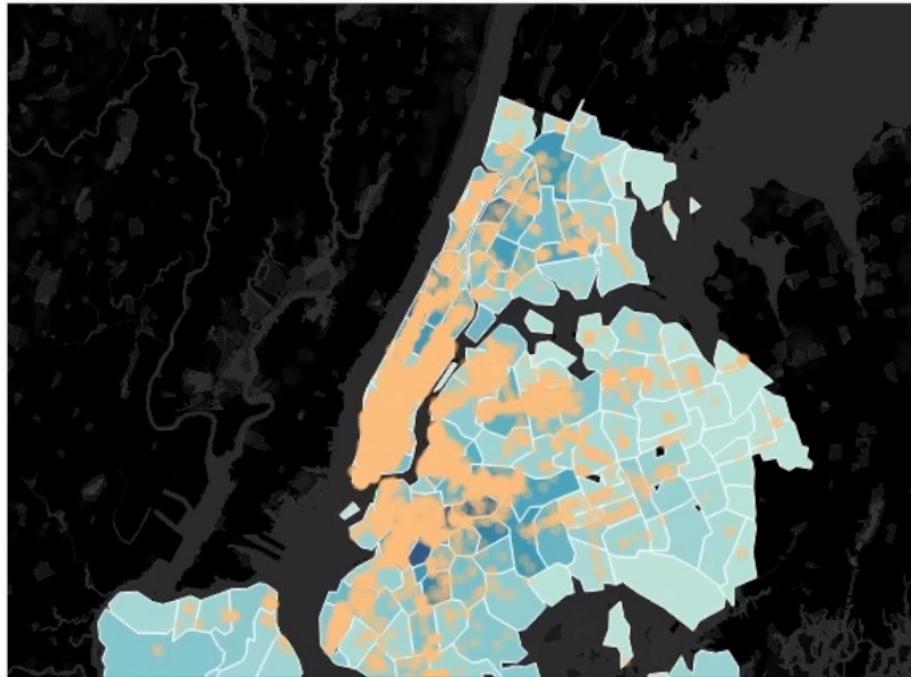
2021

Postcode

List of Restaurants

Neighborhood	Postcode	Restaurant Name
Bayside-Little Neck	11361	5 DE MAYO IN NY INC
		50075707
		AVLI LITTLE GREEK KAFE
		Ayna Agra
		Bareburger
		Bayside Diner
		Ben & Teena's Ice Cream
		Bourbon Street
		Chou
		cue bar
		DONOVANS OF BAYSIDE
		Erawan Thai Cuisine
		Fiamma 41
		FINO
		GLOWJOE CAFE
		Hatfields
		House of Hookah
		JDs Saloon
		Krave It

Rodent Sightings in NYC and Restaurant Locations Map



Borough

- BRONX
- BROOKLYN
- MANHATTAN
- QUEENS
- STATEN ISLAND

Date

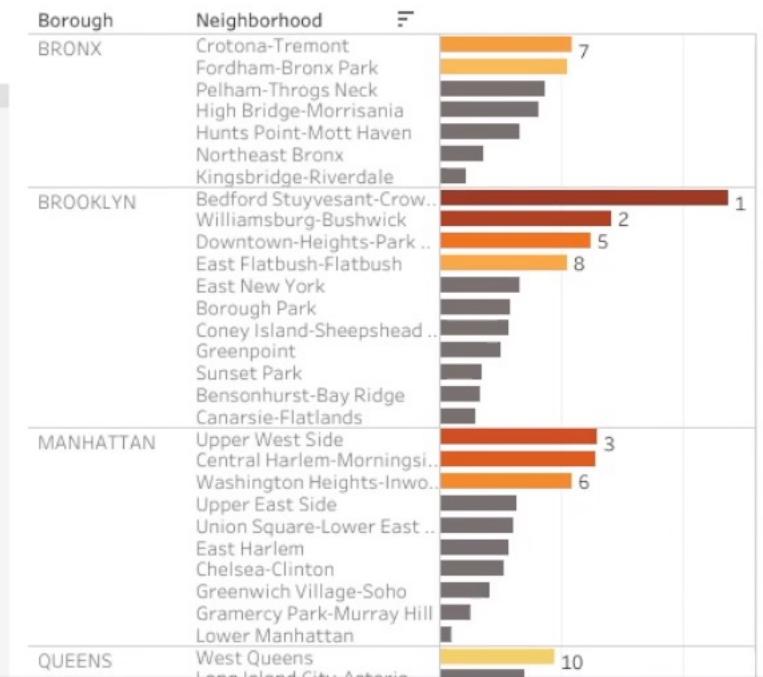
1/2/2019

4/19/2021

Building Categories

(All)

Rodent Sightings in NYC Neighborhoods



Future Potential

What to expect...

