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# FINAL REPORT:

# REMODELLING AND UNIT LOSS IN BOSTON

## TEAM - A



# AGENDA

- **Review Of Base Questions From Previous Reports**
- **How is the rate of renovations in each community related to the annual variation in housing availability?**
- **What contributes to the large changes in housing units in areas like Hyde Park or the South End?**
- **What neighborhoods have experienced the most significant reduction in available units due to the conversion of multi-unit properties into single-family residences by higher-income, and what factors contribute to this trend?**
- **Future Questions**



# REVIEW OF OUR BASE QUESTIONS





# Which communities are building and losing units?

- Significant increase in units in areas like South Boston, Central Boston and Dorchester
- Large decrease in **Mattapan** (not necessarily due to renovations).
- Areas like **Roxbury, Dorchester, South Boston, East Boston** saw increase in priority towards safety improvements with significant renovation changes.
- Trend in multi-family(R4) and single-family(R1) units with simultaneous **increasing R1** units and **decreasing R4** units

# Where are renovations happening and how does it affect available housing units?



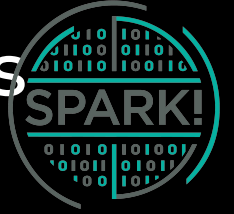
- There is an average annualized of **9173 approved permits per year** from collective **renovation-related permits**.
- Consistently, **Central Boston, Dorchester, and Back Bay/Beacon Hill** have the **most renovation-related permits** being approved.
- Residential type with **most properties changed** was shift from **2 unit to single family** properties.
- **Most unit loss** occurred in **South End, Back Bay, and Charlestown**



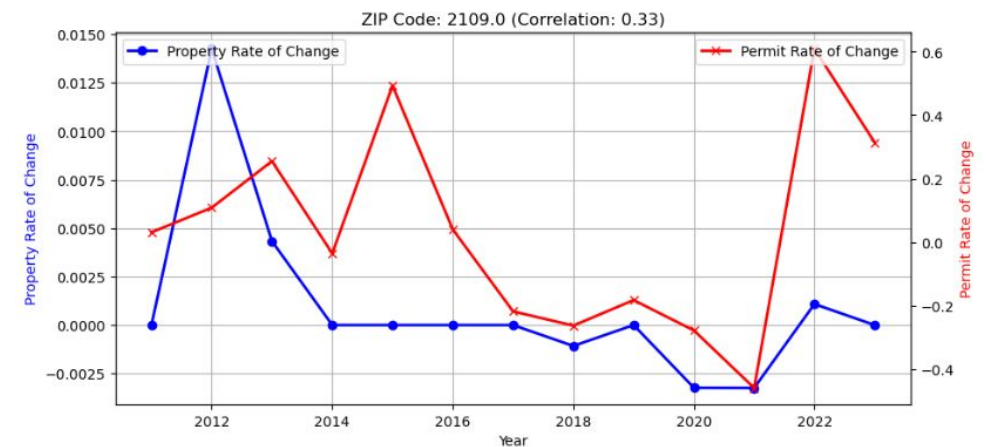
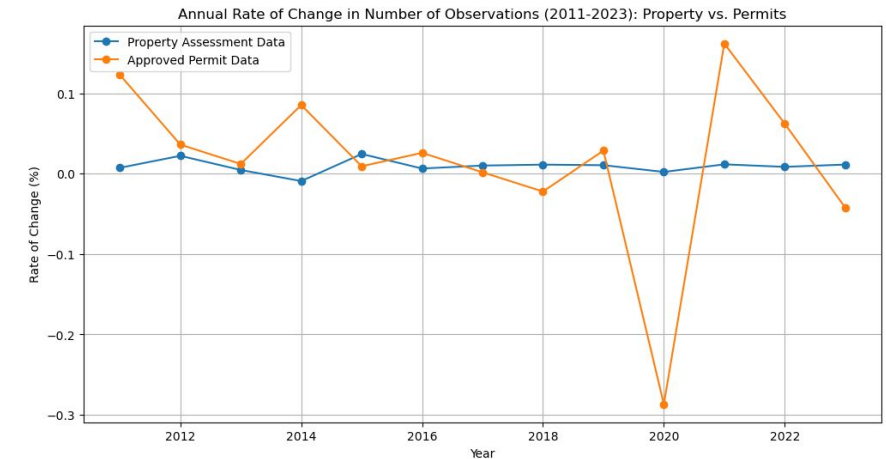
How is the rate of renovations in each community related to the annual variation in housing availability?



