

Improving Houston Habitat for Humanity's Homeownership Program

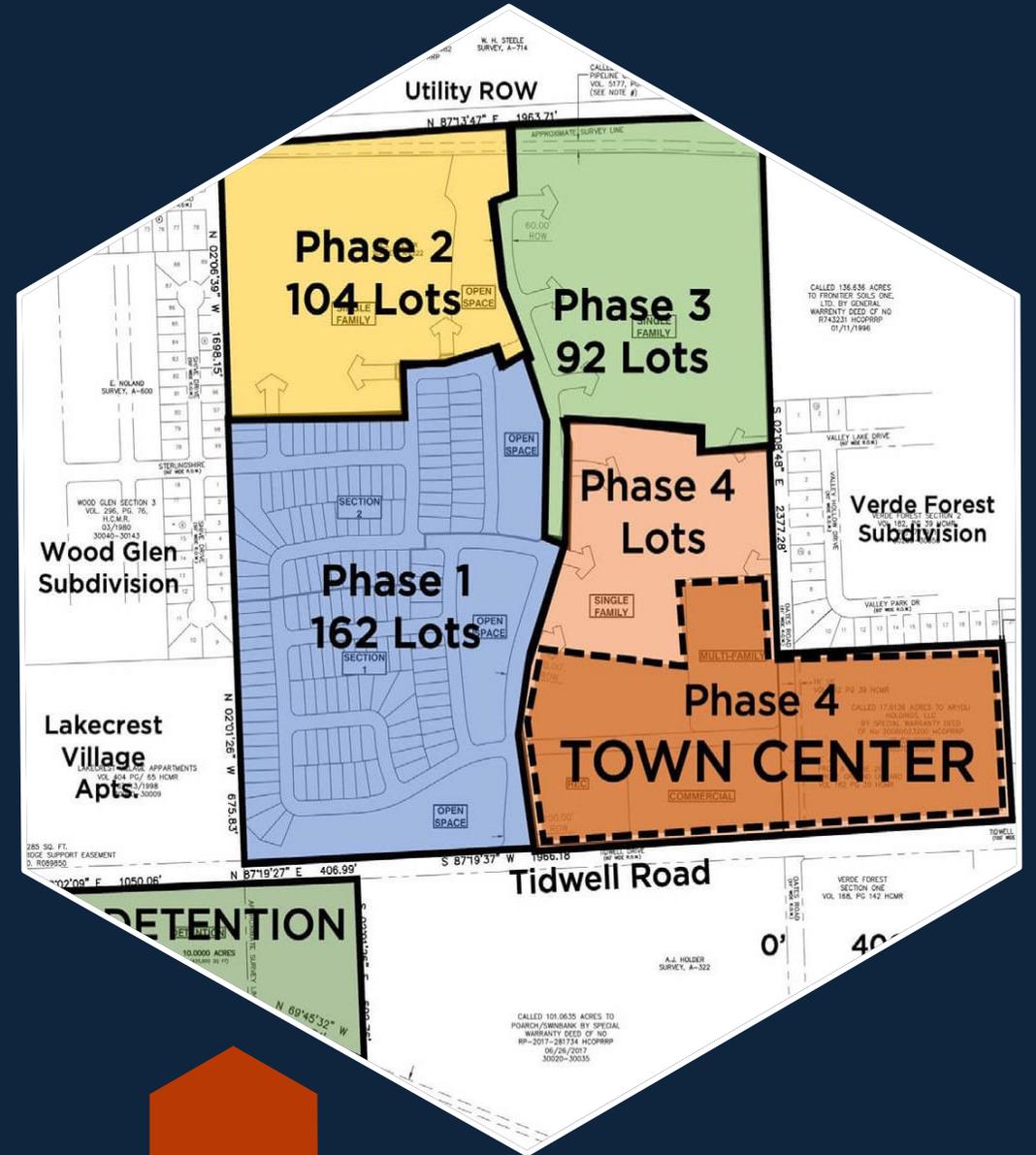
Factors behind Application Completion and Approval

Oscar Morales
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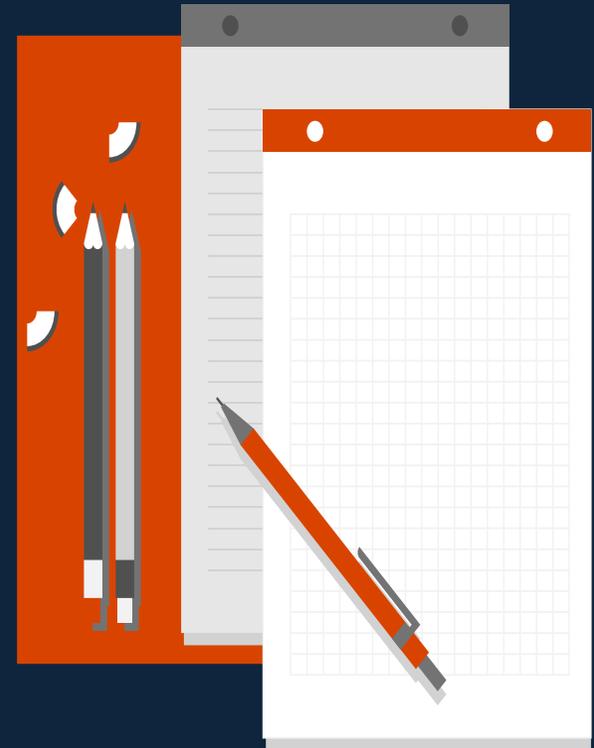
Introduction

