



Head Above Water: Sea Level Rise and Gentrification in Brooklyn and Queens, New York

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Introduction

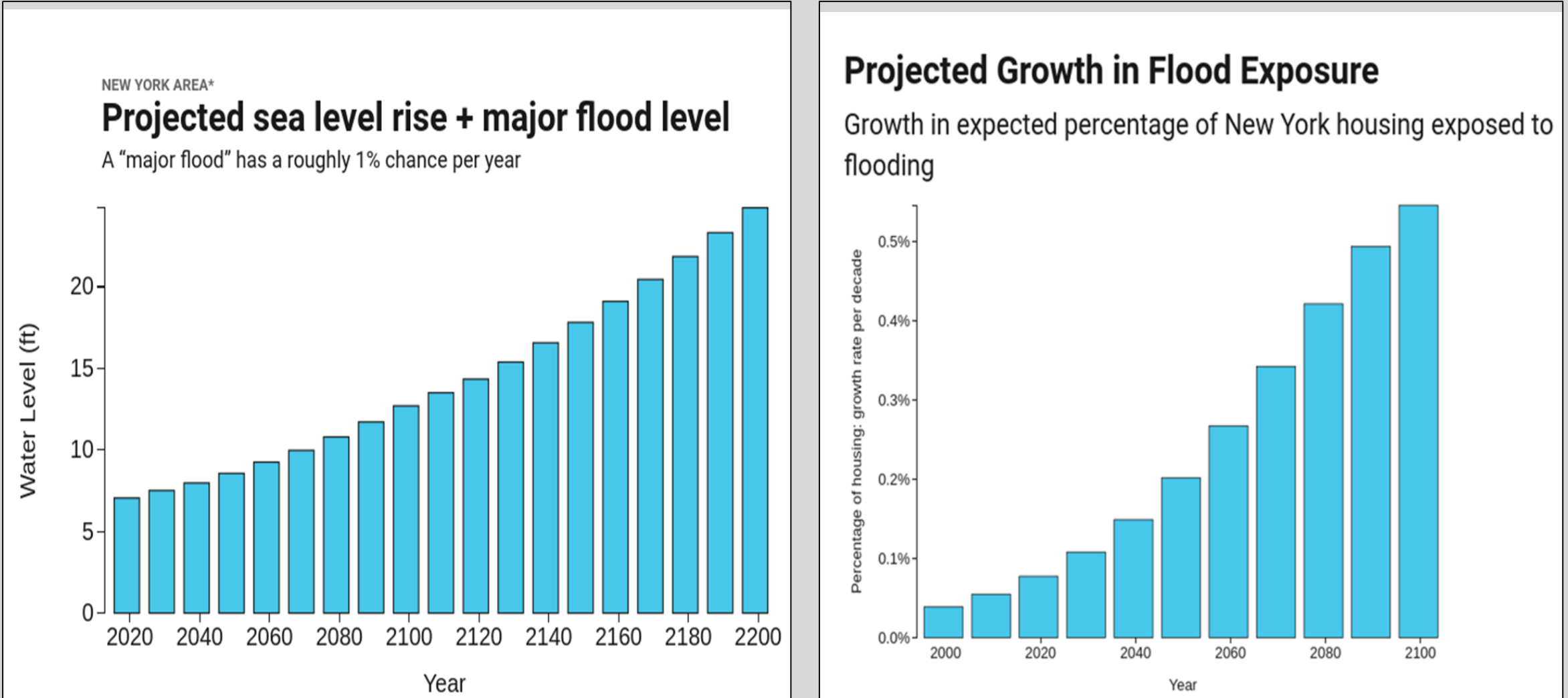
Brooklyn and Queens are the most racially and socially diverse areas in both New York, and the United States. At 4.2 million inhabitants (Census 2012), roughly half of the city's population lives within the boroughs. Through centuries of migration and urban development, the two cities have been home to hundreds of ethnicities and cultures, and have become home to some of the largest communities of African American, Asian, Hispanic, and Native American neighborhoods in the city. Throughout the last half of the 20th century, the area witnessed major decline in the standard of living caused by millions who left for suburban outskirts, leaving many reliant on urban life for affordability and a sense of community. However, as upper and middle class Americans begin to reoccupy cities once again, the redevelopment fueled by 'Urban Renewal' threaten to destroy communities, and leave thousands displaced from their properties.



