

Bridgeport, CT

Evolution from Planning to Implementation:
Learning from Experience In Bridgeport, CT



Coastal flooding from tropical storm Irene 2011

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AIR



COOL®
PLANET



Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions



BGreen 2020

A Sustainability Plan for Bridgeport, Connecticut

MOVING FROM MITIGATION TO ADAPTATION

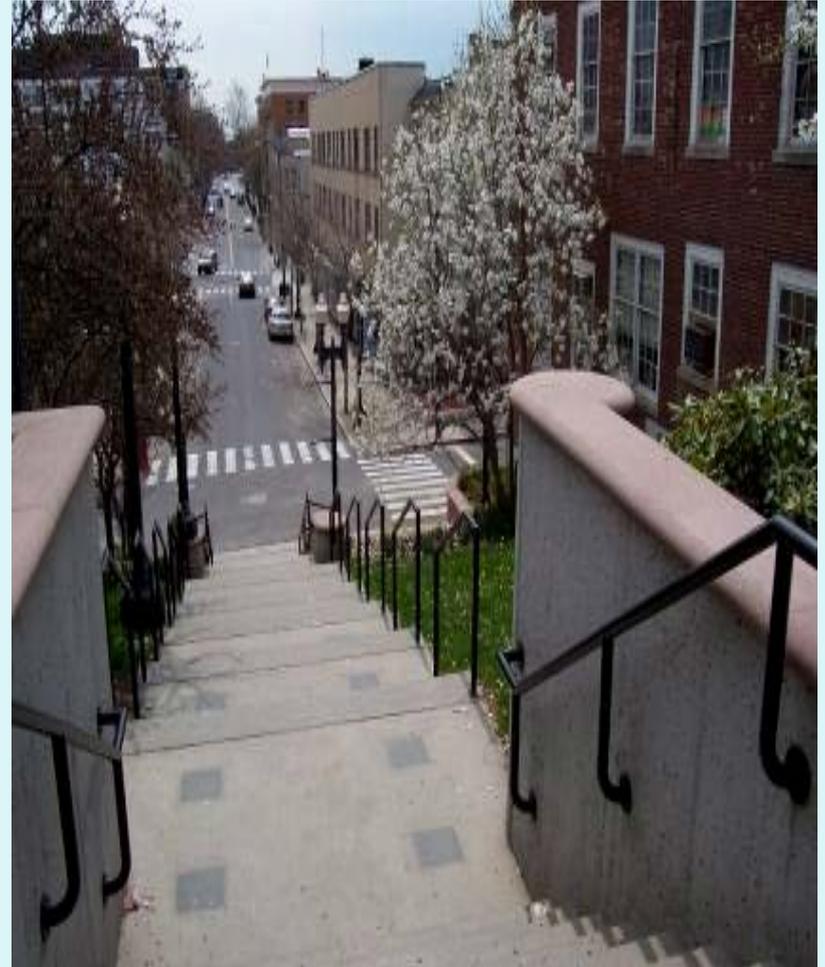
David M. Kooris
Director, Office of Planning and Economic Development

Connecticut's Most Populous City



Where We've Been

- **2009: From Vision to Plan:**
 - Establishing a framework
 - Mayor's Executive Order
 - Carbon Inventory
 - Public/private partnership
 - CAC and five technical committees
 - Comprehensive sustainability plan
 - Developing stakeholder relationships
 - Identifying project and program opportunities





BGreen 2020

A Sustainability Plan
for Bridgeport, Connecticut

Energy
Recycling
Business, Jobs & Purchasing
Land Use / Transportation
Green Spaces
Water Resources
Outreach and Education

**“Recipient of Governor’s
2010 Climate Change
award”**

Energy Efficiency & Generation

- Energy Improvement District
- Comprehensive Energy Plan
- Green Energy Park
- Fuel Cell Park
- Biomass projects to convert food waste & sludge to electricity
- Municipal building retrofit /performance contracting
- Solar leasing initiatives
- Residential aggregation & weatherization programs
- First Municipality in CT to implement C-PACE (Commercial & Industrial Property Assessed Clean Energy)



Eco – Industrial Park

ECO-INDUSTRIAL PARK

Bridgeport, CT



Facility Locations



Existing Facility
Proposed Facility

PARK CITY GREEN

Santa ENERGY

CNG COMPRESSED NATURAL GAS

ENVIRO EXPRESS

BRIDGEPORT BIODIESEL

ALGAE BIOFIELDS

PT BARNUM APTS

AQUACULTURE SCHOOL

FUEL CELLS

ANAEROBIC DIGESTER

SEWAGE TREATMENT

FOOD COMPOST / DIGESTER

WHEELABRATOR BRIDGEPORT

SOLAR ARRAYS

WIND TURBINES

Recycling



- **Converted to city-wide single stream in 2011**
- **Recycle Bank in residential sector**
- **Recycling in all schools**
- **Construction and debris materials recycling**
- **Recycling up 59% since September 2011**

Recyclebank®

Green Infrastructure & Open Spaces

- **New Parks Master Plan**
- **Pleasure Beach Implementation of Master Plan**
- **Waterfront Recapture Effort: Pequonnock River Initiative and Watershed Protection**
- **Knowlton Park Master Plan**
- **Community gardens & urban farming**
- **Connectivity Program Downtown Urban Enhancement, Park Ave. South Ave. & Lincoln Blvd**



Water Resources

- **Stewardship**
 - Storm drain marking
 - Rain barrels and rain gardens
- **Green infrastructure**
 - Permeable paving
 - Bioswales
 - Field scale demonstrations
 - Long Term Control Planning integration



Transit First and Complete Streets



- Transit incentive programs
- Second Train Station
- Downtown streetscape improvements
- Bikeways
 - E/W and N/S arteries
 - Neighborhood connectors
 - Safe Routes to School
- Complete streets
 - Multimodal neighborhood resources and amenities



PARK CITY
bridgeport, ct

East Bridgeport Development Corridor

Current Projects

2. East End Rail Yard
CTDOT Improvements
39 acres
Metro-North
4. Barnum/Waltersville
School 10 acres
1,250 Pre-K-8 Students
6. Seaview Industrial Park
Rotair, All-Phase Const.
East End Green Recycling
4 acres
130 jobs
8. Steelpointe Harbor
2.67 m. sq. ft.
Mixed-use
48 acres
10. Seaview Plaza
16 acres retail
300 jobs
12. Derektor Shipyards
27 acres
400 jobs
14. Seaview Commons
4 acres
54 residential units
16. WPCA Water Treatment
Facility
9 acres
18. Central/Seaview Ave.
Fishing Pier
20. Gault Industries
7 acres
60,000 sq. ft.

Total: 164 acres

Development Opportunities

1. Lake Success Business
Park (Du Pont)
344 acres mixed-use
690,000 sq. ft.
1,200 jobs
3. General Electric
77 acres
5. Westinghouse
5 acres
7. Remington/Remgrit
Proposed Transit-Oriented
Development
18 acres
9. Proposed P.T. Barnum
Metro-North Station
8 acres
11. Seaview Industrial Park
(future phase)
8 acres
140,000 sq. ft.
120 jobs
13. Bridgeport Housing Authority
(former Father Panik Village)
26 acres
114 workforce
housing units
15. Coastline Terminals
deepwater harbor facility
18 acres
1,000 ft. bulkhead
17. 3 acres
19. Pleasure Beach
63 acre barrier island
Active/passive recreation

