

OPTIONS FOR MAKING FLOOD INSURANCE MORE AFFORDABLE

A CASE STUDY FOR
NEW YORK CITY



Center for Catastrophic Risk
Management and Compensation

Biggert-Waters Flood Insurance Reform Act of 2012

Section 100236(a)

Study options to help individuals afford risk-based premiums through targeted assistance

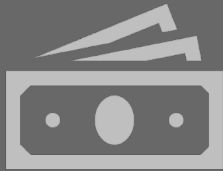
Compare costs of a Program with assistance vs. current Program

Homeowner Flood Insurance Affordability Act of 2014

Section 9: Prepare an affordability framework that considers:



Accurate Risk
Communi-
cation



Targeted
Assistance



Mitigate
Risk/Lower
Costs



Impact of
Increased
Rates



Impact of
Map
Updates

Key study questions

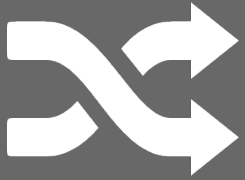
- 1 How burdensome is buying flood insurance for owners of one- to four-family dwellings?
- 2 How might premiums change in the area?
- 3 How will premium increases affect households and communities?
- 4 What options for reducing the impact of higher premiums are promising and what would they cost?

Project team and sponsor

- RAND Corporation
- Bender Associates
- Center for New York City Neighborhoods
- Dewberry Engineers
- Gayron de Bruin Land Surveying and Engineering
- Torrent Technologies