Curbed, 2018 via. BQX

How Will (SLR) Inundation Affect Gentrification of Socially Vulnerable Communities in Brooklyn and Queens, NY

Analysis of geospatial data and geographic trends in climate change indicate rapid inundation along coastal areas in the New York City area. Data collected by the Federal Emergency Management Agency (FEMA) (fig.2) indicates both submergence of the coastlines as well as a growing risk of flood zones that carry the capacity to displace as many as 600,000 New York resident and jobs and submerge 95,000 housing units. (fig.3)



National Oceanic and Atmospheric Agency (NOAA) Analysis of flooding and Inundation in Brooklyn and Queens (2016) Fig 2 & 3

My research investigates the possible scenarios of how sea level rise affects the migration of coastal residents into neighborhoods of Brooklyn and Queens. Which, as a result, displaces occupants and raises property values and rentals to accommodate wealthier prospecting residents.

While the study of 'climate gentrification' is within its infancy, instances of climate gentrification have case studies in areas such as Dade County-Miami Area (see Keenan 2018; Goud 2016), which investigate the degrading property value of coastal homes, and the increase in property value in socially vulnerable areas at higher elevations.

Investigation of the Brooklyn and Queens area of New York provides further insight of the potential effects that climate and sea level rise will pose on housing markets and urban development in decades to come.

Impacts on Policy and Planning

Climate gentrification studies can be used to identify potential risk zones for displacement of neighborhoods and communities along coastal regions in urban areas. Long term analysis is required to assess the potential risks that wealthier climate refugees pose for city neighborhoods. The scenarios of inundation researched indicate that damage will be increased by inaction.

Whether it is through investment amongst neighborhoods at risk of flooding; policy that protects communities susceptible to displacement by housing markets; or, a matter of public resilience investments that drive up the value of property, the theory of CG gives recognition to the various pathways by which climate change impacts may drive investment and settlement patterns.



