

Losing Ground: Innovations in Disaster Mitigation and Planning

11:00AM – 12:20PM **Breakout Sessions**

Session 1 – Ottinger Hall 101

Losing Ground: Innovations in Disaster Mitigation and Planning

Society is grappling with extreme events occurring with increasing frequency and greater severity. Local and State Governments face the challenges of planning physical infrastructure, social networks and programmatic responses to efficiently, effectively and equitably address response to and recovery from disasters. This panel will discuss innovations in tools, systems and protocols and describe best practices and exemplary case studies.

Jessica Bacher, Esq., *Executive Director, Land Use Law Center*

Thomas G. Bourgeois, *Director of Distributed Energy Resource (DER) Policies, Land Use Law Center and Director, U.S. DOE's New York /New Jersey Combined Heat and Power Technical Assistance Partnership*

Bomee Jung, *CEO, Cadence OneFive Inc.*

Jennifer Kearney, *Executive Partner and Founder, Gotham 360 LLC*

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Tools for Building Resilient Communities

RESILIENCE IMPLEMENTATION AND STRATEGIC ENHANCEMENTS (RISE)



LOCAL ASSESSEMENT TOOL



January 2020

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Getting Started

- Gather the relevant documents
- Pull together your team
- Answer the question in the Worksheet and tally the results

Documents Needed to Complete the Tool

- Hazard/flood insurance rate maps (FIRM)
- Hazard mitigation plan
- Emergency operations plan
- Post-disaster recovery plans and studies
- Comprehensive/master plan
- Municipal zoning code
- Municipal Building Code
- Subdivision regulations
- Parks/Open Space Master Plan
- Context-appropriate environmental codes/regulations (for example, a coastal area plan).

Table 1. Preparing to Complete the Tool – Useful Resources

PERSON/ AGENCY/ ORGANIZATION	RELEVANT RESLIENCE GOAL AREA(S)	CAN ALSO HELP PROVIDE	STEERING COMMITTEE
Certified floodplain manager	All goal areas	<ul style="list-style-type: none"> • Hazard/flood insurance rate maps (FIRM) • Hazard mitigation plan • Emergency operations plan • Post-disaster recovery plans and studies • Municipal zoning code 	X

PRIORITIZATION, ACTION PLANNING, AND IMPLEMENTATION WORKSHEETS

Use the results of the Resilience Goal prioritization; the inventory of local programs, policies, and codes; and the targeted examples to help set your action agenda for next steps. Fill in the following worksheets to get started.

Resilience Goal Prioritization Questions

Answer the following questions to help prioritize resilience goal areas and focus staff time and resources. Mark the number of topics you are interested in for each goal area in the tabulation table.

TOPIC QUESTION	Y/N	CONSIDER COMPLETING:
Does my community have a thorough understanding of the hazards it can expect to face, the potential range in severity of those hazards, and where they are most likely to occur?		Goal Area 1
Is information pertaining to coastal hazards and risk in my community (maps, plans, risk assessments) up to date?		
Does my community understand and consider our social and economic vulnerabilities? ¹		
Does my community protect lands in critical, flood-prone areas so that nature can perform its flood-reducing functions?		Goal Area 2
Does my community have dedicated funding sources for open space acquisition and management (for example bonds, sales taxes, or transfer taxes)?		
Does my community encourage growth away from sensitive environments to preserve land and reduce risk to people and structures that might locate in dangerous flood-prone areas?		
Has my community taken steps to reduce risk through a combination of proactive and protective land use laws, building codes, and planning policies?		Goal Area 3
Are there populations and/or places in my community that bear a disproportionate share of risk or vulnerability resulting from potential hazards?		
Has my community conducted a vulnerability assessment to identify current and projected vulnerable areas and associated risks to life and property and has it incorporated the results of that assessment into relevant plans (e.g. comprehensive plan, hazard mitigation plan, land use plans, etc.)?		
Has my community identified where growth can safely be accommodated now and in the future?		Goal Area 4

¹ Social vulnerability refers to the increased burden of hazard impacts on certain populations within the community, based on race, income, education, language spoken and more; economic vulnerability refers to the local or regional economy's ability to recover following an unexpected shock to the system.

