

# ***Financing Resilience in Connecticut: Current Programs, National Models and New Opportunities***

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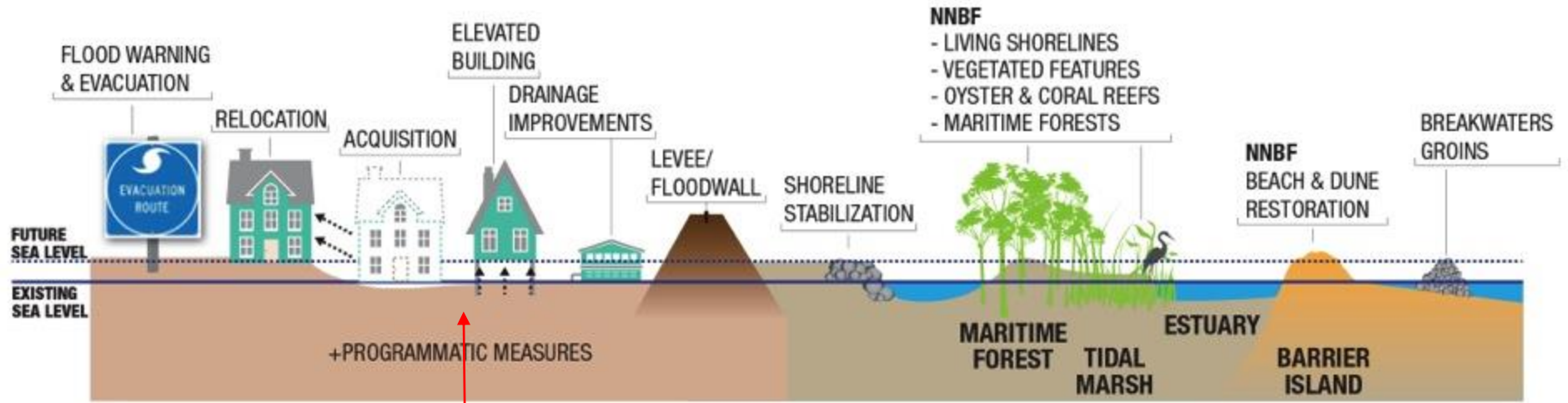
REBECCA FRENCH, PH.D.

WAYNE COBLEIGH, CPSM

JESSICA LECLAIR

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# What We Need to Fund



Critical Infrastructure,  
Including utilities benefiting public

Credit: USACE North Atlantic Coast Comprehensive Study

# Why finance?

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Finance is key to implementing climate resilience projects at every level because:

- investments may require substantial up-front costs and only generate benefits over many years.
- costs are likely to be well beyond the usual capital budgets of cities and towns
- large-scale federal funding in the United States is mostly available post-disaster, even though in many cases it makes sense in economic, social and environmental terms to invest in resilience before disasters strike

(Levy, *Financing Climate Resilience*, Sustainable Solutions Lab, UMass Boston, April 2018)

# Challenges Ahead

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Investments face several major hurdles that can weaken the business case and make financing difficult:

- first, resilience projects reduce future damage, but do not necessarily generate cash flows that could service new bonds;
- second, resilience projects will frequently entail investments by public agencies, but the benefits largely accrue to private property owners;
- third, estimates of the extent and probability of future damage are very uncertain; and
- fourth, market signals in insurance and property markets are not yet fully reflecting climate risks.

As a result, the win-win opportunities associated with energy efficiency and clean energy projects are likely to be more elusive for climate adaptation.