# Relationship between approved permits and properties year over year



- There was a **0.086 correlation coefficient** between number of permits issued and the increase of housing units for the city as a whole, indicating a very weak correlation
- Analyzing this relationship by zip code: **02109, 02119, 02130, 02136, and 02124** all had a ~ **0.3 correlation coefficient**
- **02109** exhibited the strongest correlation at **0.33**
- These results suggest that in certain areas there may be a relationship between the issuance of renovation permits and the rate of housing increase.





# Weighted unit process

- 1 property assessment observation does not necessarily equal one unit.
- LU is a variable that specifies the property type.
- To create more nuanced analysis, we weighted each observation by its LU code.

## LU WEIGHTS

'A'	7
'R1'	1
'R2'	2
'R3'	3
'R4'	4



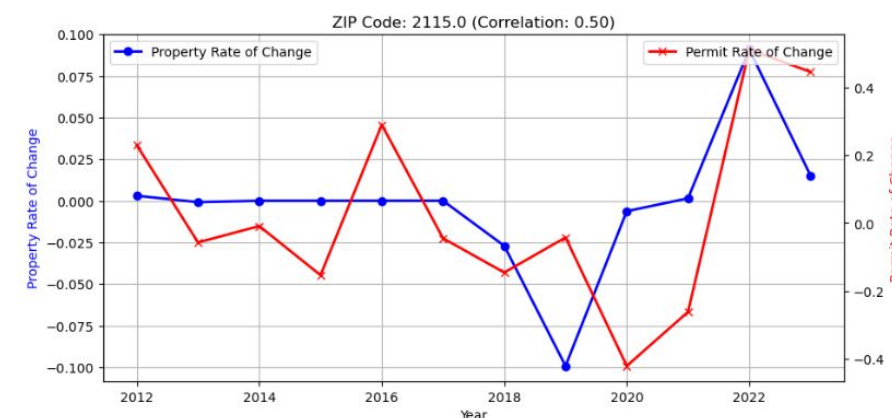
# Relationship between approved permits and available housing units year over year(*Weighted*)



- **02115** was the zip code with the highest correlation of **0.5004**
- Thus 02115 has the strongest relationship across Boston between approved permits and number of units.
- Other relevant zip codes were 02136, 02120, 02124, and, 02122

