



**Office of Planning
and Development**

Community Resilience

**Presentation for the
Capital District
Regional Planning
Commission
March 31, 2016**

An Office of the New York Department of State

March 31, 2016



Office of Planning and Development

Overview

What Is Resilience?

The New Normal (Irene, Lee, etc.)

Our Experience

Resilience Sectors

Current Federal and State Initiatives

Resilience Opportunities & Tools

Summary

An Office of the New York Department of State

March 31, 2016

Audience Participation:

How many are familiar with community resilience issues?

How many are incorporating resilience in planning or projects?

What Is Resilience?

Resilience Is:

“A resilient city is prepared to absorb and recover from any shock or stress while maintaining its essential functions, structures, and identity, adapting and thriving in the face of continual change.”

ICLEI Local Governments for Sustainability

<http://www.iclei.org/activities/our-agendas/resilient-city.html>



“REPEAT AFTER ME: AT LEAST WE DON'T GET HURRICANES...
AT LEAST WE DON'T GET HURRICANES...AT LEAST.....”

Governor's 2100 Commission - Resilience

“Resilience is the ability of a system to withstand shocks and stresses while still maintaining its essential functions. Therefore systems that are more vulnerable – i.e., those that are *brittle*, at *stretched capacity*, or with very *low diversity*, - are more at risk of catastrophic consequences when the next shock event happens. Resilient systems are also better able to repair and recover afterwards.”

Terms Used

System
 Withstand shock
 Maintain functions
 Able to repair
 Able to recover

 Vulnerable =
 Brittle
 Stretched capacity
 Low diversity
 Higher risk
 Catastrophic outcomes

Concepts

System
 Functions
 Quick Recovery
 Durable
 Extra capacity
 Higher Diversity
 Risk Management

★ planning advisory service

AMERICAN SOCIETY OF PLANNING OFFICIALS
1313 EAST 60th STREET — CHICAGO 37, ILLINOIS

Information Report No. 53

August, 1953

FLOOD PLAIN REGULATION*

Every year, the floods get bigger and more expensive. Or so it seems. In a number of cases, the floods have not worsened, but the value of structures and uses on the flood plain has increased. The local community and the nation may be asked to pay for damage that should not have been allowed to occur.

With notable exceptions, the approach of United States' municipalities and the state and federal governments has been to control floods rather than to control flood damage. Cost and benefit analyses of flood control projects are based on average yearly flood damage with little or no consideration of the flood plain uses.

The New Normal



- **Climate Change is increasing heavy rains**
- **Stormwater storage capacity is too low**
- **Stormwater conveyance is too small**
- **Developed areas are inaccessible.**

Route 2, Cropseyville
8/28/11 (?)
NYS-OPRHP



Jessica Lauria

- **Extreme rainfall**
- **Impervious surfaces**
- **Stream channels buried in undersized conduits**
- **Lack of watershed plan**
- **No Green/Blue Infrastructure**

Albany, Sheridan near Pearl
8/5/14



- **Historic/Cultural Resource**
- **Previously known risks & Inadequate Elevation**
- **Increasing extreme rainfall plus upstream discharge**
- **Lack of watershed management**

Guy Park House
Amsterdam, Montgomery Co. 8/30/11
NYS-OPRHP



Resilience Factors -

- **Development Density**
- **Construction Type**
- **Emergency Access**
- **Storm-safe electrical systems**
- **Elevation**

Schoharie Valley after Hurricane Irene (Ken Hubert)

- Debris
- Development Density & Standards



Schenectady after Irene (Elinore Schumacher)

Commerce:

- Food
- Banking
- Employment



Center - Main St, Margaretville (Carole O'Beirne)

Right: Gas station, Fort Plain (Jeff Smith)

Left: Village of Fort Plain Save A Lot & Family Dollar following June 2013 storms (Jeff Smith)



An Office of the New York Department of State

- Storm “Protection” failed
- Unsafe locations
- Inappropriate structural design
- No natural protective features