Total: 570 acres

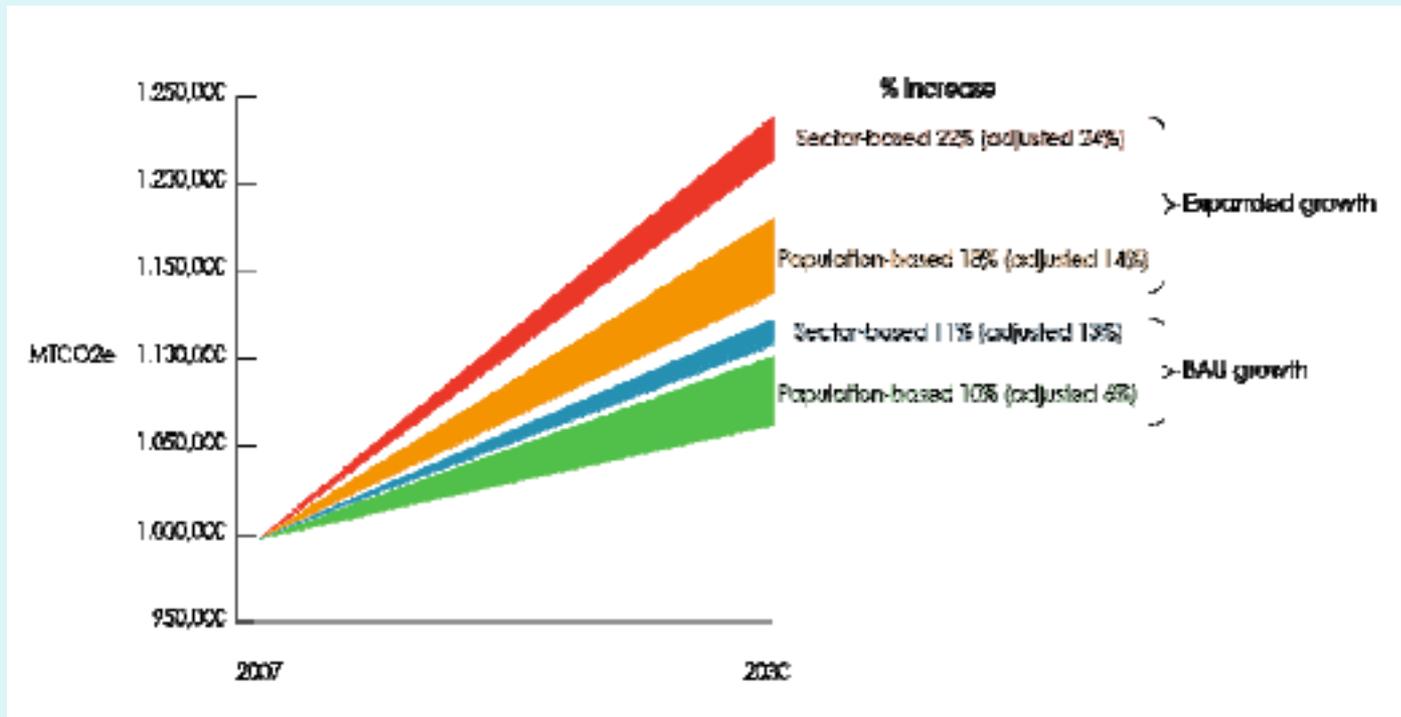


City of Bridgeport, CT

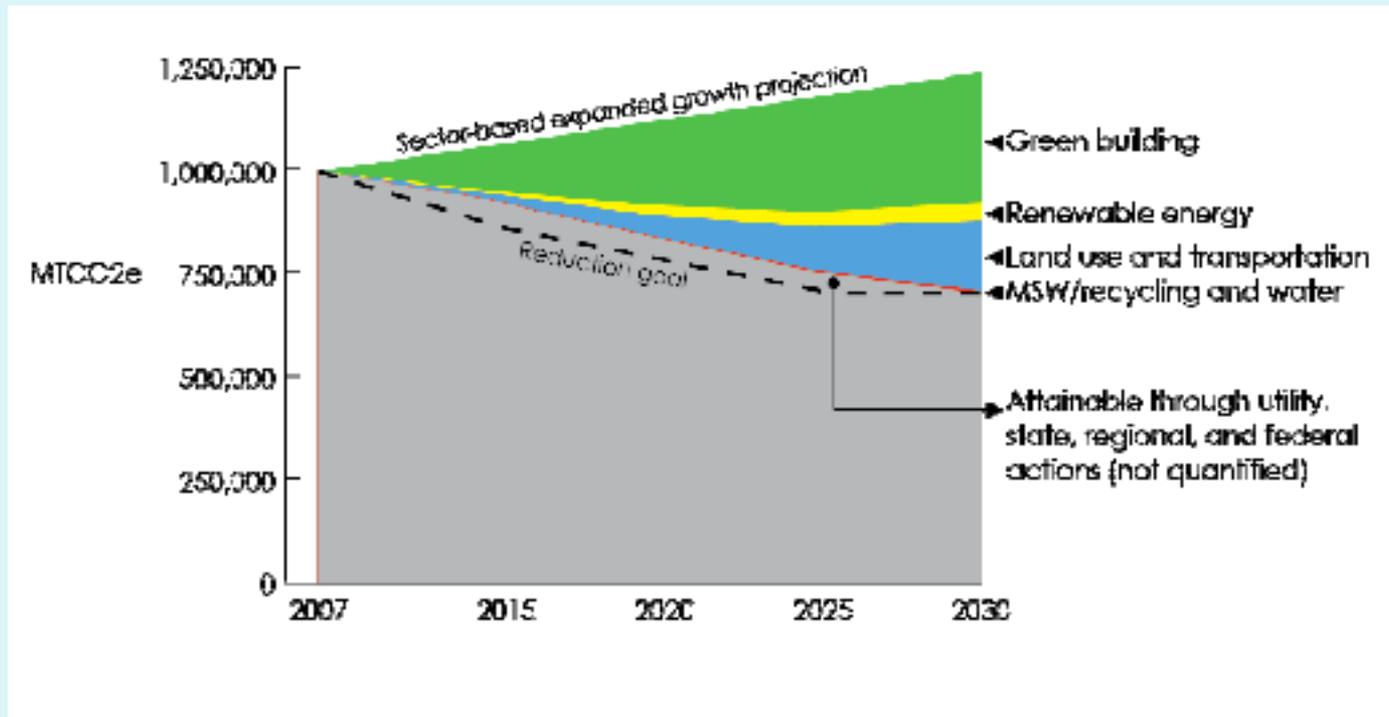


OFFICE OF PLANNING &
ECONOMIC DEVELOPMENT

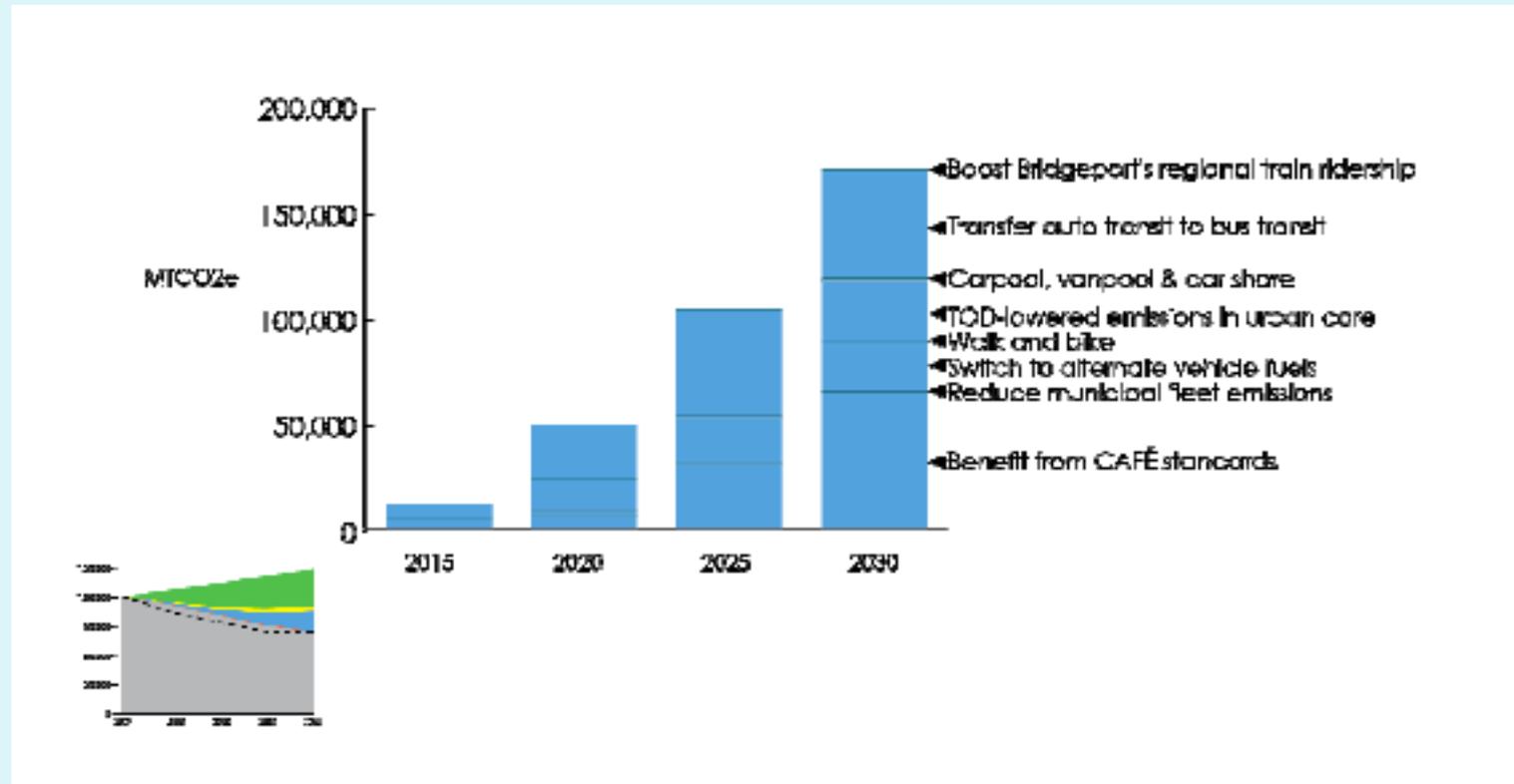
City Energy Plan using EECBG (2010)



