Combating the Housing Crisis:

An Analysis of Suitable Locations for Affordable Housing in NYC

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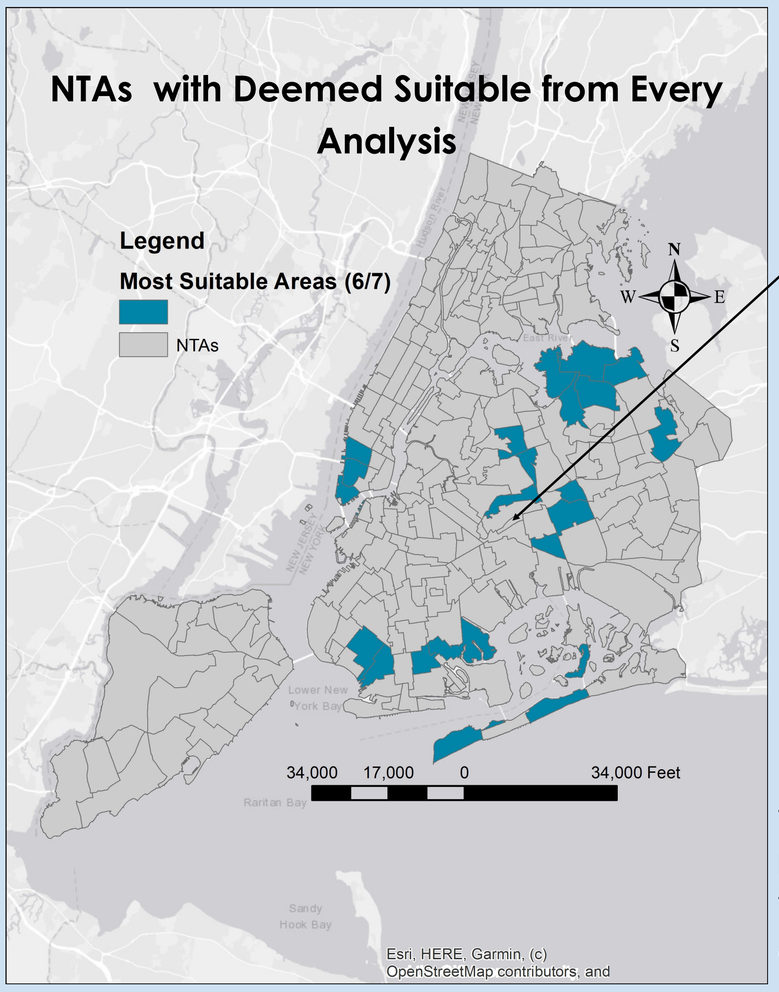
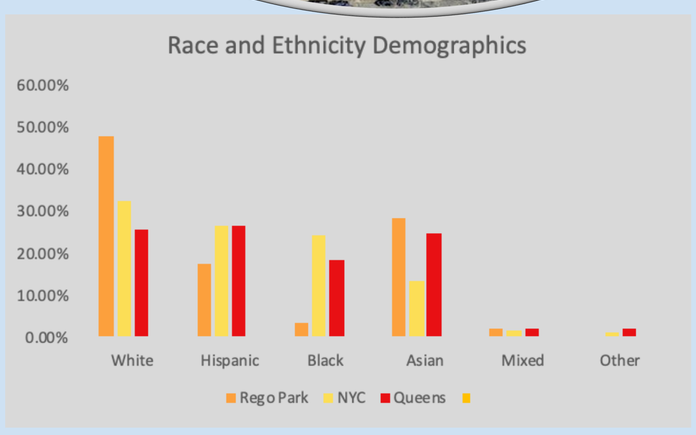
Introduction

Approximately half of all households in NYC are rent burdened, causing an extreme housing crisis. Recently, the City instituted a new plan aiming to create 200,000 housing units. However, incentives to encourage private production of these will not produce nearly enough units. For this reason, the City will need to invest substantial amounts of money to fulfill this goal. Finding locations that are both affordable, while providing the most urban resources will make for the best use of funds. This poster aims to answer, **what neighborhoods in New York City are most suitable (based on price and resources) for new affordable housing developments?**