- Predictive model
 - Rank NYC restaurants by likelihood of having **rodent violations**
 - with historical rat sightings and time series
 - identify **dirty-kitchen hotspots** with Yelp reviews
 - pulling out words, phrases, ratings and patterns that predict violations

THANK YOU

Questions?

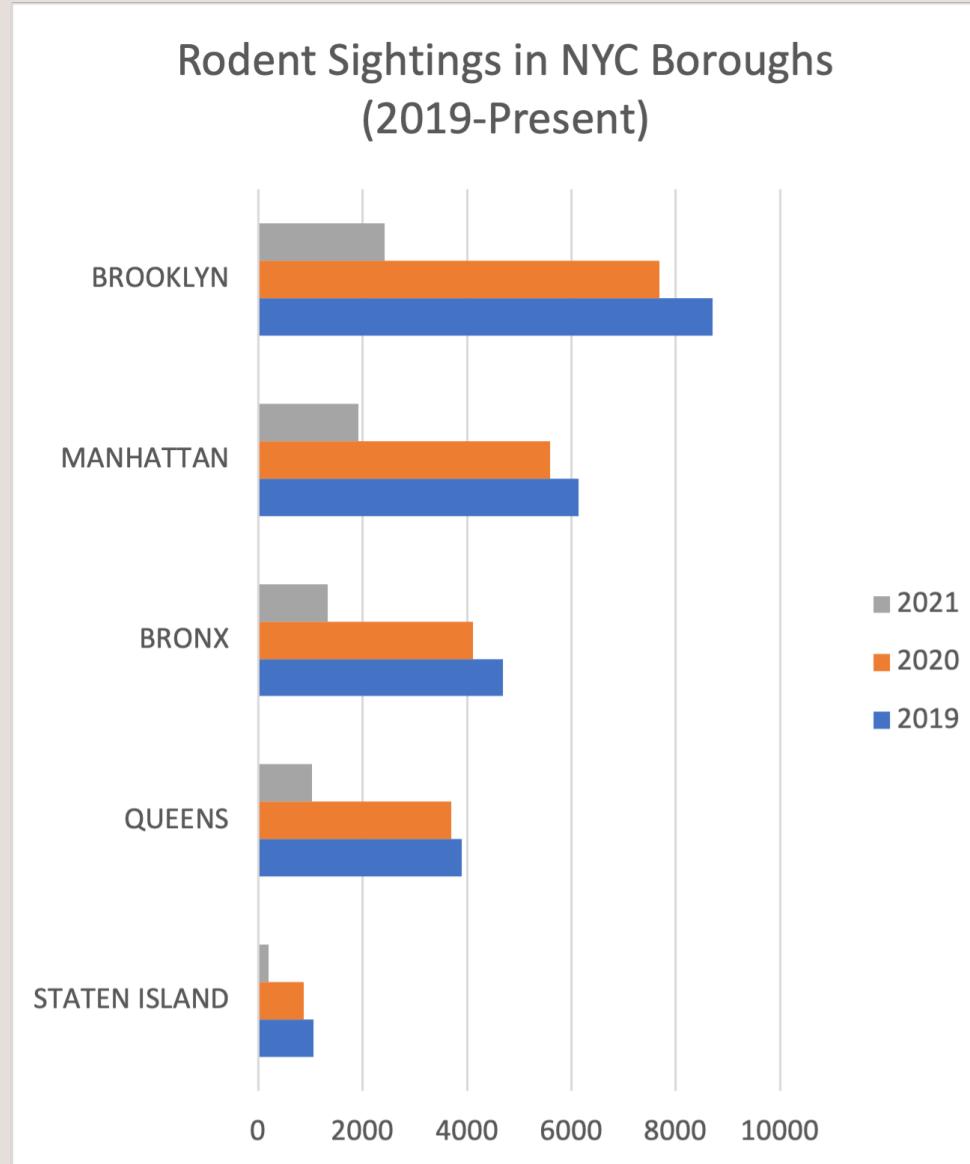


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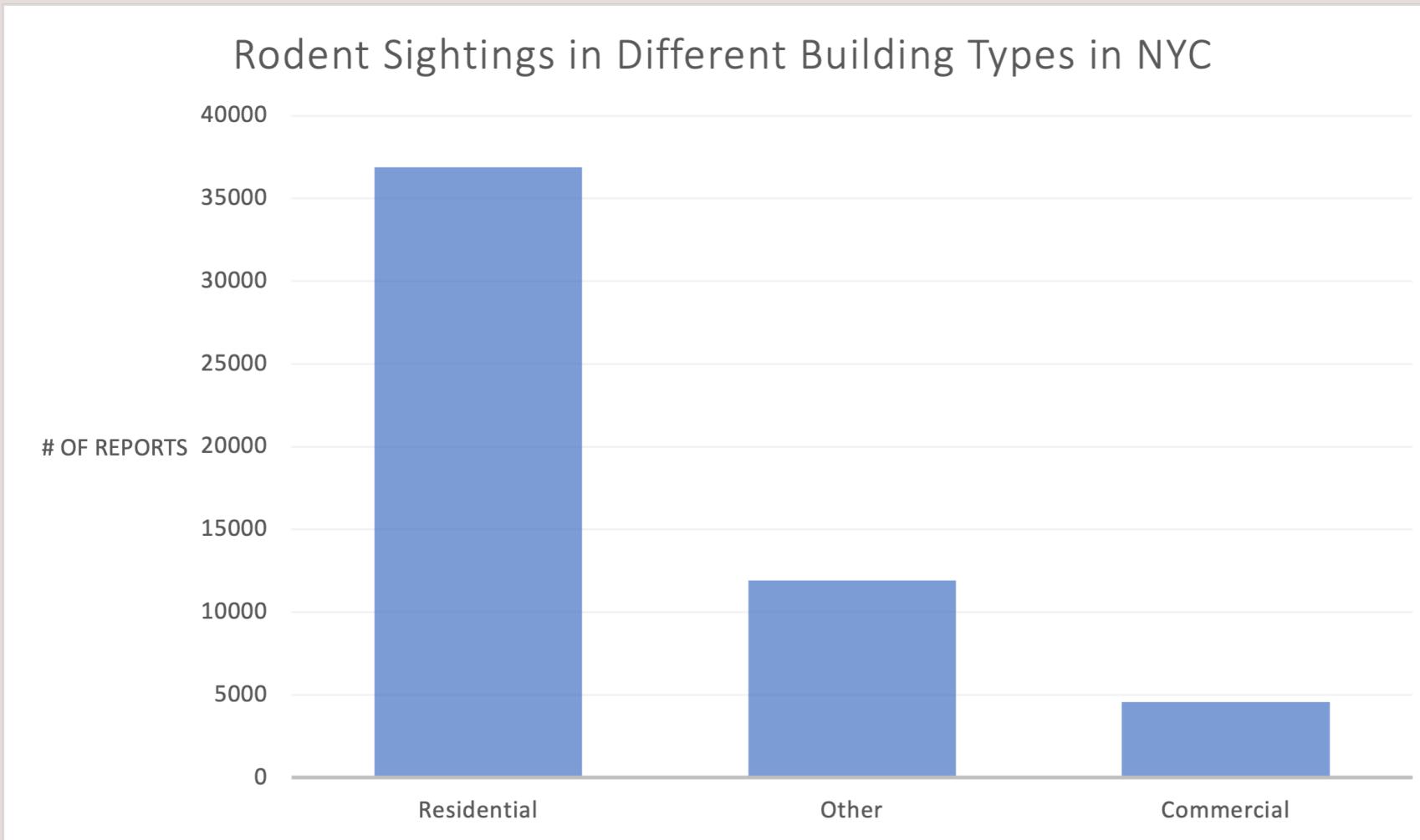


