

USI SOCIAL IMPACT PROJECT
PROBLEM IDENTIFICATION SUMMARY
NYC Housing Violations and Tenant Awareness

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I. OVERVIEW

A. City of NYC Context and background

In May 2014, Mayor Bill de Blasio unveiled the *Housing New York: A Five-Borough, 10-Year Housing Plan To Protect And Expand Affordability*. One of the Mayor's priorities is to ensure the safety, quality, and habitability of the existing housing stock. In order to do this, the plan outlines an initiative to increase tenant awareness of how to report housing violations:

Well-informed tenants can help to ensure that violations, unsafe conditions, and other HMC¹ compliance issues in their buildings are reported so that they can be addressed in a timely fashion. Using posted notices and an extensive outreach campaign, we will inform tenants about how to identify and report unsafe conditions.²

A Department of Buildings (DOB) violation is a notice that a property is not compliant with some provision of applicable law.³ The city has set rules and regulations to hold landlords accountable for maintaining basic conditions and repairing malfunctions, and to incentivize keeping rent low.

The Department of Housing Preservation and Development (HPD) enforces the New York State Multiple Dwelling Law and the New York City HMC.⁴ HPD responds to complaints about the following conditions, as well as to complaints about mice, roaches, plumbing, broken windows, broken plaster, lightning/electrical issues, sanitary conditions, stairs and other basic building maintenance issues as well as rent and illegal occupancy issues⁵.

1. Heat and Hot Water
2. Carbon Monoxide and Smoke Detectors

¹ HMC stands for Housing Maintenance Code

² Source: <http://shnny.org/images/uploads/NYC-2014-housing-plan.pdf>

³ Source: DOB NYC <http://www.nyc.gov/html/dob/html/safety/dob.shtml>

⁴ Source: NYC HPD, "The ABC's of Housing"
<http://www1.nyc.gov/assets/hpd/downloads/pdf/ABCs-housing-singlepg.pdf>

⁵ *ibid.*

3. Removal of Double Cylinder Locks
4. Lead-Based Paint
5. Mold
6. Pests
7. Window guards
8. Elevators
9. Illegal occupancy such as basement or cellar with no proper living conditions
10. Landlord harassment of tenants in rent-controlled or rent-stabilized apartments

The City is currently exploring more ways to incentivize landlord participation. For example, J-51 is a tax incentive that encourages landlords to maintain well-functioning housing by installing heat and hot water systems in apartments and rehabilitating existing building systems.

B. Description of challenge or opportunity

Since the City collects data about housing complaints and violations, as well as data on building characteristics, there is the opportunity to identify locations where building violations exist or may exist, however, remain unreported. Identification of these locations will help the City better target their outreach campaign to have maximum impact. Finally, an understanding of the demographics of residents in these locations can help the City tailor their messaging to the audience (for example, larger font for older populations or translation for areas with high immigrant populations).

Although we have found no publicly available information about the budget allocated to this initiative, the City estimates the total cost of creating and preserving 200,000 units of affordable housing over ten years will be \$41.4 billion. The Mayor's 2015 budget proposes to more than double the HPD's annual capital budget.

C. Importance of action on the issue

This topic is important because building owners will more likely take responsibility for maintaining proper building conditions for tenants given greater likelihood of complaints. This will increase quality of housing for New Yorkers and housing equity in NYC.

II. OBJECTIVES AND GOALS

A. Problem statement

As an ideal, the City would benefit from having all its residents be aware of what constitutes a housing violation, know to report it, and act on it. Although there is

insufficient data to quantify a gap in knowledge and reporting, we believe that there can be improvement in certain areas.

B. Project objectives

The objectives of the project are to:

1. Help the Department of Housing Preservation and Development (HPD) identify which locations to target for their outreach campaigns
2. Provide demographic information about residents in those locations such that campaigns can be tailored to the audience

C. Conceptual approach and methods

To identify and understand areas where there are gaps in 311 reporting, the project will conduct the following analyses using Python and spatial analysis tools (such as ArcGIS, CartoDB, and/or Tableau):

1. **Comparison of complaints and violations** - where do violations occur without associated complaints?



2. **Comparison of complaints and predicted violations** - where do we predict violations to occur based on building characteristics without associated complaints?



3. **Identification of demographic characteristics of these locations** - what can we recommend to make the outreach campaign more effective based on what we know about the residents?

D. Description of proposed end analysis products (including format)

The project will produce following analysis products:

Category	Description	Format	Additional Notes
Chart	Numerical data summary	- CSV - Image file (.png or .jpg)	Based on the raw data from complaints and violations, and model built for predicted violations
	Statistical result summary	- CSV - Image file (.png or .jpg)	Demographical characteristics of identified gap areas
Map	Map of complaints	- Shapefile (.shp) - Image file (.png or .jpg)	
	Map of building violations		
	Map of predicted violations		
	Overlay map of gaps between complaints and violations (actual and predicted)		Target campaign locations
Interactive	Interactive maps and data representation	- Web-based	

III. DATA INVENTORY

A. Sources, type, and size of data

This project will use data from four sources:

Source	Description	Type	Date / Period	Size of data	Access
311 / HPD	Complaints pertaining to housing violations	CSV	2003 - 2015	547,150 rows	NYC Open Data
DOB	Housing violations	CSV	TBD	TBD (larger than 300 MB)	NYC Open Data
PLUTO	Borough, block, lot (BBL) attributes	CSV and shapefiles	Updated as of June 2015	50.4 MB (CSV), 11.7 MB (shapefile)	NYC Planning
American Community Survey (ACS)	Demographic characteristics by location	CSV	Released in 2014	TBD	US Census Bureau

B. Method of access

The methods of access for each data source are detailed in the table above. All data required is open and available to the public.

C. Limitations or Risks

There are some potential limitations to both approaches we plan to take in identifying locations where there is a gap in knowledge of housing violations and how to report. Approach 1 compares complaints and actual violations. Actual violations may be largely influenced by complaints if this is how inspection resources are allocated. Approach 2 compares complaints to predicted violations. The predictive power of our model is uncertain and cannot be accurately validated. In order to mitigate the effects of these weaknesses, we will use both approaches and compare the results.

Another limitation of the scope of work detailed in this summary is achieving the level of granularity that would be most useful. While information at the residential building level would be most helpful, it may be necessary to aggregate data for a geographic area/block in order to build a more meaningful model.

Finally, we consider the risks to identifying particular buildings as targets for the outreach campaigns. Rather than using the results of our analysis to conduct outreach, DOB may use the information to conduct inspections in the identified areas. This would not further the City's push to increase tenant awareness of housing violations and how to report them. Action without the presence of civic participation may send a message to residents that complaints are unnecessary or ineffective.

IV. ADDITIONAL CONSIDERATIONS

A. Ethics and Privacy

The data used will be obtained from NYC Open Data and has already been reviewed for privacy issues. Throughout the course of the project, the team will re-evaluate to determine if there are any additional ethics or privacy considerations to address.

B. Resource needs

In order to effectively evaluate the effects of the outreach campaign, we suggest implementing A/B testing. By maintaining a control and treatment group, it will be possible to measure the effect on housing violation complaints. Additionally, it may be possible to optimize poster design/placement/messaging.