

## **DELIVERABLE 1**

### **What would we define as affordable?**

"Affordable" seems to be a subjective term for families with a wide range of incomes. However, to have a general understanding of affordable housing, it would be helpful to say that any housing which costs 30% or less of the total income for a person/family, would be considered affordable.

To efficiently be able to compare the diversity in the incomes of the same neighborhood, we use the Area Median Income. It is the median income of a neighborhood calculated by taking the income of a household that falls exactly in between the highest and the lowest incomes of a neighborhood. \*Explain what would be on the left and the right side of the median income\*.

According to most sites and government resources, we would take into account two types of income categories for whom finding an affordable home may be a daunting task:

1. Income restricted: Income-restricted housing is reserved for households earning below a certain income. Eligibility is based on household size and total income.
2. Low income: Low income households usually fall under 80% of the AMI. Extremely low income households fall under 30% AMI.

### **Lack of affordable housing**

1. Rents increased dramatically over the past few years and are continuing to rise. Average rents for family-size units (3-bedroom) have increased by 30% over the past two years, from \$2,131 to \$2,767 per month. Rents for units of all sizes have increased by 32% (on average) or more.
2. Rents in Allston Brighton for a three-bedroom household would require a family earning \$52,795 (the median household income in the neighborhood) to pay 63% of its monthly income in rent, 33% more than the generally recommended 30% of income. Rent for a 1-bedroom apartment would exceed the entire gross pay of a full-time worker earning the minimum wage (\$21,120/year earned- \$21,612 rent only).
3. Although new construction is occurring elsewhere in Boston, the lack of vacant land in Allston Brighton makes it nearly impossible to increase the affordable housing stock significantly. There is also currently only one developable vacant lot owned by the city.

## Reasons behind the struggle to find an affordable home

### Students

D9, which includes Allston and Brighton, is the hotspot for students attending Boston University, Boston College and Harvard Business School. Here is a look at the total number of students (graduate and undergraduate) who got enrolled from 2019 to 2021 at these three places (Fig. 1).

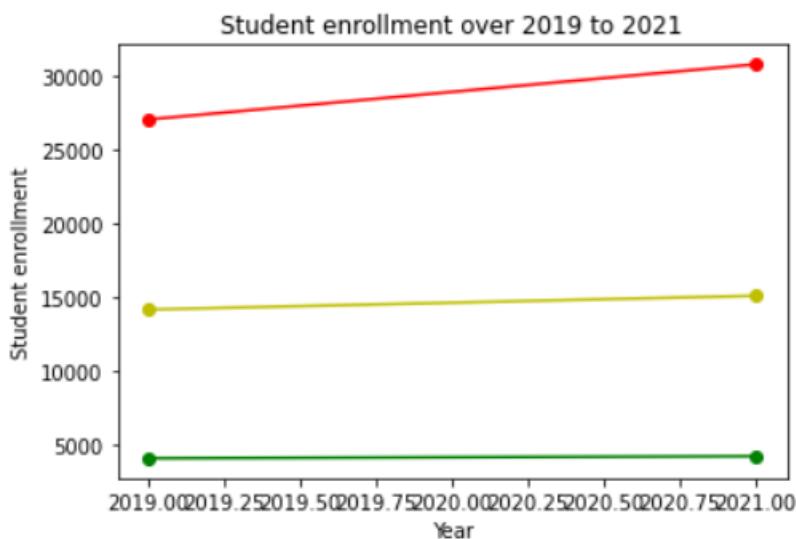


Fig. 1. Student enrollment. Green line: Harvard University; Yellow line: Boston College; Red line: Boston University.

Over the period of 3 years, there was an increase of 3.6% in the number of students who got enrolled at Harvard University. There was an increase of 6.5% in the number of students who got enrolled at Boston College. There was an increase of 13.8% in the number of students who got enrolled at Boston University. Rise in the number of students leads to a fall in the vacancy rate of apartments (since most students prefer living in the Allston-Brighton area), thereby increasing the rent.

Currently, there are a total of 30760 units of off-campus apartments occupied by students. As per the definition of off-campus apartments, we only included those that live in a non-school-affiliated apartment. Local students living in their parents' homes are also excluded. Data of this count comes from the 21-22 University Accountability Reports.

### Impact of State Policies

Several factors, including changes in local, state, and national policy, have contributed to the overall increase in Allston Brighton rents. In 1994, a state referendum ended rent control in Boston. Property owners could impose dramatic rent increases on units of previously rent controlled housing. The end of rent control also permitted increases in rents on current tenants.

As a result, many elderly residents and low-income families were displaced. However, there have been policies designed and utilized in different cities across the country to help re-stabilize and grow affordable housing stock.

**Rent for Allston Brighton Households at 30% of Area Median Income for Rent with Section 8 Subsidy**

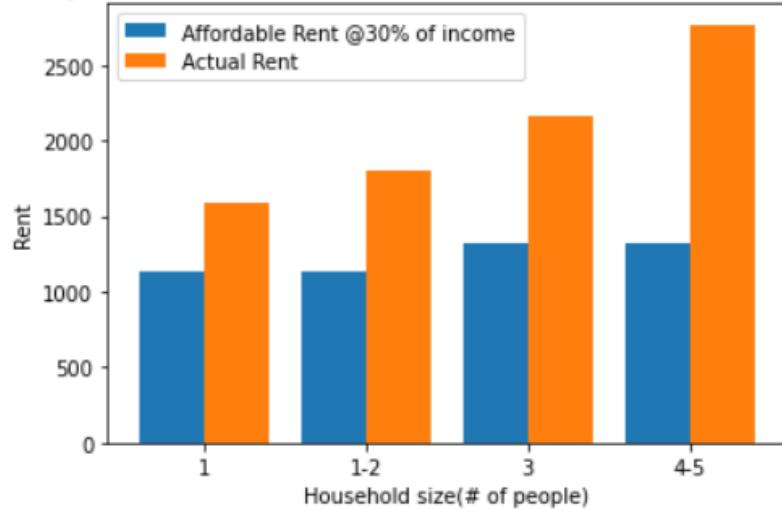


Fig. 2. Graph representing the value of a house based on 30% of the AMI vs how much they actually cost.