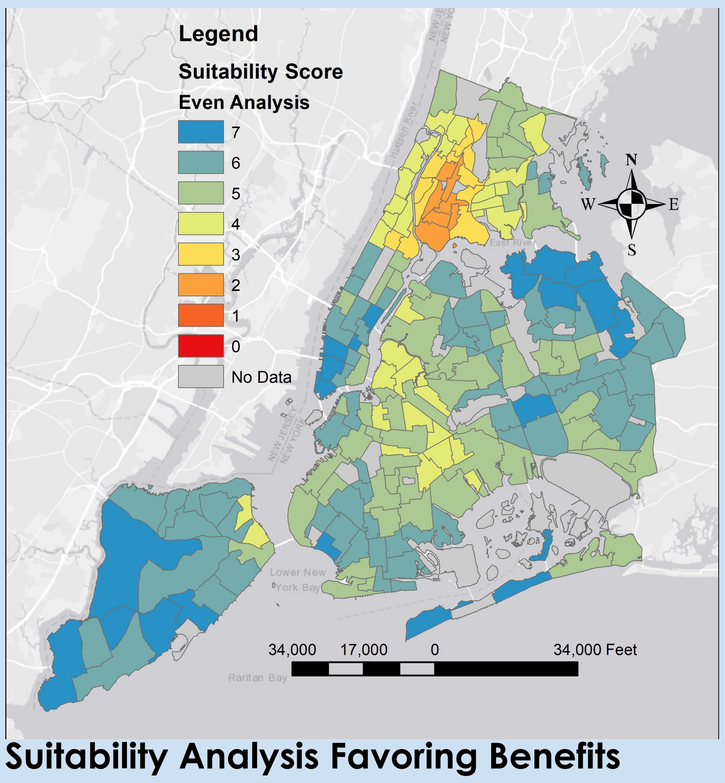
Results and Conclusions

This analysis determined that 20 neighborhoods in New York City are suitable for affordable housing. These are the neighborhoods that received a score of either a 6 or a 7 in the suitability analysis. Notably, 12 of these locations are in Queens, highlighting the relative affordability of many parts of the borough, while maintaining quality urban resources. The additional maps rank suitability of all neighborhoods and allow policymakers to determine priorities based on cost or future benefit. When considering the analysis emphasizing price 90 neighborhoods were determined most suitable, compared to 24 areas in the benefits analysis. This, along with a comparison of the factor maps, demonstrates the inverted qualities of the cost and benefits considered in this study and thereby the difficulty in finding locations that can be deemed good investments. Additionally, although there are significantly more suitable locations with the price analysis, both the price and benefits analysis on have 5 and 4 neighborhoods with a score of 7, respectively, none of which overlap. This again highlights the contradictory nature of the input factors, making it difficult to find suitable locations.