By Christian Swoop

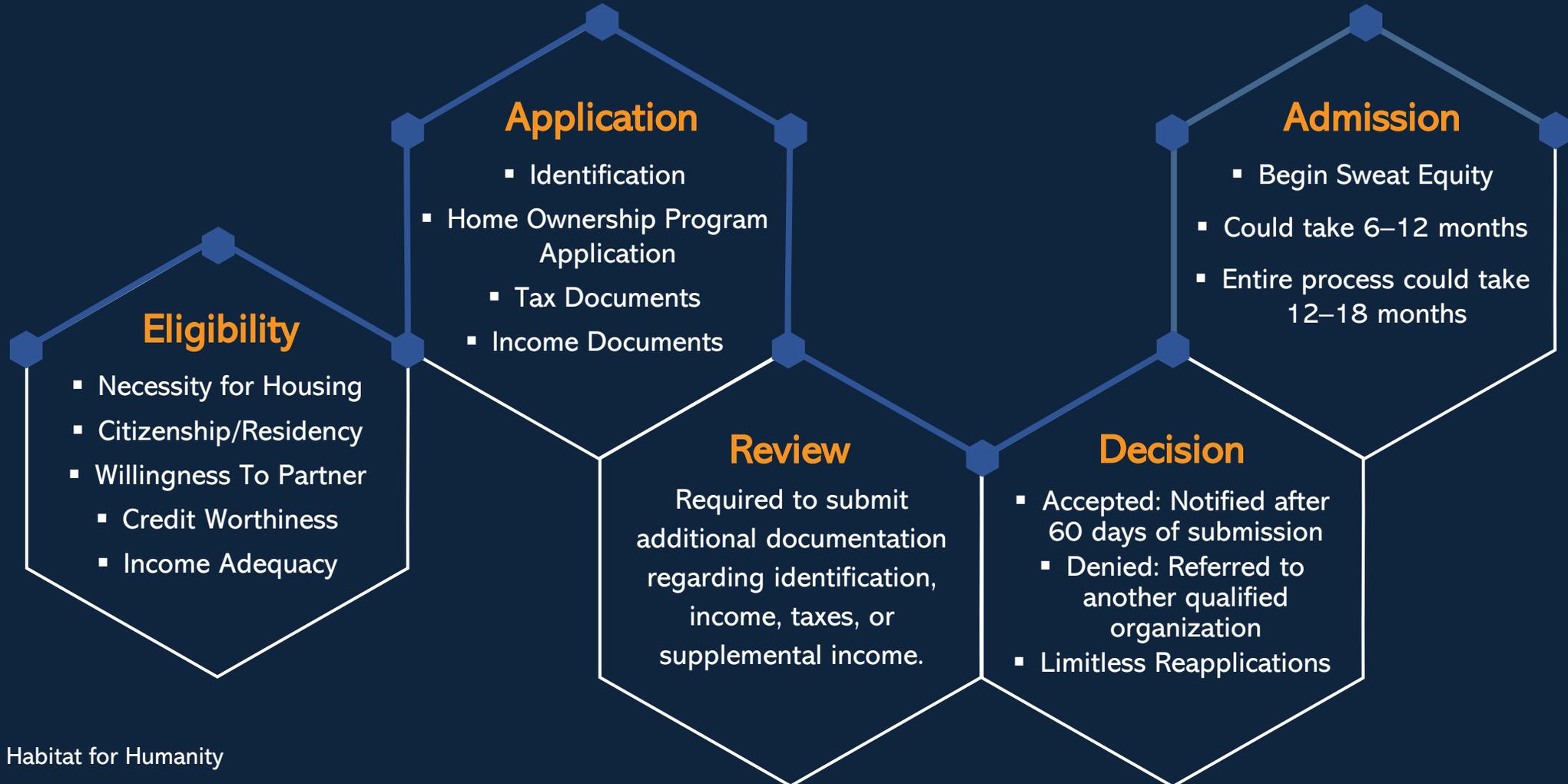


Background

- Homeownership program provides housing for low-income families
- Vision: A world where everyone has a decent place to live.
- Offers access to an affordable mortgage without down payment
- Robin's Landing will consist of mixed-income developments in East Houston
- Town Center is major difference.
- Will consist of 460 single-family homes, 200 senior housing units, and 200 multi-family units.



Enrollment Process

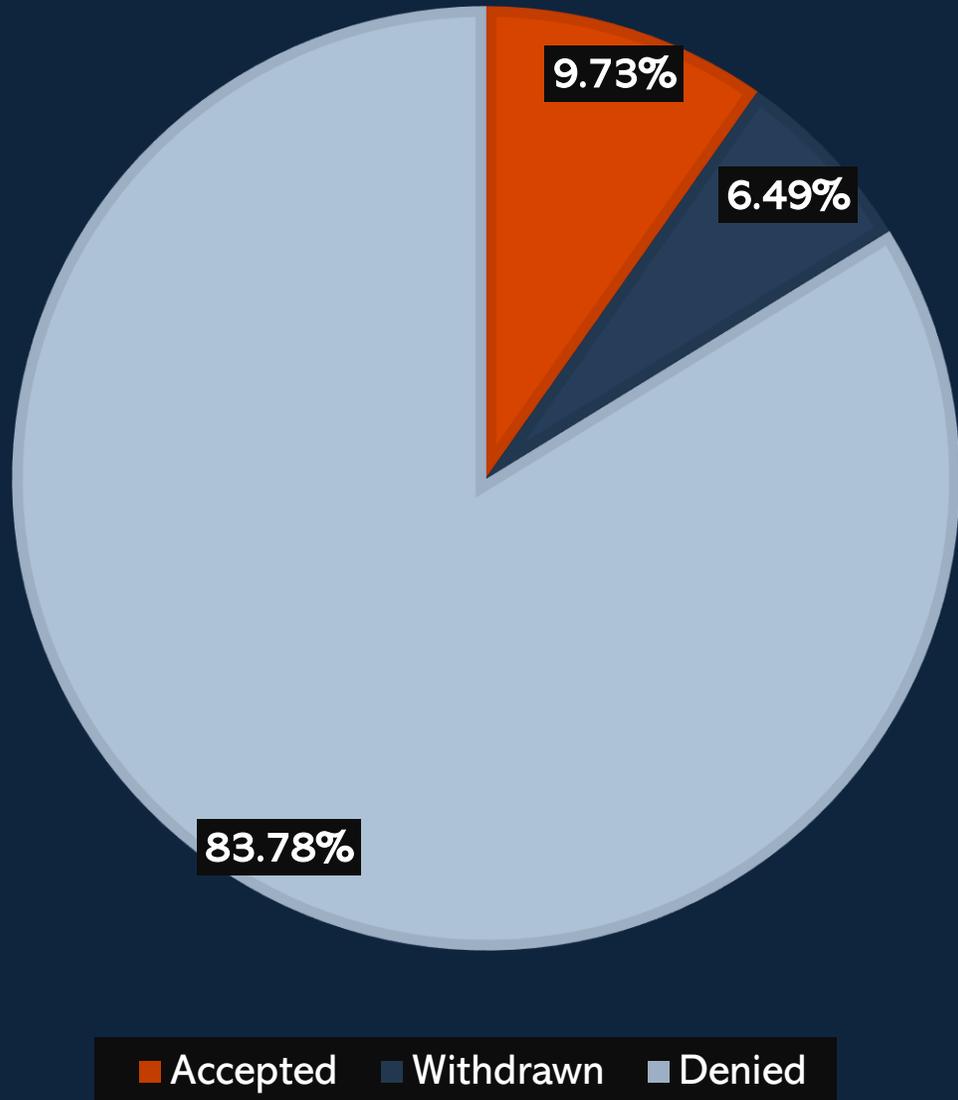




However,

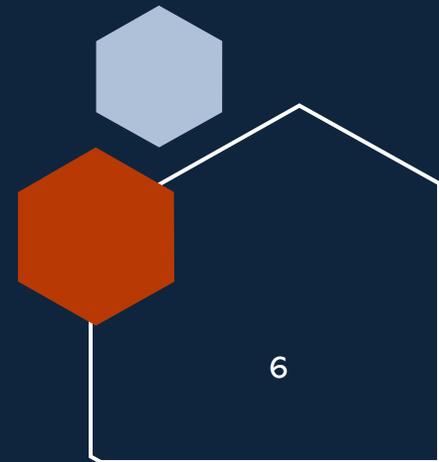
We discovered a huge problem.....

Program Problem

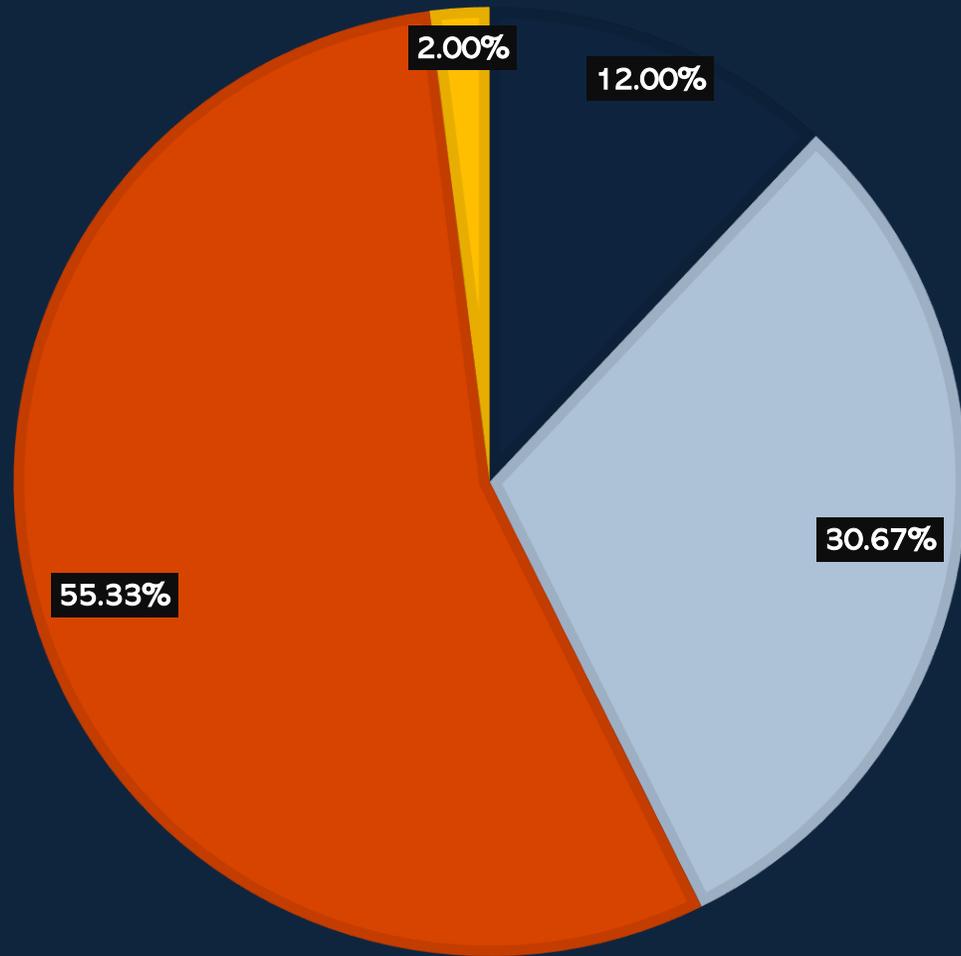


After analyzing, we found that.....