- **High risk location**
- **No Natural Protective Features**
- **Residential & entertainment in high-risk location**
- **Engineering standards don't reflect reality of the site**
- **Lack of safe land use standards**



- Long term sustainability
- Wine is running low
- Local acceptance of risk

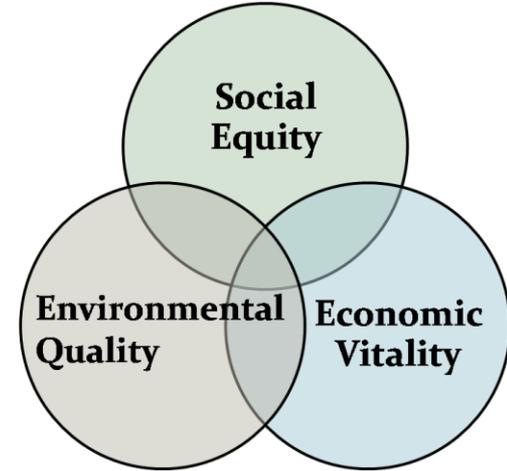
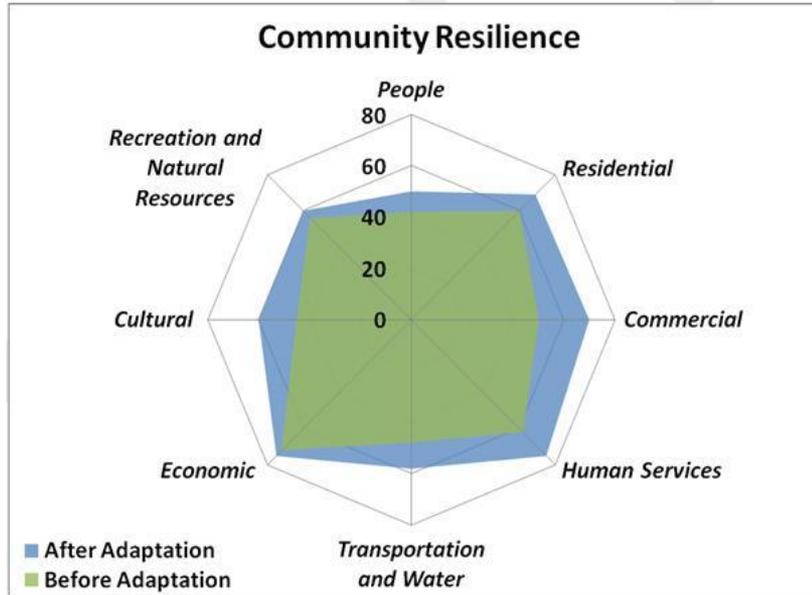
Venice, Italy,
Posted 3/2/12

Our Experience

NY Dept. of State: Community Resilience Guidance (unpublished)

Focus on community functions, not things

Measure Community Resilience



Leverage existing assets: Restore natural protective features to promote safety and livability.