(Levy, *Financing Climate Resilience*, Sustainable Solutions Lab, UMass Boston, April 2018)

# Resilience Financing in Connecticut

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Microgrids Grants and Green Bank Financing

Clean Water Revolving Loan Funds

Tax Increment Financing Districts

Shore Up Connecticut

# Model Programs

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Resilience Bonds

Energy Savings Performance Contracts

New Jersey Energy Resilience Bank

Connecticut Green Bank C-PACE and R-PACE

Property Assessed Resilience

# Current Programs

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RESILIENCE FINANCING IN CONNECTICUT

# Microgrids Grants and Green Bank Financing

CT DEEP provided \$23 million in grants

Partner with Green Bank

- Generators, fuel cells, or any other type of electrical energy production source
- Fuel tanks, piping, or fuel regulation equipment
- Foundations
- Excavation, trenching, paving
- Mechanical equipment or piping
- Thermal insulation





# Clean Water Revolving Loan Funds

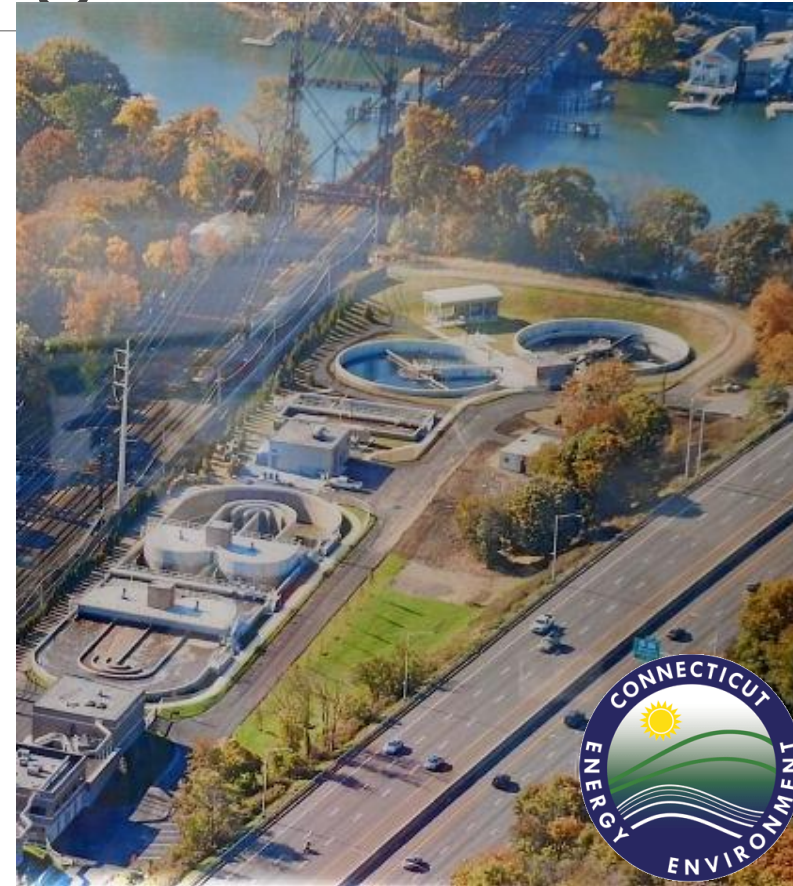
Grants range from 20% to 50% of costs

Loans are repaid 2% over 20 years

FY15 Reserve for construction of resiliency projects for **sea level rise** \$4M (20% grant/80% loan)

FY15 Reserve for **green infrastructure** (20% grant/80% loan or 50% grant/50% loan)

FY16 climate change assessment and evaluation of remedial actions



# Tax Increment Financing Districts

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TIF districts capture the future net economic value increase from an investment through district-level taxes or fees to finance that investment

PA 15-57 established use of TIF districts in Connecticut for economic development projects



# Shore Up Connecticut

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- 15 Year Term
- 2.75% interest rate (2.895% APR\*)
- 1% origination fee
- Minimum \$10,000 to maximum \$300,000
- No monthly principal or interest payments for the first 12 months



*\*APR is based on Loan Amount of \$125,000 -  
168 payments of \$897.29*



# Shore Up CT

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## SITUATION IN CONNECTICUT

\$85-90K to elevate house  
(\$35-40K in PA)

Require elevation to 500 year + 1'

Insurance Premium Reduction \$2600/yr to  
\$400/yr

- Sometimes you can do better: recent \$300K loan with NFIP reduction of \$4,482/yr to \$487/yr

## Challenges

- Low and Moderate Income not likely to participate
- Home by home approach



# Shore Up CT: Results

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12 Loans \$82-300K, \$170K average per house,