There is an extreme difference in the actual and affordable rent prices for a 3 people household and a 4-5 people household relative to the former two. This shows that there are no rules or policies governing rent control, making it extremely difficult for families to find an affordable place to live in (Fig. 2).

#### **Distribution of affordable housing inventory in D9 based on AMI% and # of units**

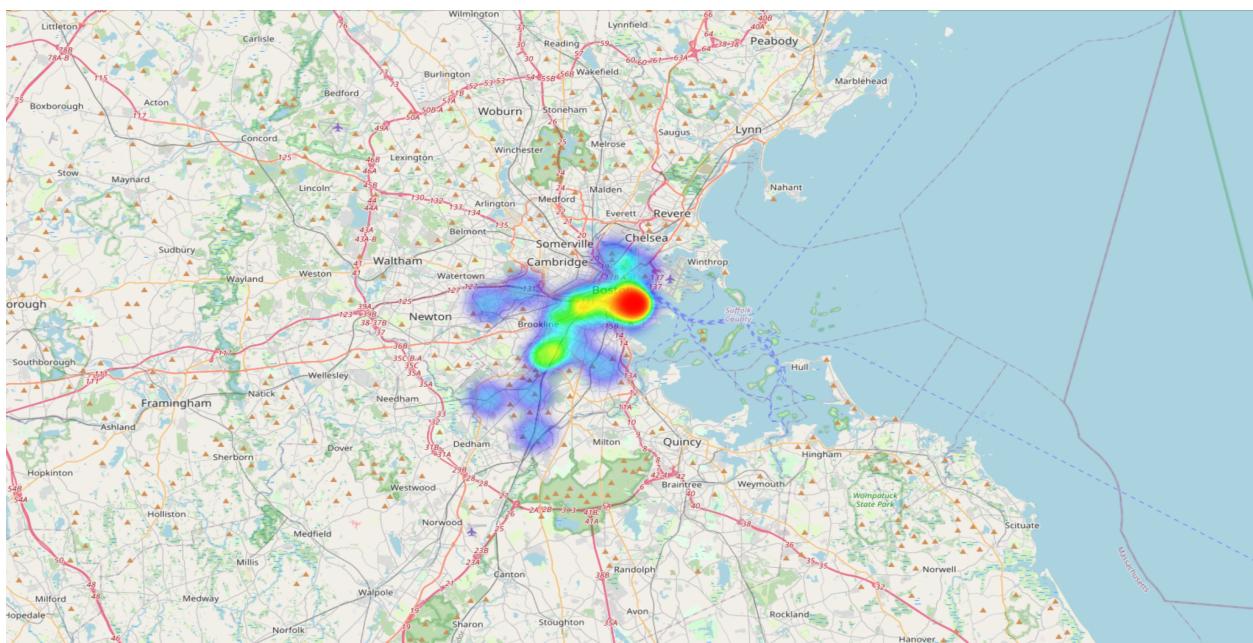


Fig. 3. Heatmap for the number of units in AMI 0.5 to 0.8.

Based on the AMI and number of units, we plot such a map as shown in Fig. 3. Typically, it shows the distribution of the number of units in a given range of AMI (0.5-0.8) in Boston. From the heatmap, one can observe that the number of units is high in the Downtown area for AMI from 0.5 to 0.8. There are lots of units tracked in the Back Bay and Fenway-Kenmore area as well. The distribution is sparse in the edge of Boston.

### **Income restricted housing: Trend over time**

By definition, income restricted housing refers to those that require tenants to have an income that's below certain levels. At the same time, rent will be capped at an affordable level. The city of Boston has the highest percentage of income restricted housing of any major city in the country. The total number of available units has seen a steady increase over the past, and the city continues to make an effort in increasing that number in the future, as reflected in the continued permission and completion of new income restricted housing units. As the population of students and other groups that qualify for income restricted housing continues to grow, it is reasonable for the city of Boston to dedicate a considerable amount of attention and resources to address their housing needs.

Data sampled from 2018, 2020 and 2021 respectively have shown us the change in number of available units for income-restricted housing in Brighton (zip code 02134) and Allston (zip code 02135) in Fig. 4:

