

MINORITY & WOMEN-OWNED BUSINESSES / MWBES

IN NEW YORK CITY

Geographic Information Systems
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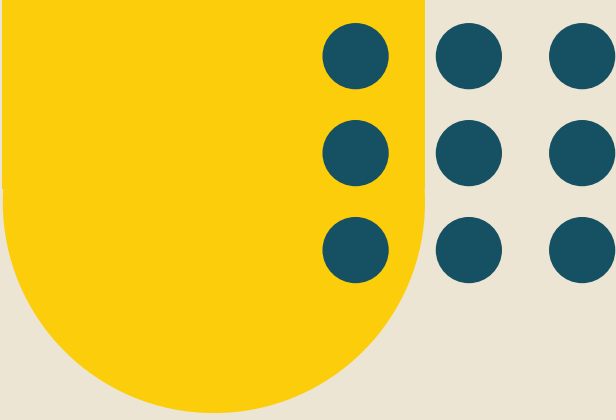


Chinatown, New York
Photo by Krisztina Papp, Unsplash



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INTRODUCTION

Globally, business ownership is a phenomenon influenced by structural racial and gender disparities. This trend is no different in the United States, where people of color represent about 40% of the population but only 20% of the country's 5.6 million business owners.¹ Women and people of color are limited from starting and growing businesses due to various reasons, including disparities in educational attainment, personal wealth, and access to capital. These factors also translate into missed opportunities for economic growth and entrepreneurship, with their impacts filtering down onto their surrounding communities through the loss of job opportunities, vital neighborhood services, and healthy local economies.

New York has one of the most diverse business landscapes in the country - the state has the highest minority and women-owned business (MWBE) utilization rate in the country², while NYC has the highest number of minority-owned businesses per 1000 residents among all major cities in the US³. Minority and women-owned businesses anchor communities and drive equitable growth and employment across NYC's five boroughs. In this manner, they contribute to the financial health of their neighborhoods, helping them build assets

at an individual- and community-wide scale and contributing to their employment security.

Recognizing this fact, the City of New York has established a variety of initiatives supporting minority and women-led entrepreneurship through the Minority and Women-Owned Business Enterprises (M/WBE) Program. The program was created as an extension of Local Law 129 (2005), which established participation goals for minority and women-owned businesses in City contracts, and Local Law 1 (2013), which allows City agencies to set M/WBE participation goals on standardized, professional, and construction services contracts. A major initiative of the program has been to expand opportunities for minority and women entrepreneurs to access government contracts and grow their businesses.

Through this project, we aim to compare the spatial distribution of MWBEs to that of all businesses in the city; specifically, where their concentrations lie in relation to each other. We will also explore the relationship between the distribution of M/WBEs in a neighborhood and its financial health. Finally, we will compare these clusters of MWBEs with the ethnic composition of their underlying regions. Together, the spatial analysis of these combined datasets will reveal relationships between M/WBEs, the financial health of their neighborhoods, and the ethnic composition of their neighborhoods.

1 Liu & Parilla, 2020

2 Empire State Development, n.d.

3 Mori et al., 2020

RESEARCH QUESTION

What is the spatial relationship of M/WBEs with:

- 1 The **distribution** of all businesses in NYC
- 2 The **ethnic composition** of NYC neighborhoods
- 3 The **financial health** of NYC neighborhoods

Key terms

MWBE	Minority and women-owned business enterprise(s)
Financial health	The financial health of a neighborhood as measured by the Neighborhood Financial Health Index created by the Collaborative for Neighborhood Financial Health (CNFH) and NYC DCA's Office of Financial Empowerment
Density	Count of features per unit area
Neighborhood	Since the Financial Health Index scores are provided at the Public Use Microdata Area (PUMA) level, PUMAs are considered as neighborhood boundaries here.
Minority Groups	Classified as Black, Hispanic, Asian, and others.

DATASETS

Spatial datasets

New York City Borough Boundaries
NYC Department of City Planning, 2016

Public Use Microdata Areas (PUMAs)
NYC Department of City Planning, 2016

Census Blocks
NYC Department of City Planning, 2016

USGS National Hydrography Dataset (NHD)
U.S. Geological Survey, 2016

Non-spatial datasets

Neighborhood Financial Health Digital Mapping and Data Tool
Department of Consumer and Worker Protection (DCWP), 2022

M/WBE, LBE, and EBE Certified Business List
Department of Small Business Services (SBS), 2022

Legally Operating Businesses
Department of Consumer and Worker Protection (DCWP), 2022

2015 American Community Survey 5-Year Estimates
US Census Bureau, 2016

City Contract Dollars Awarded to M/WBEs
Department of Citywide Administrative Services, 2020

SCOPE

The scope of our study is limited to the five boroughs of New York City. We have highlighted certain neighborhoods performing well or badly against our parameters.

Since our study relies on open datasets that are continually updated, it is a contemporaneous study.