A Quantified Strategy for Emissions Reduction



Setting Achievable but Difficult Targets



Adam Markham

Director, Climate Impacts Initiative
Union of Concerned Scientists

National Adaptation Forum
Denver April 2nd, 2013



Union of Concerned Scientists

Citizens and Scientists for Environmental Solutions

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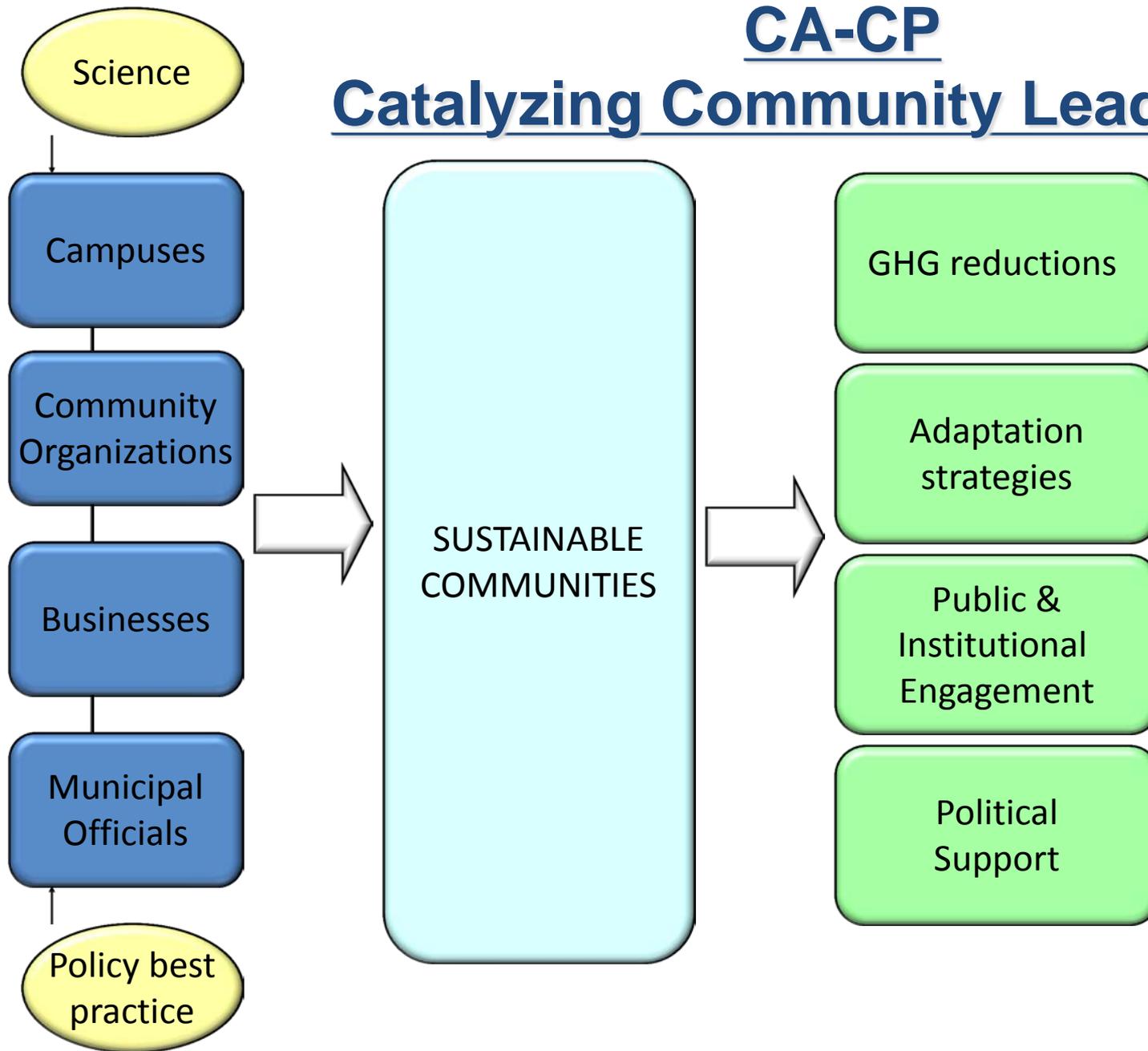


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CA-CP

Catalyzing Community Leadership

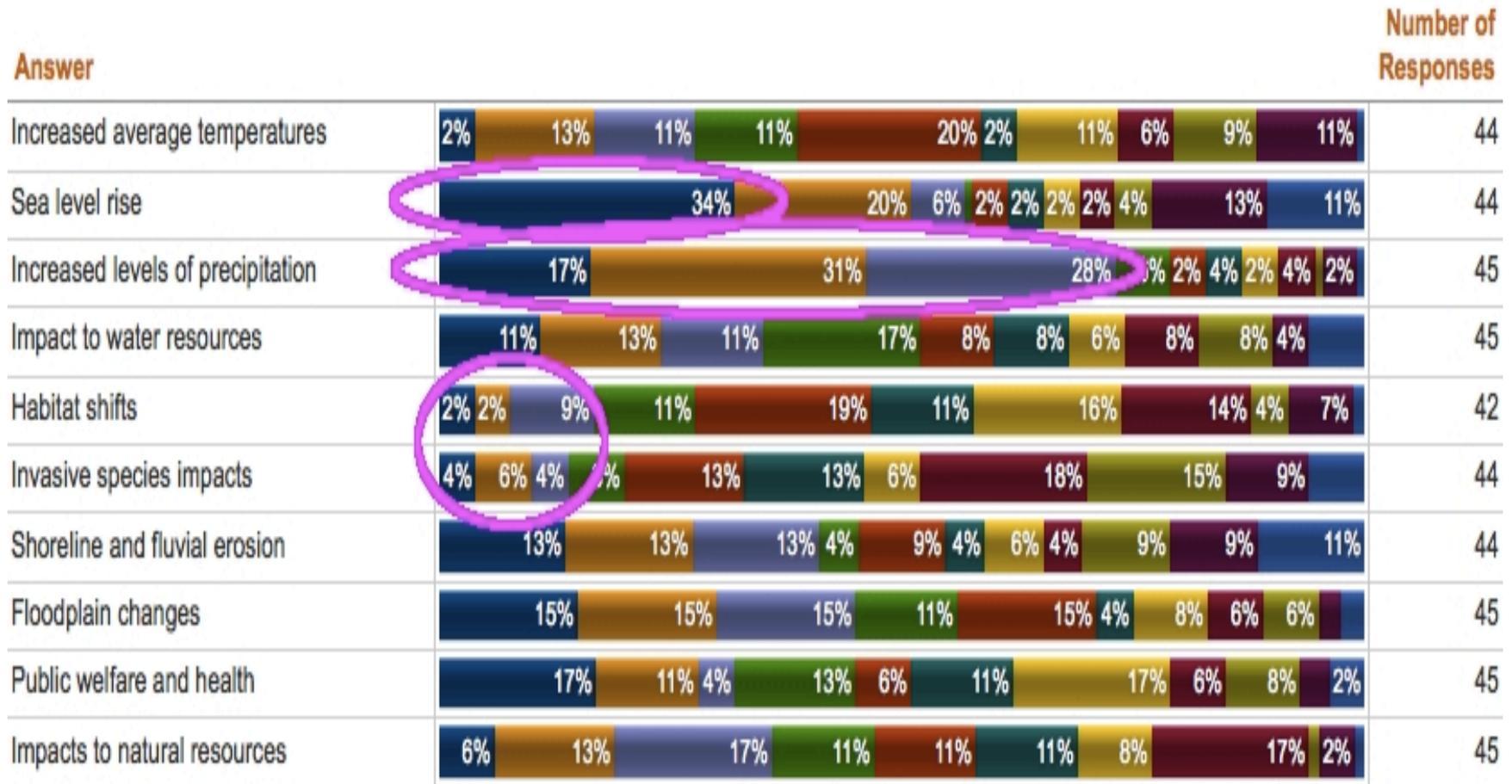


History of CA-CP Municipal Engagement

- *Pittsburgh, Pennsylvania*; GHG Inventory & Action Plan
- *Greater Portland (Maine) Council of Governments, Maine*. GHG Inventories & Action Plans
- *New Hampshire*:
 - Support to 80+ Local Energy Committees
 - Participation in the NH Coastal Adaptation Working Group
- *Bridgeport, Connecticut*: Assisting vulnerability assessment and planning

CA-CP Northeast Regional Needs Assessment

Climate Impacts of Greatest Concern - 2011



CA-CP Needs Assessment Key

Conclusions 2011

- Increasingly, local governments are engaging with adaptation planning and climate impacts; yet they often lack local impacts information, capacity, funds and the necessary political will to move forward.
- Resources are available, however they are hard to find, unorganized, and in many cases tools are redundant or contradictory.
- Need for better pooling of resources, collaboration and peer information exchange.
- Short-term adaptation strategies do not necessarily lead to long-term community resilience
- Public engagement is most successful if framed in the context of preparing for change in the light of worsening impacts

Bridgeport Vulnerability Assessment Overview

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bridgeport, CT



Schedule

October '11	Consent from Municipalities
March - May '12	Climate Preparedness Workshops & BGreen Sustainability Training
June '12	Workshop Summary Presentation
June - August '12	CA-CP Fellowship
August - September '12	CA-CP Fellowship Extension
February '13	Business Resilience Breakfast
Spring '13	Stormwater Authority RFQ
Fall '13	Hazard Mitigation Plan
Winter '13	Community Rating System Application

Assessment Goals

- Define extreme weather, natural and climate-related hazards
- Identify existing & future vulnerabilities, weaknesses & strengths
- Develop priority actions for the city and for a broad array of stakeholders
- Explore opportunities for the community to advance preparedness actions.



Risk Profiles

Hazard Profile

Infrastructure Profile

Societal Profile

Ecosystem Profile

Adaptation Choices



NOAA Coastal Services Center
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