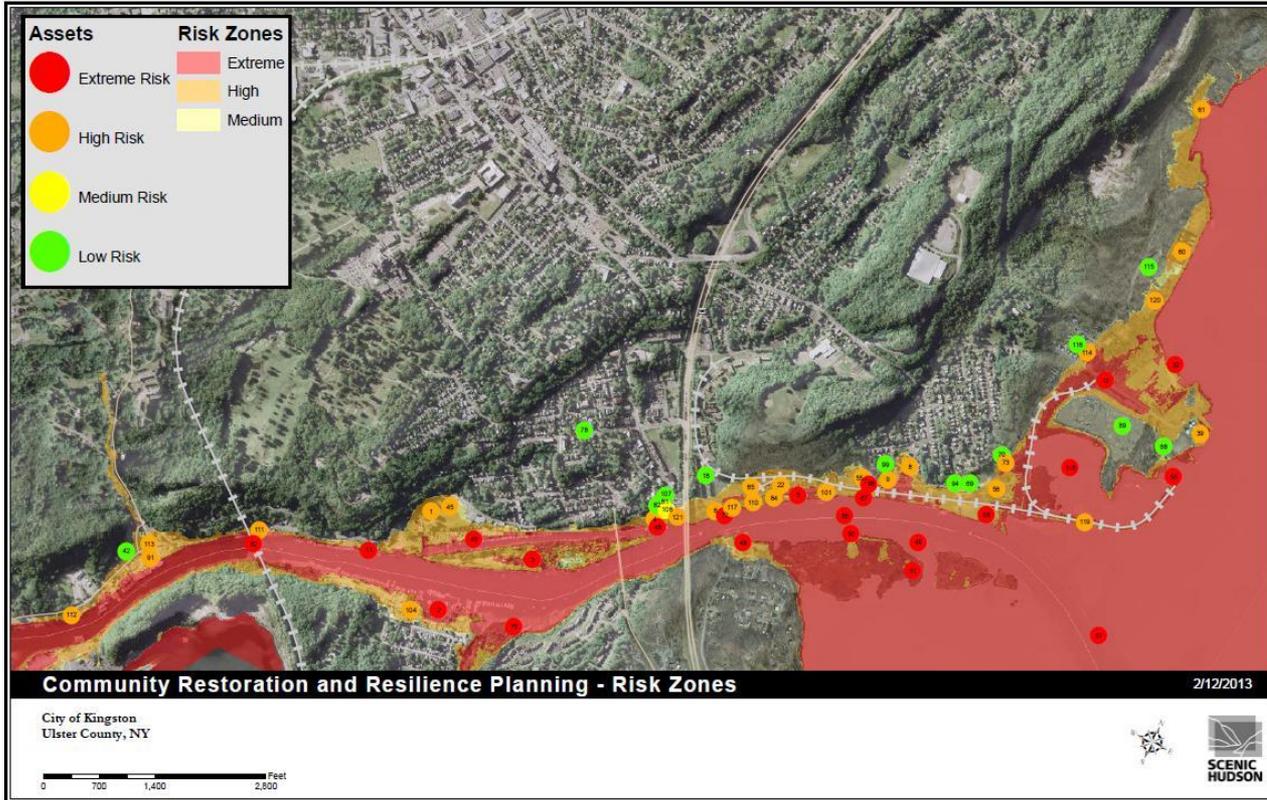
Risk Assessment: Know York Risks



DOS Risk Areas

- Conceptualized in draft guidance
- Combined regulatory mapping with modeling
- First developed in partnership with NOAA
- Used in
 - NYRCR planning
 - OPRH&P risk assessment
 - SHPO risk assessment
- Under development for Inland & Great Lakes

Risk Assessment: Know Your Risks



- Scale method to issues/capacity
- Incorporate future scenarios
- Address 3 Functional Sectors:
 - Economy
 - Environment
 - Social
- Involve stakeholders

NYS-DOS Risk Assessment
City of Kingston 2013

Resilience Sectors

What Community Sectors Are Involved In Resilience?

Economy – Commerce, Employment, Income, Savings

Environment – Water Quality, Air Quality, Biodiversity, Food Web, Habitat, Connectivity

Health – Nutrition, Check ups, Emergency care, Pediatrics, Stress, Aging, Mental Hygiene

Infrastructure – Energy Supply & Distribution, Transportation, Communications, Drinking Water, Waste Water

