

# An Analysis of Affordable and Sustainable Housing

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# Why is housing important?

- ◆ Physiological need (Maslow's hierarchy)
- ◆ Community and belonging
- ◆ Family
- ◆ Opportunities for education and jobs



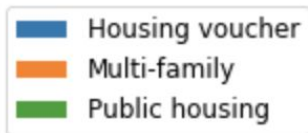
# Exploratory Analysis



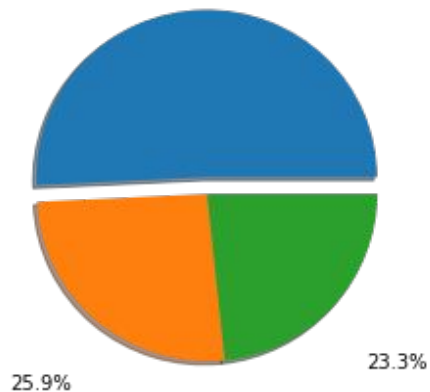


# 4.6 million

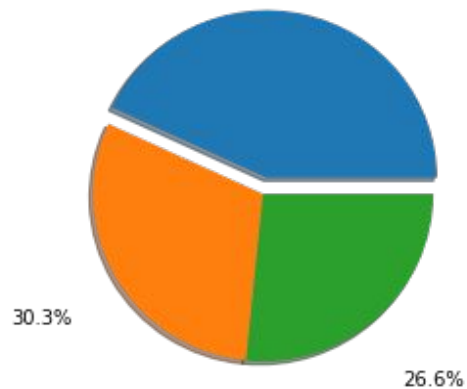
Number of households that HUD provides rental subsidies to annually



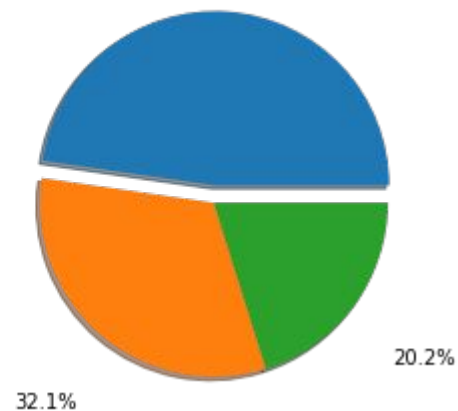
50.8%  
Breakdown by Program - 2009



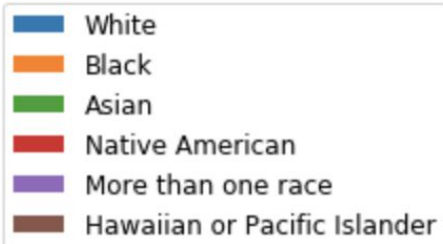
43.1%  
Breakdown by Program - 2014



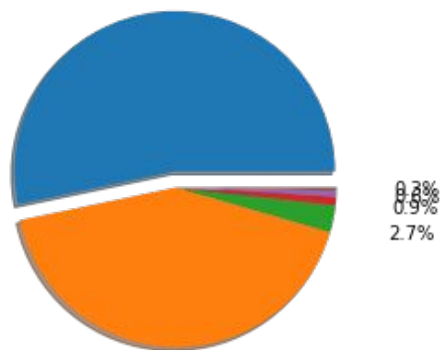
47.7%  
Breakdown by Program - 2018



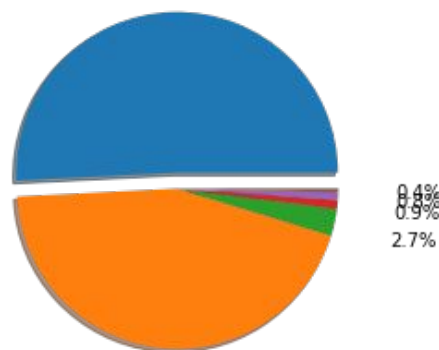




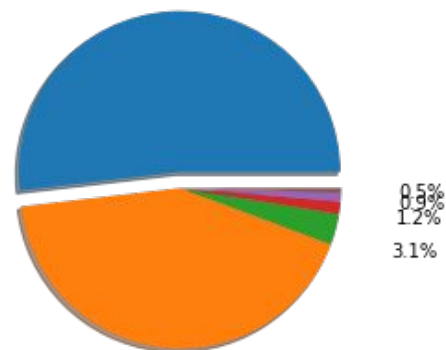
53.3%  
Breakdown by Race - 2009



50.8%  
Breakdown by Race - 2014



51.8%  
Breakdown by Race - 2018



# Trends

	Minority	Poverty
2009	<b>45.4 %</b>	<b>18.9 %</b>
2014	<b>53.5 %</b>	<b>15.2 %</b>
2018	<b>53.6 %</b>	<b>24.0 %</b>