The Nature Conservancy 
Protecting nature. Preserving life.™

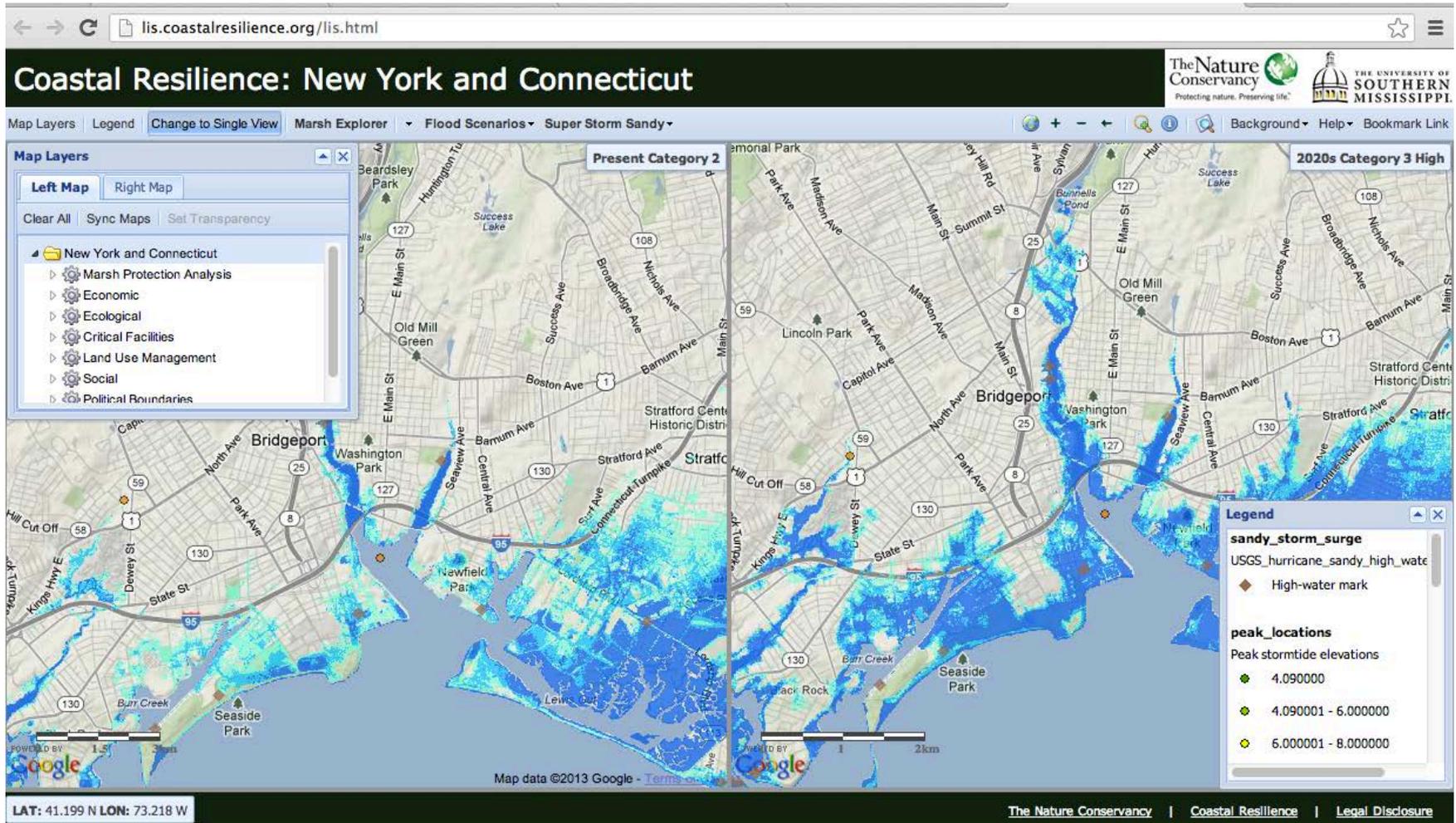
Profiles...

- Past, Current, Future?
- Effects on your community?
- What is exposed in your community?
- Actions that reduce hazard impacts?

Past, Current, Future?

- Flooding: Coastal and Inland
 - Frequency and severity - now
- Extreme Heat – Drought
- Storm Surge and Sea Level Rise
- Ice/Wind/Snow Storms
 - Increased frequency/intensity
- Tornados; Rising Groundwater

Coastal Resilience Tool



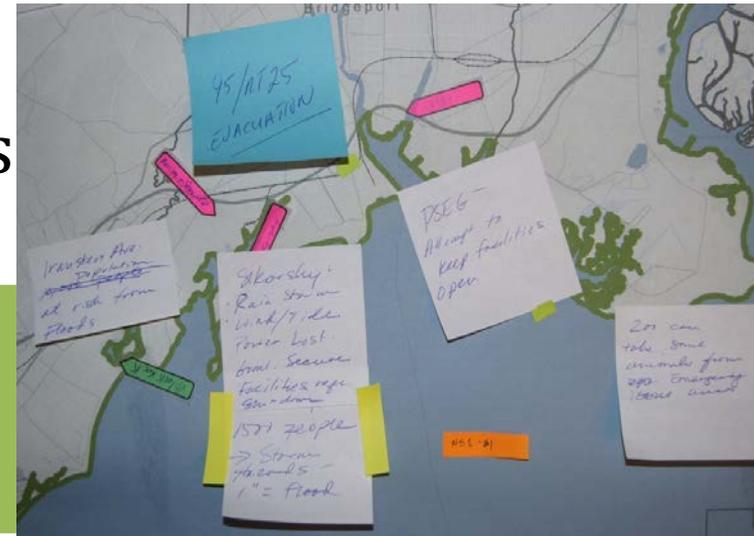
Vulnerable Areas

- *Neighborhoods:* Black Rock; Ash Creek; South End; Chopsey Hill; Seaside Park; Johnson Creek
- *Housing Authority Sites;* Hospitals; Sikorsky Airport; Aquaculture School;
- *Dams & Roads* (East Main, Bishops Avenue, Boston Avenue)
- *Habitat & Ecosystems:* salt marsh, dunes, oyster beds



Vulnerable Sectors

- Infrastructure – Age and Capacity
- Evacuation and Shelters/ “at-risk” communities
- Transportation (I-95, Rail, Bus)
- Social Services: medical, shelters, elderly
- Natural Resources/Recreation
- CSO/WWT – Storm Water
- Utilities
- Education/Communications



Clean Air – Cool Planet Fellowship

Davey Ives

Davey.Ives@BridgeportCT.gov

-2012 CA-CP Climate
Adaptation Fellow

-City of Bridgeport,
Environmental Projects
Coordinator



Fellowship Goals

- Identify opportunities to:
 - Reduce Bridgeport's vulnerability
 - Increase resilience to climate change & extreme weather
- Gain understanding of existing & proposed plans, policies & projects
- Develop recommendations with action steps & ownership

Flooding in Bridgeport

- Flooding causes other issues in Bridgeport:
 - Public health issues, infrastructure damage, emergency management, environmental hazards, etc.
- Two main issues in Bridgeport related to flooding:
 - Lack of Education
 - Lack of Funding



Fellowship Steps

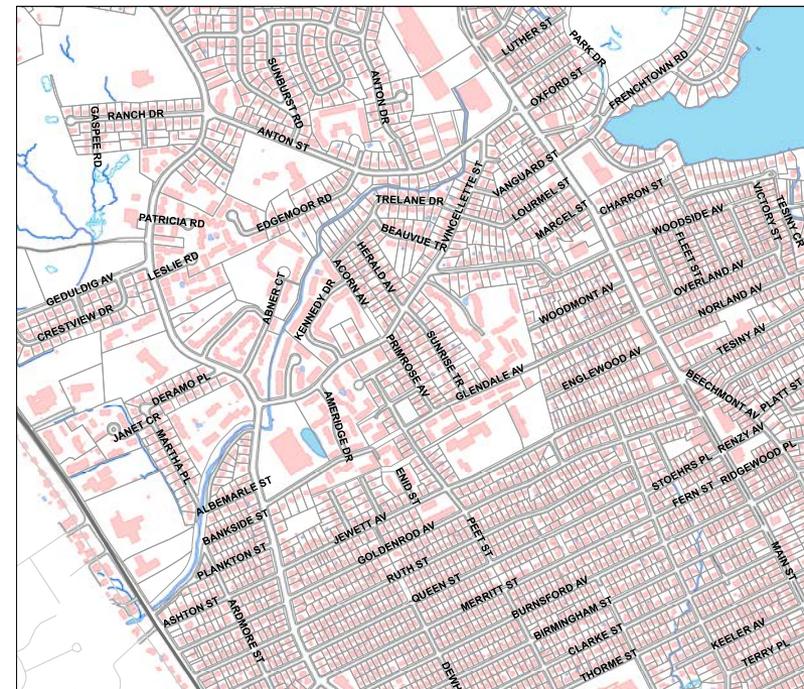
- **Literature Review**
 - 17 Plans Reviewed
- **Community Rating System (CRS) Assessment**
 - Save residents on flood insurance premiums by exceeding floodplain management requirements
- **Stormwater Fee Feasibility**
 - What would a stormwater fee look like in Bridgeport?
 - Funding for education, green infra, grey infra, general fund, etc

Literature Review

- Bridgeport Master Plan of Conservation and Development
- Greater Bpt Hazard Mitigation Plan
- Hazen & Sawyer Green Infrastructure Scan (Bridgeport & New Haven)
- Tributary Engineering Reports
- 2008 Stormwater Regulations
- Zoning Regulations RE: Flooding
- 2001 Flood Mitigation & Control Taskforce Report
- BGreen 2020 Sustainability Plan
- Pequonnock River Initiative

Major Findings

1. Lack of Education
2. Limited Funding



CRS

- Rating System
- Participating CT Communities

TABLE 1. CRS PREMIUM DISCOUNTS

CLASS	DISCOUNT	CLASS	DISCOUNT
1	45%	6	20%
2	40%	7	15%
3	35%	8	10%
4	30%	9	5%
5	25%	10	—

SFHA (Zones A, AE, A1-A30, V, V1-V30, AO, and AH): Discount varies depending on class.

SFHA (Zones A99, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, and AR/AO):
10% discount for Classes 1-6; 5% discount for Classes 7-9.*

Non-SFHA (Zones B, C, X, D): 10% discount for Classes 1-6; 5% discount for Classes 7-9.

* In determining CRS Premium Discounts, all AR and A99 Zones are treated as non-SFHAs.