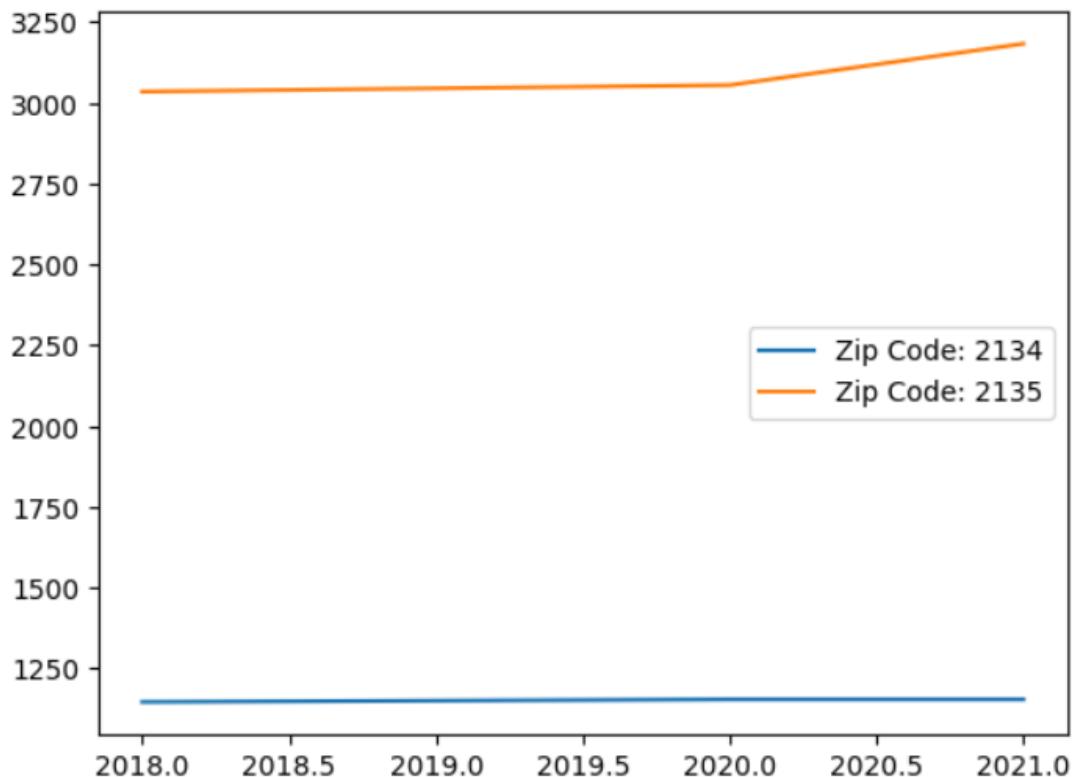


Fig. 4. Changes of available units over time.

From the figure, it is clear that Allston experiences a higher growth of available income-restricted housing inventory over the three years (4.9% growth), while Brighton's number stays steady overall (0.7% growth).

### Insights from the Approved Building Permits database

The [Approved Building Permits](#) database provides information about units/properties that acquire building permits for construction, demolition, modification and repair work. We are mainly interested in the **declared valuation**, **total fees**, **square footage**, and the **location** of these properties that have applied for any kind of permits. Fig. 5 shows the heatmap distribution of the declared valuation of the constructions, while Fig. 6 shows the heatmap of the total fees incurred for acquiring the permits in the Allston and Brighton neighborhoods.

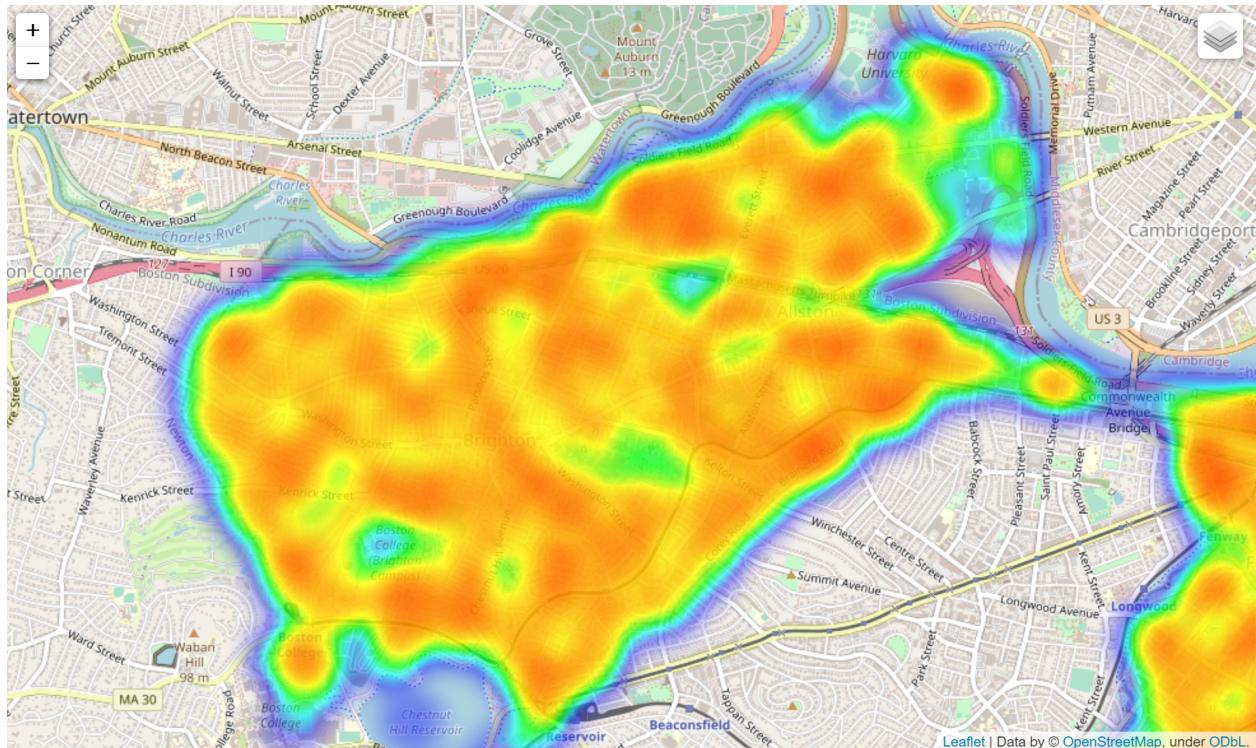


Fig. 5. Heatmap for “declared valuation” of the constructions.

