NYC Climate Displacement
Rebuild by Design & Milliman Collaboration

How might future storm surge flooding impact NYC neighborhoods
*and cause displacement of residents?*

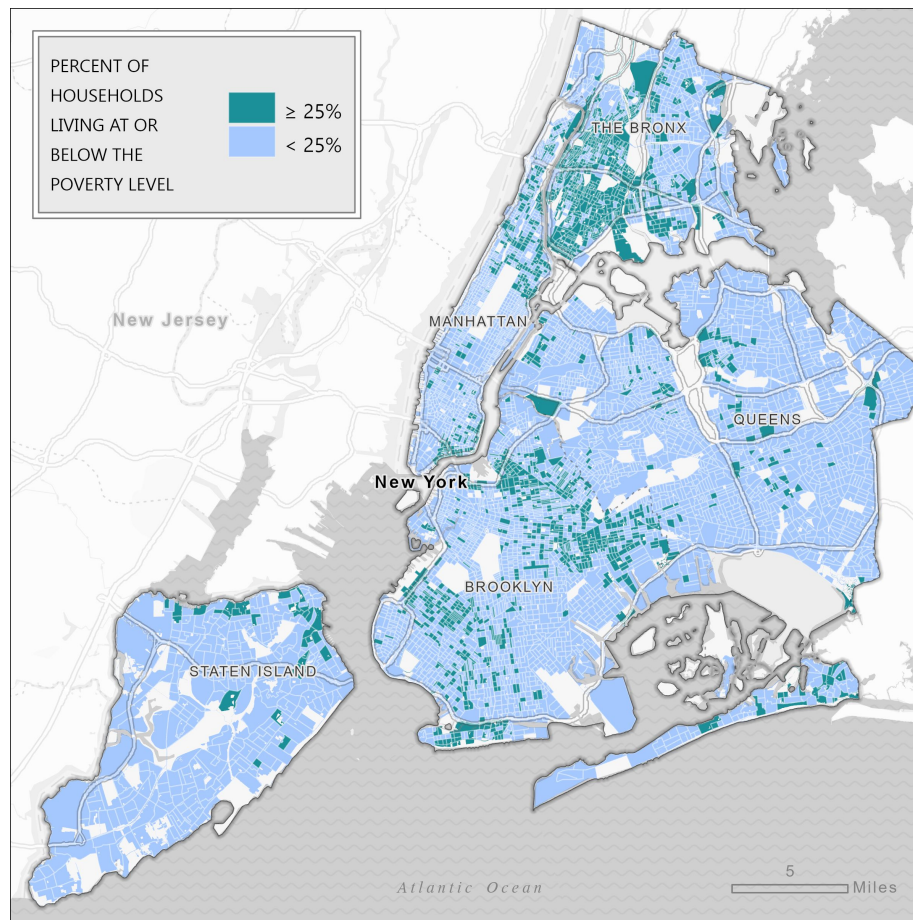REBUILD
BY
DESIGN

Milliman

Research objectives

1. Better understand how future storm surge flooding, driven in part by sea level rise, could impact New York City neighborhoods and cause displacement of residents.
2. Evaluate this in the context of both the <u>physical threats</u> posed by flooding and the <u>social and financial threats</u> caused by people moving.
3. Better understand how the socioeconomic makeup of a coastal city such as New York may change as climate change worsens.
4. Add to the growing body of data about possible displacement to allow the City to plan for climate adaptation and provide people across the economic spectrum with the best possible options.