GOAL 1: Ensure Comprehensive Understanding of Known Hazards and Their Potential Effects (Physical, Economic, and Social)

This goal area addresses the importance of recognizing the hazards that could affect your community and the people and places that are most at risk. Although this tool is geared towards communities that have already wrestled with resilience issues, it does not mean that all information pertaining to hazards and risk is complete and up-to-date. This goal ensures comprehensive understanding of key issues. A resilient community has a thorough understanding of the hazards it can expect to face, the potential range in severity of those hazards, and where they are most likely to occur. Potential impacts are investigated, mapped, and recognized. A resilient community recognizes that vulnerabilities are not limited to physical structures, and that social and economic vulnerability are equally important to address.

PRACTICAL APPLICATIONS

New York Rising Community Reconstruction Program: A recovery and resilience initiative to assist 124 communities severely affected by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. The program directly engages residents and business owners through planning committees and public engagement events. At such meetings, community members coordinate with the state to develop reconstruction plans and identify projects to strengthen resilience. Thus far, 66 plans have been created. Each plan includes a thorough accounting of hazards, risks, and vulnerabilities. In most cases, projects will be implemented by local stakeholders, with support and technical assistance provided by the Governor's Office of Storm Recovery, which allocated over \$700 million in federal funds to support the planning and implementation of such community-developed projects. stormrecovery.ny.gov/community-reconstruction-program

Louisiana Coastal Protection and Restoration Authority (CPRA) 2017 Coastal Master Plan: Updated every five years, the Coastal Master Plan is designed to respond to the loss of coastal land and the threats from storm surge events by identifying, funding, and completing projects that build or maintain land, reduce risk, and improve resilience. Since CPRA was created and the first Coastal Master Plan was released in 2007, it has completed or funded 135 projects, resulting in over 36,000 acres of land benefits, 282 miles of levee improvements, and over 60 miles of barrier islands and berms. In addition, the plan provides individual fact sheets for 24 parishes, detailing hazards and risks, the projected impacts of future land use change and flood depths, as well as the 2017 Coastal Master Plan projects for each parish. coastal.la.gov/our-plan/2017-coastal-master-plan/overview/

Understanding Key Challenges

- ◆ To what natural hazard events is your community most susceptible? What were the primary physical, economic, and social impacts of recent hazard events?
- ◆ Has your community been involved in the development of a Multi-Jurisdictional Hazard Mitigation Plan approved by the Federal Emergency Management Agency (FEMA)? Did you develop your own hazard mitigation plan? Document its name, date of plan, and URL, if available.
- ◆ Are there specific challenges you've faced in identifying your community's hazards and related community impacts?

Inventory Your Local Programs, Policies, and Codes

The strategies below assess your community's current capacity for comprehensive understanding of known hazards and their potential physical, economic and social effects. To inventory your policies, please read through the strategies described below and indicate if you are **currently using** this strategy, if you would **like to use** or implement this strategy, and provide any available local links or resources available to provide more information.

	STRATEGY	CURRENTLY HAVE/USE? (Y/N)	WOULD LIKE TO HAVE/IMPROVE? (Y/N)	YOUR LOCAL LINKS & RESOURCES
	Study, Adopt Plans, Educate			
1.1	Comprehensive plan has a hazard mitigation or resilience chapter/section			
1.2	Location of socially vulnerable populations (e.g. age, income and poverty, education, housing, race, disability, social isolation) is identified in comprehensive plan, relative to hazards/hazard-prone areas			
1.3	Waste facilities identified in hazard-prone areas			
1.4	Up-to-date flood hazard maps adopted. If "Yes", please provide the date maps were created/adopted in the "Links/Resources" column.			
1.5	Flood maps consider both historical events and projected flood lines and coastlines			