Project sponsored by the New York City Mayor's Office
of Recovery and Resiliency

How we conducted the NYC study



Random
sample

Online
survey

Elevation
survey

Rich
data set

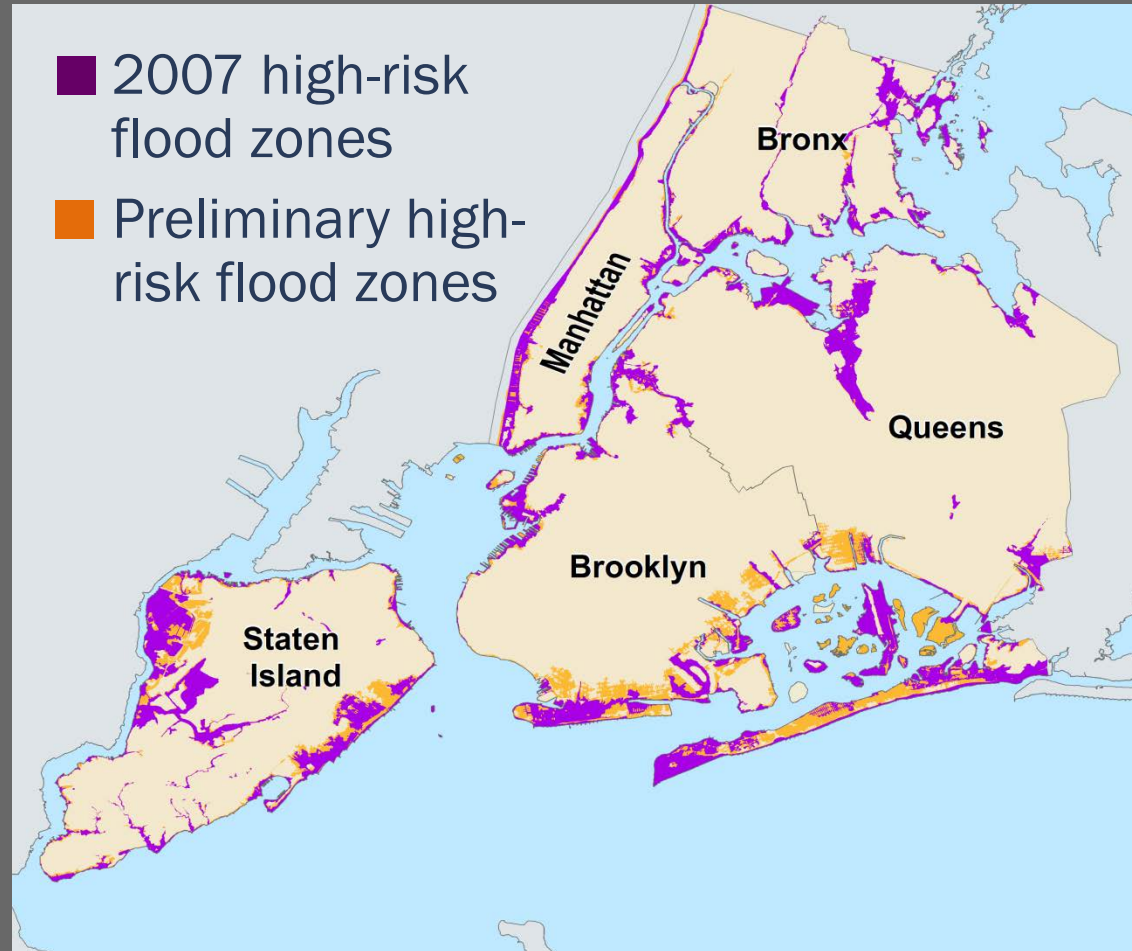
Affordability
options

RAND was asked to answer several questions

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Study area

48,100
1- to 4-family structures
42,700
owner occupied
85%
pre-FIRM
67%
have basements
43%
have flood insurance