## Most correlated zip codes

02115	0.5004
02136	0.3634
02120	0.3621
02124	0.3503
02122	0.3101



# Key Points



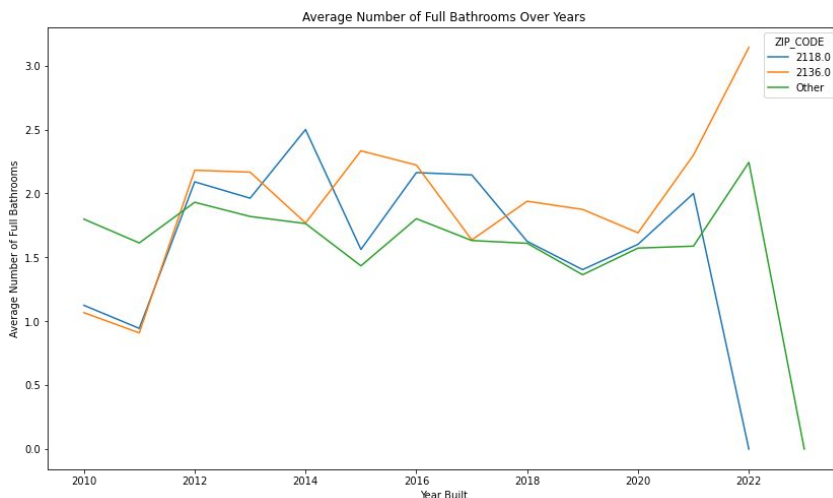
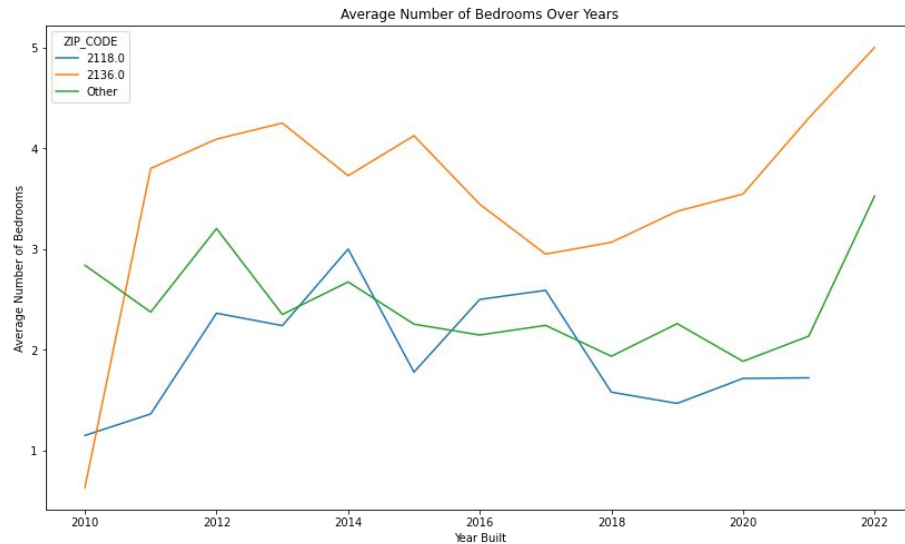
- There exists a **moderate correlation** between the rate of approved permits and rate of change of units in zip code **02115**
- Thus to answer our question, historically an increase in renovations(approved permits) is associated with an increase in the number of available units within 02215
- The weaker correlations within most of the other zip codes implies that there is not much of a relationship between the two variables outside of 02215
- This tells us that another variable may help explain a stronger relationship with the annual variation in housing availability



Factors that lead housing availability in areas like Hyde Park  
and the South End.