The heatmaps in general look very uniform, with rarely certain parts either lower in valuation/fees or higher than the average in the locality. **In the analysis of the permit database further, we see that Allston and Brighton have very similar metrics.** In contrast, we show the heatmap plot for declared valuation, this time including places like Downtown Boston in Fig. 7. This figure shows the extent to which the Allston/Brighton region is evenly distributed in terms of construction valuations.



Fig. 6. Heatmap for “total fees” of the permits.

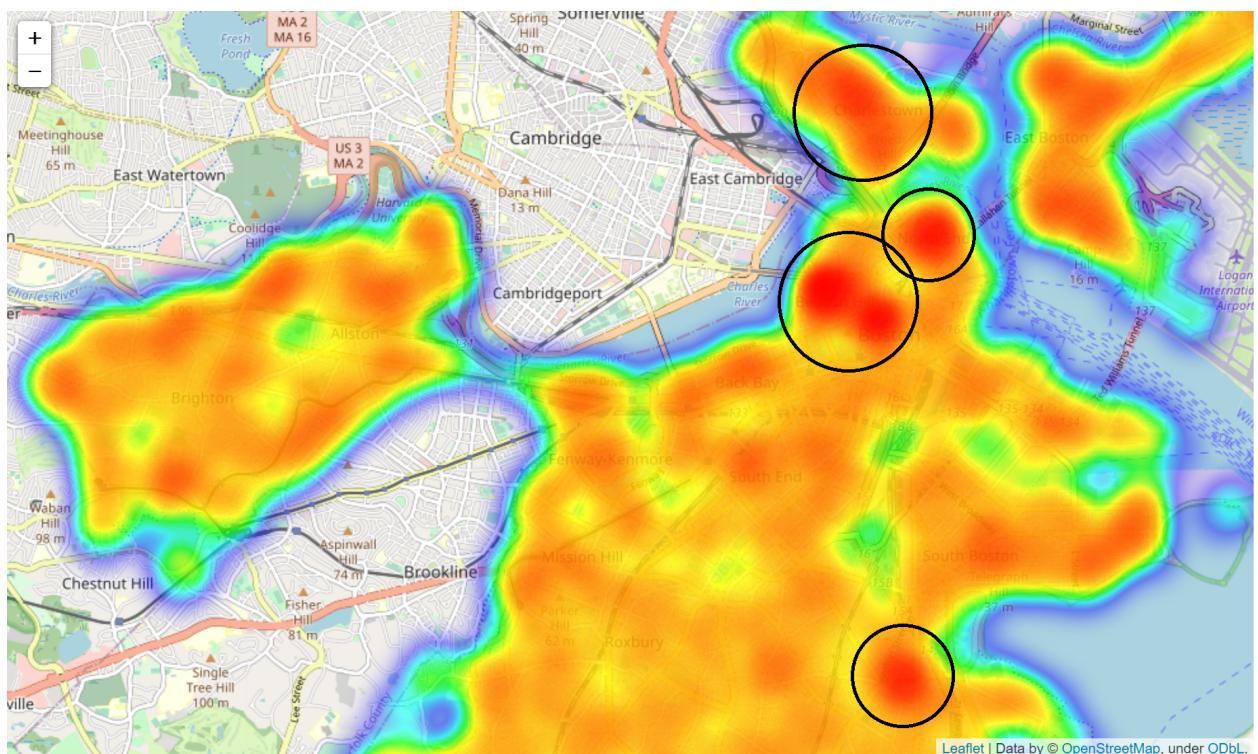


Fig. 7. Zoomed out heatmap for declared valuation.

The reason we look at declared valuation or fees for properties is because we hypothesize that properties that have had a higher investment in terms of construction or renovation would also have higher rent and thus lesser affordability. Moreover, rented properties are less likely to have construction of higher values, and this is in compliance with the plots that show that the Allston/Brighton region do not have constructions of high values mainly because we know from our preliminary investigation that the majority of the residents in Allston/Brighton are renters.

Now, we look at the average declared valuation and total fees for the permits acquired in all of Boston per neighborhood. The plots in Fig. 8 and 9 show that the **Allston and Brighton areas have similar average prices of construction and fees**, and that there is a **high variation in all other neighborhoods**. As is expected, more established and affluent regions such as North End, West End, and Downtown, have higher values in the bar. The locations that did not match our filters were categorized as “Unrecognized location”, as the names of the neighborhoods were input in a very unorganized manner. One important thing to note here is that the prices indicated here are not adjusted for inflation, as the data can be as old as 2012, however most records are from recent times (post 2017).

Now, in Fig. 10 we look at the average square feet of the properties in all neighborhoods of Boston. It can be seen that a lower sample size often results in very large or very low values, while when the number of samples is much higher (say, over 10k), that is when we see the average values closer to the truth. This can be seen in the properties of South End and Back Bay, which have very high average sq. ft. because of low sample size (under 100). A heatmap for the average sq. ft. is also shown in Fig. 11. From the figure, it can be seen that certain areas like Charlestown have properties with higher average sq. ft.