Canarsie



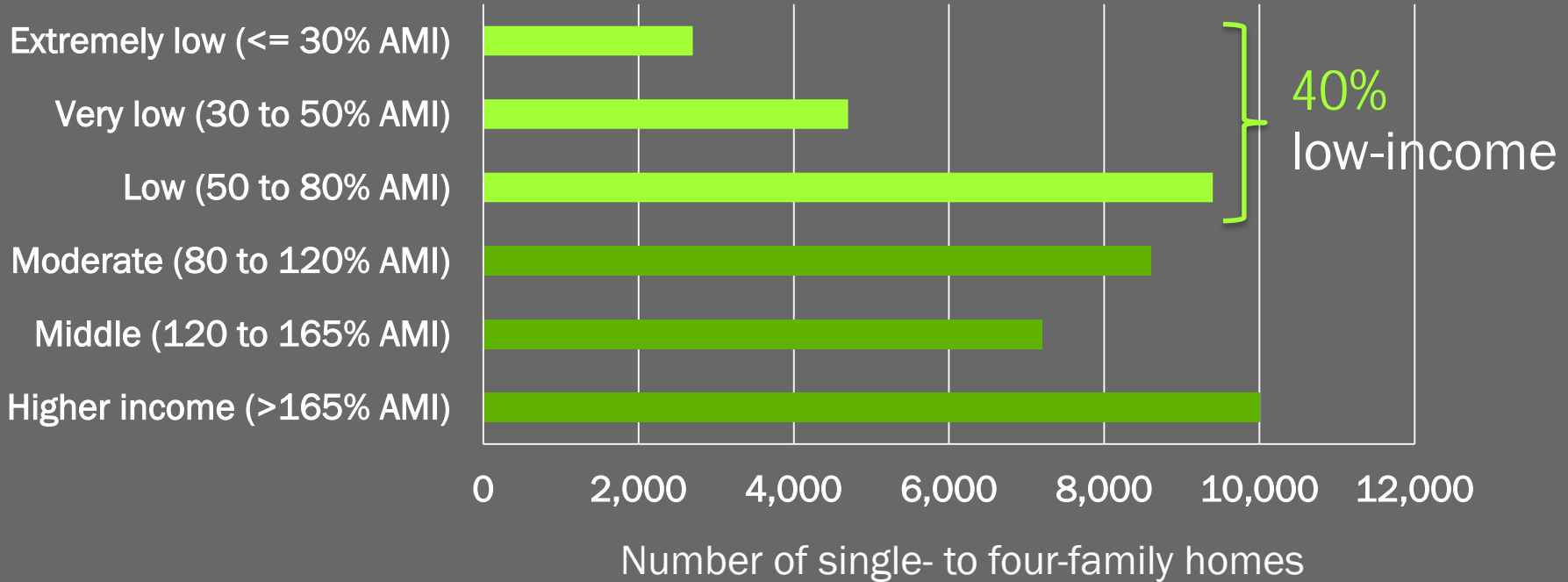
Old Howard Beach



Alternative Definitions of When Flood Insurance Is Considered Unaffordable

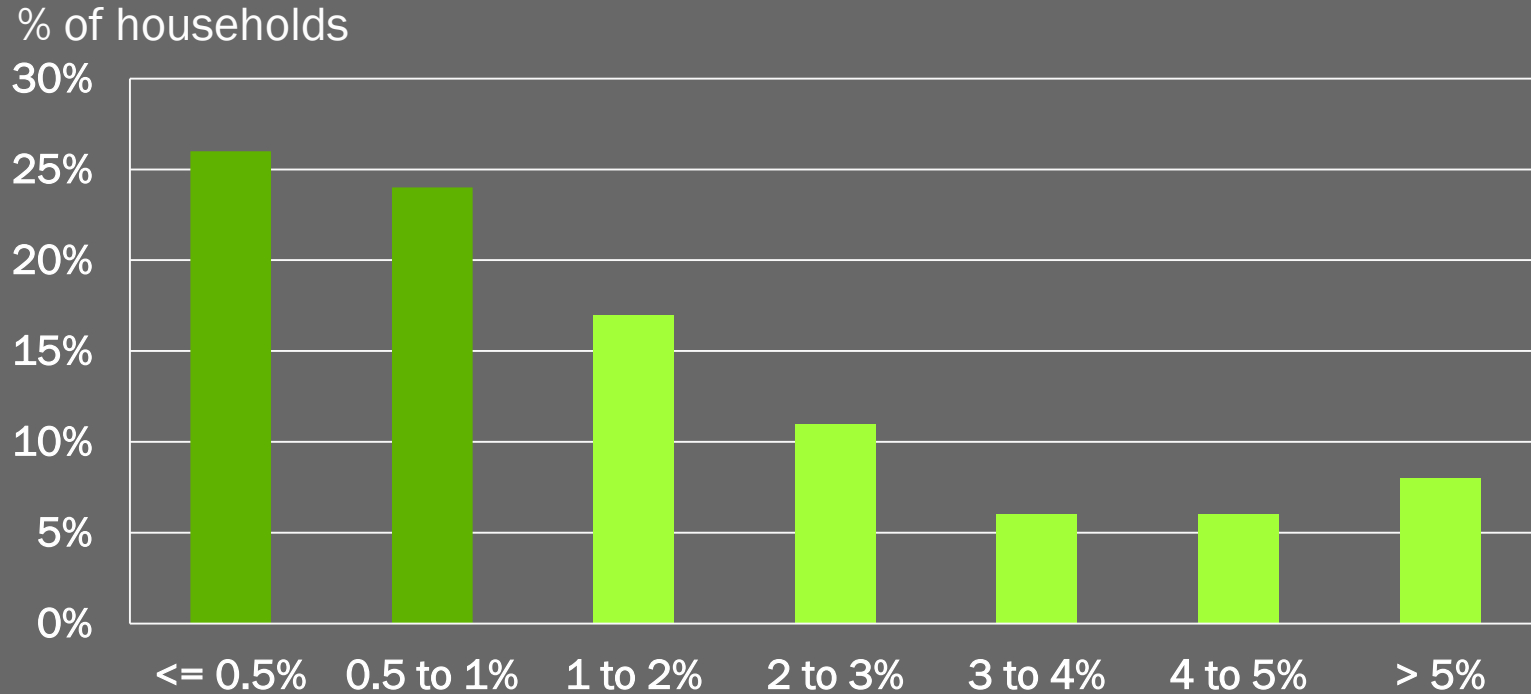
1. When household income falls below a certain threshold
2. When the cost of insurance exceeds a specified percentage of household income
3. When housing burden (including flood insurance) is more than a specified percentage of income