Targeted Resources

STRATEGY	Study, Adopt Plans, and Educate
1.1	<p>Integrating Hazard Mitigation into the Local Comprehensive Plan: A fact sheet from FEMA with Planning Association. https://www.fema.gov/media-library-data/20130726-1908-25045-9918/factshe</p>
1.2	<p>Community Based Vulnerability Assessment: A Guide to Engaging Communities in Understanding Disasters: A step-by-step guide from to conducting a social vulnerability hazard assessment, by http://www.mdcinc.org/sites/default/files/resources/Community%20Based%20Vulnerability%20Assessment.pdf</p> <p>Social Vulnerability Index: Tool developed by the CDC analyzes a variety of risk factors at a census tract level.</p>
1.3	<p>Fort Worth, Texas Floodplain Management Plan: Waste Water Facilities are part of the critical facilities. http://fortworthtexas.gov/files/FMP%202016-06-17.pdf</p>
1.4	<p>Adoption of Flood Insurance Rate Maps fact sheet: FEMA explains the flood insurance program https://www.fema.gov/media-library/assets/documents/30451</p>
1.5	<p>Fort Worth, Texas Floodplain Management Plan, “Open Channel Studies”: http://fortworthtexas.gov/files/FMP%202016-06-17.pdf</p> <p>FEMA Flood Insurance Study data: https://www.fema.gov/flood-insurance-study</p>
1.7	<p>Limit of Moderate Wave Action (LiMWA) Fact Sheet: https://www.fema.gov/media-library/assets/documents/30451</p>
1.8	<p>Manasota Key North Beach Erosion Study Update: https://www.charlottecountyfl.gov/projects/Projects/18-001/Manasota-Key-North-Beach-Erosion-Study-Update.pdf</p> <p>Florida Critical Erosion Reports: Conducted by county by the Florida Department of Environment http://www.dep.state.fl.us/beaches/publications/tech-rpt.htm#Critical_Erosion_Reports</p> <p>North Carolina Coastal Erosion Study: https://ncdenr.s3.amazonaws.com/s3fs-public/Coastal%20Management/documents/PDF/North%20Carolina%20Beach%20Erosion%20Study.pdf</p>
1.11 – 1.15	<p>Fort Worth, Texas Floodplain Management Plan: http://fortworthtexas.gov/files/FMP%202016-06-17.pdf</p>

Develop Action Plan

RESILIENCE STRATEGY	LEAD ROLE	SUPPORTING CAST	TIMEFRAME	NEXT STEPS	RESOURCES NEEDED
Example: A green infrastructure cost share or fee credit program is made available	Office of Stormwater Management	Planning Dept. Public Works Public Affairs Local environmental Groups	Mid-term: 6 months – 1 year	<p>Research existing cost share/fee credit programs and produce a feasibility study</p> <p>Identify likely users or residents/businesses who would be most interested</p> <p>Investigate funding support resources</p>	<p>Staff time to research best practices and determine feasibility</p> <p>Funds to support cost sharing/ fee credits</p>

	STRATEGY	CURRENTLY HAVE/USE? (Y/N)	WOULD LIKE TO HAVE/IMPROVE? (Y/N)	YOUR LOCAL LINKS & RESOURCES
	 Equity component  Quick-start strategy  CRS linkages			
6.9	Public-private partnerships are developed to promote renewable energy			
	Adopt Incentives			
 	6.10 Resources are devoted to promoting commercial/residential mitigation activities that can reduce flood insurance rates			
	6.11 Financial incentive packages are available to assist businesses remaining in the community following a disaster			

	STRATEGY	CURRENTLY HAVE/USE? (Y/N)	WOULD LIKE TO HAVE/IMPROVE? (Y/N)	YOUR LOCAL LINKS & RESOURCES
	 Equity component  Quick-start strategy  CRS linkages			
 	7.14 The current inventory of non-conforming structures located in the regulatory floodplain is maintained and frequently updated to prevent rebuilding in hazard areas, in the event of significant damage			
	Adopt Incentives			
	7.15 Expedited development review/permitting is available for proposals that improve resilience in high hazard areas or for proposals located outside of high hazard areas			
	7.16 A voluntary incentive program is available for strengthening buildings beyond code requirements			
	Enact Policies & Supportive Regulations			
	7.17 Zoning and building codes are reviewed every five years and updated, if needed			
	7.18 Code is amended or ordinances adopted to allow renewable energy on individual properties and in communal installations (microgrids) ⁴⁴			