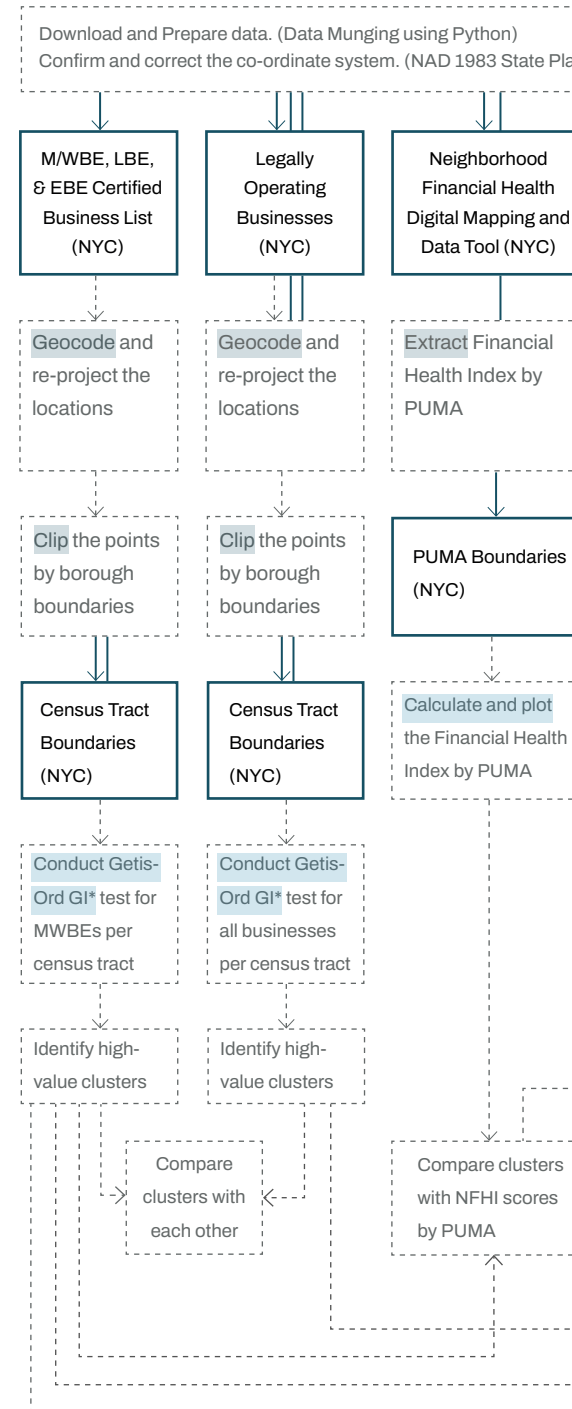
The data for City Contract Dollars awarded to M/WBEs is for the year 2020; hence, we will only be tracking the flows of city contract dollars for that year.

METHODOLOGY

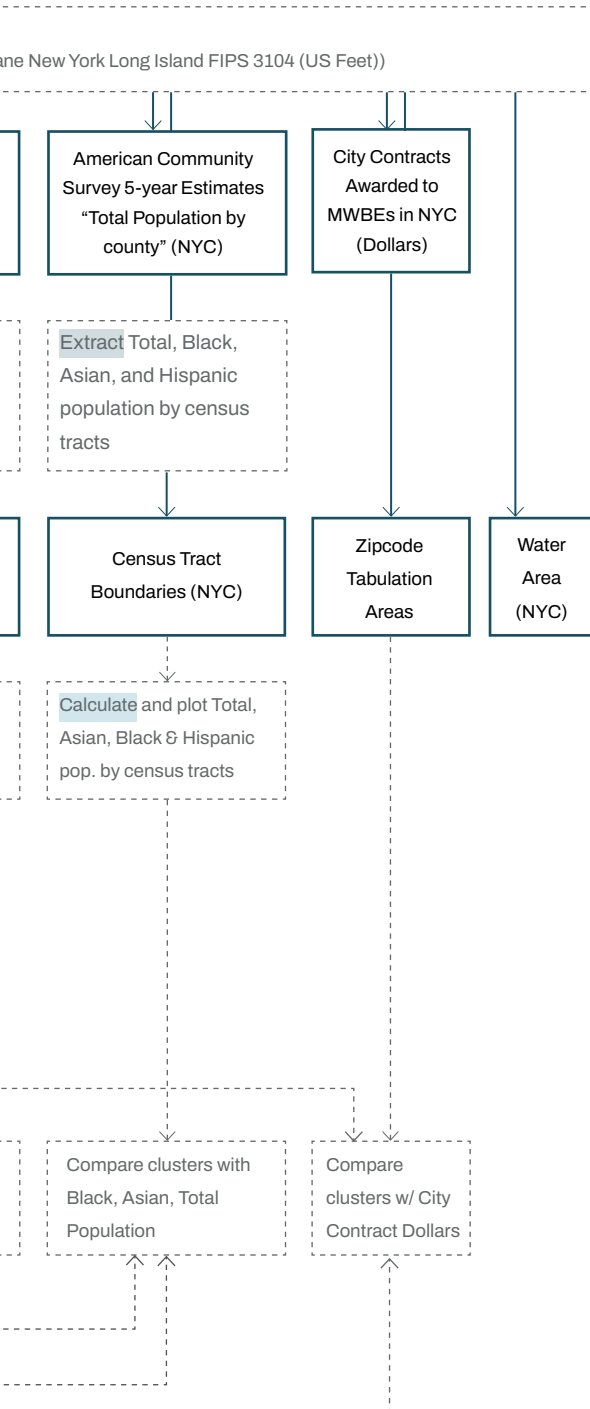
For our methodology, we downloaded the data from multiple open data source websites, extracting relevant information using GIS, Python, and Excel. Our data types include spatial data for the geographic boundaries relevant to our study, and non-spatial data, which we converted into spatial attributes using various geoprocessing tools.

Further, we conducted our analysis using spatial joins, Getis-Ord G_i^* cluster analyses, and kernel density maps to obtain inferences about the spatial distribution of minority and women-owned businesses in New York City.

METHOD DIAGRAM



LIMITATIONS



The Neighborhood Financial Health (NFH) index relies on several aspects, with the relative distribution of M/WBEs being just one aspect. The influence / weight of this factor in the overall index calculation may not be strong enough that it influences the Financial Health of an entire neighborhood in isolation (ie: one may not be able to improve the financial health of a neighborhood solely by increasing the number of M/WBEs).

The M/WBE dataset only includes those businesses certified by the City’s M/WBE Program, missing several enterprises which may not be certified by the City. A big reason why many M/WBE owners choose not to pursue certification is that the certification process requires a US citizen/permanent resident to be one of the owners of the business, keeping certification out of reach for undocumented business owners. Also, we have only included the M/WBEs with location information in our analysis, which further reduces the number of MWBEs considered in our analysis.

The different geographical boundaries at play - the Getis-Ord clusters by census tract, the NFHI scores by PUMA, ethnic compositions by census tract, and the City Contract Dollars by zipcode - prevents an analysis of all three datasets at once for any correlations. Only two datasets were compared at a time.