\$2.06M total

3 Elevation Contractors

Multiple architects, engineers

5 in Milford

4 in Fairfield

2 in East Haven

1 in Branford and Norwalk

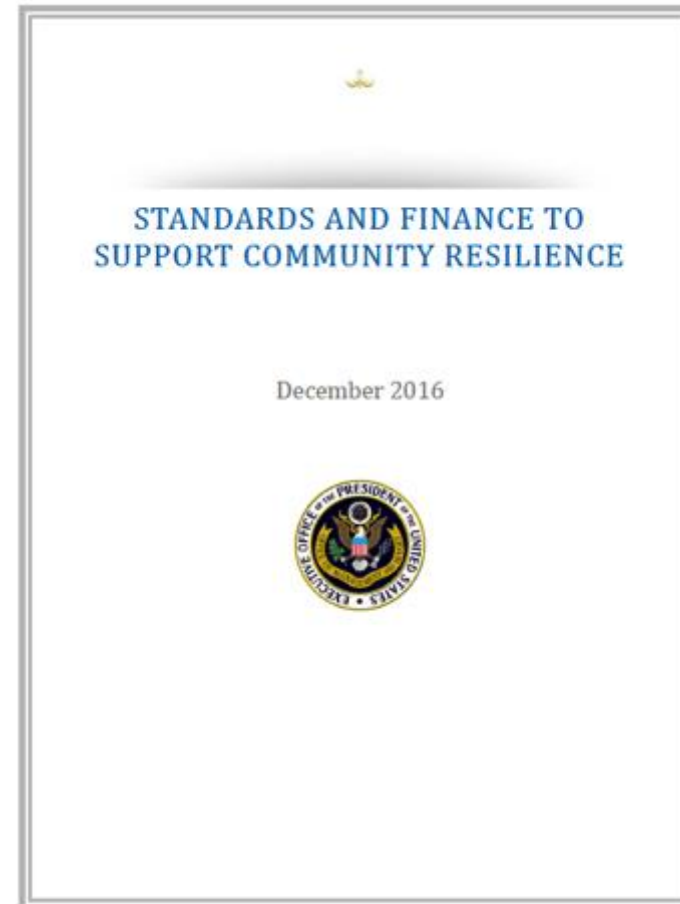


# Shore Up CT

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Recognized by Obama Administration in *Standards and Finance to Support Community Resilience* (December 2016 OMB Report)

Listed as example of “State, Local, and Private Sector Innovation”