- 185 applicants – 18 Accepted; 12 Withdrawn; 155 Denied.
- Habitat for Humanity's Program has a very low acceptance rate.
- The program's impact on the people that need it most is significantly limited.



Reason for Denial



■ Credit ■ Income ■ Incompleteness ■ Other



Applicants were denied because.....

- 185 applicants – 83 Incomplete; 46 Income; 18 Credit; and 3 other reasons.
- Over half of applicants did not complete the application process.
- Clearly the applicant's inability to complete the application deprives them from the benefits of the program.



Project Goals

- Find out why so many applicants get denied
- Find out why many applicants do not complete the application process
- Find out how Houston Habitat for Humanity can raise the program's approval rate

Methods & Approach

Step 1 – Descriptive Statistical Analysis

Step 2 – Econometric Regression Modeling

- **Approved Into Program Model**
- **Completed Application Process Model**



Data Sources



185 Applications

Paper applications forms provided by Habitat.



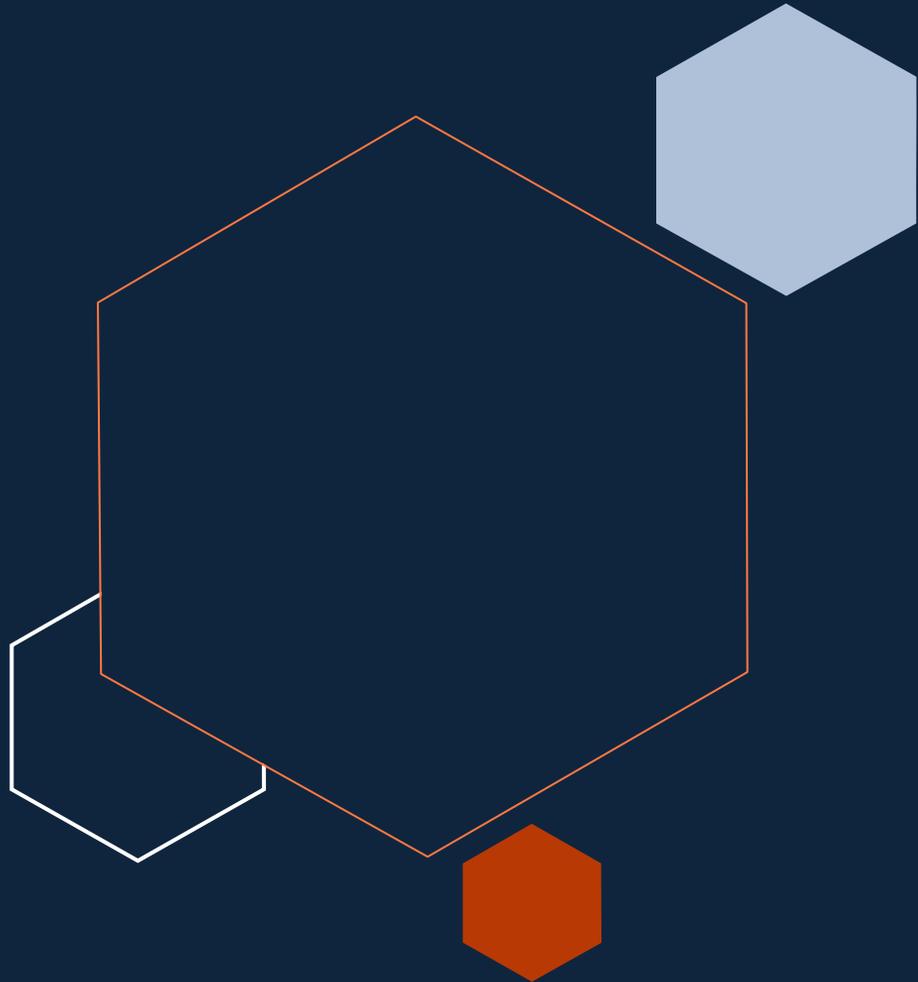
American Community Survey

Used the Bureau's American Community Survey administered every ten years.



Department of Planning and Development

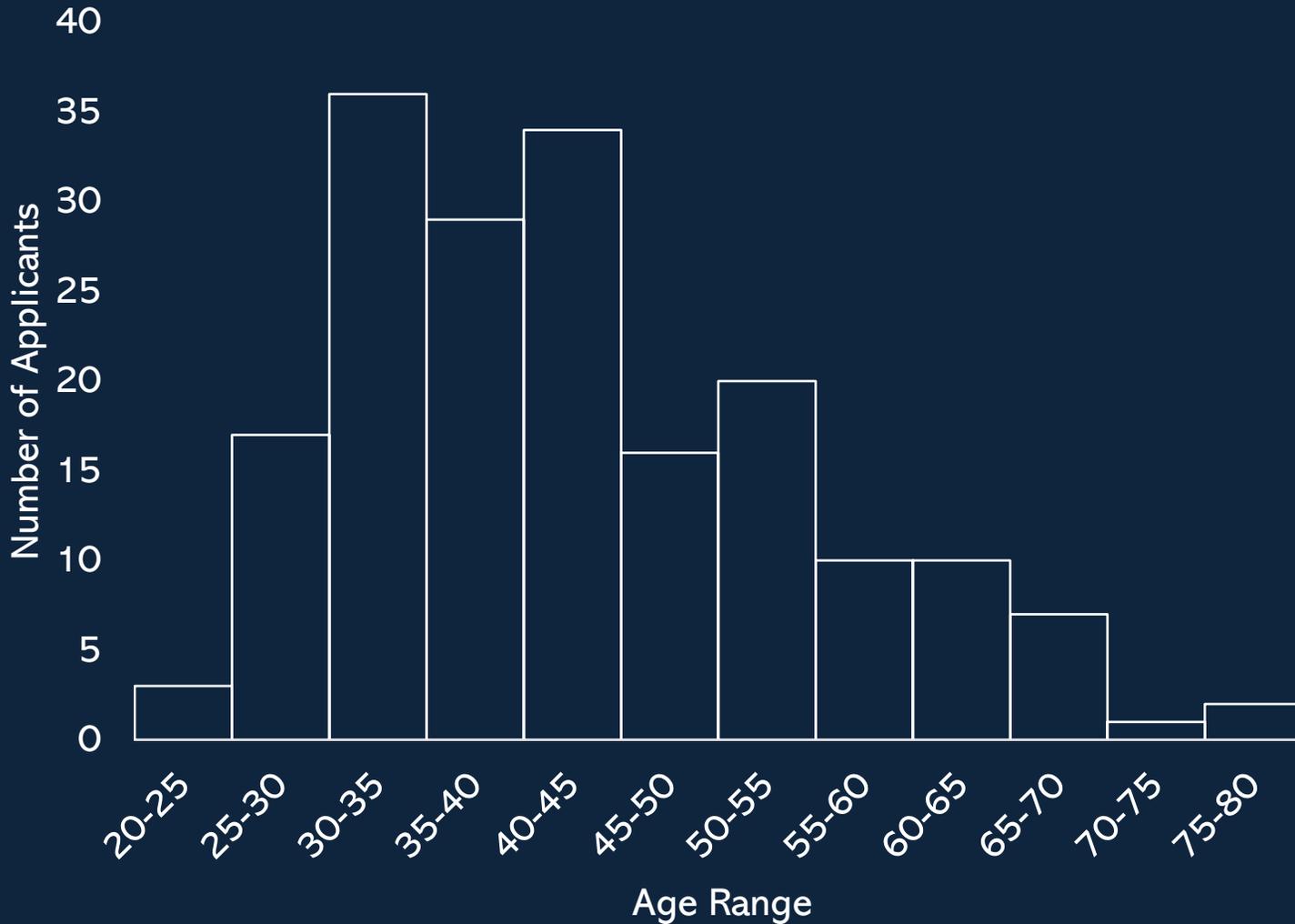
Ethnicity - City of Houston by Super Neighborhoods