COMMUNITY NUMBER	COMMUNITY NAME	CRS ENTRY DATE	CURRENT EFFECTIVE DATE	CURRENT CLASS	% DISCOUNT FOR SFHA ¹	% DISCOUNT FOR NON-SFHA	STATUS ²
Connecticut							
090074	Cheshire, Town of	10/1/93	10/1/03	10	0	0	R
090076	East Haven, Town of	10/1/03	10/1/10	10	0	0	R
090096	East Lyme, Town of	10/1/91	10/1/91	9	5	5	C
090078	Hamden, Town of	10/1/93	10/1/06	10	0	0	R
090082	Milford, City of	05/1/12	05/1/12	9	5	5	C
090011	Newtown, Town of	10/1/91	10/1/91	9	5	5	C
090012	Norwalk, City of	10/1/93	10/1/98	10	0	0	R
090015	Stamford, City of	10/1/02	10/1/02	7	15	5	C
090193	Stonington, Borough of	10/1/04	10/1/04	9	5	5	C
090106	Stonington, Town of	05/1/04	05/1/04	9	5	5	C
095082	West Hartford, Town of	10/1/91	10/1/07	8	10	5	C
090070	Westbrook, Town of	05/1/05	05/1/11	10	0	0	R
090019	Westport, Town of	10/1/95	10/1/00	8	10	5	C

CRS: Credit Activities

WHAT YOU GET CREDIT FOR:

1. Elevation Certificates
2. Map Information Service (GIS)
3. Outreach Projects
4. Hazard Disclosure
5. Flood Protection Info & Assistance
6. Additional Flood Data
7. Open Space Preservation
8. Higher Regulatory Standards
9. Flood Data Maintenance
10. Stormwater Management
11. Flood Plain Management Planning
12. Acquisition and Relocation
13. Flood Protection
14. Drainage System Maintenance



CRS: Credit Activities

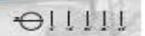
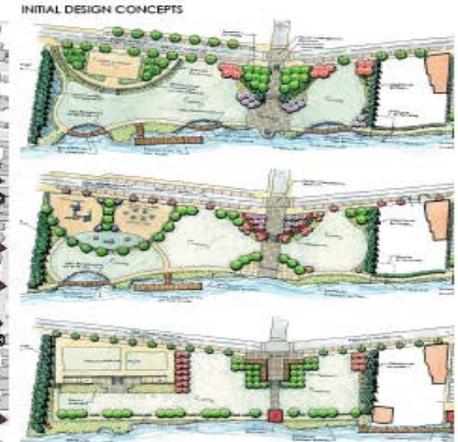
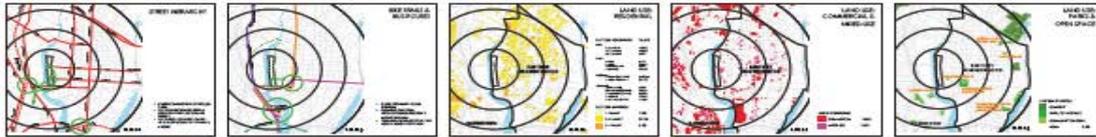
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What Bpt Currently Has



Case Study: Knowlton Park



CRS: Credit Activities

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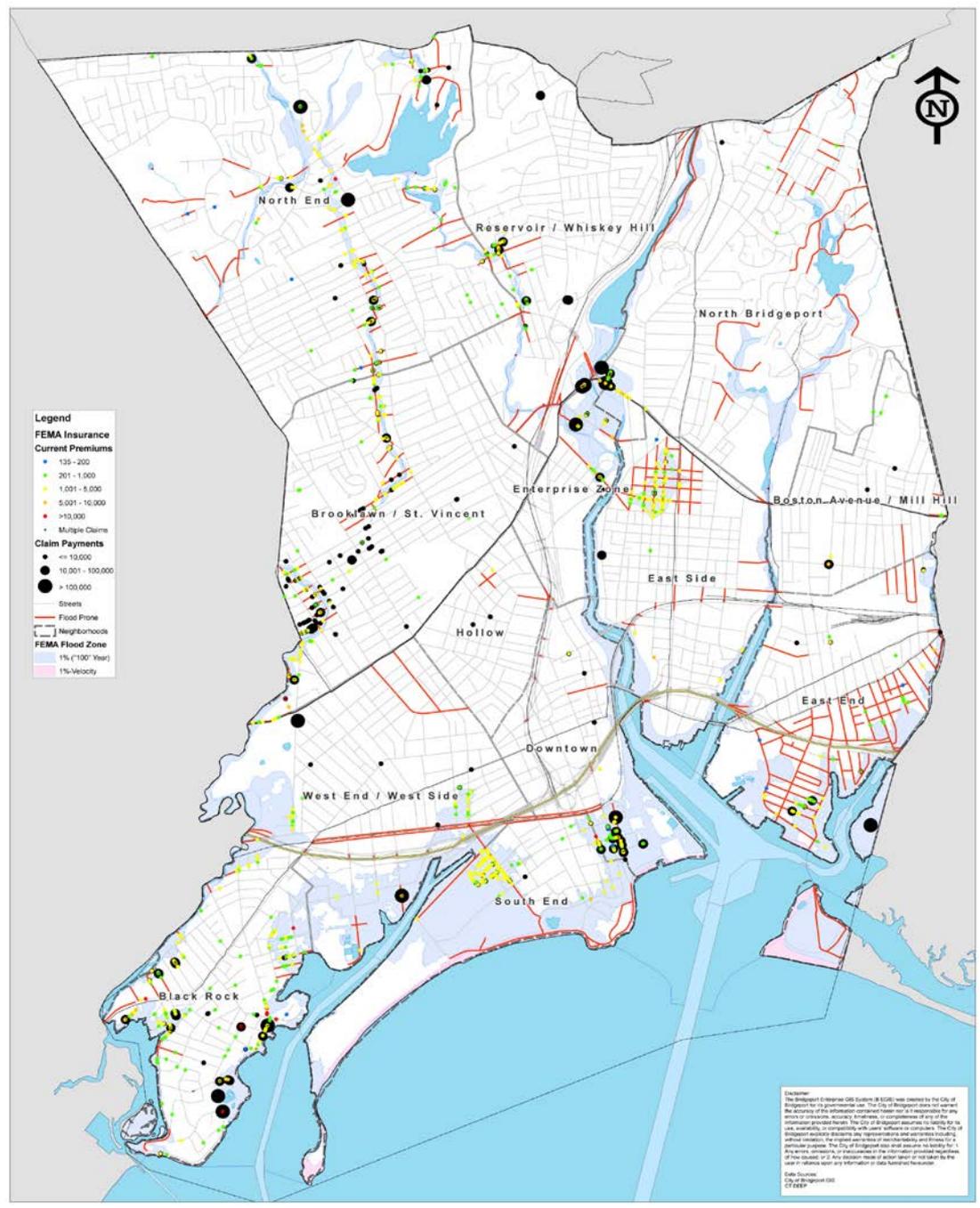
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What Bpt Currently Has

“Soft” Implementable Items



BRIDGEPORT CT: FEMA FLOOD INSURANCE

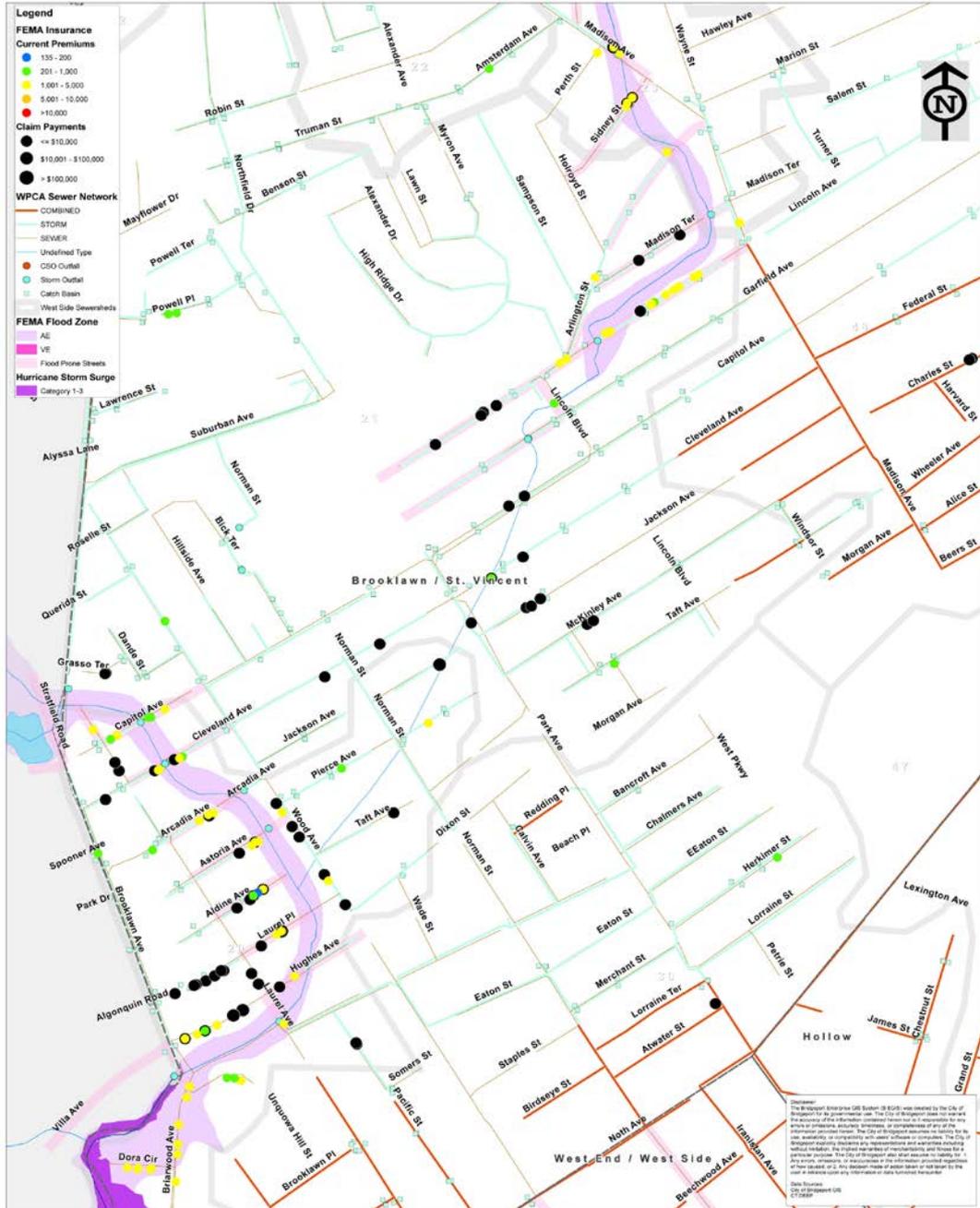


- Legend**
- FEMA Insurance Current Premiers**
- 135 - 200
 - 201 - 1,000
 - 1,001 - 5,000
 - 5,001 - 10,000
 - >10,000
 - Multiple Claims
- Claim Payments**
- ≤ 10,000
 - 10,001 - 100,000
 - > 100,000
- Streets
- Flood Prone
- Neighborhoods
- FEMA Flood Zone**
- 1% ("100" Year)
 - 1%-Velocity