# Model Programs

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POTENTIAL RESILIENCE FINANCING IN CONNECTICUT



# Resilience Bonds

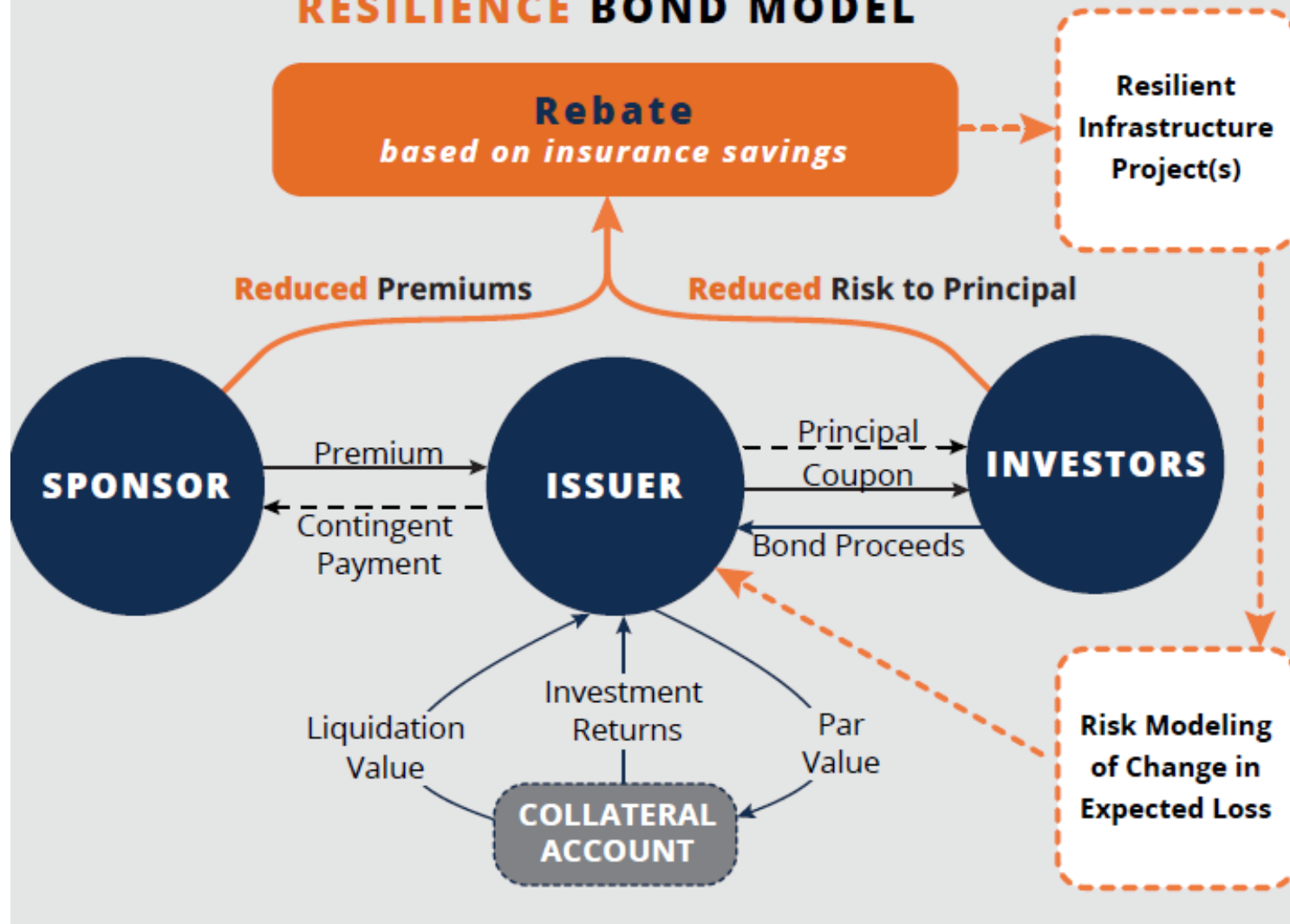
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Modify the catastrophe bond structure to capture the future savings from a resilience project and lowered risk to investors of insurance payouts, then apply that performance value as a rebate for resilient infrastructure projects