STEP 1

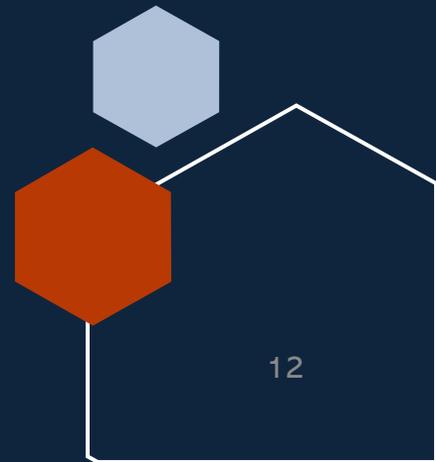
Summary Statistical Analysis

Age Composition

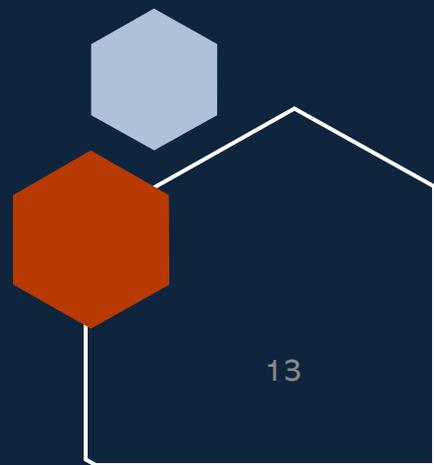
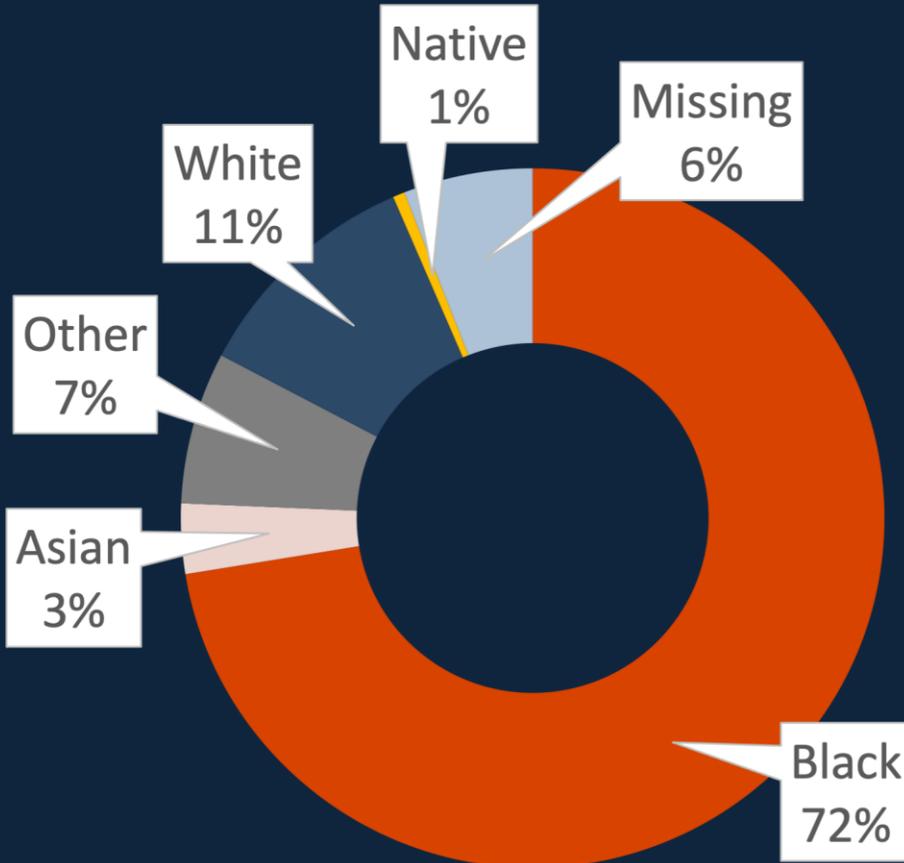


Houston Habitat for Humanity

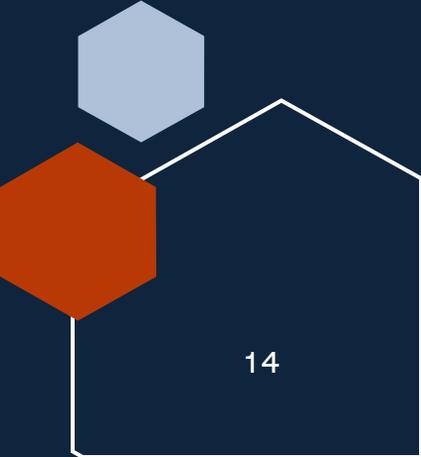
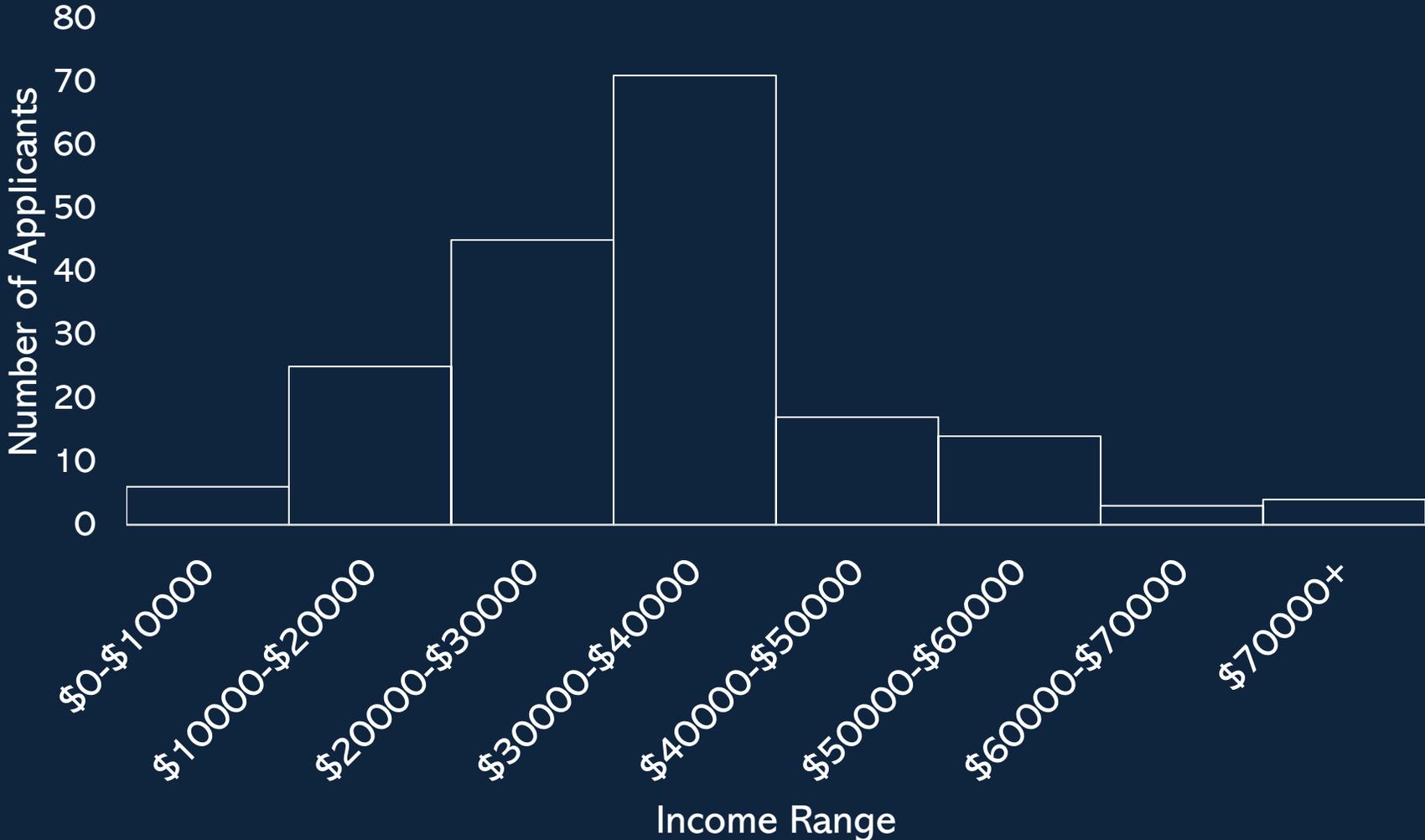
- Most applicants are middle-aged.
- Average age is 42.39 years.
- Oldest applicant is 80 years old.
- Youngest applicant is 23 years old.