The City Contract Dollars dataset does not include the 52% of funds awarded to M/WBE firms with headquarters outside NYC, and is limited in temporal scope to 2020.

Harlem, New York
Photo by Kris Graves





QUESTION 1

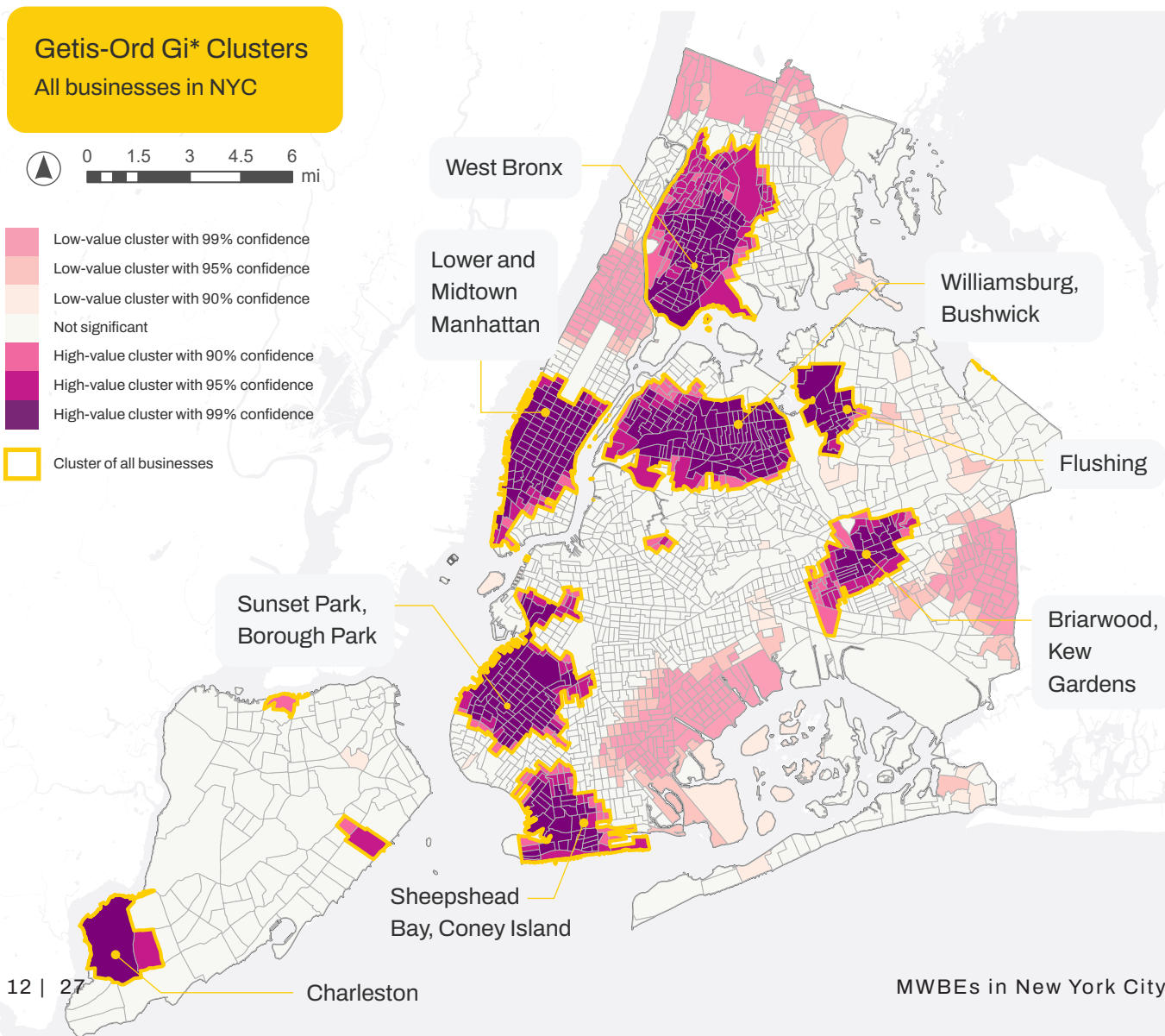
What is the spatial distribution of MWBEs in relation to that of all businesses?

ALL BUSINESSES IN NYC

Geolocating all businesses in New York City, separating them by each borough, and running a Getis-Ord Gi* test reveals where clusters of all businesses lie in each borough.

Total number of businesses:
163,811

	No of businesses	Businesses per 100 people
Manhattan	39,079	2.3
Brooklyn	48,766	1.78
Bronx	23,577	1.6
Queens	43,502	1.8
Staten Island	8,887	1.79



MWBES IN NYC

The same process is repeated for all minority and women-owned businesses in NYC. The yellow outlines indicate the high-value clusters of all businesses, showing how they differ from clusters of MWBEs.