Model Local Law Publication in Development

CRRA required DOS, in cooperation with DEC, to prepare model local laws that include consideration of future physical climate risk due to:

- sea level rise
- storm surges
- flooding

- A Variety of Models Provided
- Risks, Challenges, & Landscapes Vary
- Regulatory Culture Differs
- Administrative Capacity Varies



Model Local Categories

- Basic Land Use Tools
(Zoning, Subdivision, Roads, Etc.)
- Wetlands & Watercourse Protection Measures
- Coastal Shoreline Protection Measures
- Management of Floodplain Development
- Stormwater Control Measures

BASIC TOOL

Elevated Buildings Provisions

- Provide an alternative way to measure height when an existing building in the 100-year floodplain is being elevated
- Allow elevation of existing homes even where it would create a non-compliance to height and setback (no variances), grant them Legal Non-Complying Status to allow future additions
- Require visual mitigation involving porches, stairs, raised front yards, or landscaping
- Require Non-Conversion Agreements



Phased Reconstruction Moratorium

- Proactively sets priorities for Building Department services post-disaster
 - Building Permits & Inspections
 - Processing of land use applications (beware default approvals)
- Adopt now, activated by events
 - Disaster declaration
 - # structures damaged

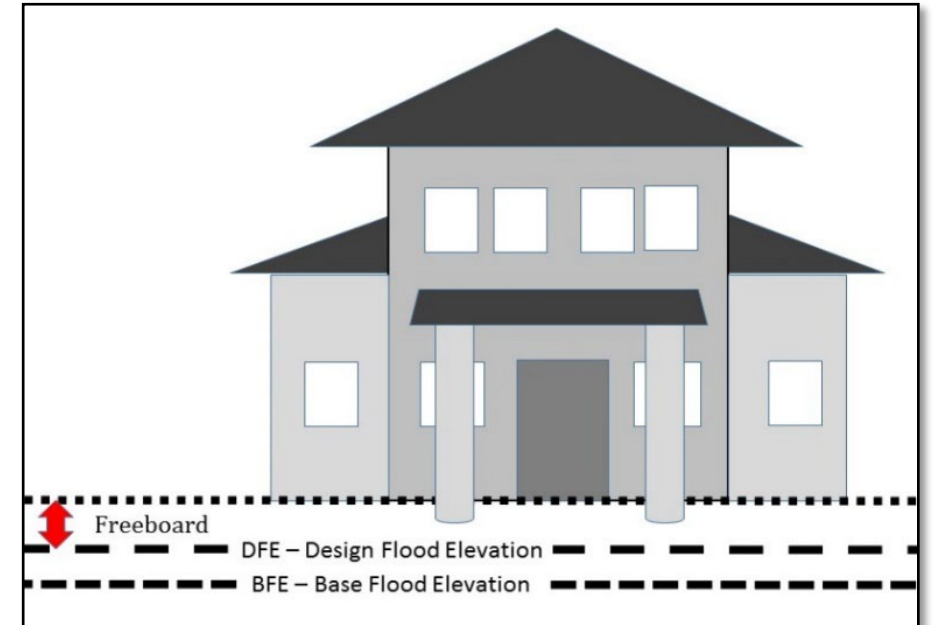