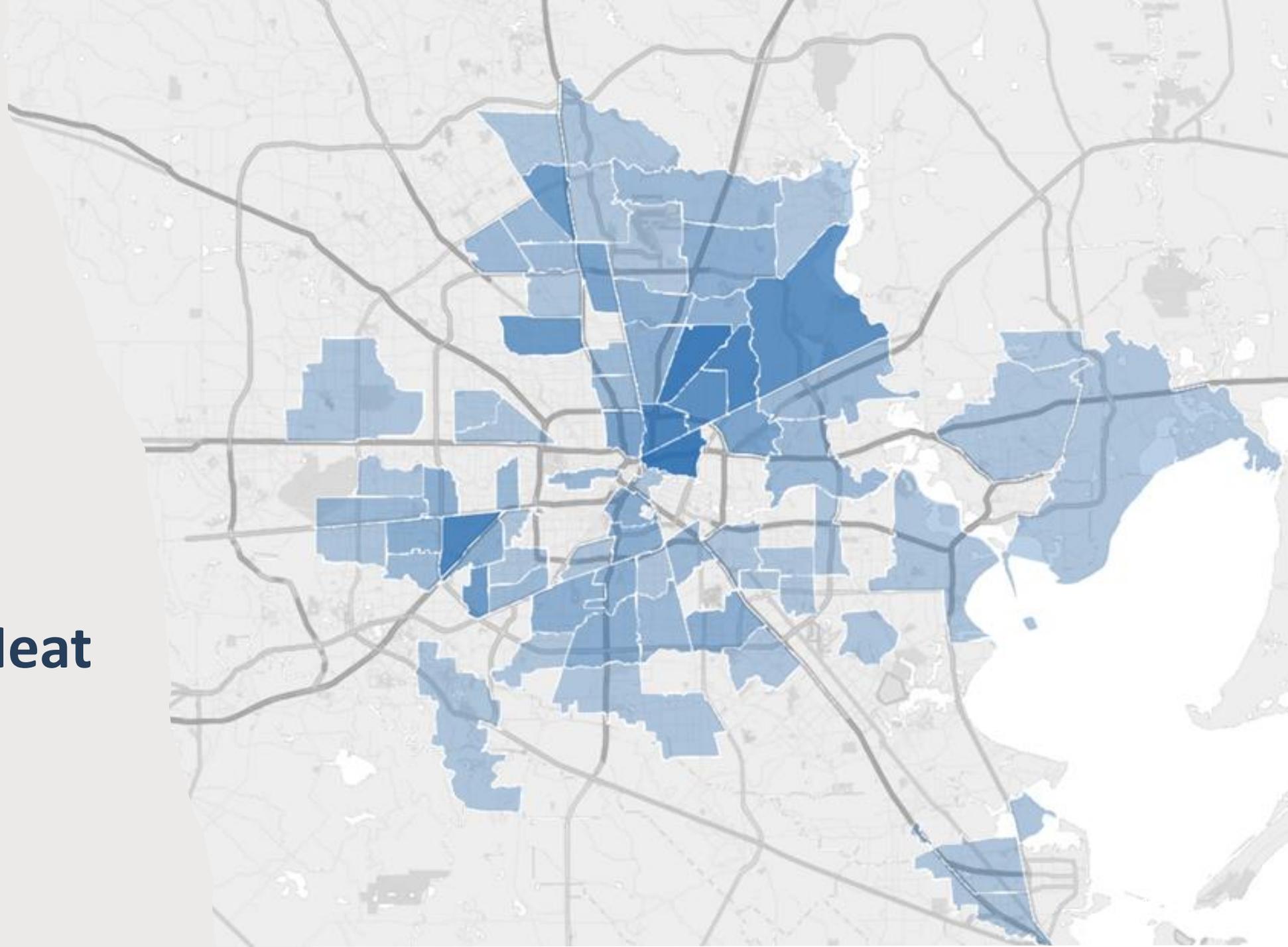
Racial Composition



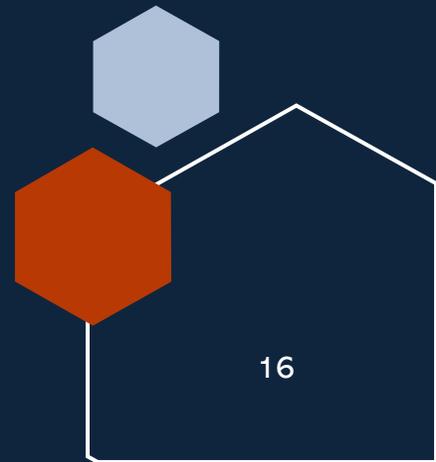
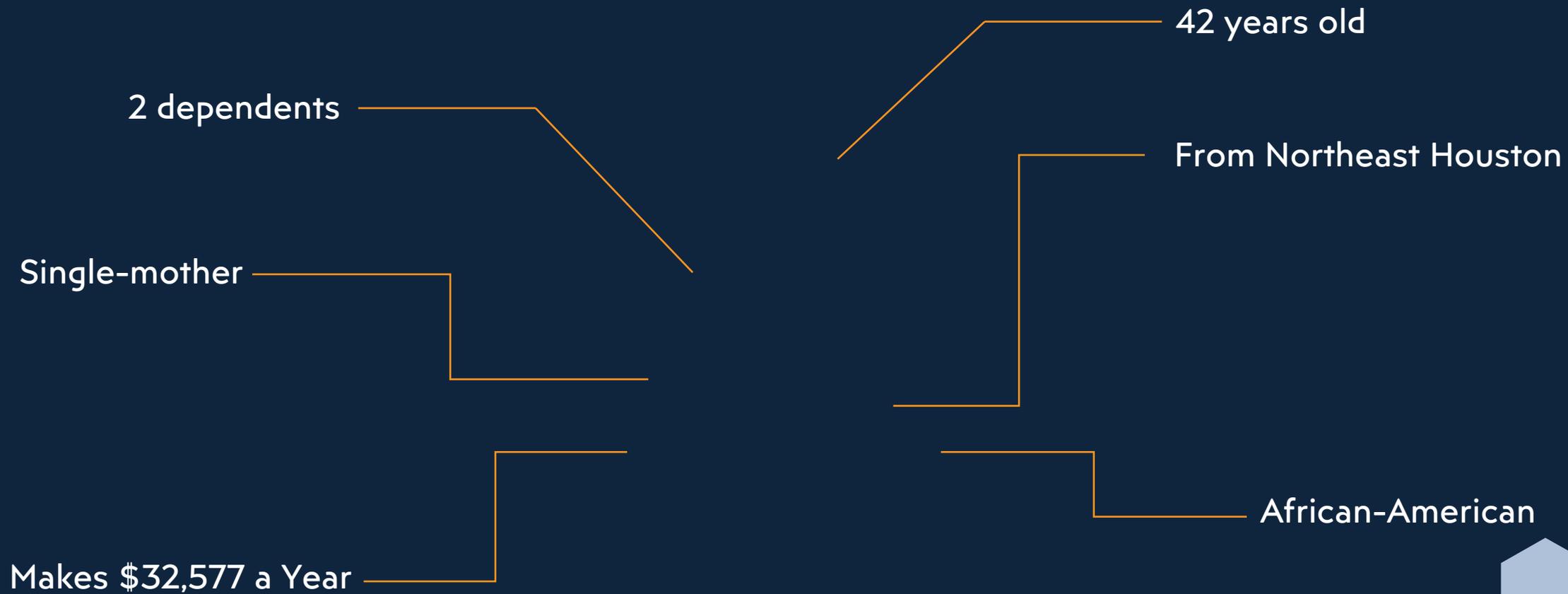
Income