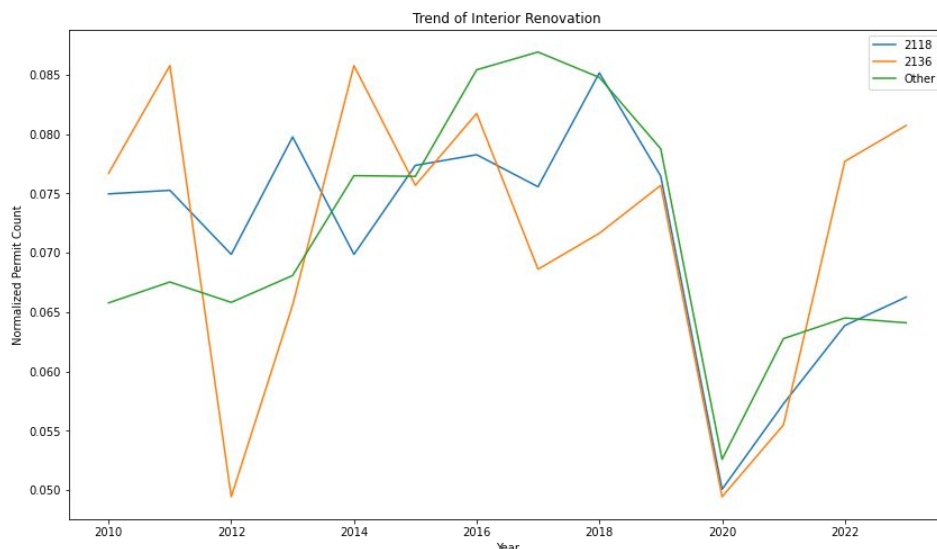
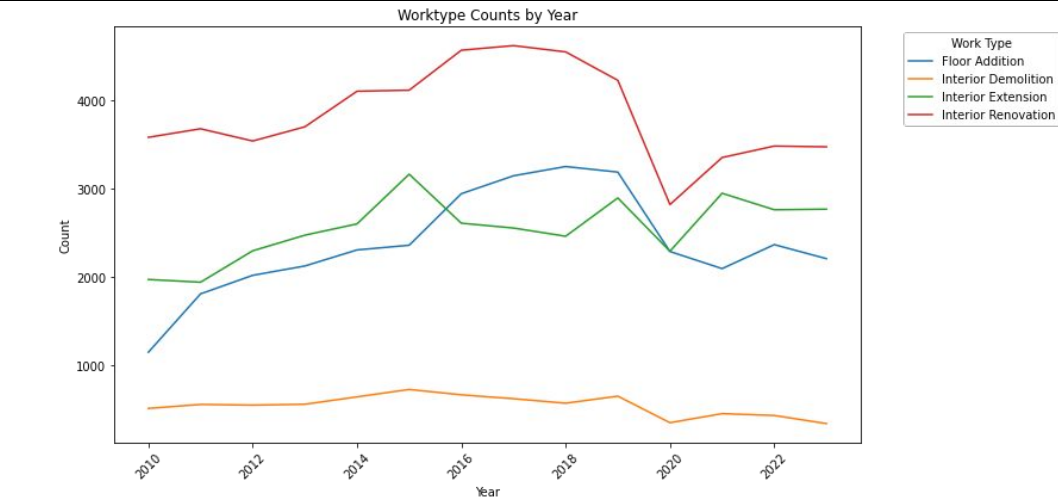


# Factors that lead to substantial shifts in housing availability in areas like Hyde Park



- Hyde Park (zip code 02136) shows a significant increase in bedrooms and bathrooms compared to South End (zip code 02118) and all other zip codes
- Factors driving an **increase** in bedrooms and bathrooms include changes in family size, income levels, or lifestyle preferences.
- Factors driving a **decrease** include shift towards smaller, more compact living spaces, reflecting factors like urbanization, affordability concerns, or changing household compositions.


# Analyzing the Trend of Permits Impacting Housing Availability



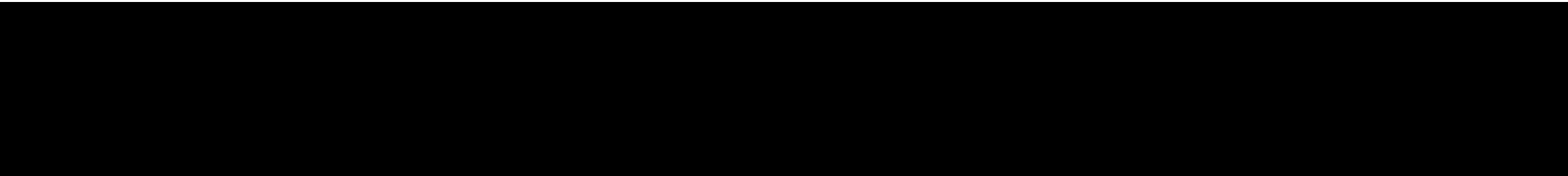
- Analysis on permits that may affect housing units like interior renovation, floor addition, etc.
- The factor that impact the most housing units are from interior renovations
- Visualisations comparing interior renovation permits trends in South End(2118), Hyde Park(2136), and all other zip codes through a **normalized graph**

## Key Points

- We looked at factors and permits that relate to changes in housing availability
- Significant increase in housing availability in Hyde Park while our initial understanding that South End also had a significant difference is refuted