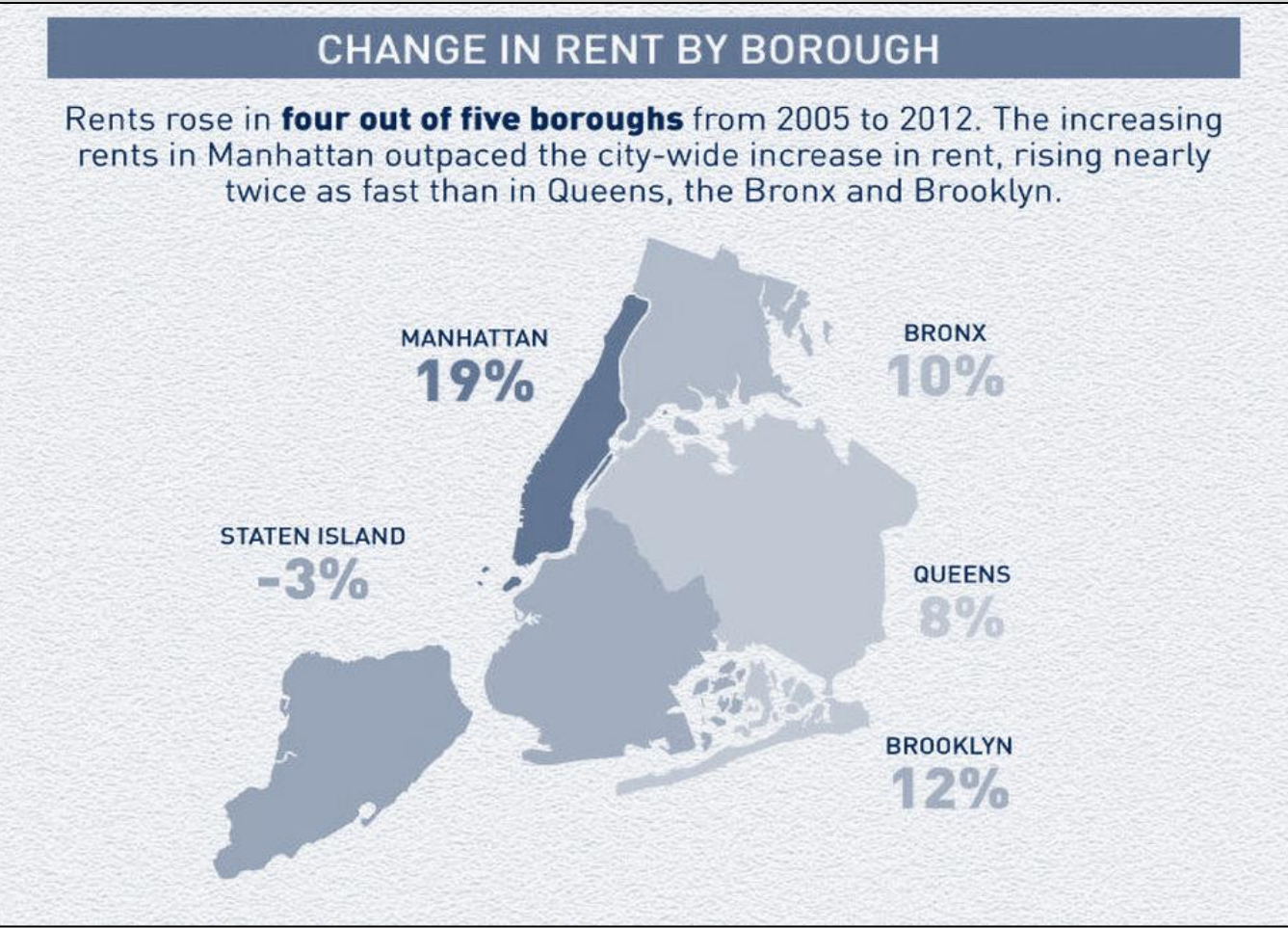
Vice, 2016 (Photo by Max Becherer/AP)

Gentrification in the Boroughs

The continuous threat of gentrification on vulnerable communities has led to displacement of low income residents, particularly those of color, immigrants, and various cultural communities that have inhabited urban neighborhoods for generations. With the movement of affluent cosmopolitan New Yorkers into more affordable neighborhoods, Brooklyn and Queens faces the risk of losing the culture and identity that has defined it's character.

However, while the communities that are most at risk from migration into neighborhoods are certainly those who are disadvantaged economically, the threat of inundation and flooding that effects the wealthy could become a catalyst for gentrifying neighborhoods.

In New York's waterfront development, vulnerable areas have been held by predominantly Caucasian, higher income households, particularly those within Manhattan and its surrounding suburban extensions and boroughs. Property values, racial demographics, as well as the analysis of income suggest that most areas prone to storm surge and sea level rise in the New York Metropolitan Area (NYMA) account for predominantly affluent to middle class Caucasian. Data points find that most development with water accessibility and a risk of flooding remain with private property owners. Many of the surrounding suburban areas with water access exhibit higher numbers of wealthy individuals. While efforts to construct affordable housing and friendly policy to accommodate the exponential rise of housing costs have been implemented in recent years, many indicate that it's not enough to wade the rising number of residents. (Fig. 1)