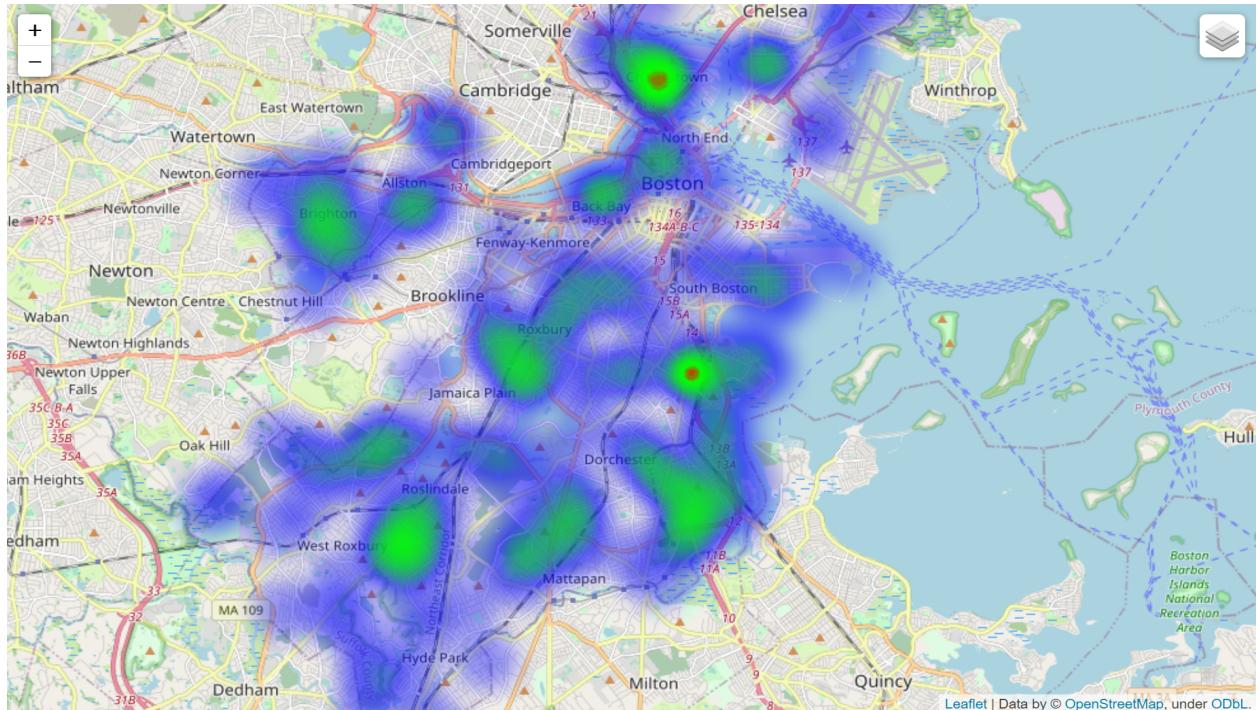


Fig. 11. Average sq. ft. of properties in Boston.

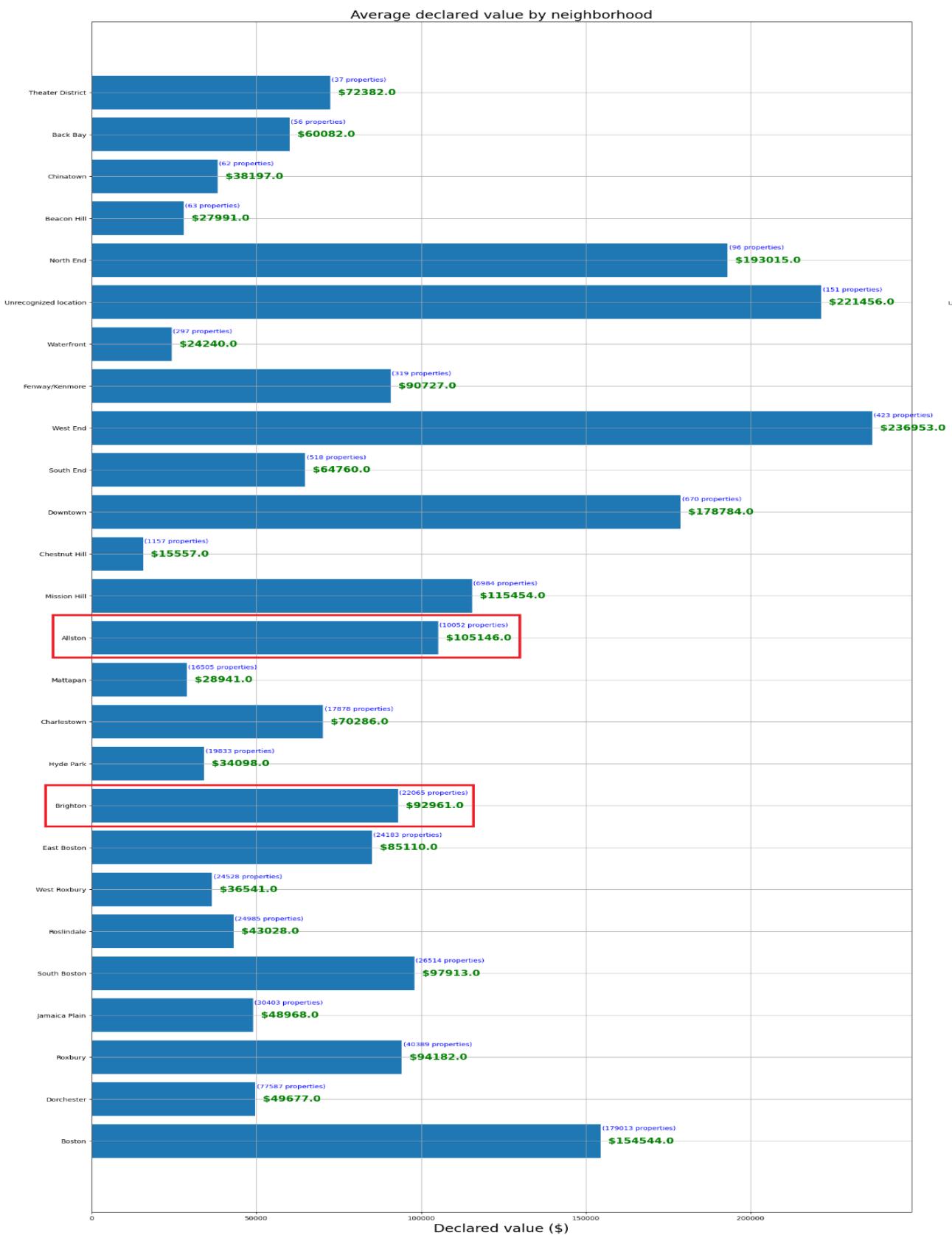


Fig. 8. Average declared value for all neighborhoods in Boston.