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Appendix 1



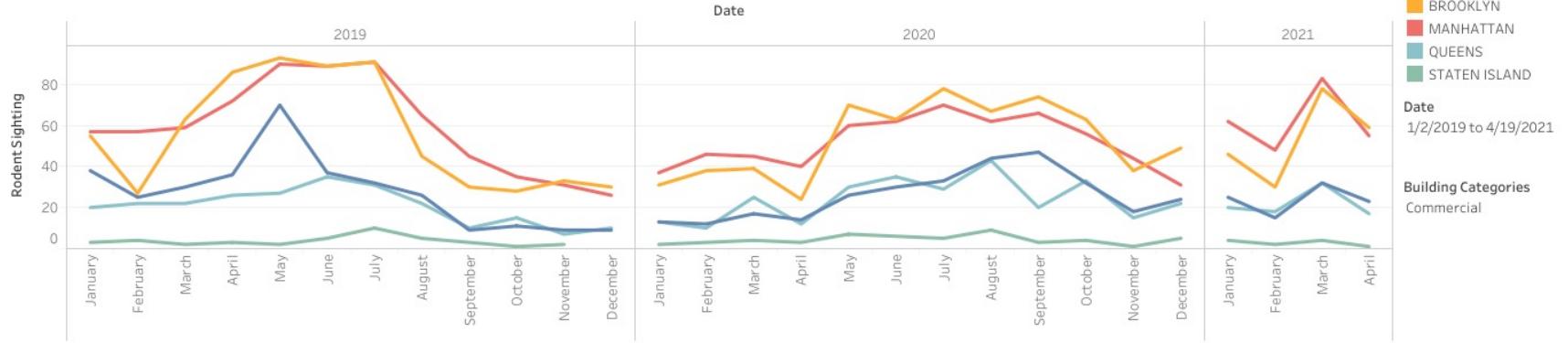
Appendix 2



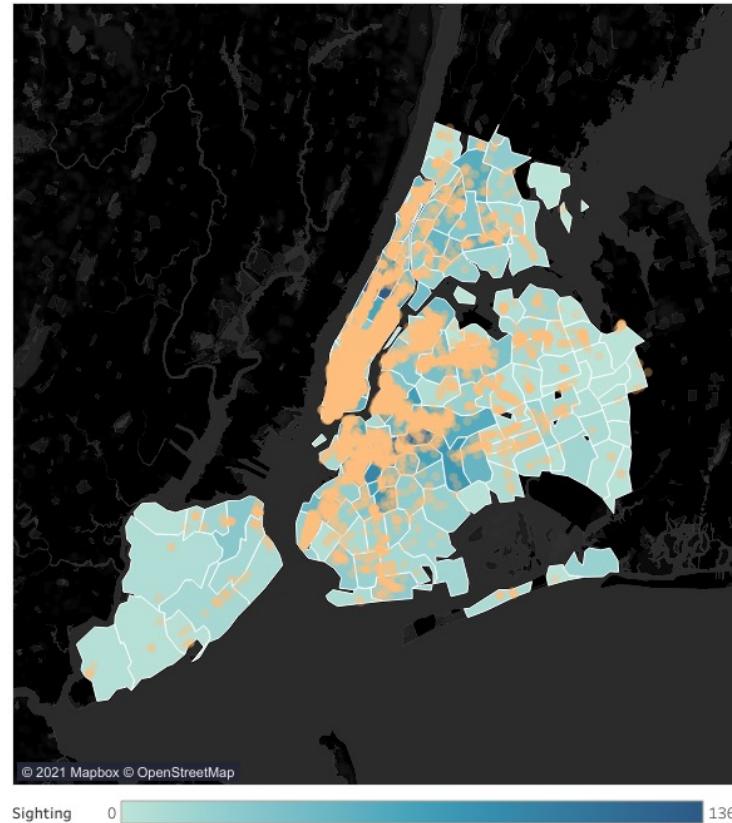
Appendix 3

Ratatouille Radar

Rodent Sightings in NYC Over Time



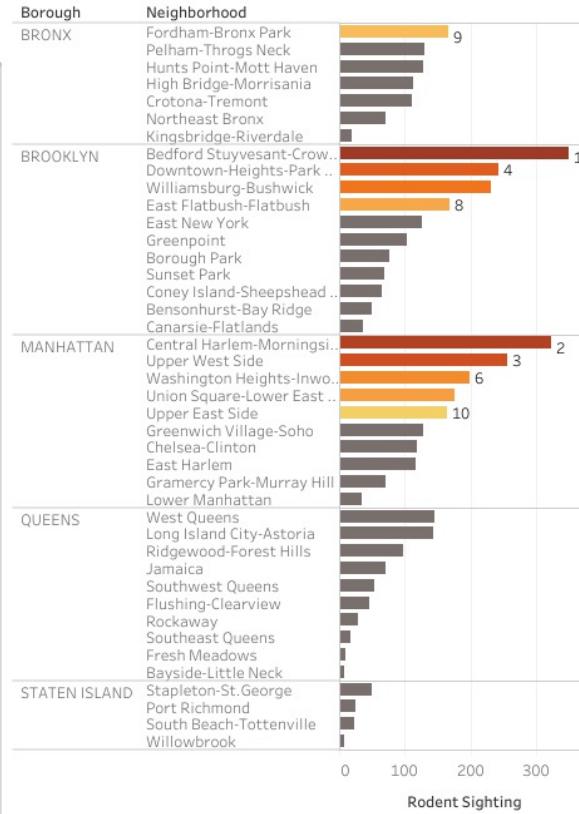
Rodent Sightings in NYC and Restaurant Locations Map