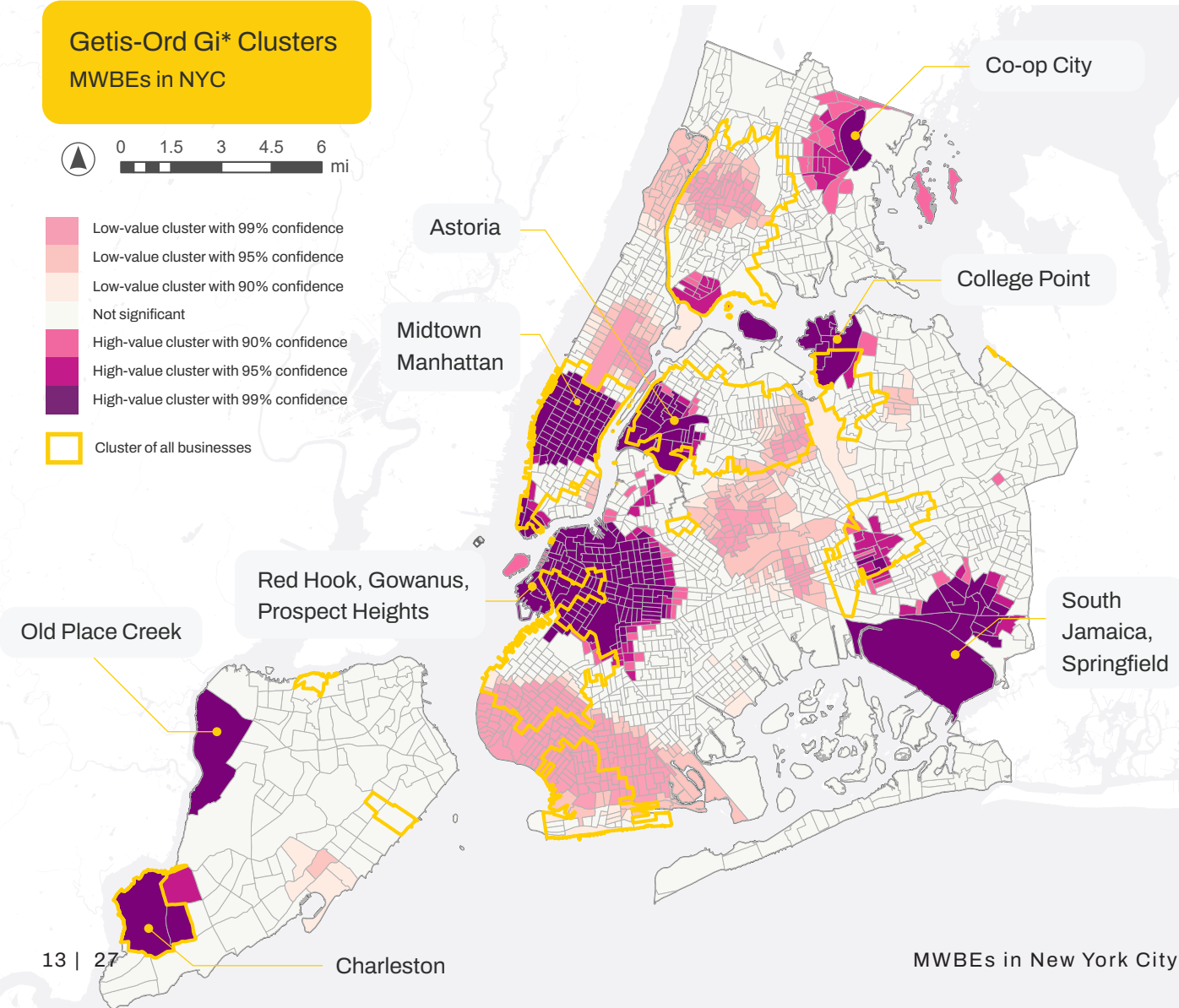
Total number of MWBEs:
7,257 (4.4%)

	No of businesses	White male businesses
Manhattan	2,377	36,702
Brooklyn	2,042	46,724
Bronx	773	22,804
Queens	1,762	41,740
Staten Island	303	8,584

Getis-Ord Gi* Clusters MWBEs in NYC



- Low-value cluster with 99% confidence
- Low-value cluster with 95% confidence
- Low-value cluster with 90% confidence
- Not significant
- High-value cluster with 90% confidence
- High-value cluster with 95% confidence
- High-value cluster with 99% confidence
- Cluster of all businesses



Harlem, New York
Artwork by Paul Deo





QUESTION 2

What is the correlation between MWBE clusters and the financial health of their underlying neighborhoods?

COMPARING MWBE CLUSTERS WITH:

NEIGHBORHOOD FINANCIAL HEALTH

By overlaying the outlines of the high-value clusters of MWBEs over the Neighborhood Financial Health scores, we can see if there is a correlation between MWBE presence and financial health.

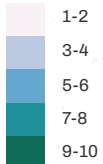
Borough-wise number of MWBEs within each NFHI score ►

	MN	BK	BX	QN	SI
0-2	198	890	409	118	-
2-4	389	1,086	292	3,093	-
4-6	-	508	72	175	303
6-8	244	177	-	143	-
8-10	1,546	-	-	-	-

Choropleth of NFHI scores
+ Clusters of MWBEs

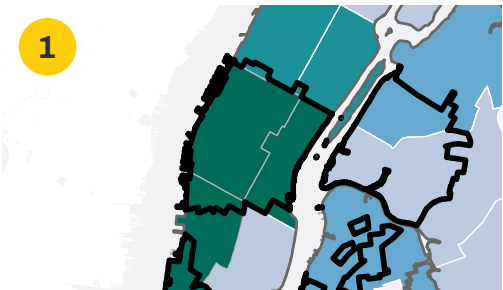
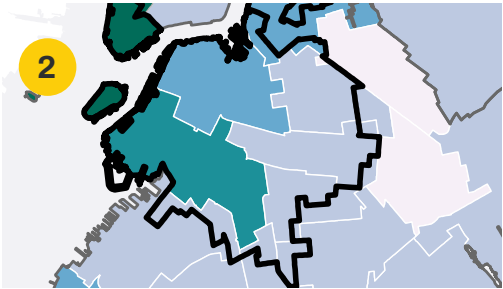
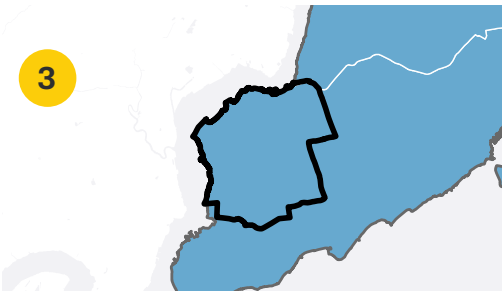
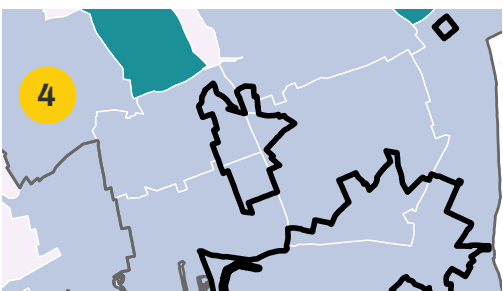
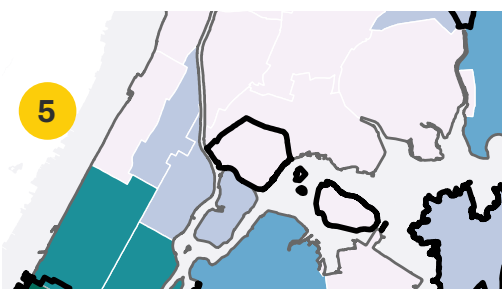