Roughly 40% of households in NYC study area are low income



80% of area median income (AMI) for NYC family of 3 is **\$62,100**

50% of households spend more than 1% of income on flood insurance



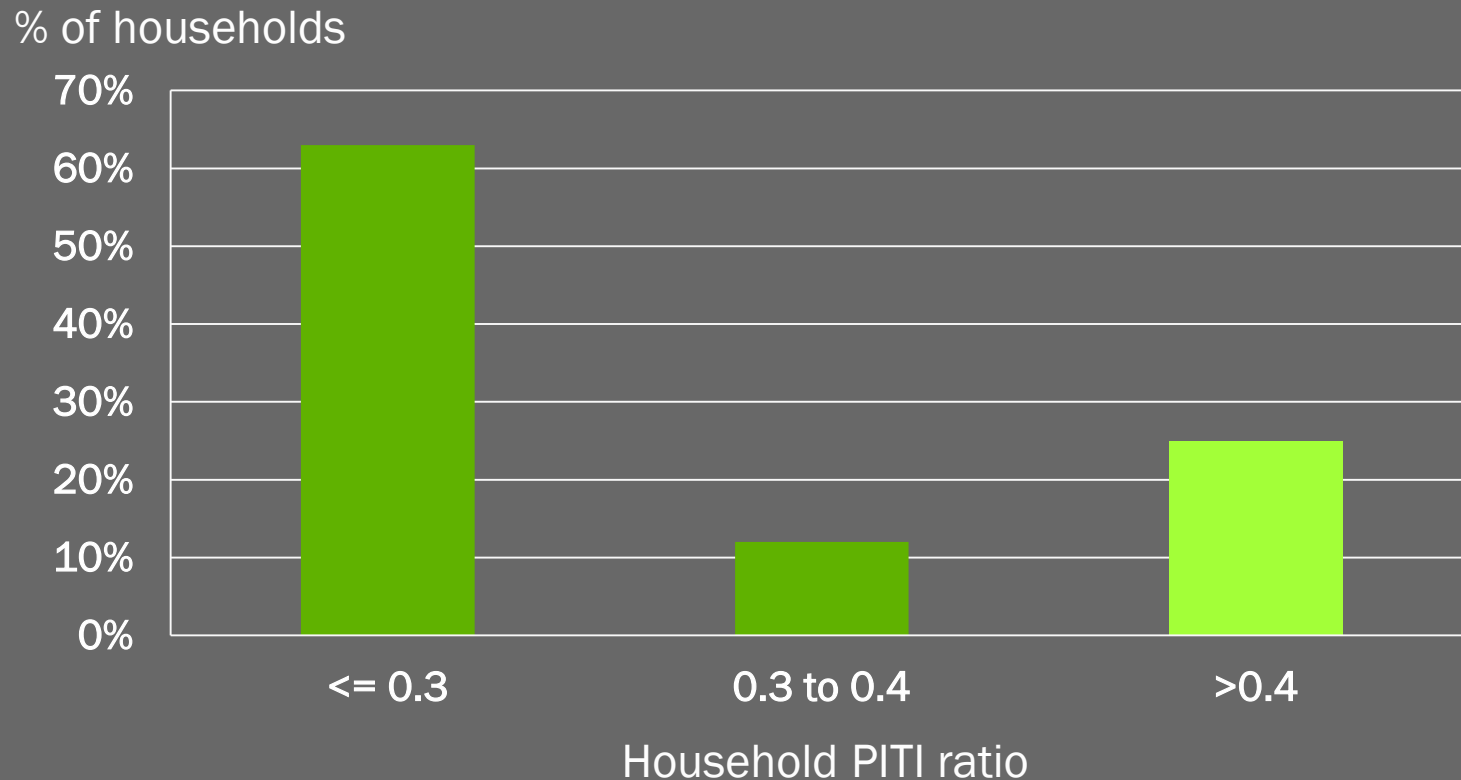
Flood insurance premium as a percentage of household income