Average total fees by neighborhood

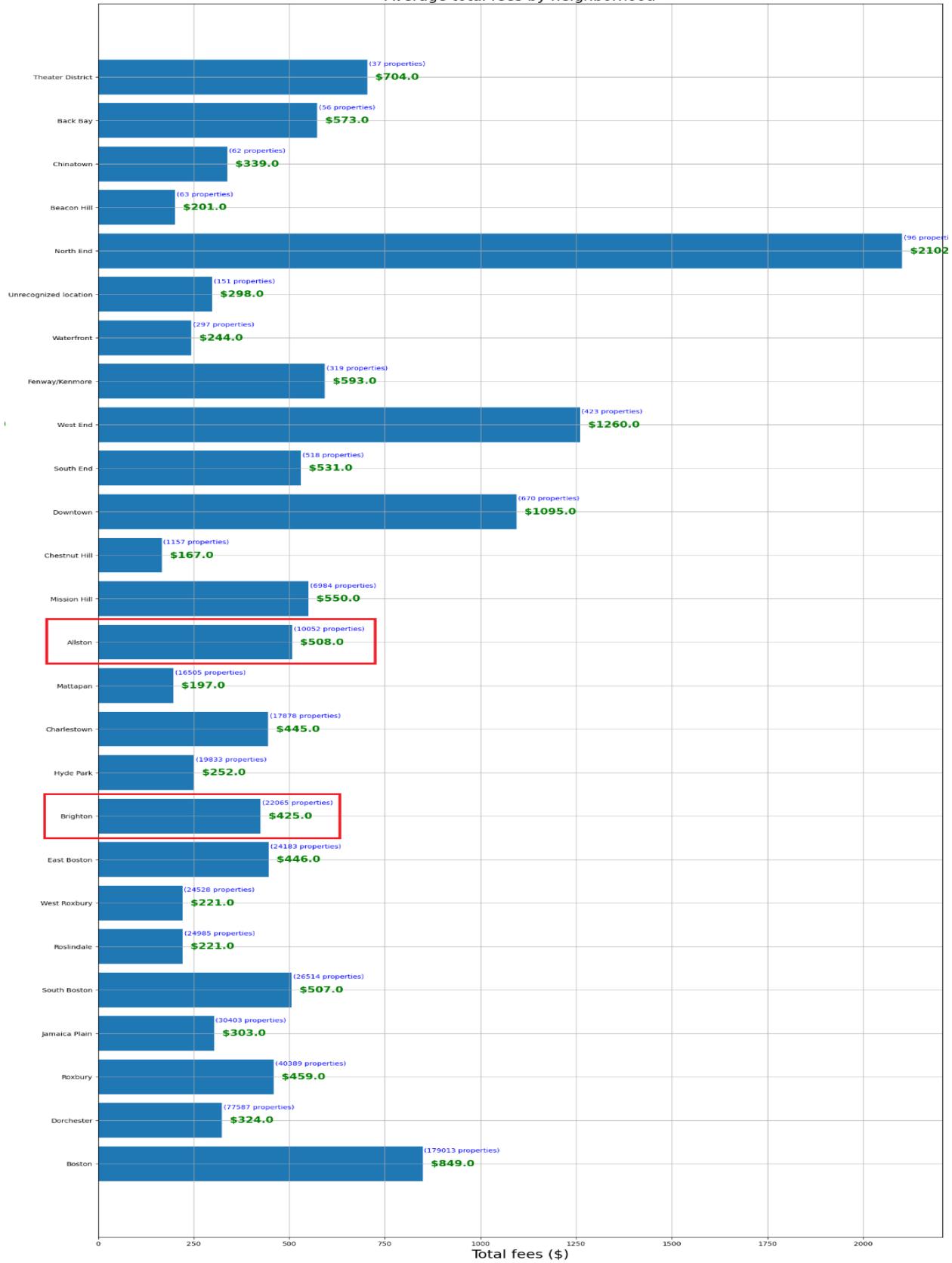


Fig. 9. Average declared value for all neighborhoods in Boston.