Analysis of Inundation and Socio-Economic Vulnerability

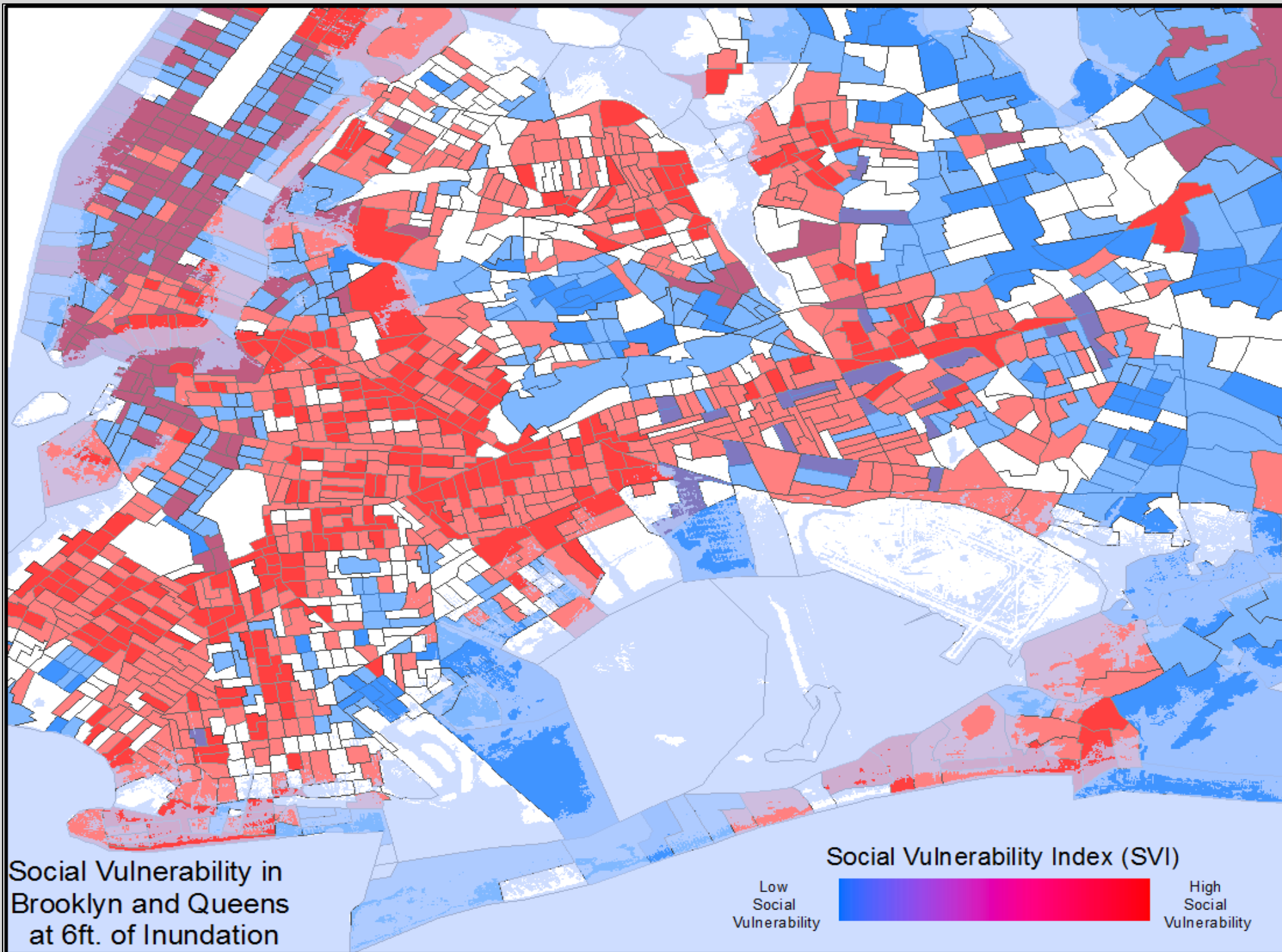
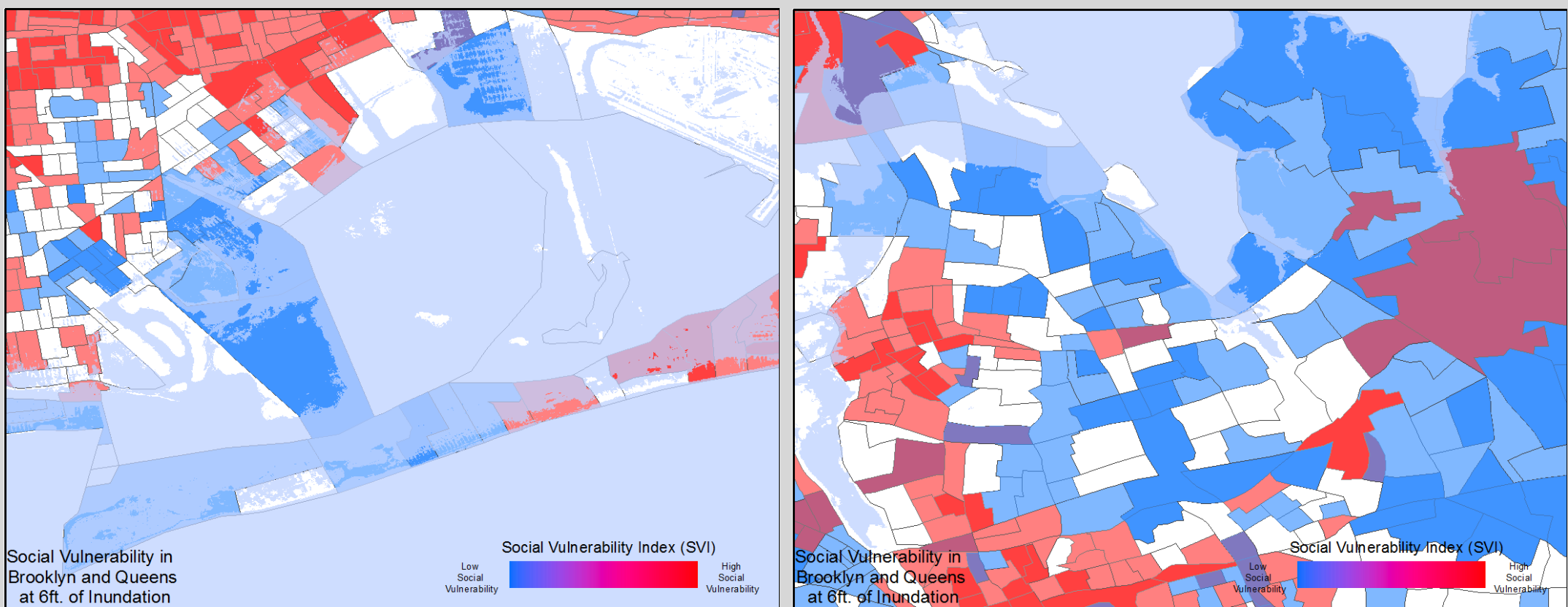