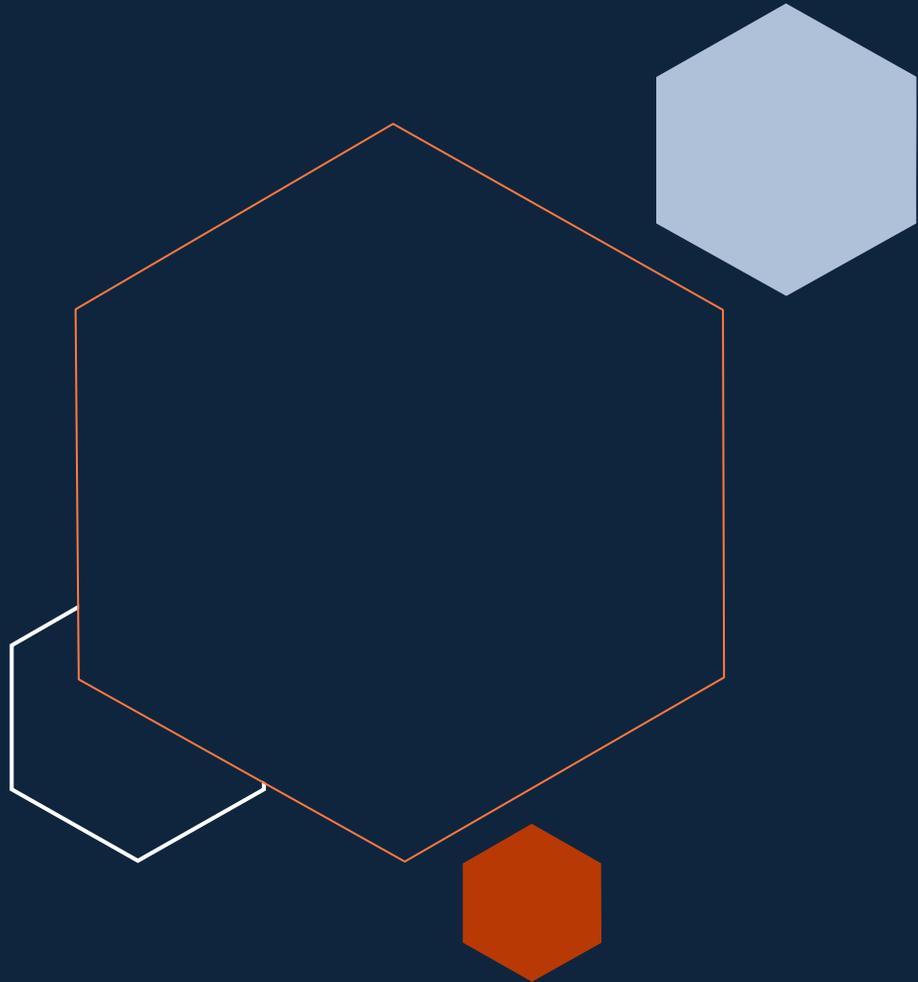


Applicant Heat Map



Typical Applicant



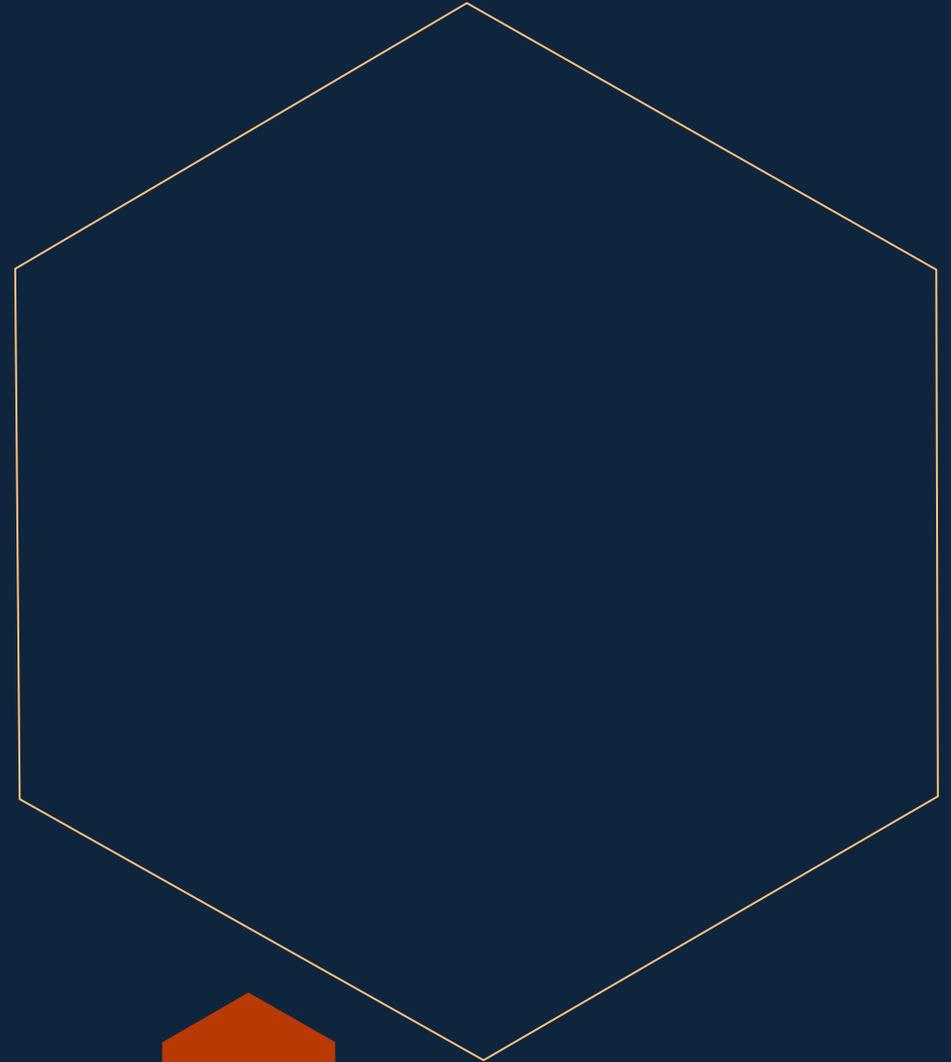


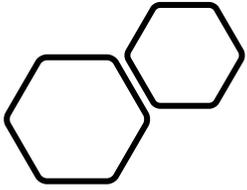
STEP 2

Econometric Regression Model

Findings & Results

By Oscar Morales





Model 1

OLS Regression – Approval Model

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta X_3 + \beta X_4 + \beta X' + \mu_i$$

where,

$X_1 = \textit{year applied}$

$X_2 = \textit{geographic location}$

$X_3 = \textit{vector of demographic variables}$

$X_4 = \textit{vector of household indicators}$

$X' = \textit{a vector of other regressors}$

Results



Year applied drastically affects chances of approval



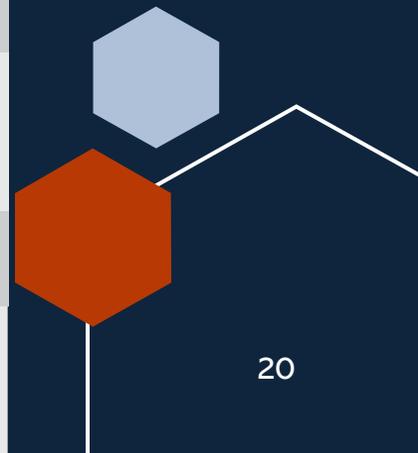
A higher credit score or second job increases the likelihood of approval