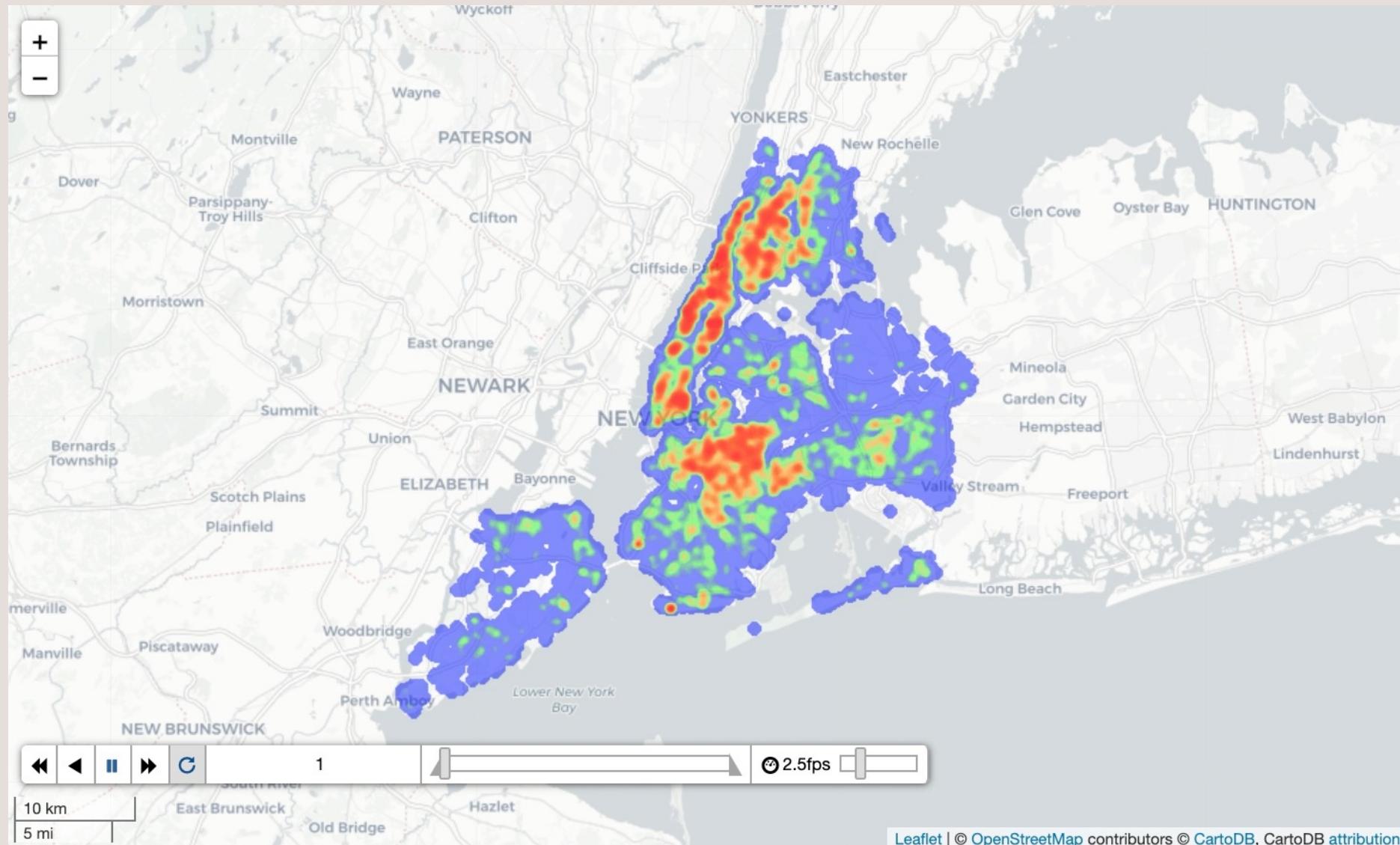
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	Hatfields
	House of Hookah
	JDs Saloon
	Krave It
	Kunst Coffee Haus
	Las Palmas Dominicanas
	Iims kitchen
	Local Pour House, Inc.
	Mad For Chicken
	MariaGCOs Mediterranean
	MOHO MEXICAN GRILL
	Momo Ashi Cafe
	Monahan & Fitzgerald
	Mr.pollo #1
	Nippon Cha