Housing burden-based definition of affordability

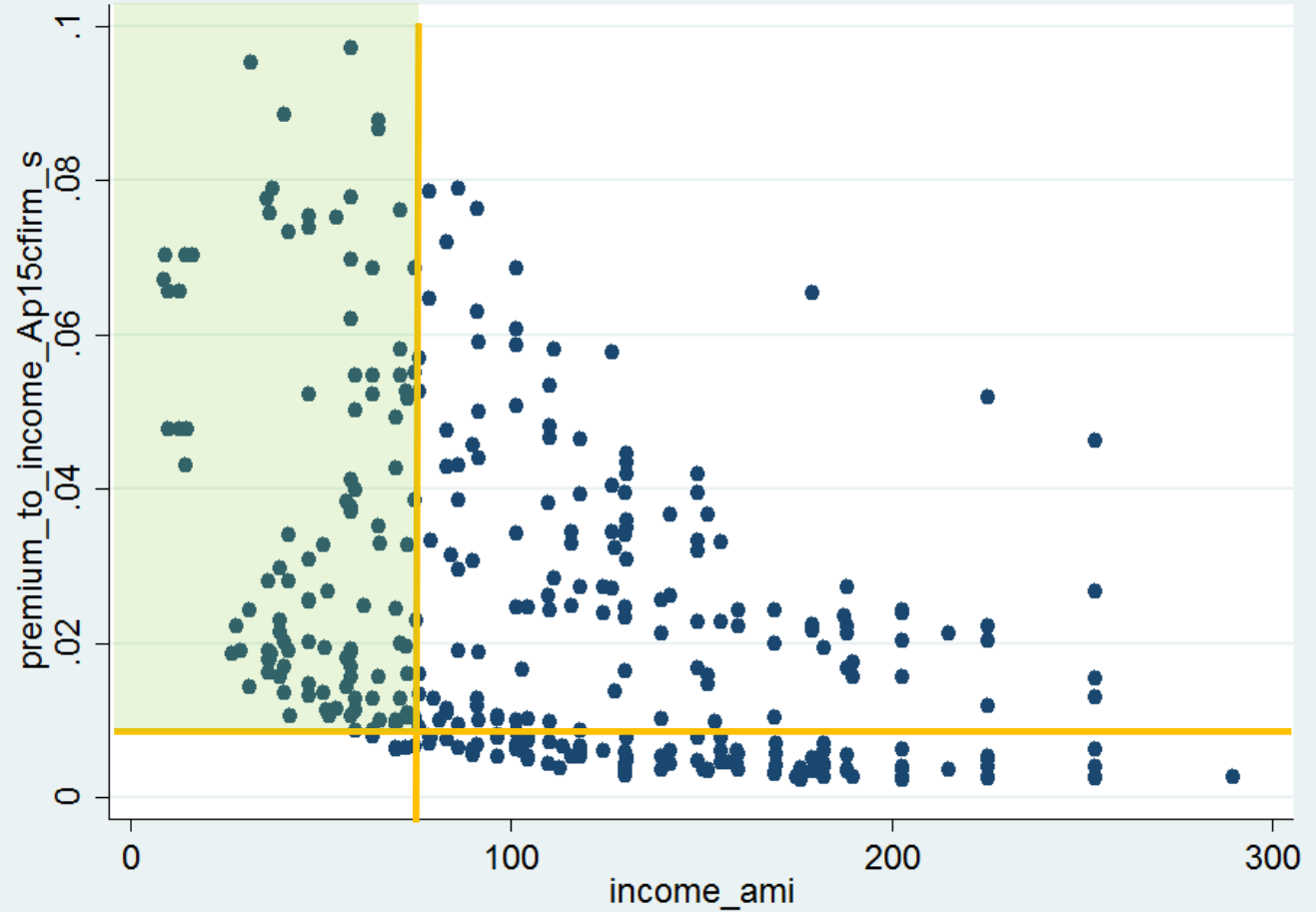
$$\text{PITI ratio} = \frac{\text{Mortgage principal and interest (PI), property taxes (T), and insurance (I)}}{\text{Household income}}$$