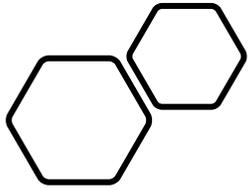


Certain household types decrease the likelihood of approval.

APPROVED	2018	2019	2021	Living with Family Member	Single Adult Household	Secondary Occupation	Credit Score
Estimate	0.6475	0.5697	-0.2751	-0.1487	-0.1873	0.1745	0.00118
Standard Error	0.15600	0.1410	0.11455	0.0726988	0.08515	0.08373	0.0004384
Significance Level	***	***	**	**	**	**	***
Key	Asterisk's denote significance: ** = 5% *** = 1%						

Adjusted-R²-62.98%





Model 2

OLS Regression – Completion Model

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta X_3 + \beta X' + \mu_i$$

where,

$X_1 = \textit{year applied}$

$X_2 = \textit{geographic location}$

$X_3 = \textit{a vector of demographic variables}$

$X' = \textit{a vector of other regressors}$

Results



Year applied greatly affects chances of completing application



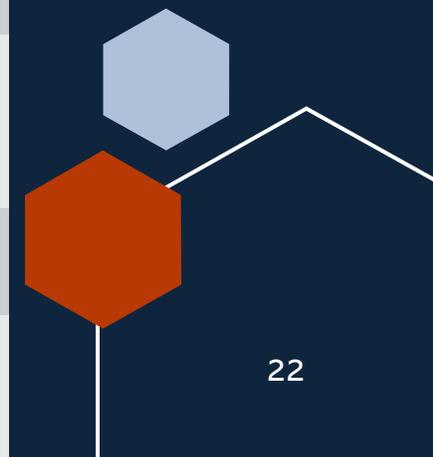
Being homeless reduces chances of completion



Higher number of dependents makes completion less likely

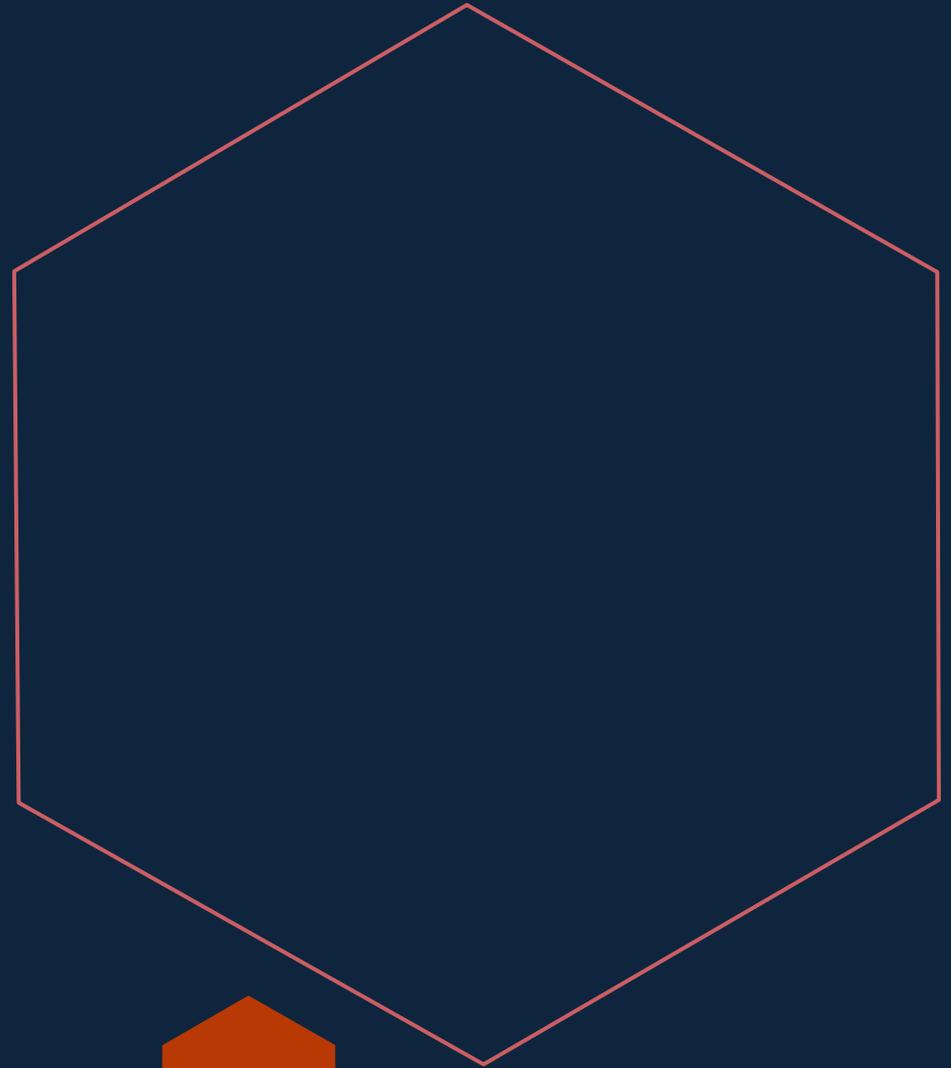
COMPLETED	2018	2019	2021	Homeless	Number of Dependents
Estimate	0.3356268	0.480428	-0.3802752	-0.2346625	-0.0504513
Standard Error	0.1936255	0.15555	0.1412903	0.1063647	0.0238072
Significance Level	*	***	***	**	**
Key	Asterisk's denote significance: * = 10% ** = 5% *** = 1%				