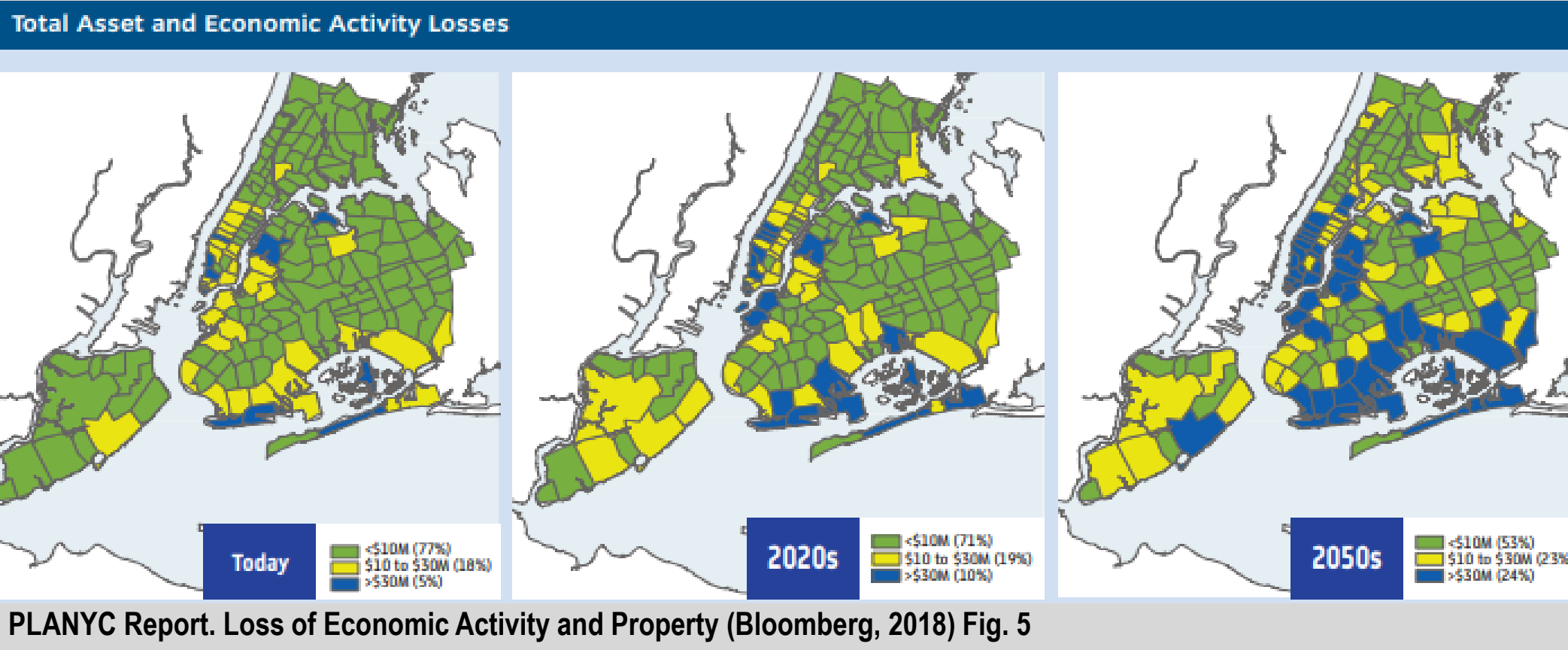
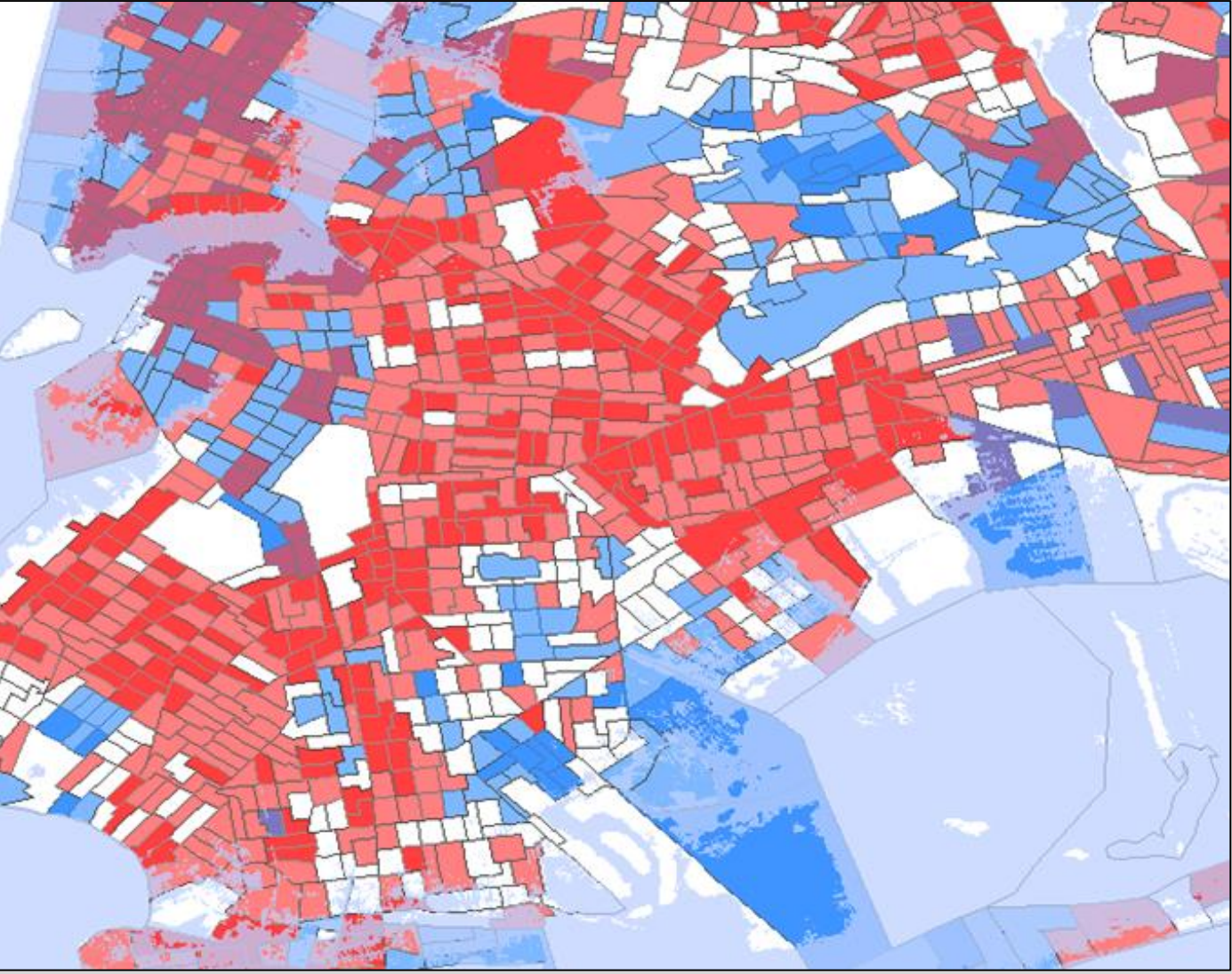