A ratio above **40%** is considered housing burdened

Insurance a financial burden for about 25% of households



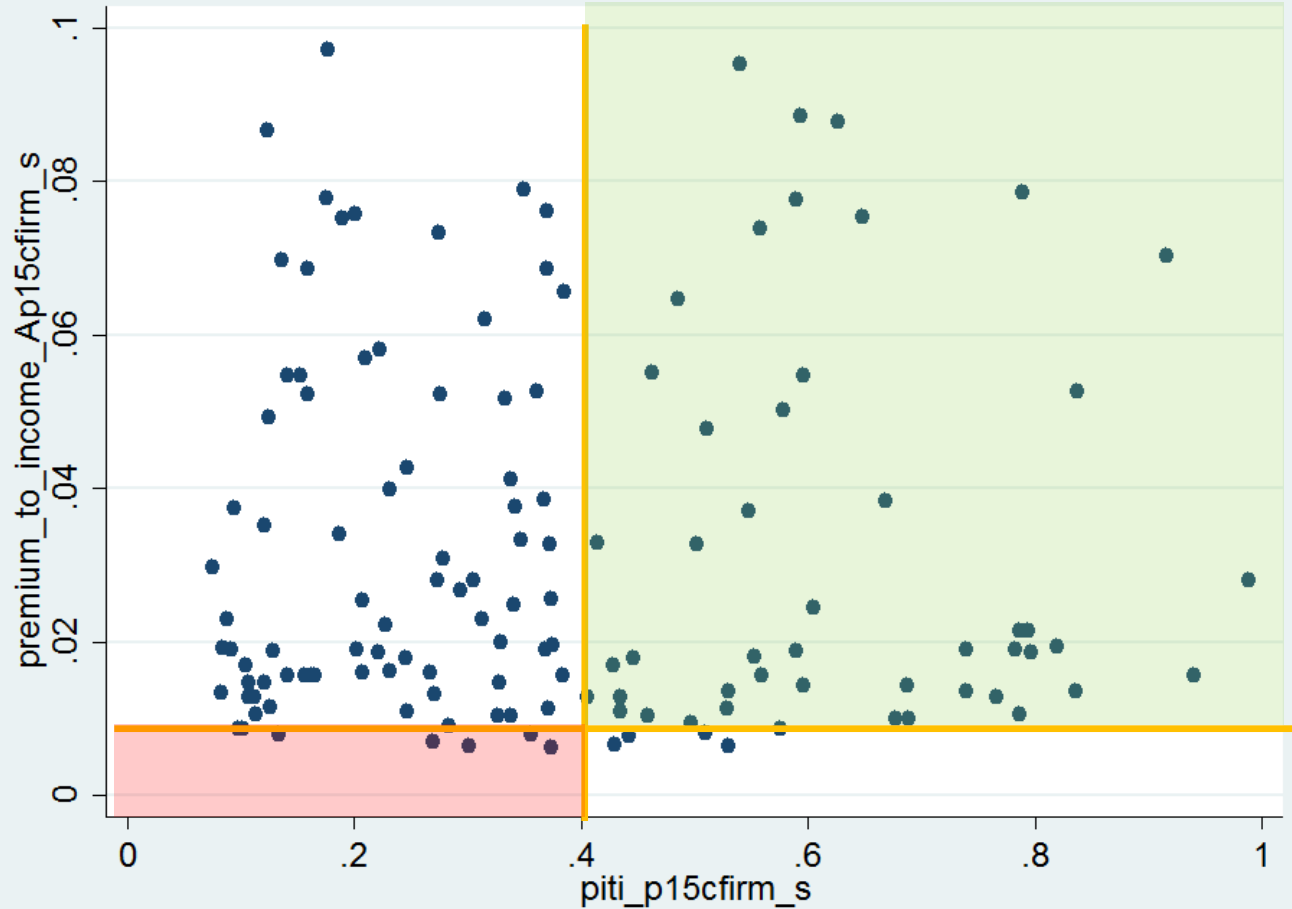
Using a 1%
cutoff for
premium to
income ratio,
nearly all low
income HH
qualify for
assistance



Using 0.4 housing burden cutoff, many low income households will not receive assistance