# Models





# Logistic Regression

## Goals

- ◆ Indicate significant predictors of the different program types
- ◆ Classify households into program type based on their characteristics

# Logistic Regression

- ◆ Overall significant predictors
  - ◇ Elderly head of household, race of head household
- ◆ Program-specific predictors
  - ◇ Gender (housing choice voucher)
    - 78.4% female
  - ◇ City type, Hispanic percentage (multi-family)

# Logistic Regression

- ◆ Accuracy: 53.9%
- ◆ Recall: 14.7%

	y_pred		
y_true	1	2	3
1	368	1401	737
2	222	4771	1212
3	236	1949	1829



# Classification Tree

- ◆ Accuracy: 57.6%
- ◆ Recall: 22.5%

	y_pred		
y_true	1	2	3
1	564	1254	688
2	314	4685	1206
3	252	1681	2081

# Conclusions



# Inferences and Conclusions

- ◆ Public housing decreasing, multi-family (private) housing increasing
- ◆ Poverty levels in HUD areas increasing
- ◆ Demographics of head of household most significant for predicting program type





# Next Steps

# Plan for Action

- ◆ Further understand groups at a more individual level
- ◆ Develop more accurate classification methods
- ◆ Anticipate needs for each program type to better cater to individual households



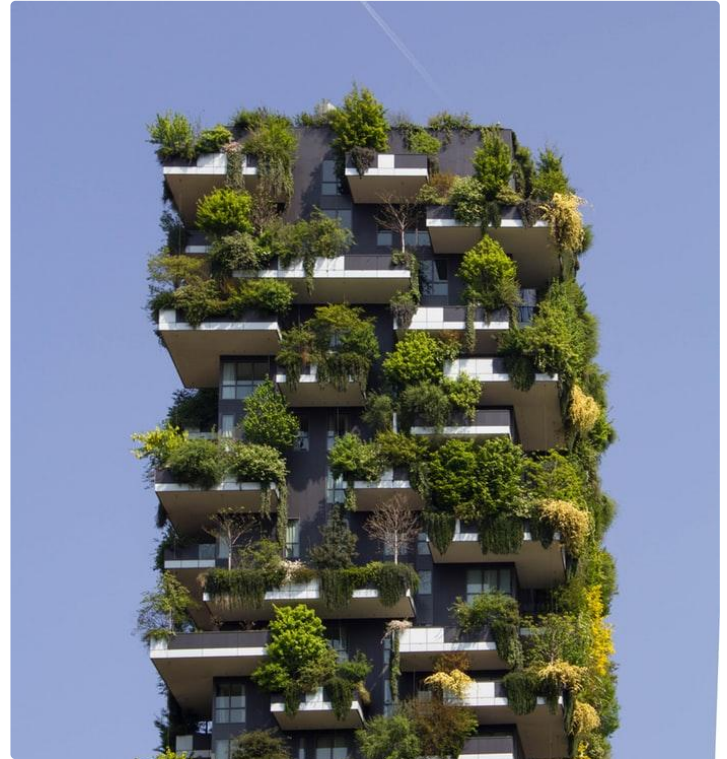
An aerial photograph of a modern architectural complex. The central feature is a large, circular courtyard filled with lush green trees and plants. Surrounding this courtyard are several buildings, including a prominent one with a green roof that has rows of plants. The entire scene is framed by soft, white clouds, giving it a dreamlike or ethereal quality. The word "SUSTAINABILITY" is overlaid in large, white, bold letters across the center of the image.

# SUSTAINABILITY



# Sustainability Pillars

1. Environmental
  - a. Higher quality housing
  - b. Living conditions
2. Economic
  - a. Access to jobs
  - b. Disposable income to stimulate local economy
3. Social
  - a. Build communities
  - b. Better school districts
  - c. Health



**THANKS!**  
**Any questions?**