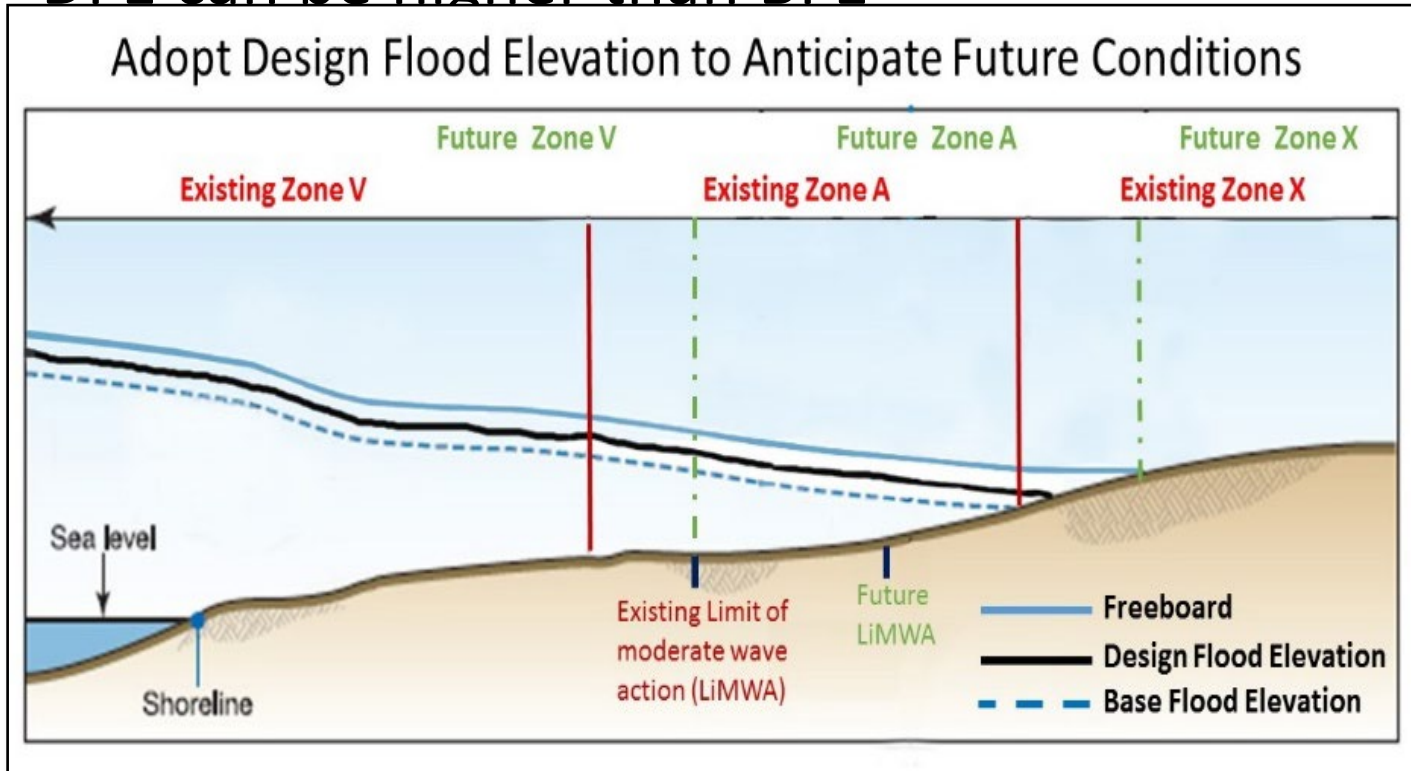


Breezy Point

FLOOD

Establish Design Flood Elevation (DFE)

- Current freeboard (2 ft.) based on BFE
- DFE can be higher than BFE



Examples of basis for DFE:

- 500-yr flood elevation
- Extra height added to BFE
- Historical deficiencies
- Climate-informed science (Predicted sea level, future conditions hydrology)

Shoreline Stabilization

Shoreline Stabilization techniques generally fall into three categories:

1. Natural
2. Nature-based
3. Structural

Shoreline protection alternatives analysis can promote the use of natural or nature-based methods through the site plan or special use permits process



Stormwater Management and Erosion & Sediment Control

- Updated Sample Local Law for stormwater management and erosion & sediment control
 - Base Version: General Permit updates, green infrastructure practices from NYS SWDM. Will be required for MS4 Operators
 - Resiliency Version: Additional provisions that allow municipalities to require a more detailed green infrastructure site planning process & consider riparian buffers, etc.
- <http://www.dec.ny.gov/chemical/41392.html>



Not all Solutions need to be Regulatory

- Acquisition of property
- Zoning incentives
- Transfer of Development Rights
- Local home elevation programs
- Community Rating System
- Green infrastructure
- Public education



Green roof at Logan Gardens, a senior housing apartment building in Manhattan.