Step 1: Identify which block groups are impacted by flooding in 2050

Legend:
- 2050 100-YR FLOODPLAIN
- BLOCK GROUP NOT IMPACTED BY INUNDATION
- BLOCK GROUP IMPACTED BY INUNDATION
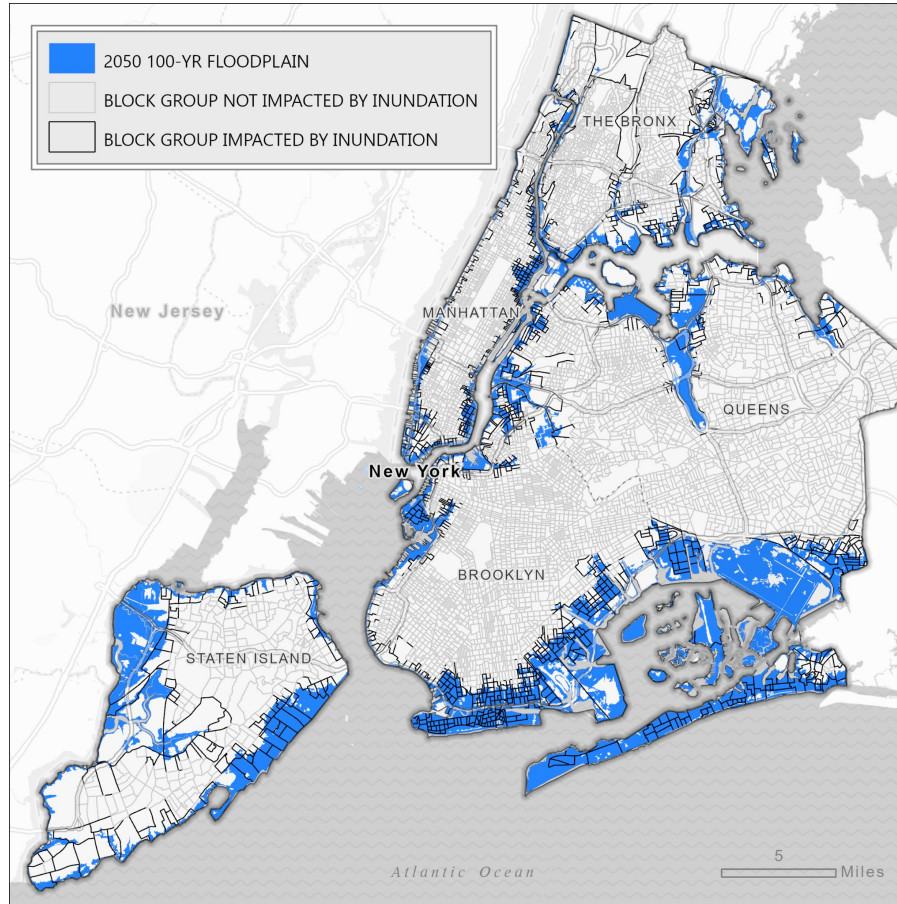
Source: NPCC & US Census

Step 2: Identify lowest-income block groups

PERCENT OF HOUSEHOLDS LIVING AT OR BELOW THE POVERTY LEVEL
- ≥ 25%
- < 25%

Source: US Census

Displacement quadrants
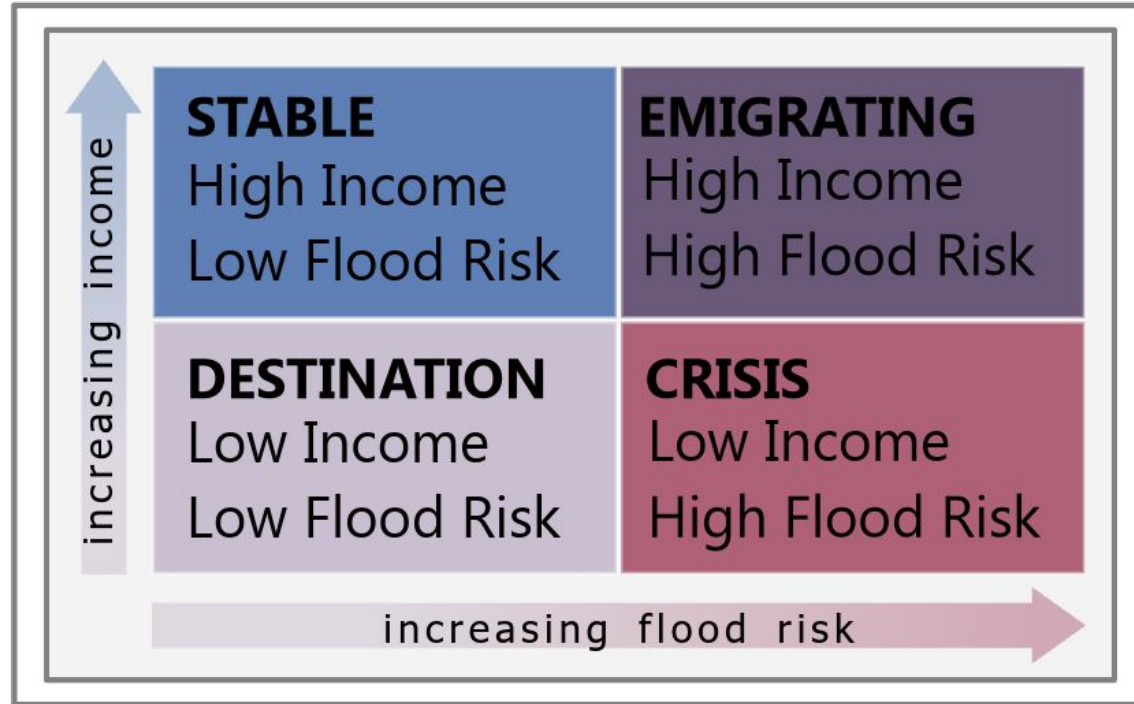
Step 3: Assign block groups to a displacement "quadrant"