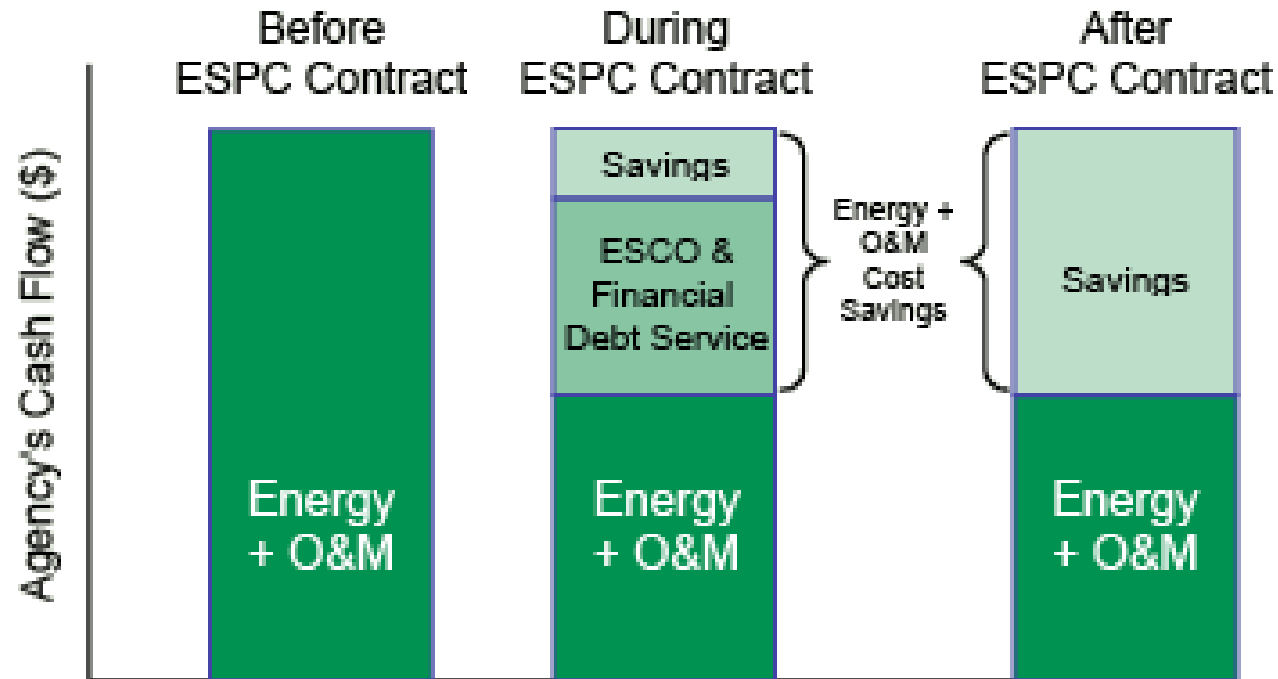
# RESILIENCE BOND MODEL



re:FOCUS  
PARTNERS

# Energy Savings Performance Contracts

Energy savings pays down the financing



U.S. DOE

# New Jersey Energy Resilience Bank

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Funding for distributed energy resource technologies

Grants and low-interest loans capitalized with federal disaster recovery dollars

Can become self-sustaining after disaster dollars spent

Waiver from small business rule due to broad public benefit of privately-owned utilities



# Connecticut Green Bank C-PACE\* Property Assessed Resiliency



Access to PRIVATE financing of mitigation measures with senior lien for qualified upgrades and repaid via a benefit assessment on the owner's property tax