Disclaimer:
 The Bridgeport Enterprise GIS System (BEGIS) was created by the City of Bridgeport for its government use. The City of Bridgeport does not warrant the accuracy of the information contained herein nor is responsible for any errors or omissions, including, but not limited to, those caused by any third party. The City of Bridgeport assumes no liability for any use, including, but not limited to, those caused by any third party. The City of Bridgeport makes no representation or warranty, including, but not limited to, those caused by any third party, for a particular purpose. The City of Bridgeport also does not assume any liability for, or any use, including, but not limited to, those caused by any third party, of the system or any information or data derived therefrom. The City of Bridgeport will not be held liable for any information or data derived therefrom.

Data Sources:
 City of Bridgeport GIS
 CTDEEP

BRIDGEPORT CT: FEMA CLAIMS OUTSIDE OF FLOOD ZONE



Stormwater Fee Feasibility

- How do you assess the rates? Is it based on:
 - Flat rate, impervious sq. footage, gross area, equivalent runoff unit, land use, PILOP-style system, TIF-style district rates, etc.
- Who takes ownership? WPCA? City? Stormwater authority? Regional authority?

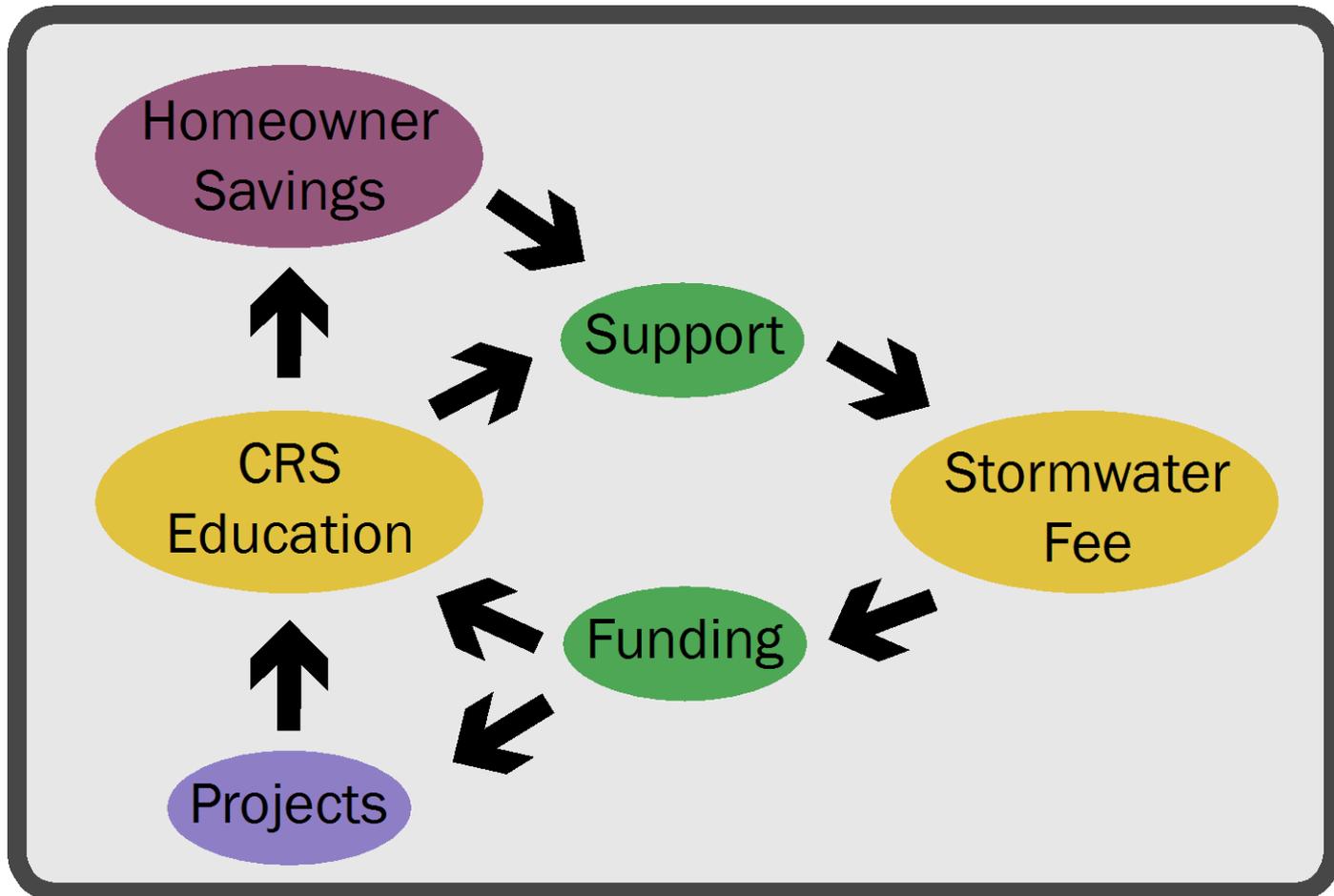


Next Steps

- FEMA: Community Rating System
 - Incentivize climate readiness measures
 - Expand education
- Stormwater Authority
 - Generate funding
 - Encourage infiltration



Symbiotic Relationship





NEW YORK & CONNECTICUT SUSTAINABLE COMMUNITIES



A Unique
Bi-State
Partnership to
Improve Jobs,
Housing and
Transportation

PARTNERSHIP FOR SUSTAINABLE COMMUNITIES



- Coordinating federal place-based programs and initiatives
- \$236 million in Regional Planning and Community Challenge Grants

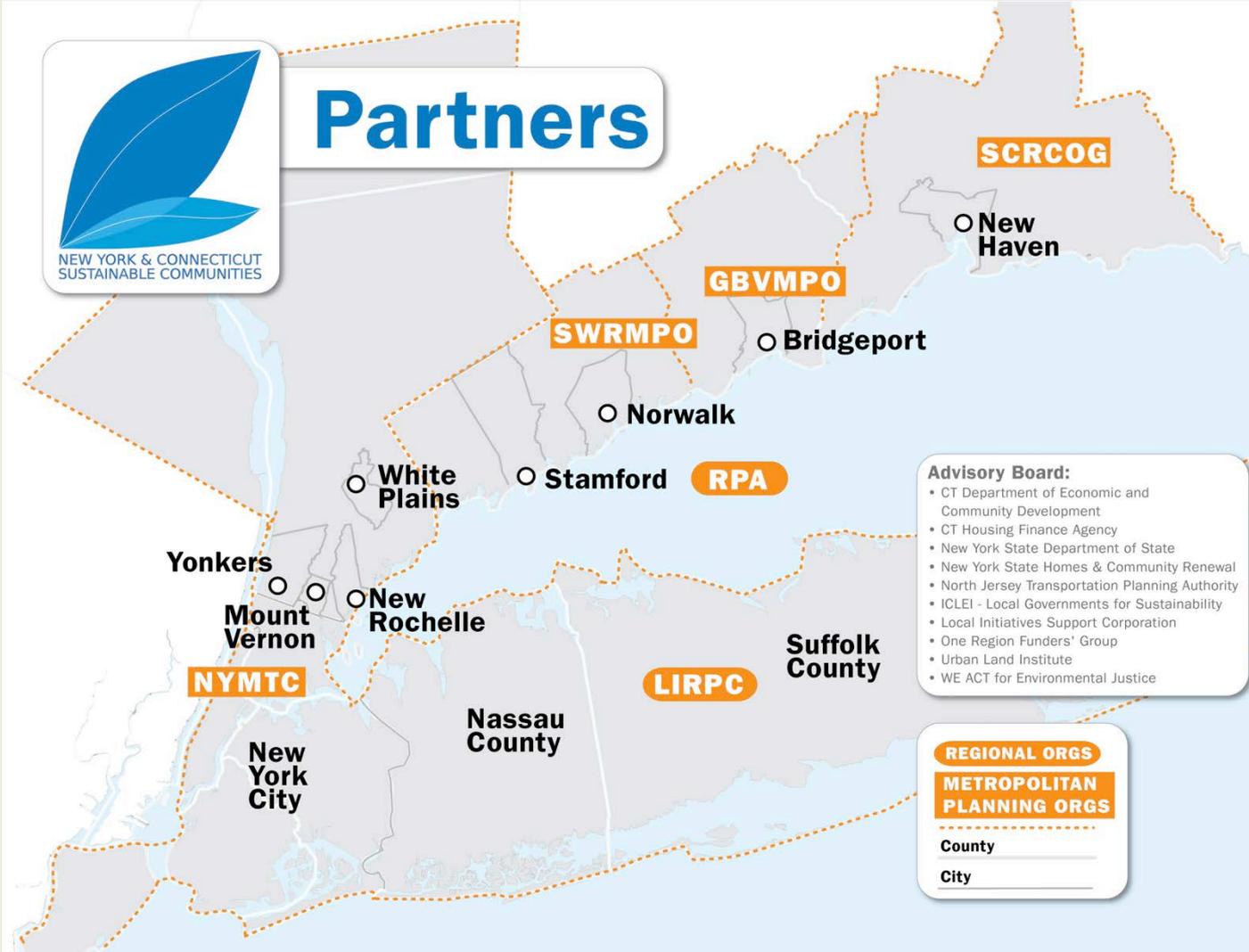
partnership for
Sustainable Communities
an interagency partnership HUD • DOT • EPA