<https://dos.ny.gov/model-local-laws-increase-resilience>





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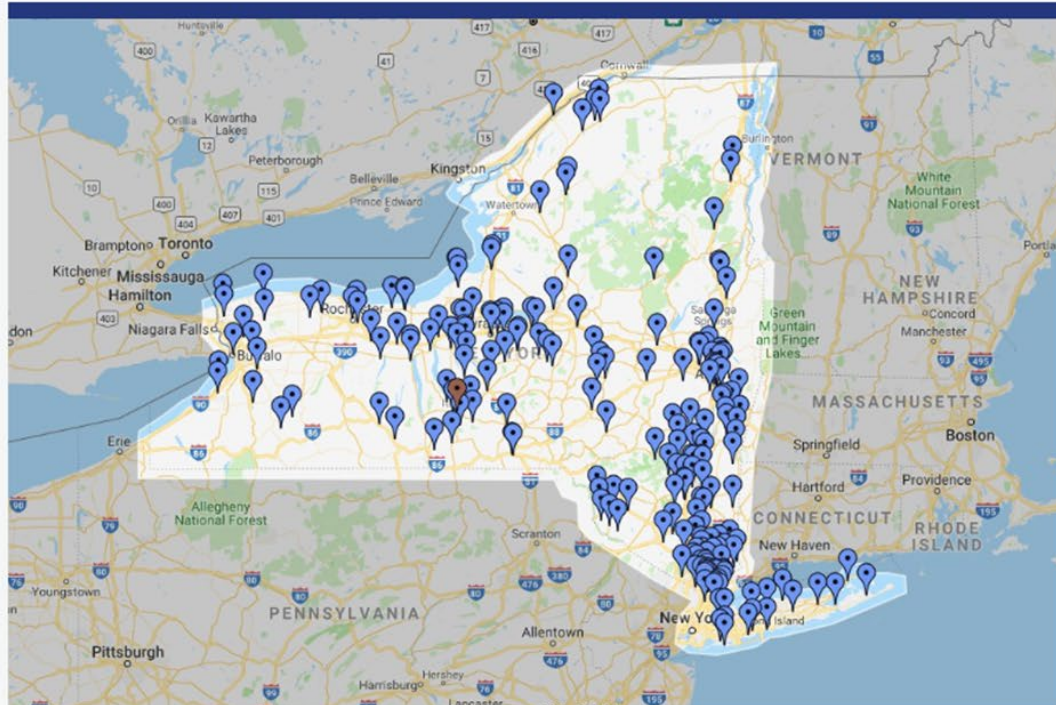
Climate Smart Communities

About

Actions & Certification

Support

SIGN IN



State Support for Local Climate Action

Climate Smart Communities (CSC) is a New York State program that helps local governments take action to reduce greenhouse gas emissions and adapt to a changing climate. The program offers free technical assistance, grants, and rebates for electric vehicles.

Registered communities have made a commitment to act by passing the CSC pledge. **Certified** communities are the foremost leaders in the state; they have gone beyond the CSC pledge by completing and documenting a suite of actions that mitigate and adapt to climate change at the local level.

> [LEARN MORE](#)

<https://climatesmart.ny.gov/>



7. Enhance community resilience to climate change.





PE7 Action: Climate Vulnerability Assessment

4 Points

UNPLANNED



 Bronze Priority  Silver Priority



• THIS ACTION HAS VARIABLE POINTS: 4, 8, 16 • COMPETITIVE FUNDING AVAILABLE

PE7 Action: Evaluate Policies for Climate Resilience

6 Points

UNPLANNED



 Bronze Priority  Silver Priority

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