STABLE
High Income
Low Flood Risk

EMIGRATING
High Income
High Flood Risk

DESTINATION
Low Income
Low Flood Risk

CRISIS
Low Income
High Flood Risk

increasing income

increasing flood risk

PARKS, OPEN SPACE, AND
NON-RESIDENTIAL AREAS

THE BRONX

MANHATTAN

QUEENS

New Jersey

New York

BROOKLYN

STATEN ISLAND

Atlantic Ocean

5 Miles
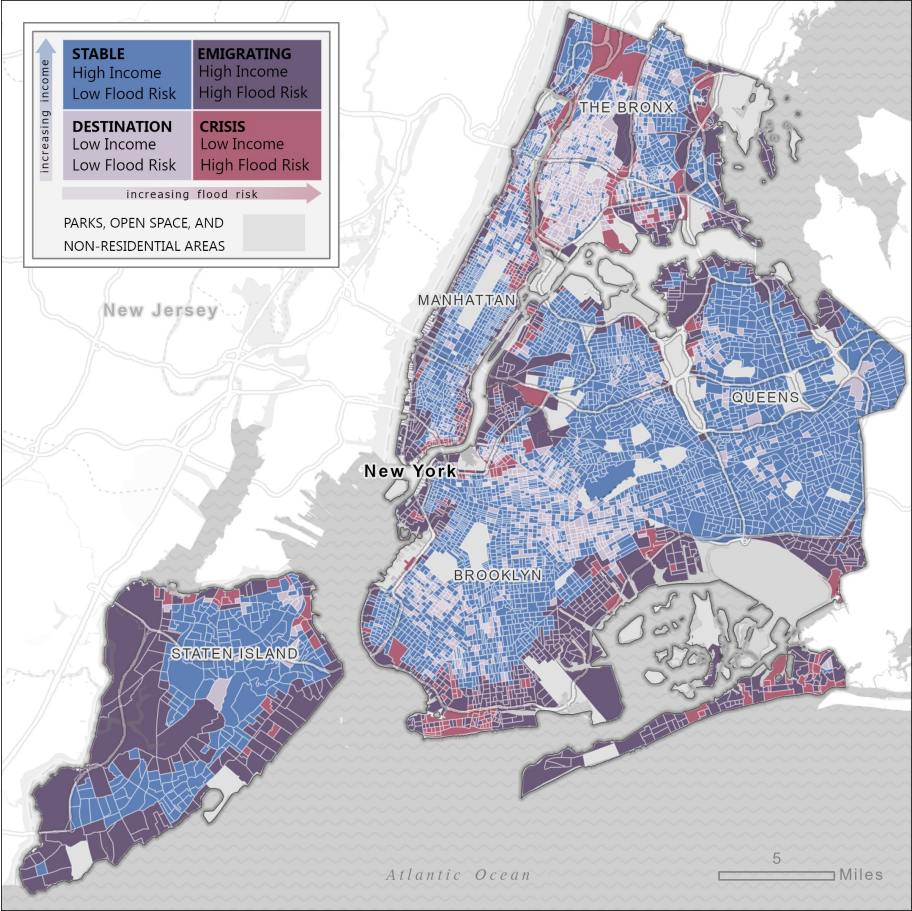
Step 4: Aggregate additional demographic data by quadrant

Over 40% of New Yorkers will be at risk of displacement without comprehensive and proactive government planning, the **EMIGRATING** population could add additional pressures to limited housing stock in inland neighborhoods with lower rents **(DESTINATION)**.