Fig. 4 Social Vulnerability in Brooklyn and Queens

The findings collected were provided by census data from the US Census Bureau as well as mapping and graphing data from the National Oceanic and Atmospheric Agency, indications of properties in areas where flood inundation zones exist are indicated in the figure above. (fig.4) With GIS technology, and data collected from the CDC and NOAA, I developed a map to visualize socially vulnerable areas with within the Brooklyn and Queens boroughs alongside data of predicted sea level rise of approximately 6 feet to indicate what areas are vulnerable to inundation. (fig.5)



Further observation of inundation zones indicates that climate change vulnerability is mixed amongst wealthier and poorer communities. As research predicted, many locations along coastal flood zones are held by those who score low on the social vulnerability index. However, data also exposes flood risk neighborhoods of those with high social vulnerability. (Fig. 6 &7)



Mapping also indicated large portions of inland Brooklyn as areas with a high rate of vulnerability to gentrification based on housing and socioeconomic status. (see fig. 8) These areas through my research are believed to be exposed to long term effects of gentrification through both short term movement caused by housing markets, as well as the geographic change caused by sea level rise, which will lead to the potential loss of property as well as the displacement and relocation of climate refugees along flood risk zones.

Conclusion

In order to advance the study and understand the full affects of climate change on redevelopment and gentrification, more analysis and study will be required from more test areas, as well as a development of new methods to better understand gentrification, circumstances, and consequences.

To preserve and protect vulnerable communities, as well as historical and cultural identity of the neighborhoods in New York, action by local governments must be taken to prevent the displacement of inhabitants and remain as a welcome hub to newcomers.

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