NEIGHBORHOOD FINANCIAL HEALTH INDEX SCORE



Clusters of MWBEs



	No. of MWBEs	Density of cluster	City Contracts Recd.
	1,402	0.46 businesses per acres	\$88.9 M dollars worth of contracts
	898	0.109 businesses per acres	\$10.44 M dollars worth of contracts
	30	0.009 businesses per acres	\$73.96 M dollars worth of contracts
	68	0.05 businesses per acres	\$7.6 M dollars worth of contracts
	45	0.055 businesses per acres	\$0.47 M dollars worth of contracts

A high concentration or clustering of MWBEs does not account for high scores of neighborhood health in isolation. Additionally, the amount of money received in terms of City Contracts awarded to MWBEs does not have a significant impact on a neighborhood's financial health.

Jackson Heights, New York
Photo by Alan Chin, © New York Times





QUESTION 3

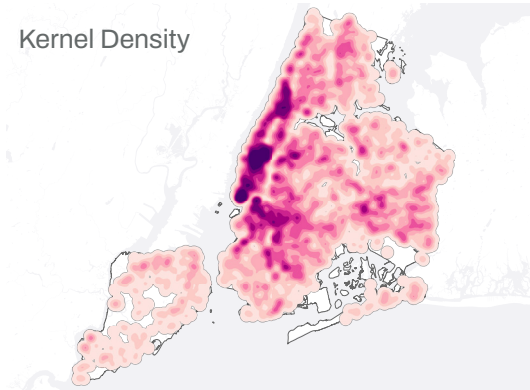
What do ethnicity-based MWBE clusters look like?

How do they relate to the ethnic composition of their neighborhoods?