Over one third of households in **DESTINATION** areas live below the poverty level and are at the highest risk for displacement.

This data can help Local and State governments to anticipate and plan for population shifts to give all people across the economic spectrum the best options for adapting to a future climate.

Notes:
- This study does not evaluate stormwater / extreme rain flooding, which could cause significant flooding in "lower risk" areas
- Rent prices represents minimum estimate of median rent, as census data is capped at $3500.

DEMOGRAPHICS OF DISPLACEMENT QUADRANTS

QUADRANT	CRISIS	EMIGRATING	DESTINATION	STABLE
TOTAL POPULATION	443,826	1,259,709	1,771,022	4,928,668
% OF NYC POPULATION	5%	15%	21%	59%
% HOUSEHOLDS LIVING BELOW POVERTY	40%	10%	38%	11%
MEDIAN HOUSEHOLD INCOME	$30,975	$92,814	$32,020	$80,897
% WHITE	35%	57%	26%	46%
% BLACK	32%	20%	33%	22%
% ASIAN	11%	12%	9%	16%
% OTHER RACE	22%	11%	32%	16%
% HISPANIC OR LATINO*	37%	19%	46%	25%
TOTAL HOUSING UNITS	170,311	496,758	627,395	1,872,570
% RENTED HOUSING UNITS	90%	57%	88%	61%
MEDIAN RENT**	$898	$1,672	$1,157	$1,596
% OF HOUSING UNITS THAT ARE SINGLE FAMILY HOMES	6%	22%	6%	20%

TABLE 1. Census data aggregated at the quadrant level.

* The US Census considers "Hispanic or Latino" as an ethnicity, which is a distinct concept from race. Hispanic and latinos may be of any race and percent hispanic or latino in a population should not be totaled along with race percentages.

** Median rent by block group >$3,500 is expressed as $3,500+ in the census data, so we set values for block groups with a median rent "$3,500+" to $3,500. These values here should therefore be considered a "minimum" median rent by quadrant.

Initial takeaways

- **Emigrating population**
  - Mostly comprised of White, single-family homeowners.
  - Neighborhoods such as Seagate, Manhattan Beach, Williamsburg, and Malba.

- **Destination population**
  - Neighborhoods such as Brownsville, Bushwick, Harlem, and Morrisania
  - Currently comprised of majority non-White residents living in rented, multi-family dwellings.
  - Current median rental prices are at least $500/month lower than Emigrating areas

- **Crisis population**
  - Comprised of majority non-White residents living in multi-family rented units
  - Neighborhoods such as Coney Island, Rockaway Park, Seaside, East Harlem, and Port Richmond in Staten Island
  - Current median rents are some of the the lowest throughout the city.

- **Stable population**
  - The majority of residents in New York City (roughly 5 million)
  - Inland neighborhoods on higher ground, such as Brooklyn Heights and Jackson Heights.
  - Likely to be less impacted by others moving in from risky areas given the high rental costs and incomes of existing residents.

RECOMMENDATIONS

The development of a voluntary, government-led, predictable retreat program that is informed by the people most at risk with a prioritization for CRISIS community members. This program must be coupled with the input of inland communities, as well as the planning and creation of new affordable housing in inland neighborhoods to ensure these Destination areas do not see widespread displacement.

The planning and creation of affordable housing options focused in inland neighborhoods so that all New Yorkers can continue to remain in the city. Meaningful collaboration with local community organizations who understand the residents' specific needs and can act as a trustful partner when working with the local community.

Address the social implications of breaking up tightly knit communities and, where possible, give residents a choice to relocate near one another, maintaining community networks and social infrastructure.

Plan for the impact on critical services and physical infrastructure, such as schools, medical facilities, transportation, the power grid, and the sewer system for both the CRISIS and DESTINATION communities to ensure that government services are ready for increased populations and are ready for the increased and decreased population