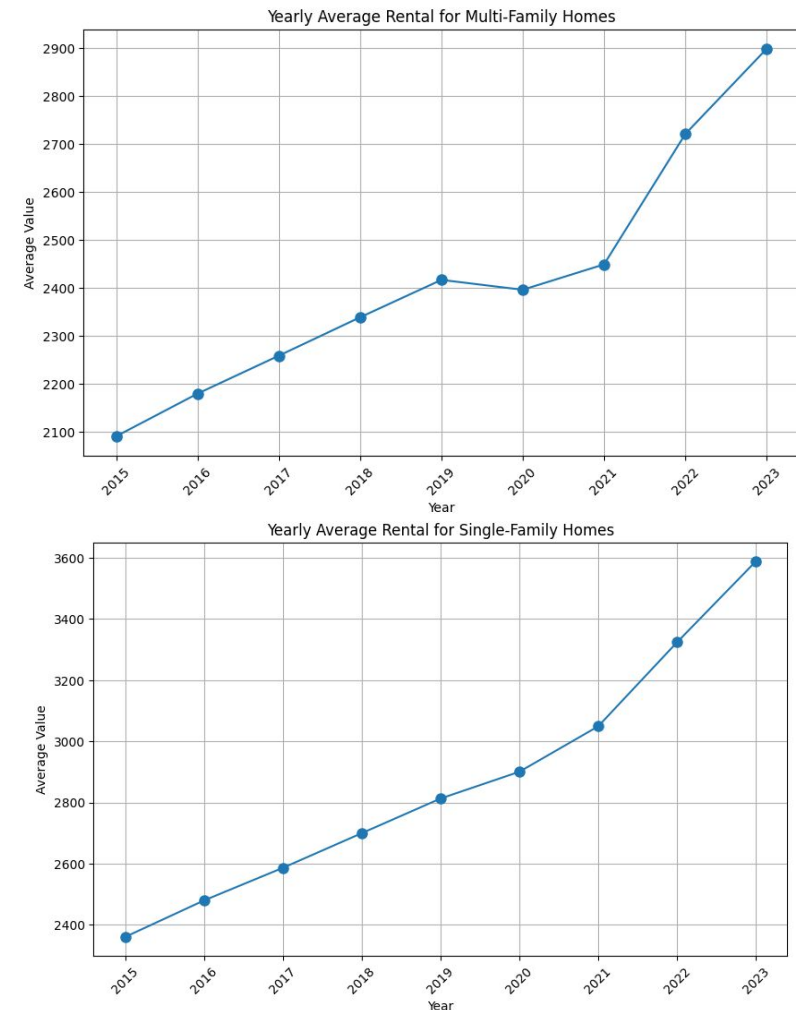


Which communities have the most significant reductions in housing units due to conversions of Multi-unit properties into Single-family homes by higher-income residents?



# Which communities have the most significant reductions in housing units due to conversions of Multi-unit properties into Single-family homes by higher-income residents?

- **ZIP code 02115** shows the highest rate of conversion. This area includes the neighborhoods of Fenway, Kenmore, and Back Bay which are highly desirable locations for affluent buyers
- **ZIP codes 02136, and 02124** also exhibited high rates of unit conversion to single-family residences
- We found there to be an **annual average of 410.68 units** lost per year to housing conversion, emphasizing the impact of these unit conversions on housing availability