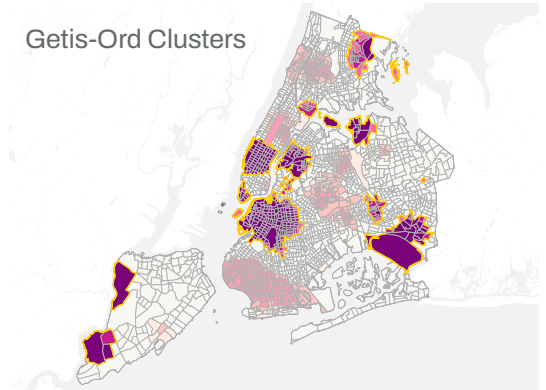
COMPARING ETHNIC CLUSTERS OF MWBES

MWBES

Kernel Density

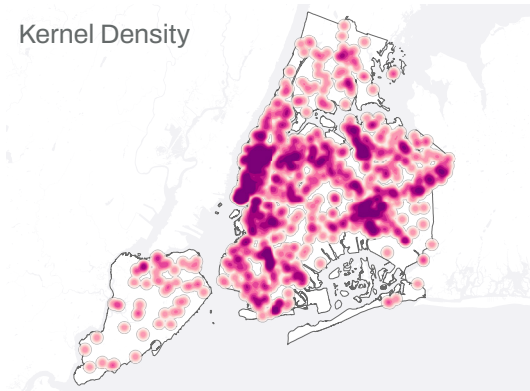


Getis-Ord Clusters

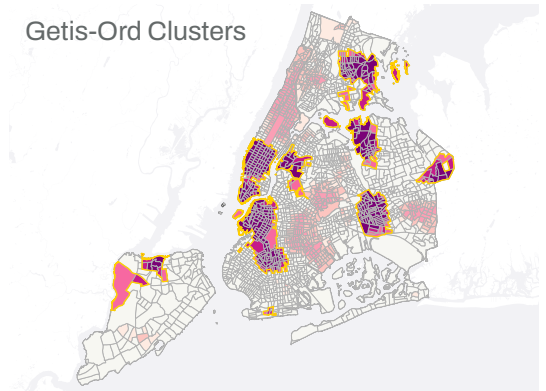


Asian

Kernel Density

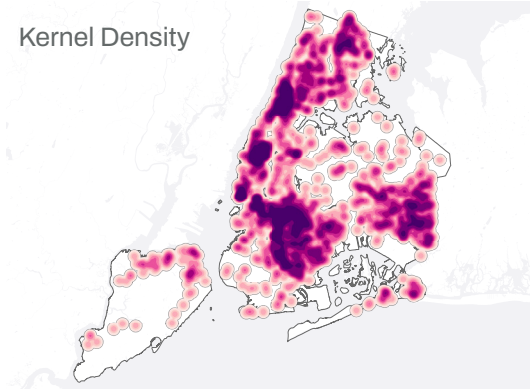


Getis-Ord Clusters

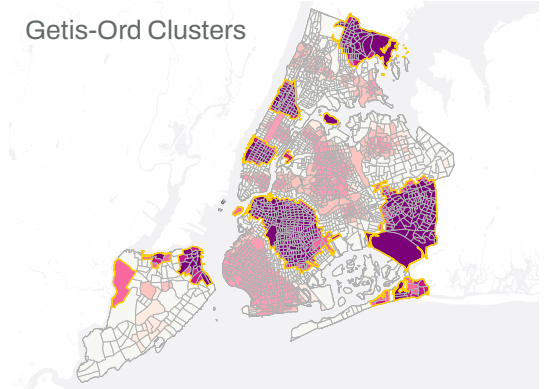


Black

Kernel Density

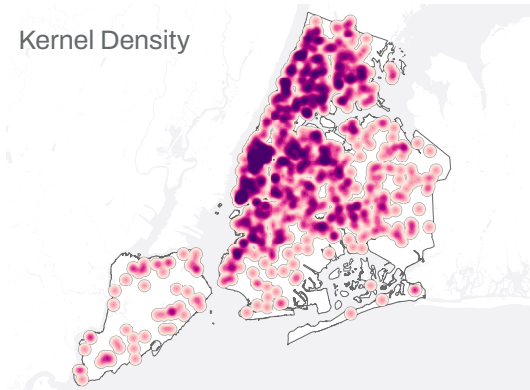


Getis-Ord Clusters

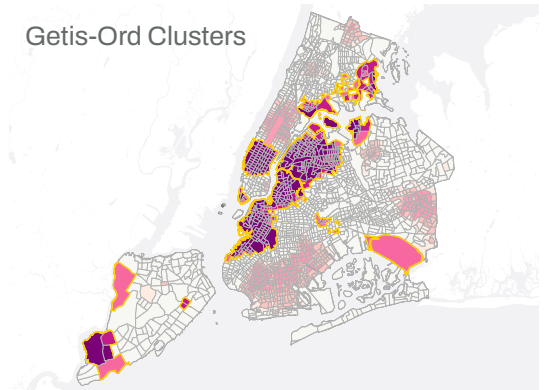


Hispanic

Kernel Density



Getis-Ord Clusters



COMPARING ASIAN BUSINESS CLUSTERS WITH:

THE PERCENTAGE OF ASIAN PEOPLE

By overlaying the outlines of Asian-owned MBE clusters over a population density map of Asian people, we can see if there is a correlation between Asian-owned MBEs and Asian population clusters.

Total number of Asian-owned businesses:
1,563 (21.5% of all MWBEs)

	No of businesses	% of MWBEs in borough
MN	484	20.3%
BK	354	17.3%
BX	60	7.7%
QN	609	34.5%
SI	56	18.5%

Choropleth of percentage of Asian people
 + Clusters of Asian-owned MBEs

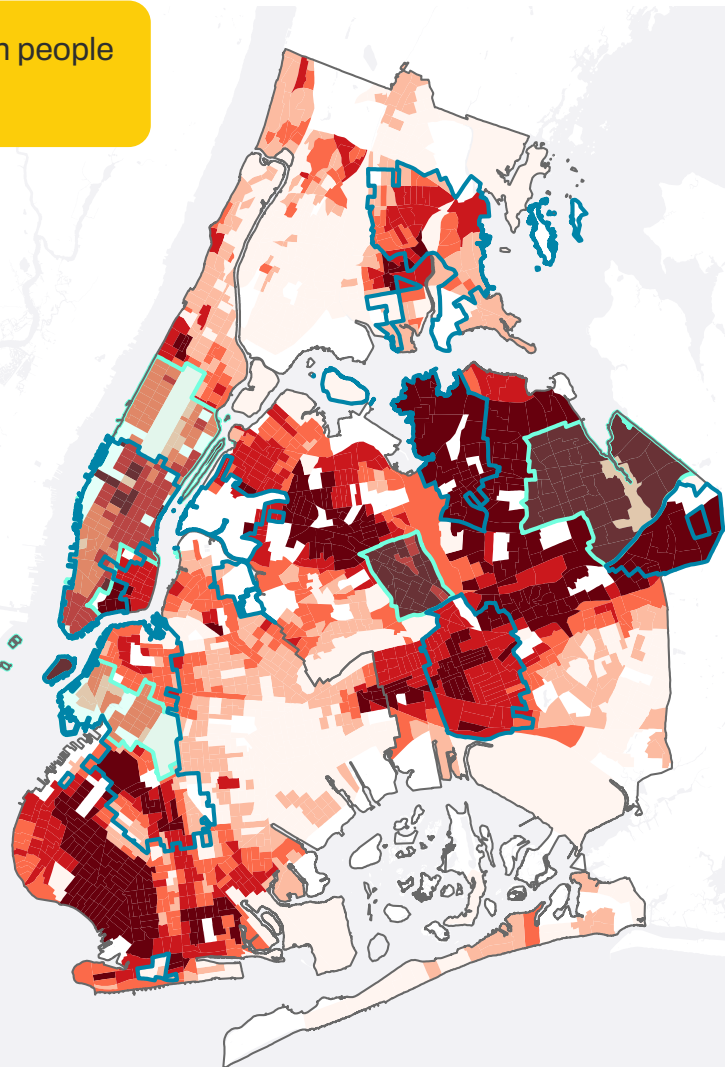


PERCENTAGE OF ASIAN PEOPLE



Clusters of Asian-owned MBEs

Areas with high NFHI scores



COMPARING BLACK BUSINESS CLUSTERS WITH:

THE PERCENTAGE OF BLACK PEOPLE

By overlaying the outlines of Black-owned MBE clusters over a population density map of Black people, we can see if there is a correlation between Black-owned MBEs and Black population clusters.