Different sets of households receive assistance under the two measures

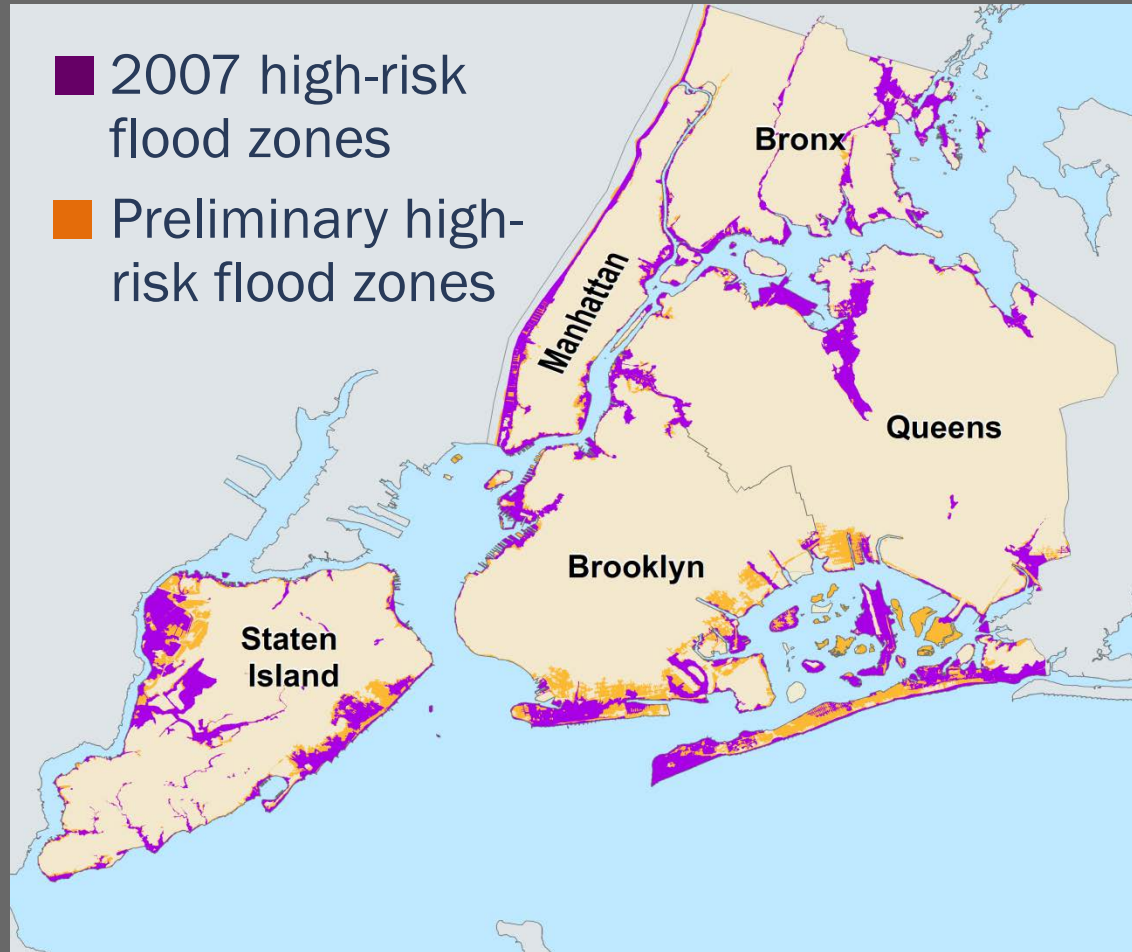


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22,200
already in
high-risk
flood zone

25,900
newly
mapped



Absent grandfathering, new map causes big increases in high-risk zones of 2007 FIRM

	2007 FIRM	PFIRM	PFIRM	PFIRM
Pre-FIRM rates available?	Yes	Yes	No	No
Grandfathering allowed?	–	Yes	Yes	No
Premium				
Median	\$3,000	\$3,000	\$3,100	\$5,600
75 th percentile	\$3,900	\$3,800	\$4,200	\$12,300

Note: For a policy with building coverage equal to the lesser of \$250,000 and building replacement cost and contents coverage equal to 40% of building coverage.