Adjusted-R²-30.96%



Conclusions

By Christian Swoop



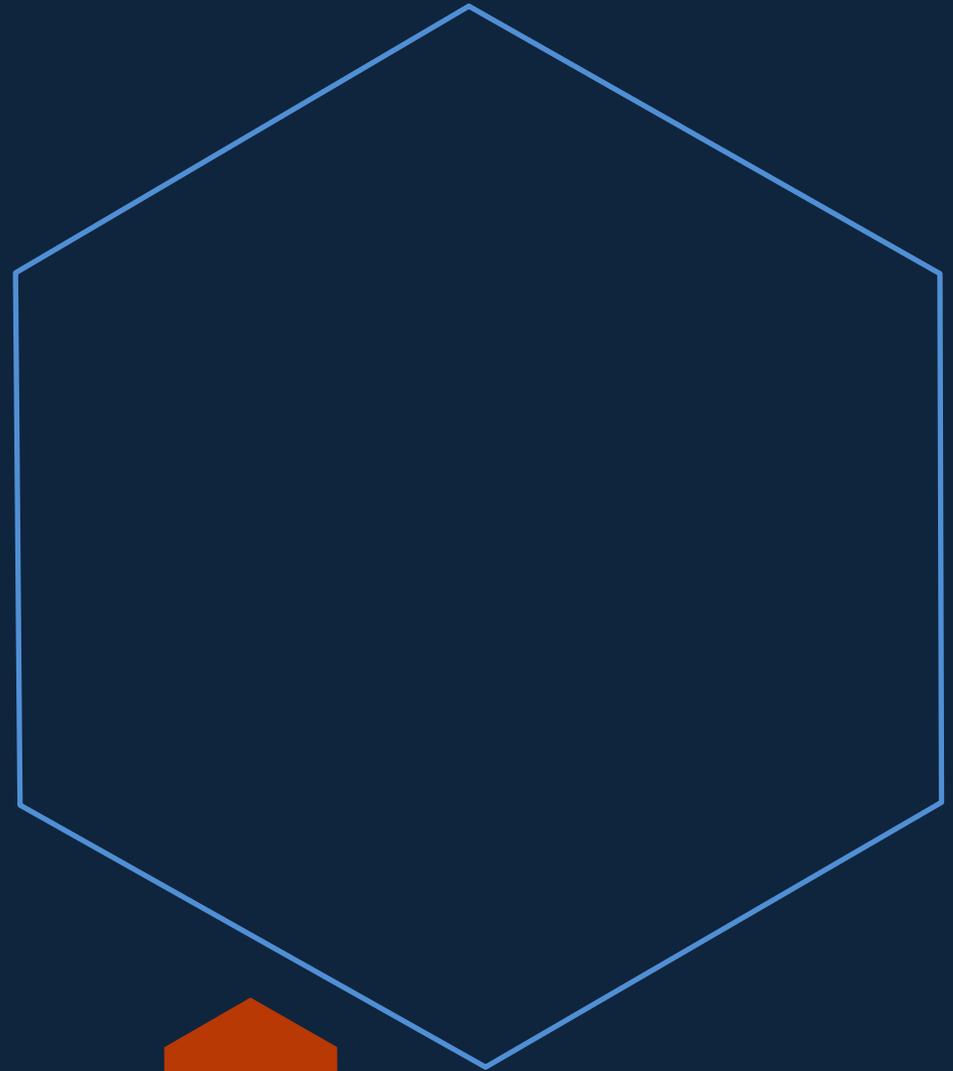


Overview and Conclusions

- Average applicant is a 42-year-old African-American single-mother from Northeast Houston.
- Main reasons for denial are incomplete applications and inadequate income.
- Higher credit score and second job increase chances of approval.
- Smaller households are less likely to be approved.
- More recent applications are less likely to be completed.
- More dependents reduces the chances of completion

Recommendations

By Christian Swoop





Recommendations

Habitat should target "ideal" applicants:

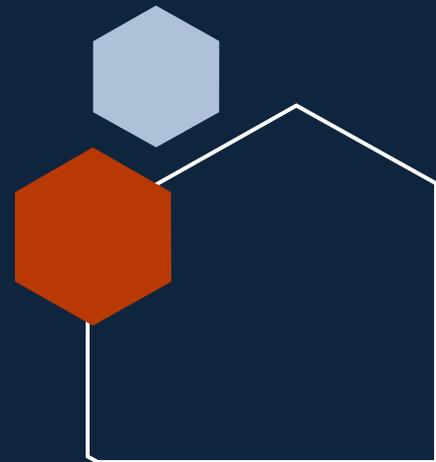
- in Northeast Houston.
- more Financially Responsible
- better Credit Scores and creditworthiness.
- not Single and has Multiple jobs (income streams).

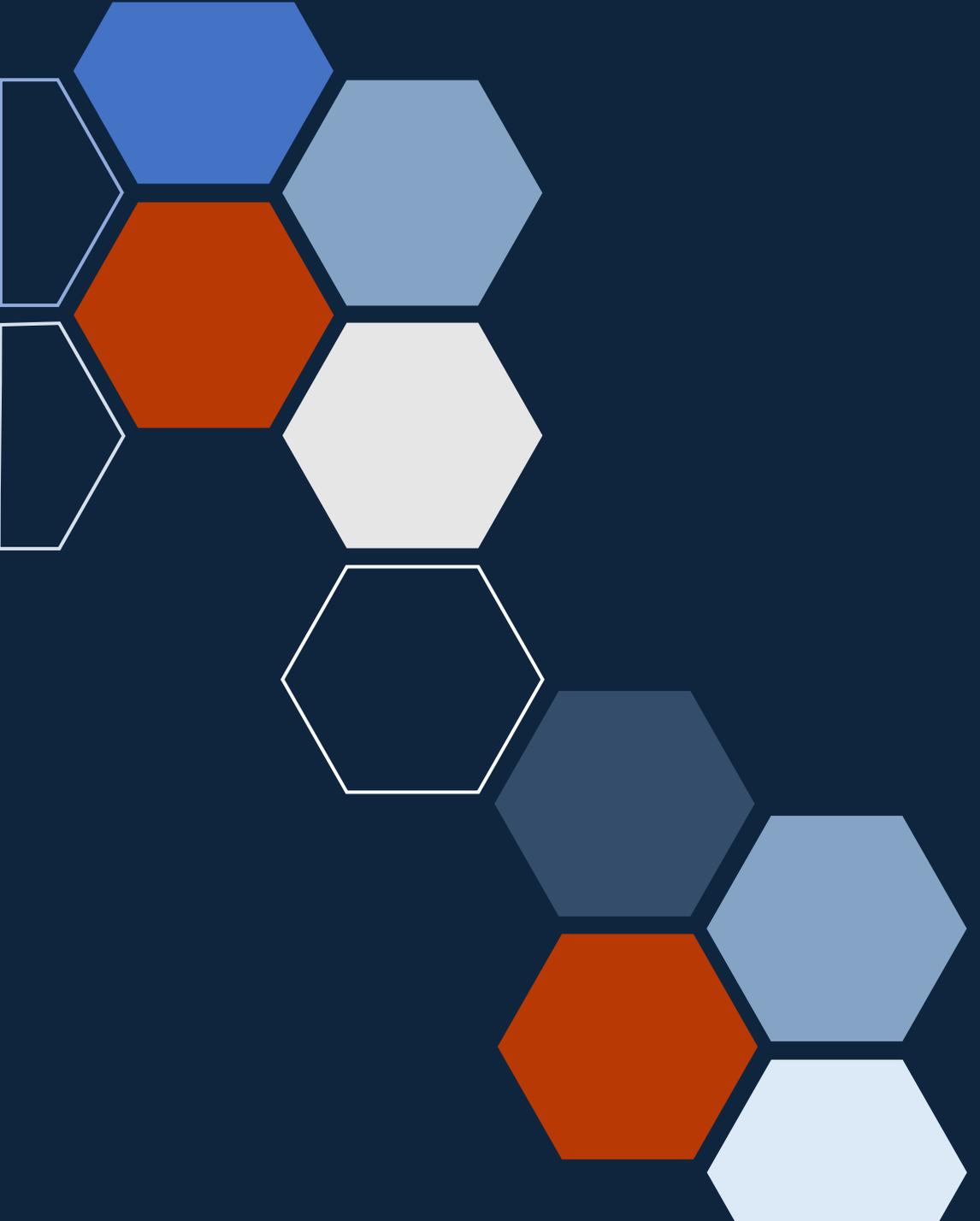
Habitat should also:

- remain cognizant of crises' effects on applicants
- remain cognizant of individual circumstances

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THANK YOU



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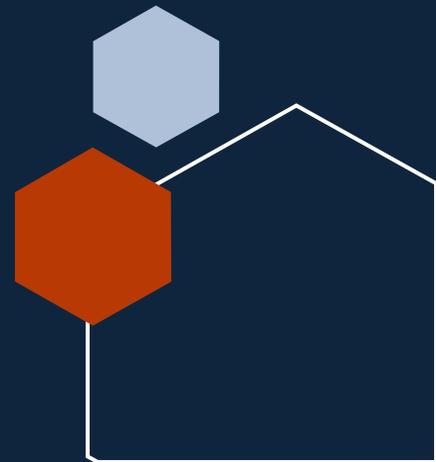
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Questions?