Rodent Sightings in NYC Neighborhoods

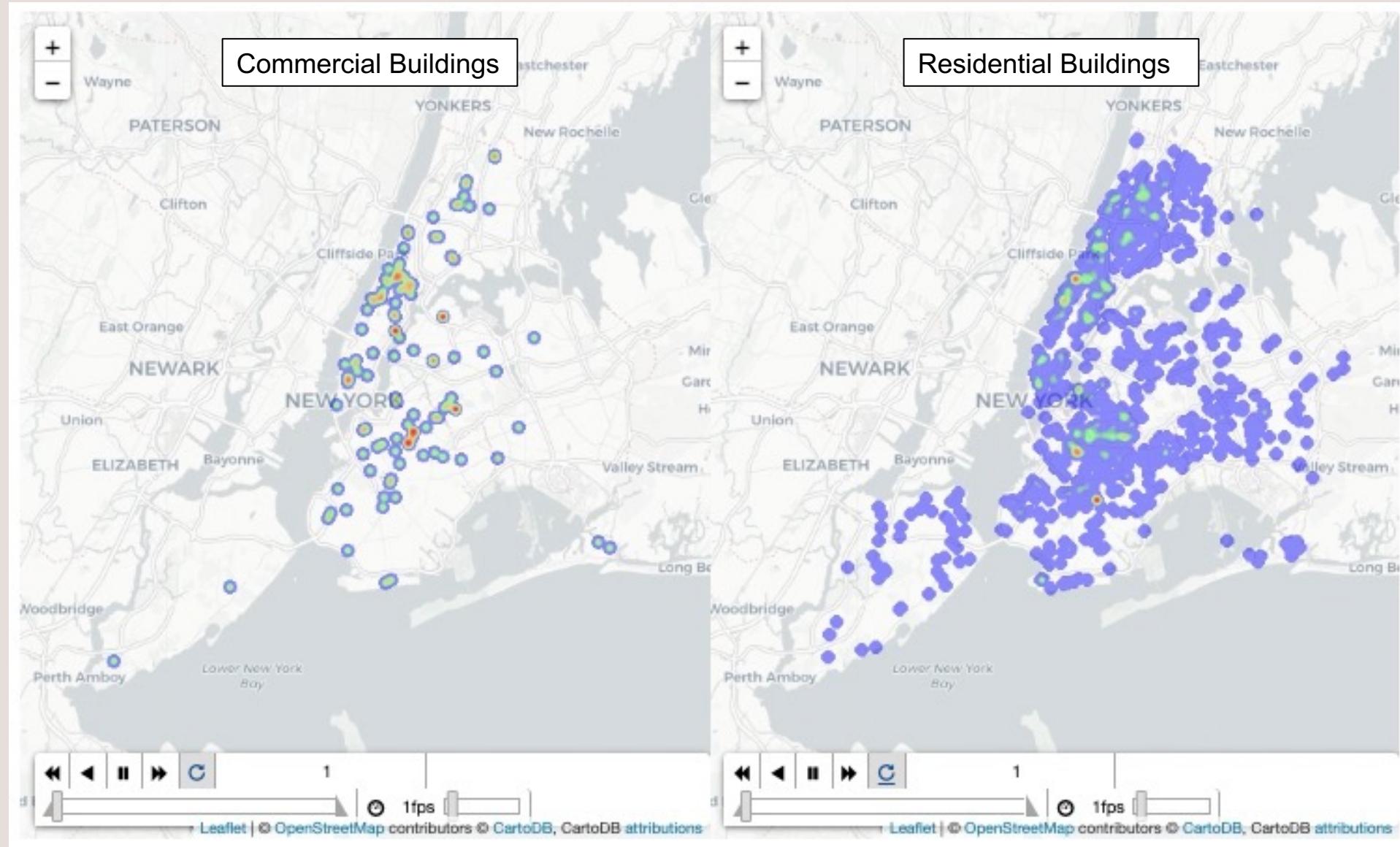


Appendix 4 - 2019 overall



Appendix 5

2020 Rodent Sightings Comparison



Appendix 6 – 2010 to present