Rates rise significantly for **newly mapped properties** even with grandfathering

	2007 FIRM	PFIRM	PFIRM	PFIRM
Pre-FIRM rates available?	Yes	Yes	No	No
Grandfathering allowed?	–	Yes	Yes	No
Premium				
Median	\$500	\$2,700	\$2,700	\$4,200
75 th percentile	\$700	\$2,900	\$2,900	\$4,700

Note: For a policy with building coverage equal to the lesser of \$250,000 and building replacement cost and contents coverage equal to 40% of building coverage.

Effects of premium increases in the study area

Outcome	Effects of full-risk rates under the PFIRM
% of housing-burdened owner-occupied households	Jumps to 33% from 25% (14,200 households vs. 9,700)

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Subsidy based on housing burden



- Income \leq 165% AMI
- Full subsidy when PITI ratio $>$ 40%
- Partial subsidy for portion of premium that puts PITI ratio over 40%

Similar to HUD Section 8
Voucher Program

Subsidy based on housing burden



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Similar to HUD Section 8
Voucher Program

ADVANTAGES

- Target benefits on households that are housing burdened

DISADVANTAGES

- Households need to provide housing cost data
- Rewards less financially conservative households
- Households have no skin in the game

COST IN NEW YORK CITY

- \$19 million per year paid to 9,700 households

Income-based subsidy



- 80% premium subsidy if income is $\leq 50\%$ AMI
- Subsidy falls to zero as income nears 165% AMI

Similar to New York State Home Energy Assistance Program

Income-based subsidy



- 80% premium subsidy if income is $\leq 50\%$ AMI
- Subsidy falls to zero as income nears 165% AMI

Similar to New York State Home Energy Assistance Program

ADVANTAGES

- Least data required from household
- Households have some skin in the game

DISADVANTAGES

- Benefits not well targeted
- Rewards less financially conservative households

COST IN NEW YORK CITY

- \$33 million per year paid to 22,000 households

Mitigation grants and loans



- Grants if income \leq 80% AMI
- Low-interest loans for incomes from 80% to 165% AMI
- Mitigation measure must be cost-effective

ADVANTAGES

- Present value of premium reductions exceed mitigation cost
- Large premium reductions for participating households

DISADVANTAGES

- Administratively complex
- Few target households receive benefits

Similar to SBA Disaster Mitigation Loan Program

Four different mitigation measures examined

Mitigation measure	Cost per structure	Number of target households that qualify for grant or loan	Change in average premium for participants	Benefit cost with full participation
Flood vents	\$8,000	30	Before: \$2,900 After: \$1,400	\$0.2M
Raise machinery and equipment	\$7,000	930	Before: \$4,000 After: \$3,300	\$9M
Basement infill	\$70,000	750	Before: \$4,400 After: \$820	\$51M
Structure elevation	\$170,000	190	Before: \$10,500 After: \$600	\$31M

Mitigation much more effective with PFIRM and no subsidies

Mitigation measure	Cost per structure	Number of target households that qualify for grant or loan	Change in average premium for participants	Benefit cost with full participation
Flood vents	\$8,000	70	Before: \$9,100 After: \$5,300	\$0.5M
Raise machinery and equipment	\$7,000	4,400	Before: \$4,600 After: \$3,900	\$46M
Basement infill	\$70,000	3,400	Before: \$5,000 After: \$1,200	\$253M
Structure elevation	\$170,000	1,400	Before: \$26,500 After: \$4,400	\$266M

Mitigation grants and loans combined with income-based subsidy



Income-based subsidy
program that requires
households to
implement cost effect
mitigation measures

Similar to program
proposed by Kousky
and Kunreuther

Mitigation grants and loans combined with income-based subsidy



Income-based subsidy program that requires households to implement cost effective mitigation measures

Similar to program proposed by Kousky and Kunreuther

ADVANTAGES

- Can reduce the cost to the government of an affordability program
- Counters reduced incentives of household receiving subsidy to take mitigation measures

DISADVANTAGES

- Administratively complex
- Only saves government money if low-income households live in the property for at least 10 years following mitigation



Center for Catastrophic Risk Management and Compensation