LIVABILITY PRINCIPLES

- 1. Provide more transportation choices.**
- 2. Promote equitable, affordable housing.**
- 3. Enhance economic competitiveness.**
- 4. Support existing communities.**
- 5. Coordinate policies and leverage investment.**
- 6. Value communities and neighborhoods.**



Partners



- Advisory Board:**
- CT Department of Economic and Community Development
 - CT Housing Finance Agency
 - New York State Department of State
 - New York State Homes & Community Renewal
 - North Jersey Transportation Planning Authority
 - ICLEI - Local Governments for Sustainability
 - Local Initiatives Support Corporation
 - One Region Funders' Group
 - Urban Land Institute
 - WE ACT for Environmental Justice

REGIONAL ORGS

METROPOLITAN PLANNING ORGS

County _____

City _____

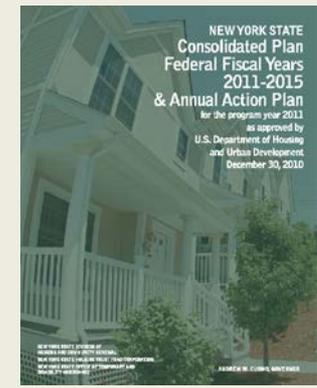
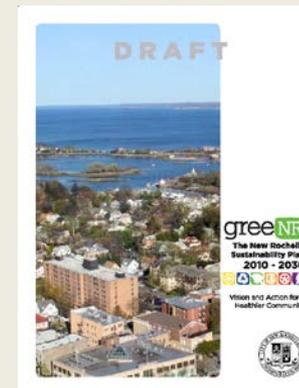
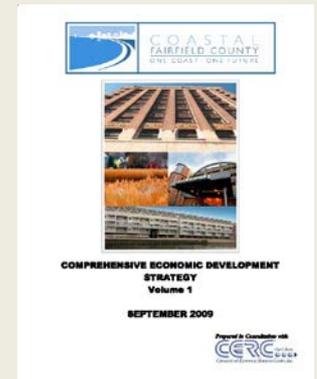
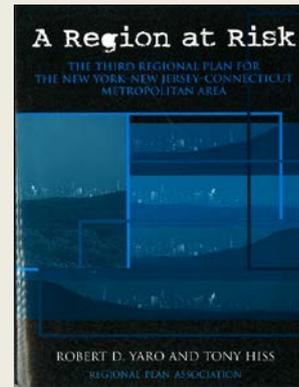
PARTNERS

- 9 Cities
- 2 Counties
- 6 Regional Organizations

ADVISORY BOARD

- 7 State Agencies
- 6 Nonprofits
- 3 New Jersey Members

BUILDING ON PAST PLANS



WHAT ARE WE TRYING TO ACCOMPLISH?

REGIONAL PLANNING ENHANCEMENT AND INTEGRATION



SPECIFIC PLACE-BASED AND AREA-WIDE PROJECTS

Northern Sector Place-Based Sustainability Projects

- New Haven, Bridgeport, Stamford, Norwalk, New Rochelle
- Bronx Stations
- I-287 and Cross County Parkway corridors

Eastern Sector Place-Based Sustainability Projects

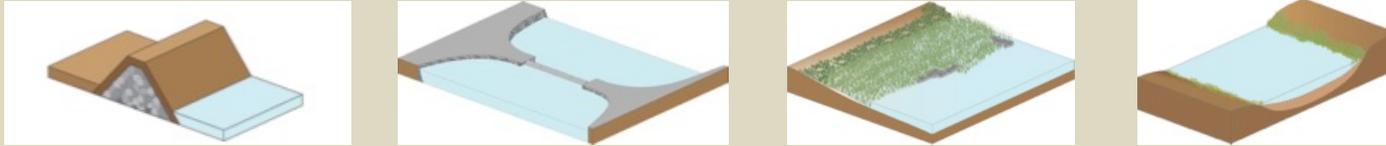
- East New York
- Nassau Centers
- Suffolk TDR
- Long Island Housing

Areawide Policy Projects

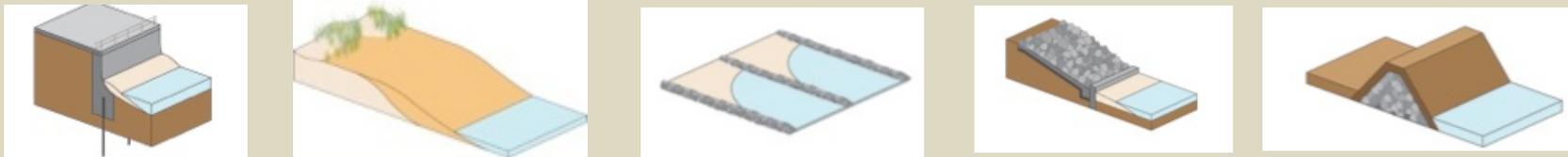
- NYC Climate Resilience
- Regional Fair Housing Analysis
- Regional Housing Assessment and Opportunities Fund