Total number of Black-owned businesses: **2,595** (35.7% of all MWBEs)

	No of businesses	% of MWBEs in borough
MN	685	28.8%
BK	922	45.1%
BX	368	47.6%
QN	549	31.1%
SI	71	23.4%

Choropleth of percentage of Black people
+ Clusters of Black-owned MBEs

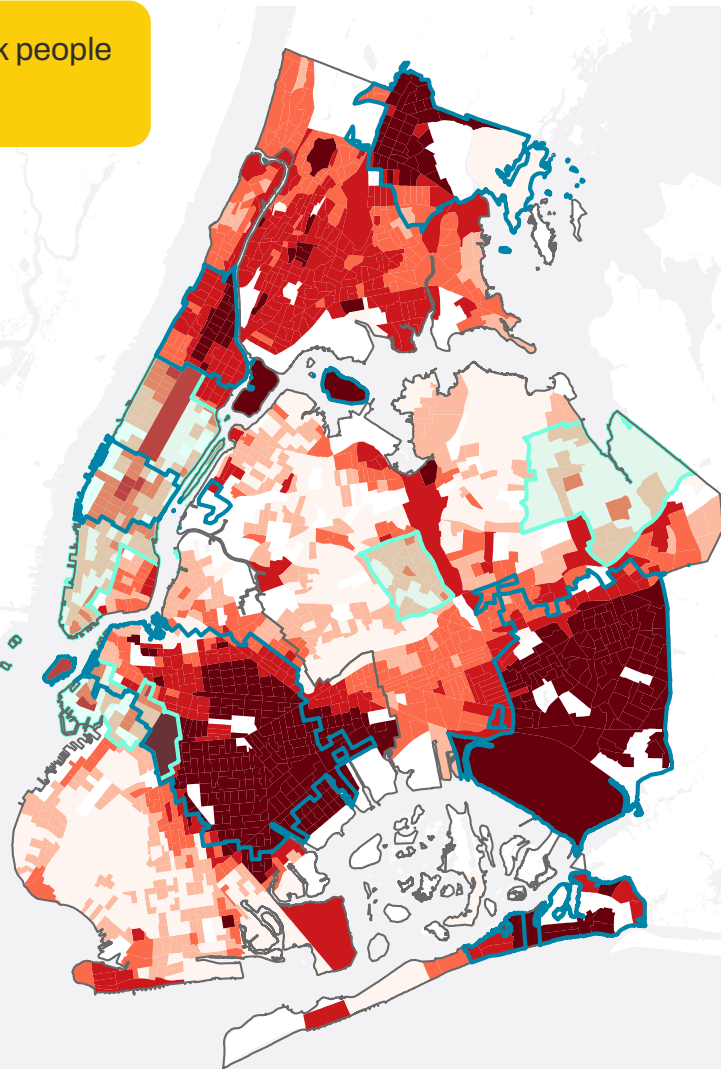


PERCENTAGE OF BLACK PEOPLE



Clusters of Black-owned MBEs

Areas with high NFHI scores



COMPARING HISPANIC BUSINESS CLUSTERS WITH:

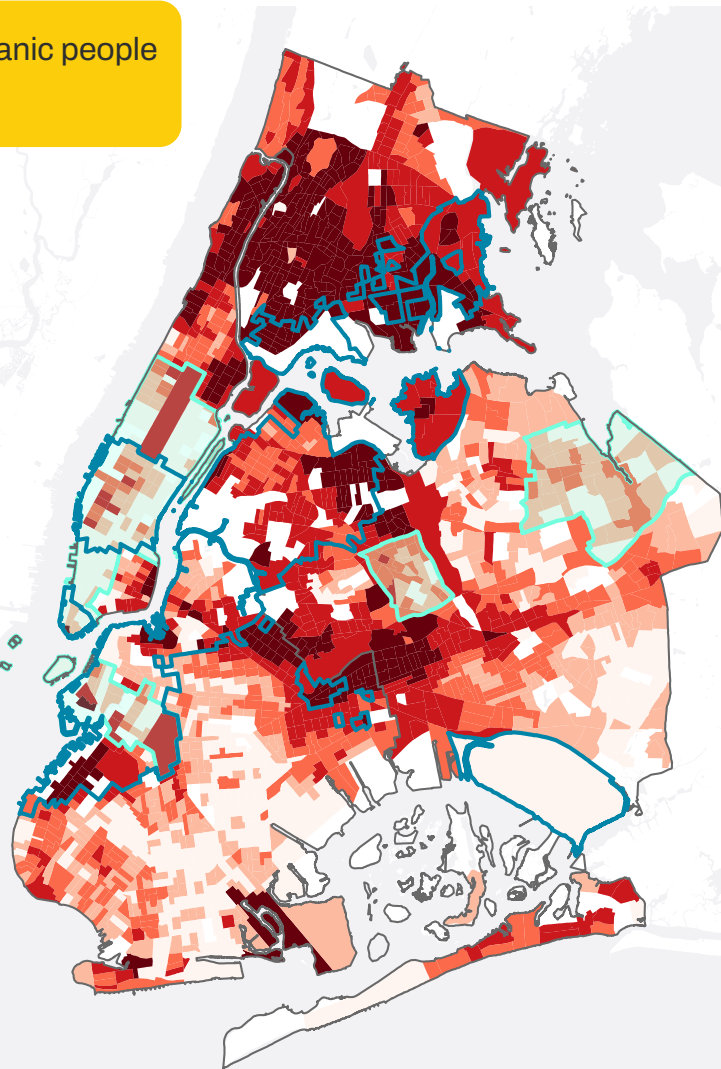
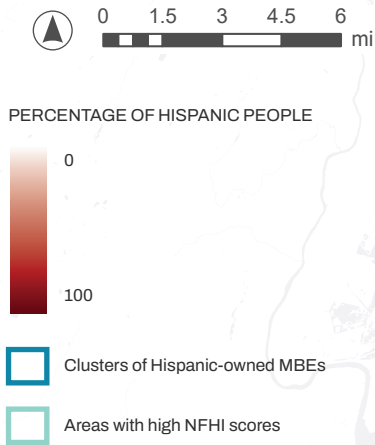
THE PERCENTAGE OF HISPANIC PEOPLE

By overlaying the outlines of Hispanic-owned MBE clusters over a population density map of Hispanic people, we can see if there is a correlation between Hispanic-owned MBEs and Hispanic population clusters.