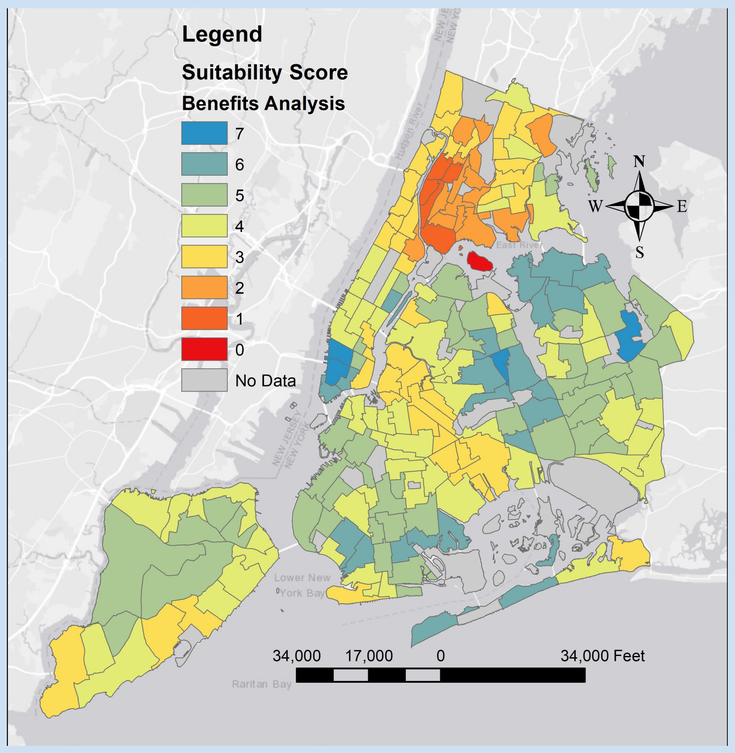
Methods

A suitability analysis was conducted with 7 factors including average 2 bedroom rent price, average market land value, ELA and math 4th grade test scores, unemployment rate, poverty rate and subway accessibility. Census tracts and point data were aggregated by Neighborhood Tabulation Area (NTA) using a union and then averaging the values with SQL. The resulting tables were mapped in vector form, converted to rasters and reclassified, using 10 natural breaks (see model). Following, a weighted overlay was conducted with three different weighting methods involving mostly equal weight, the cost of the units weighted more heavily, and the benefits of the neighborhood benefited more heavily (see table). The resulting maps were converted back to vectors and spatially joined to the NTA tract in order to reaggregate the data to neighborhood and determine the most suitable locations for development.

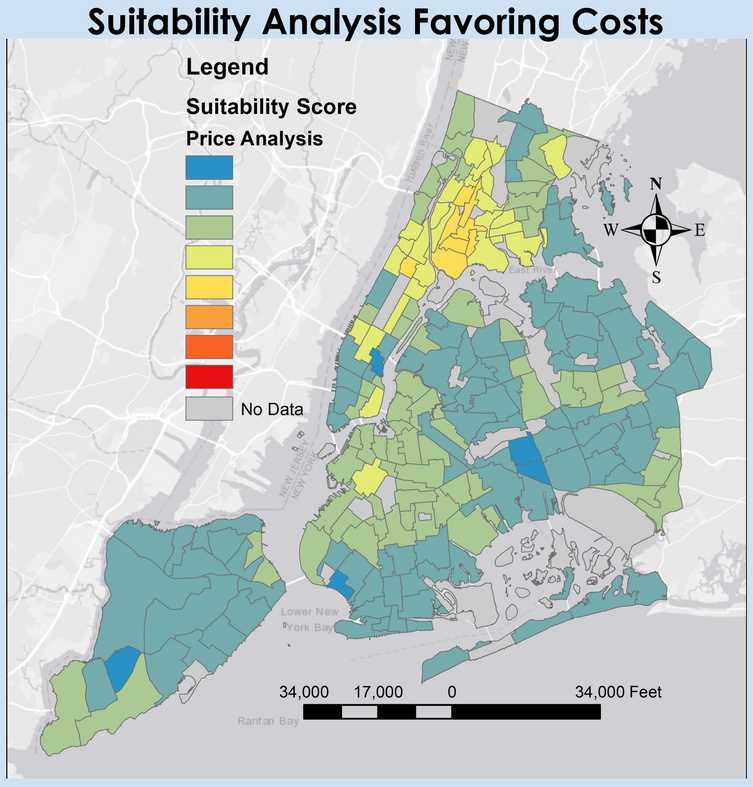
Even Factor Suitability Analysis



Suitability Analysis Favoring Benefits



Suitability Analysis Favoring Costs



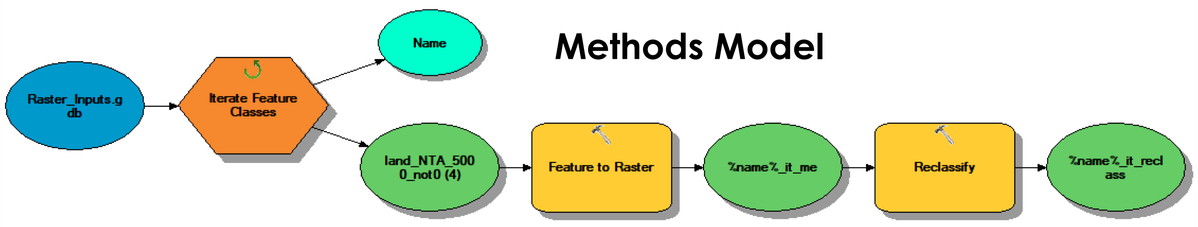
Data collected for this project came from NYC Open Data and the Census ACS 2012-2018.

Projection and Coordinate system: NAD_1983_2011_StatePlane_New_York_Long_Isl_FIPS_3104_Ft_US Lambert_Conformal_Conic

Weighted Overlay Breakdowns

Factors	Even	Benefits	Price
Math Scores	15%	10%	18%
ELA Scores	15%	10%	18%
Poverty Rate	15%	10%	18%
Unemployment Rate	15%	10%	18%
Land Value	15%	25%	9%
Average Rent	15%	25%	9%
Subway Accessibility	10%	10%	10%

Methods Model



Affordable Housing Tabulation Areas