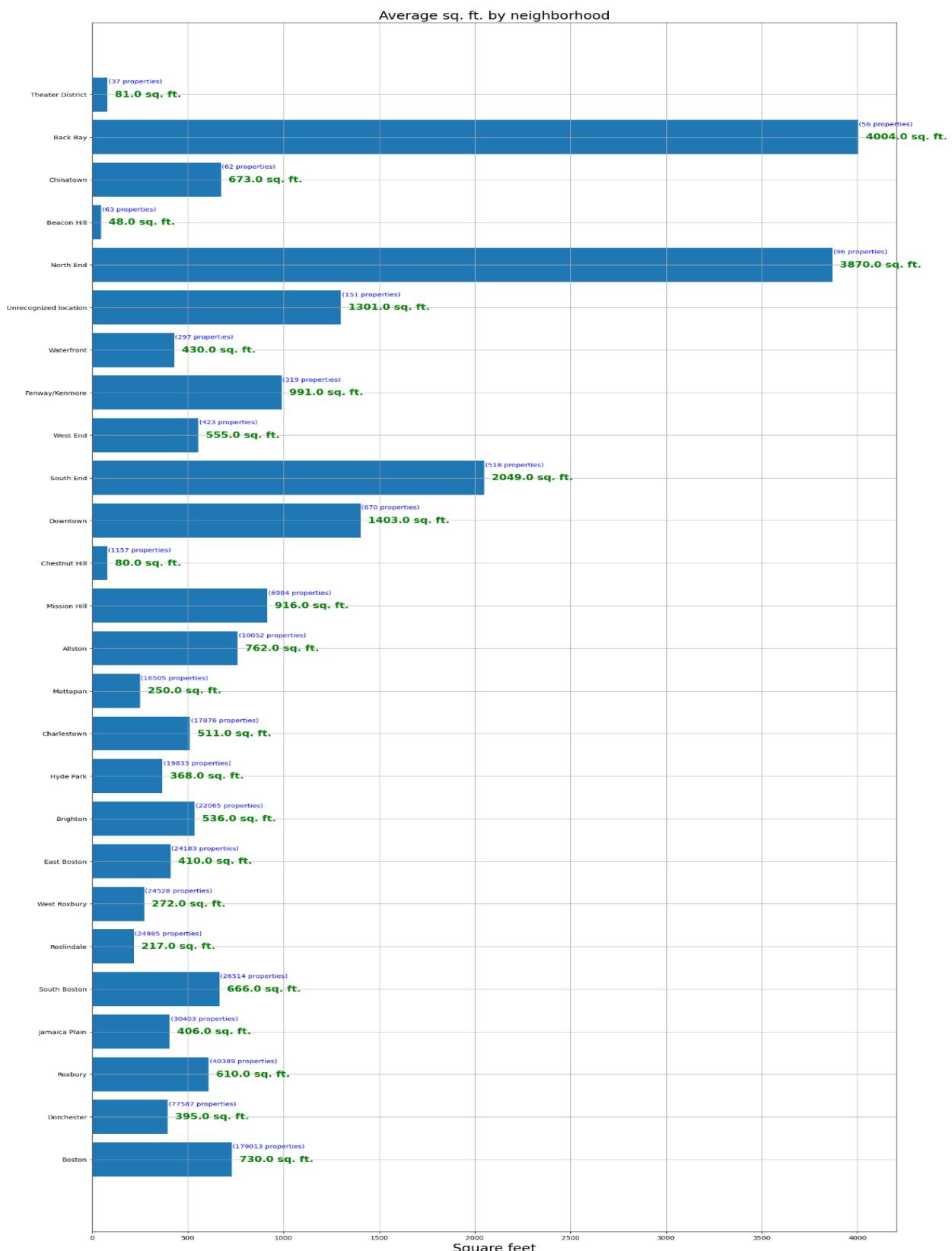


Fig. 10. Distribution of average sq. ft. of properties across neighborhoods.

## Top 10 owners with most violations and properties with most overdue service requests

### Understanding “bad landlords” and bad “properties”

We used the [RentSmart](#) and the [311 Service Requests](#) datasets to produce a list of owners and properties that have the most violations and overdue service requests, respectively. The most violations plot is divided into two, a) enforcement violations, and b) other violations (housing complaints, sanitation requests, civic maintenance requests, civic maintenance requests, building violations, and housing violations). This is shown in Fig. 12 and Fig. 13. We have plotted the top 10 owners with the most number of violations post 2016 and categorized the plots into different types of violations. In a similar fashion, we have plotted the top 10 properties that have had the most overdue service requests in Fig. 14.

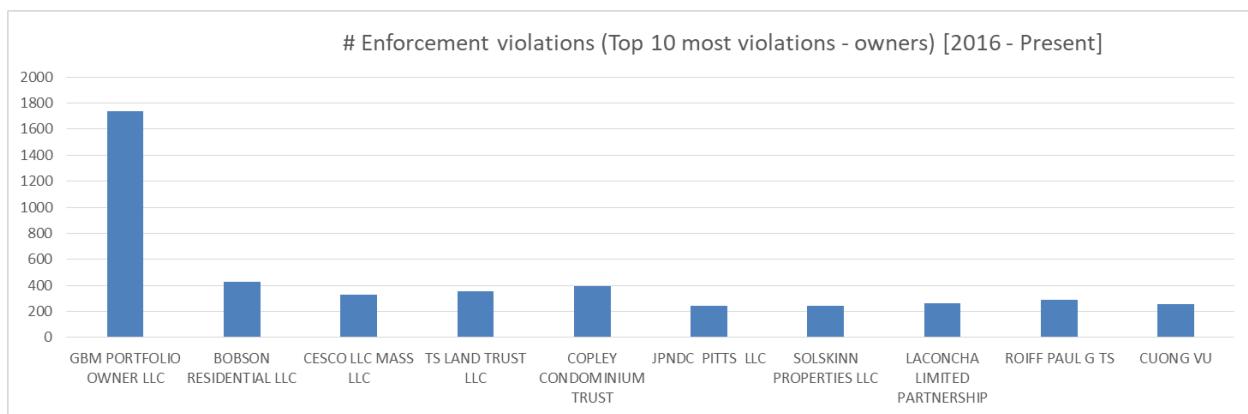


Fig. 12. Top 10 owners with the most number of enforcement violations.