COASTAL ZONE ADAPTATION STRATEGIES

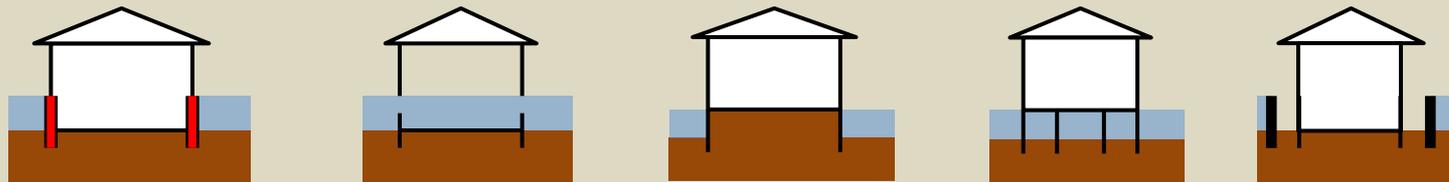
Regional



Neighborhood



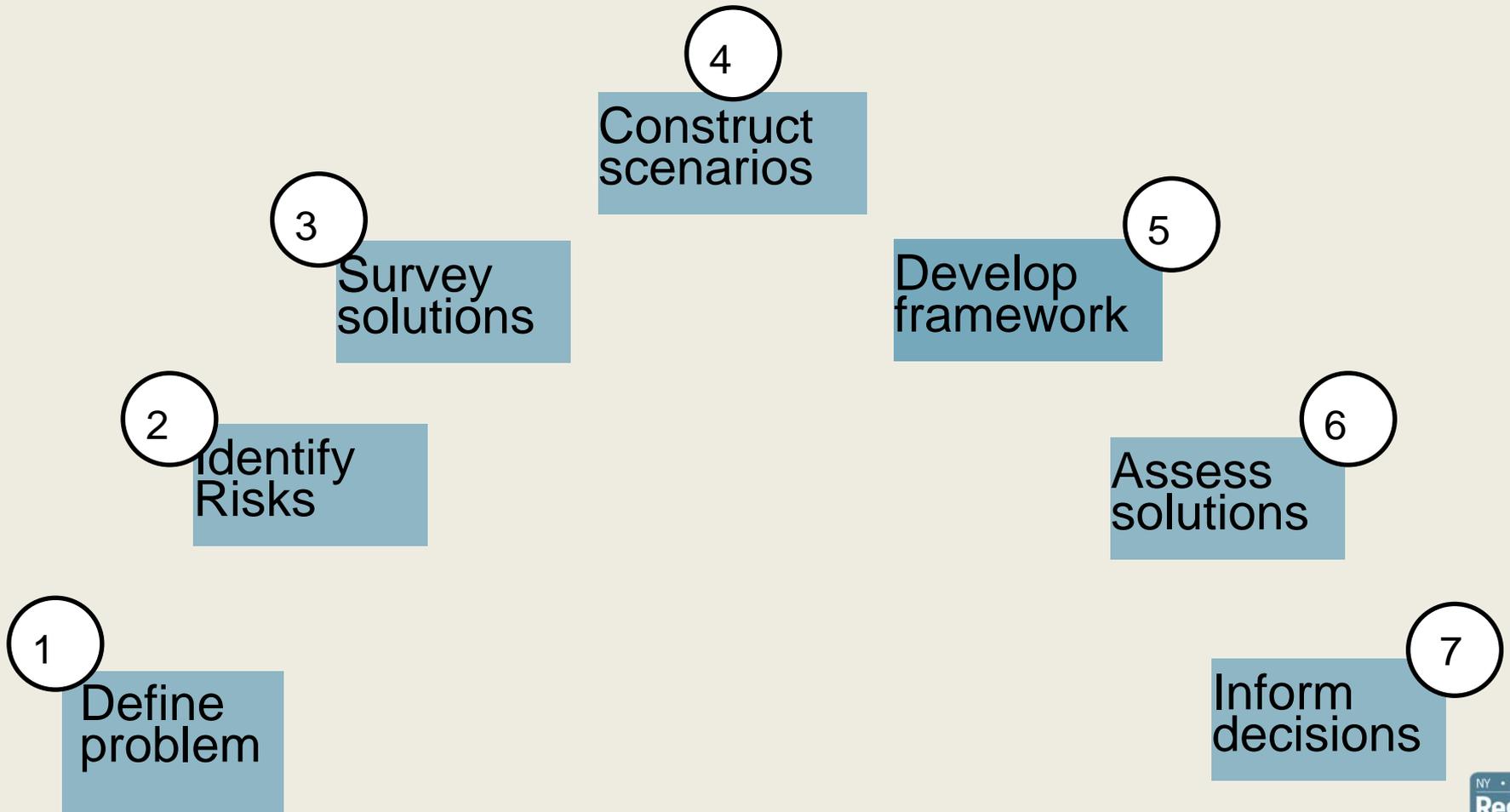
Site



Retreat



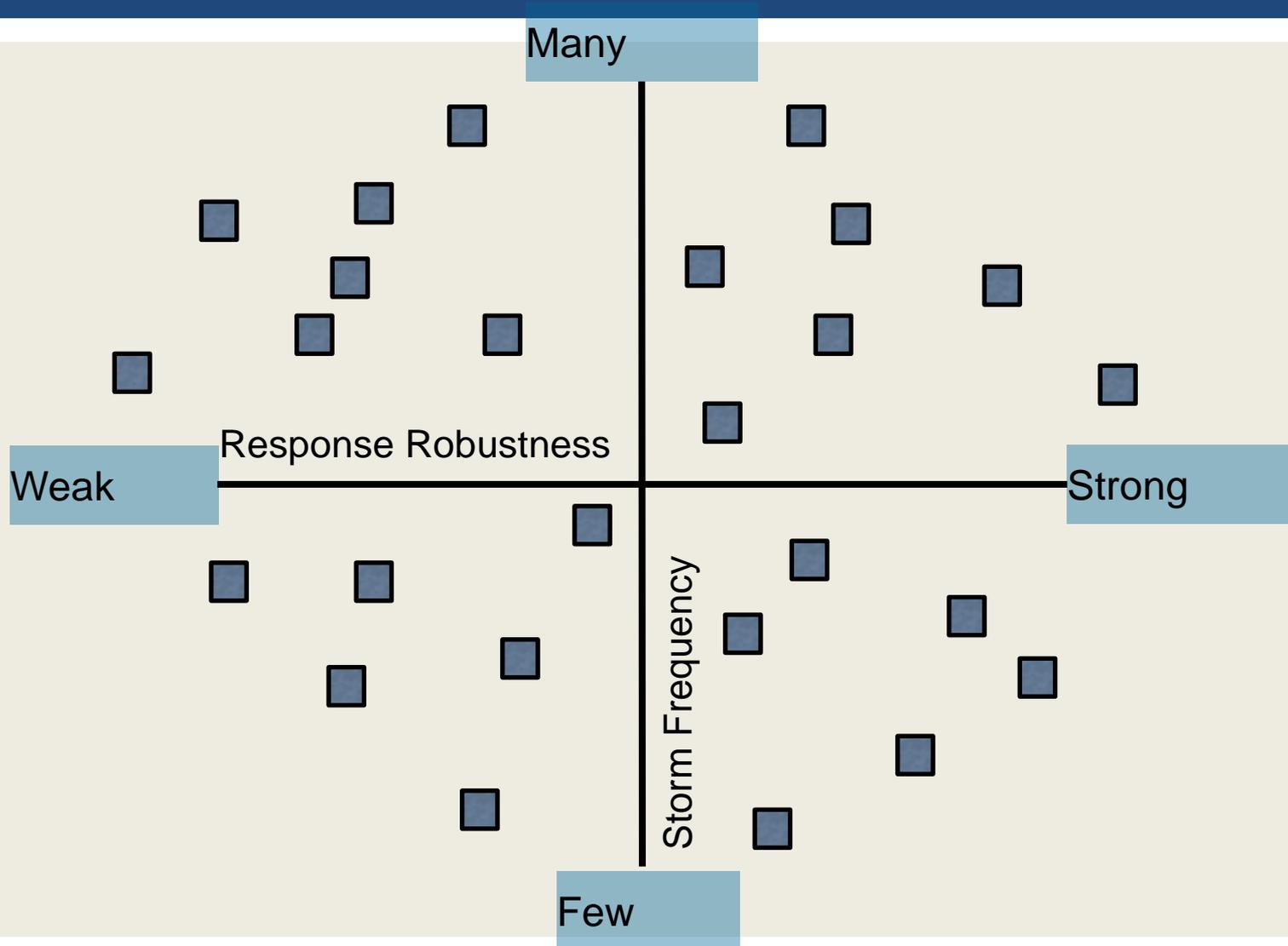
THE SCENARIO PLANNING PROCESS



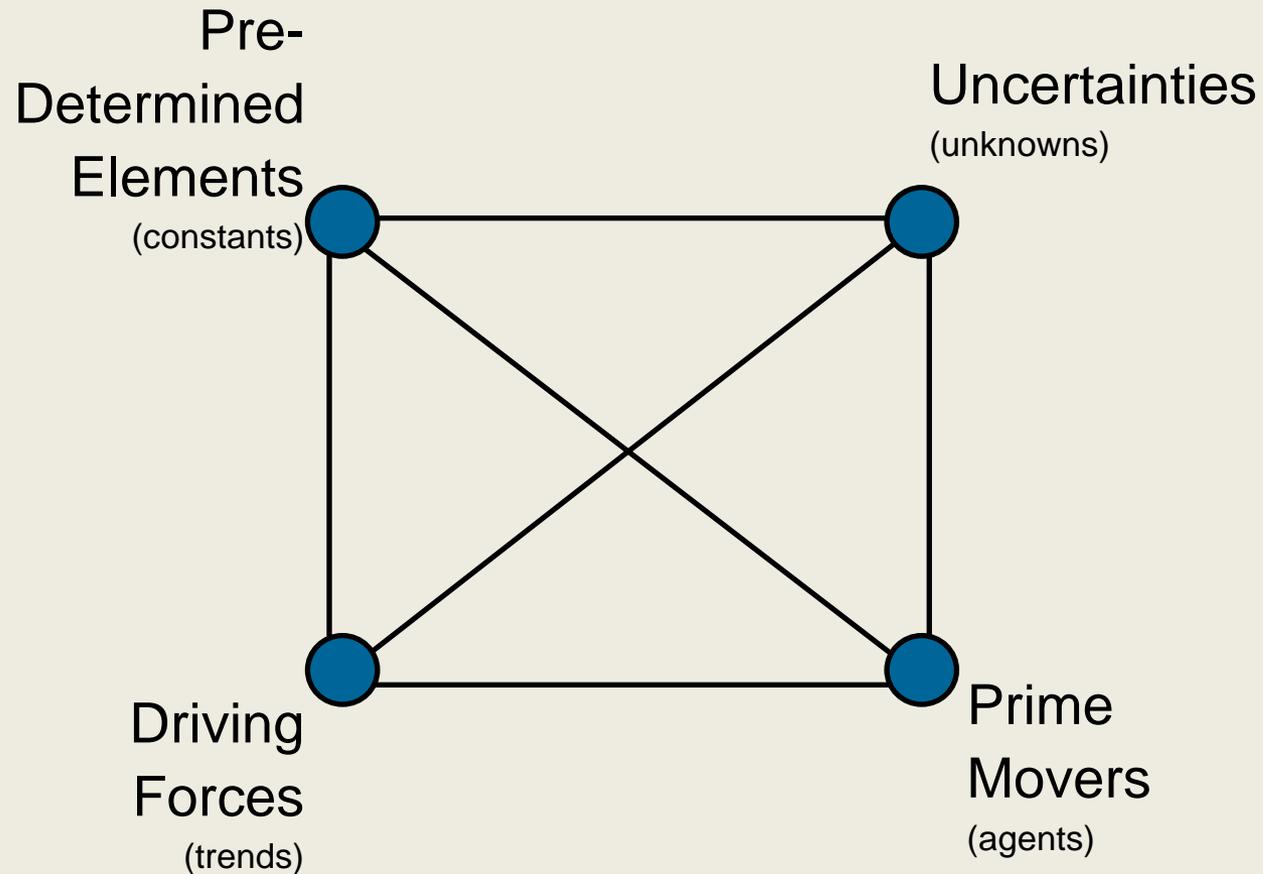
DEFINING THE PROBLEM

There is an urgent need to identify and implement adaptive strategies through 2035 that strengthen the New York-New Jersey-Connecticut region against coastal storms.

DEVELOPING SCENARIOS



CRITICAL FACTORS



CRITICAL FACTORS

Pre-Determined Elements

Demographic Trends

Climate Change

Aging Infrastructure

Driving Forces

Coastal Storms

Regional Economic Growth

Prime Movers

Residents and Businesses

Asset managers

Local planners

State and Federal Agencies (FEMA, HUD, Regulators)

Uncertainties

Frequency and Severity of Storms

Government Response

Market Response

SCENARIO LOGIC MODEL

How often will we experience a severe tropical storm or nor'easter?

Will the government fund disaster recovery?

How will residents and businesses respond?

5 years?

10 years?

20 years?

50 years?

100 years?

No

Yes

Rebuild to pre-storm conditions

At what level?

Hazard mitigation?
Immediate recovery?

Adapt and stay

Retreat

High Risk;
Need easements, buyouts, surge barriers, etc

Medium;
Need buyouts;
Planned development upland

Low Risk;
Need buyouts;
Planned development upland;
regulate vacant land



NEW YORK & CONNECTICUT
SUSTAINABLE COMMUNITIES

www.sustainablenyct.org

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PLANET

Thank You

- **Adam Markham**

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Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

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- **Davey Ives**

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