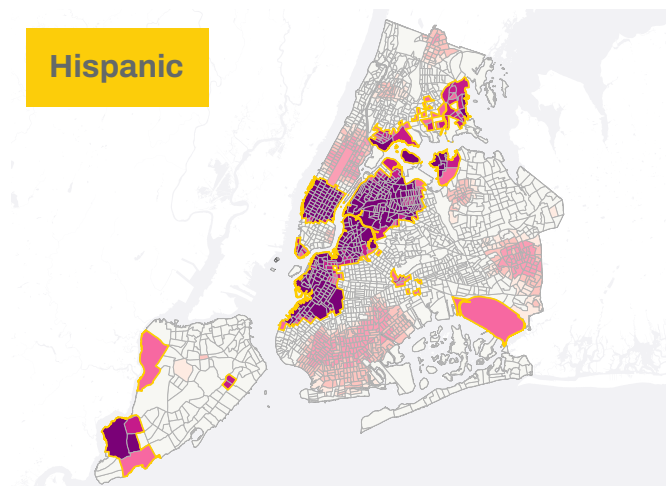
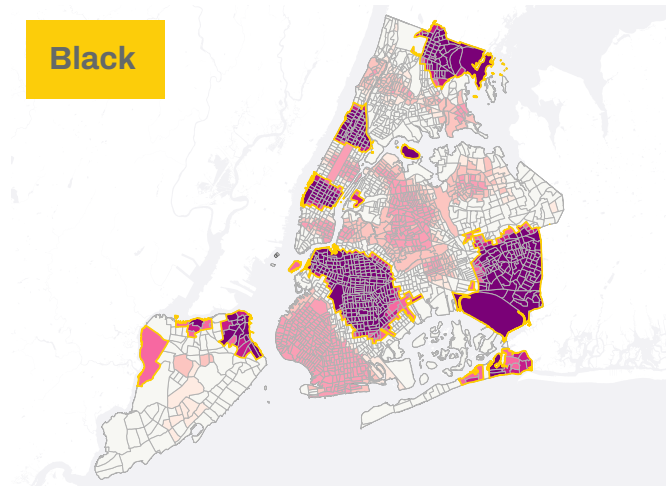
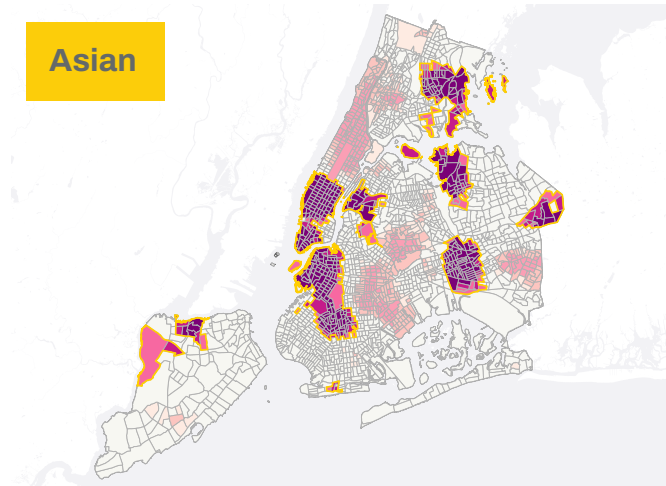
Total number of Hispanic-owned businesses: **1,291** (17.1% of all MWBEs)

	No of businesses	% of MWBEs in borough
MN	382	16.07%
BK	230	11.2%
BX	284	36.7%
QN	339	19.2%
SI	55	18.15%

Choropleth of percentage of Hispanic people
+ Clusters of Hispanic-owned MBEs

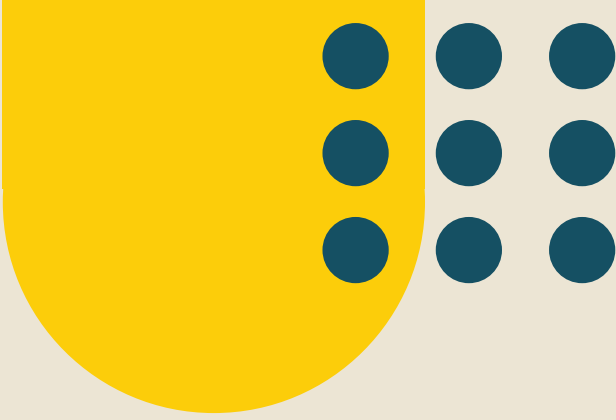


COMPARING ETHNIC CLUSTERS OF MWBES



Total count	% of all MWBEs
1,563	21.5%
2,595	35.7%
1,291	17.1%

	% in high NFHI zones (A)	% in ethnicity clusters (B)	% in both A and B
s	33.6%	33.2%	8.7%
	16%	39.3%	0%
	25.1%	26.1%	0%



CONCLUSIONS

Mapping the clusters of **all businesses in NYC** and comparing them to the **clusters of MWBEs** leads to the following observations:

- In Manhattan, clusters of MWBEs coincide with clusters of all businesses, whereas those in other boroughs overlap or differ from all-business clusters.
- The cluster of MWBEs in lower Manhattan covers a smaller, more defined region than that of all businesses.

Comparing the clusters of **MWBEs** with **neighborhood financial health scores** leads to the following observations:

- MWBE clusters are present in neighborhoods of varying financial health, meaning that there is no significant correlation between MWBE presence and the financial health of neighborhoods.
- The only region where MWBE clusters overlap with high NFHI scores is Midtown Manhattan.
- Similarly, the monetary value of city contracts awarded to MWBEs has no particular correlation with NFHI scores.

Comparing the clusters of **MWBEs** with **ethnicity densities** leads to the following observations:

- There are significant differences in ethnicity-based MWBE clusters all over the city, except in midtown Manhattan where there are major overlaps.
- Ethnic MWBE clusters may/ may not overlap with ethnic population clusters, depending on the ethnicity (Black MWBEs have significant overlaps) and on the region they're located in.

Finally, comparing MWBE clusters with ethnicity densities & NFHI scores reveal that:

- While a significant percentage of Asian-owned businesses are located in high NFHI zones, the percentage is much lower for Black-owned and Hispanic-owned businesses.
- Black and Hispanic-owned business clusters have zero businesses that are both in a neighborhood with a high Black/Hispanic population, and has a high NFHI score.

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