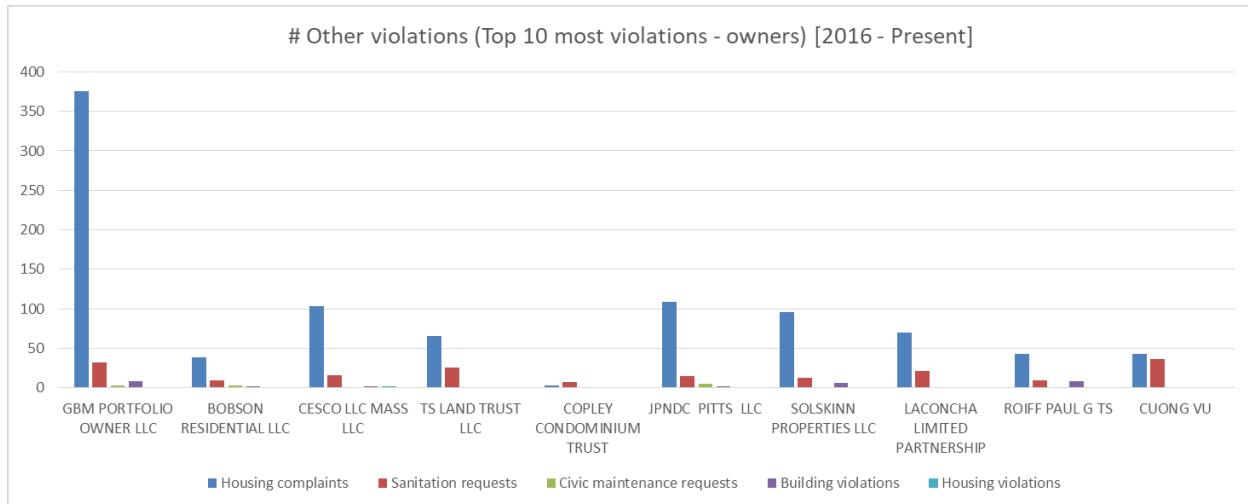


Fig. 13. Top 10 owners with the most number of other violations.

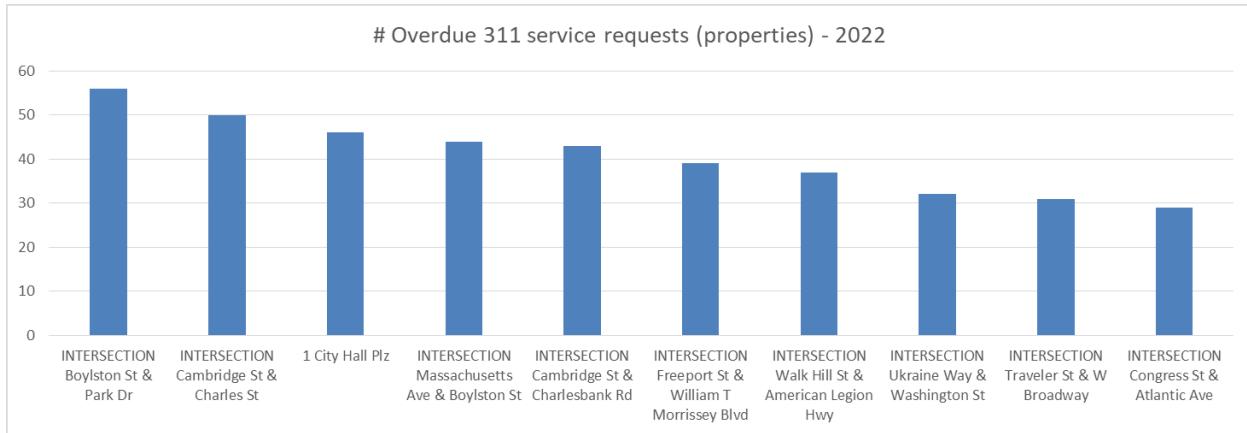


Fig. 14. Top 10 properties with the most number of overdue service requests in 2022.

We could not find a mapping from the properties to the owners in the 311 service requests dataset and hence could not provide a list of landlords that own properties with overdue service requests, however, we hope that having the names of these properties would be enough to help provide a better idea of how well a certain unit is maintained.

### **Missing information**

Locations for certain properties

Missing declared valuation of certain construction sites

### **Changes to the target of the base project?**

- Likelihood of rent increase for the year (Dashboard)
- Affordability index in D9
- Dashboard to show bad landlords and property violations

We would like to develop a dashboard for affordability index in Allston and Brighton by also including information about property violations (such as enforcement violations, housing and sanitation complaints, building violations, etc.) along with a history of violations of all the other properties of the lessee/owner.

### **What can still be discovered during the project in the future?**

Using the RentSmart dataset on AnalyzeBoston, we can get the names of landlords (mapping from address to landlords) and also the top 10 properties with most violations. We can have a heatmap distribution to indicate where most property violations occur.

We can also find out about future development projects to be covered by the Boston government and include an analysis.

As per the client meeting on 17th October, the project will be pivoting towards bad landlords and property violations. We will be brainstorming on how affordability is related to bad landlords and

property violations. This deliverable does not entirely focus on it, but we have included a brief analysis of the points to be included for what needs to be included in the final deliverable.

## **Sources**

<https://allstonbrightoncdc.org/wp-content/uploads/2019/05/FINAL-Rising-Rents-Closing-Doors-Report.pdf>

[Income restricted Housing report 2020](#)

<https://www.boston.gov/affordable-housing-boston#income-restricted>

[Boston Affordable Housing Stock Data](#)

[Income restricted properties in Boston \(Analyze Boston\)](#)

[2019-2020 University Accountability Reports](#)

[2021-2022 University Accountability Reports](#)