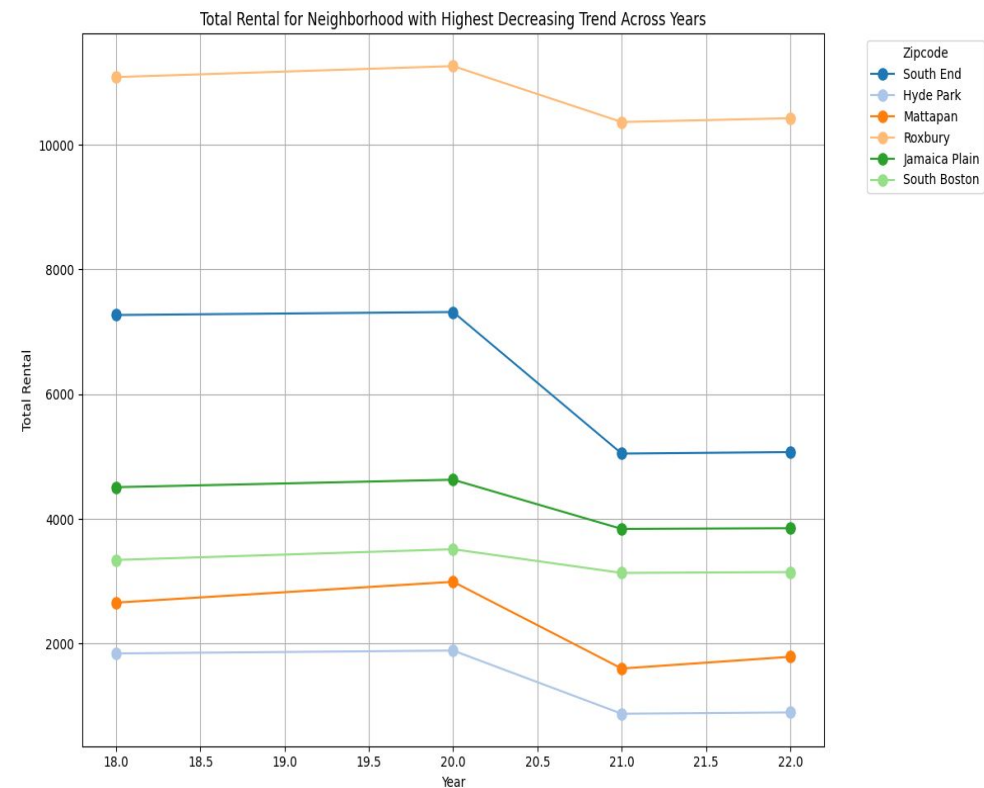


# Identified Factors contributing to unit conversions

- **Economic Factors** - An influx of high-income individuals has increased demand of single-family homes and has driven up real estate values
- **Urban Development Policies** - Zoning law changes favoring single-family dwellings have significantly altered the housing landscape
- **Market demand** - A strong demand for single-family homes in urban areas, driven by families and individuals seeking more space and privacy
- **Gentrification** - As neighborhoods become more desirable they attract higher-income residents which leads to increase property values. This led to the displacement of low-income residents and change housing availability
- **Lifestyle Preferences** - The preference of high-income buyers for larger and more private living spaces encourage the conversion of existing multi-unit properties into single family homes

# Income Restricted Housing

- Income restricted housing is a policy that reserves households for families below a certain income
- Eligibility for is based on the area median income (AMI) of the region
- Understanding and implementing income restricted housing policies is crucial to ensure socioeconomic equality and housing availability for all
- While most neighborhood have experienced an increasing trend of income restricted housing, we noticed six neighborhoods experienced a decreasing trend



# Key Points



- There have been significant reductions in available housing units due to the conversion of multi-unit properties into single-family homes
- The 02115, 02136, and 02124 ZIP codes have experienced the largest rates of unit loss due to conversions
- Housing-unit conversions are influenced by a combination of socio-economic shifts, urban development policies, market demands and changing lifestyle preferences
- The transformations not only reflect changing demographic patterns but also broader urban development challenges including housing affordability and sustainability

## Further Questions

- What other factors may have a strong relationship with fluctuations in number of Boston units?
- How do ongoing social and economic developments influence the availability of housing?
- How significantly does Boston's student population affect housing availability and rental pricing? Additionally, what is the rate of inflation for these prices and availability, and how has it impacted the past and current housing situation?
- How do perceptions of property value and investment potential differ between multi-unit properties and single-family residences, and how do these perceptions influence conversion decisions?
- What specific socioeconomic factors contribute to the influx of higher-income individuals into certain neighborhoods, leading to increased demand for single-family residences and subsequent conversion of multi-unit properties?

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# QUESTIONS?