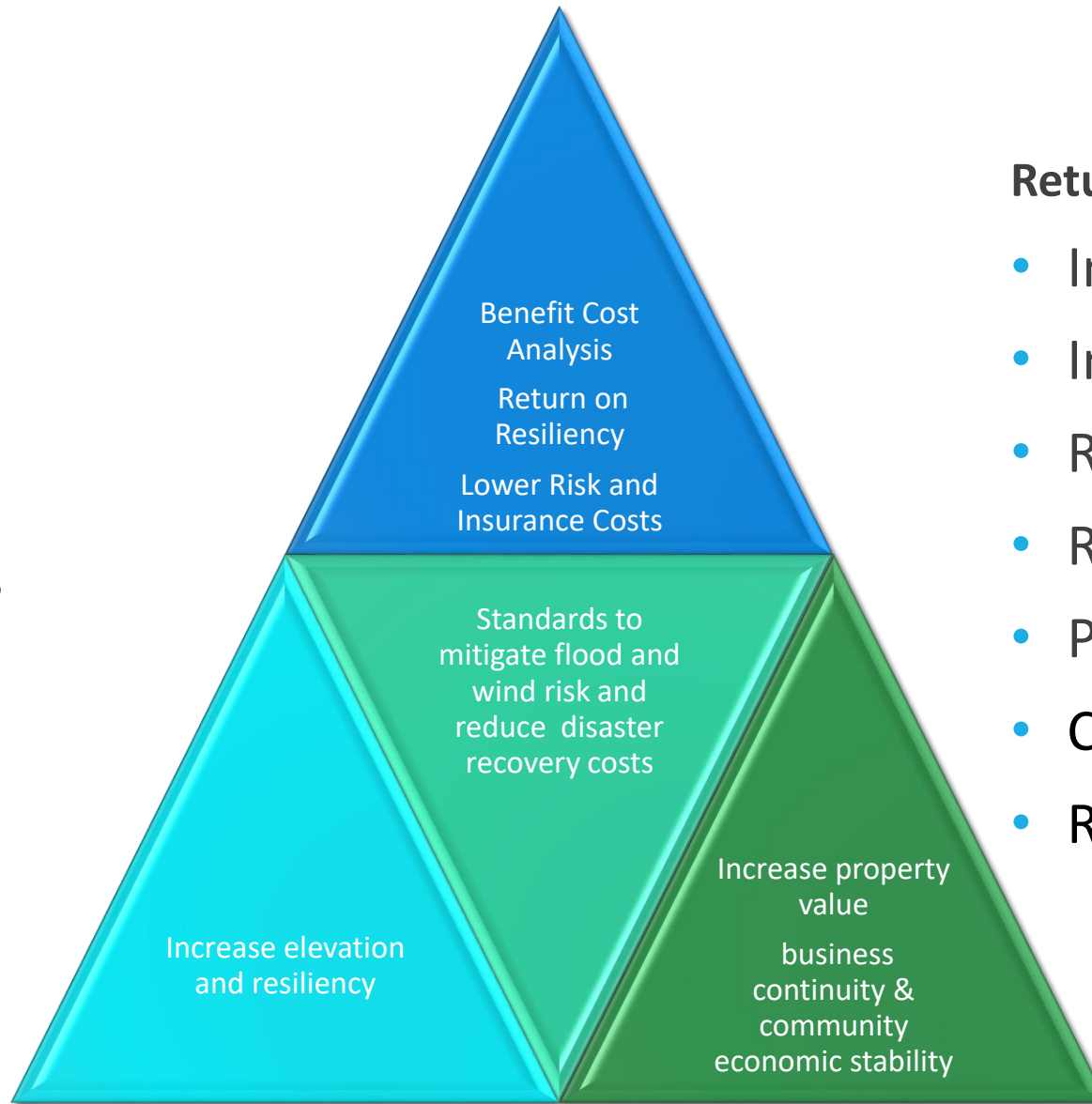
Requires legislative consent of municipality and existing mortgage lender

Savings from upgrades payback over loan period enforced by legal, financial and technical underwriting

\* Commercial -  
Property Assessed  
Clean Energy

## Resilience Outcomes

- Elevation
- Mitigation
- Retreat
- Jobs & Investments



## Return on Investment

- Increased property value
- Insurance savings
- Reduced losses
- Reduced risk
- Property tax stability
- Catastrophe Bond Market
- Resilience Bond Market

# Encore Boston Harbor, Everett, MA

*Aerial photographs courtesy of Suffolk Construction and Wynn Design and Development*



*Encore*  
BOSTON HARBOR

## DESIGNING FOR CLIMATE CHANGE RESILIENCY

define natural hazards  
assess vulnerabilities

building code compliance

“beyond building code”  
Risk-Informed Decision  
Making

site and building design

mitigate residual risks:  
insurance  
flood mitigation and  
response plans

additional considerations:  
site access & infrastructure  
electric power &  
communications  
Emergency Response Plan





Floodable Landscaped Area

PV array

Elevated Building Levels

Living Shoreline

Piers and Bulkhead

Green Roof



# Boston Study – Conclusions

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- We Need More Accurate Pricing of Risk
- Stakeholders Need Standardized Metrics
- Spread the Cost Burden
- More Value Capture Mechanisms for Climate Resilience Are Needed
- Ensure that New and Upgraded Infrastructure and Buildings are Resilient
- There Is No Free Lunch (cash flows)
- Refine the Business Case
- Solutions Need to Be Equitable and Fair (those who benefit pay and ability to pay)
- Finance and Insurance Can Be Creatively Combined

# Boston Study – Conclusions

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- There Is No Silver Bullet
  - range of policies and funding mechanisms from federal, state, municipal, and district levels
  - leverage private capital as well as public sources of revenues
  - carbon or gasoline or real estate taxes at the state level
  - resilience fees based on water and sewer bills
  - Mechanisms based on property taxes – TIFs,