Social Welfare – Equity, Housing, Childcare, Elder care, Access to Services

Economy



- Businesses
- Commerce – Services
- Employment
- Banking
- Food
- Agriculture

GOSR- New York Rising,
Montgomery County

Environment

Natural vs Built

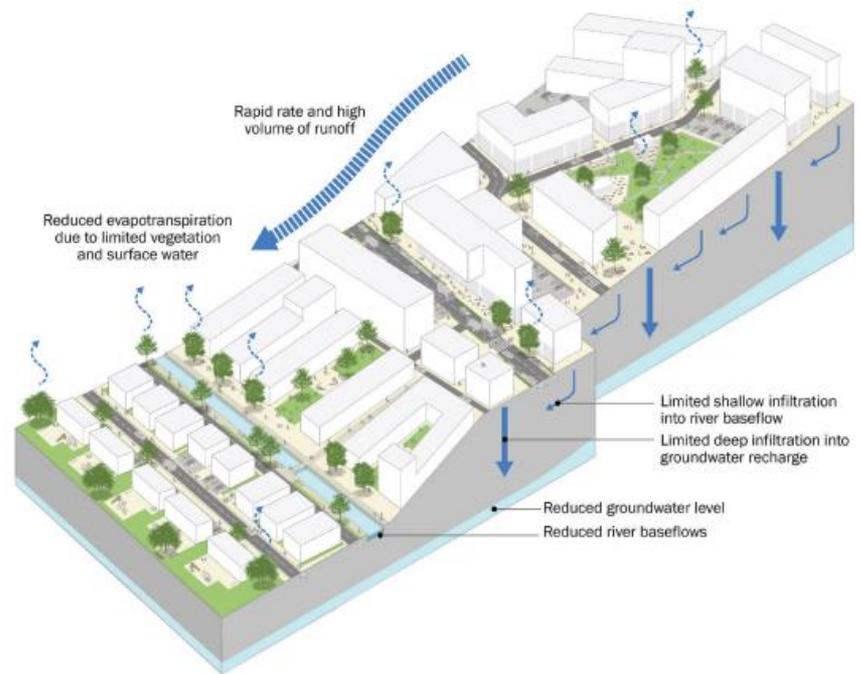
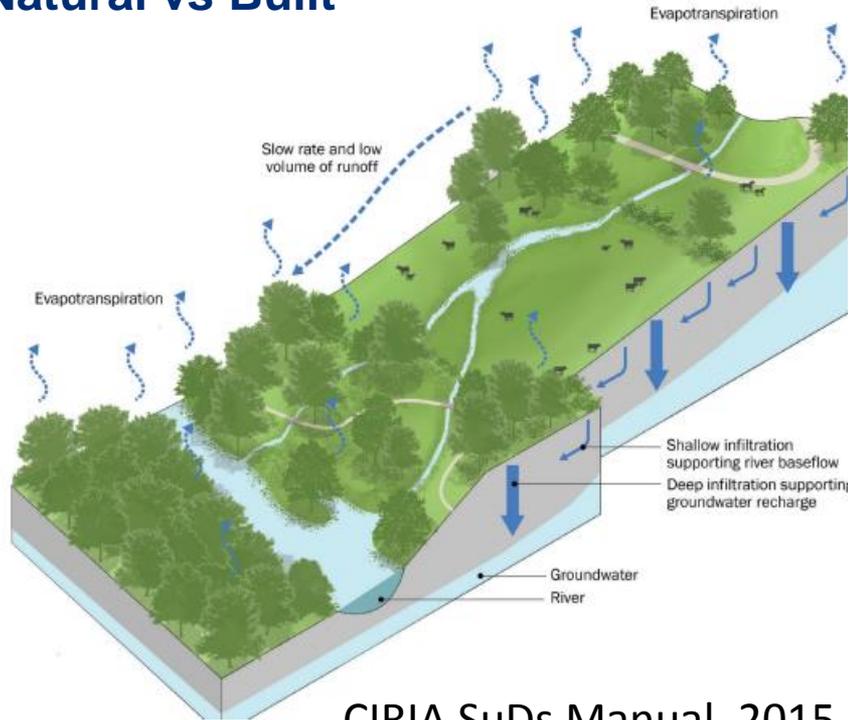


Figure 1.2 Impacts of urbanisation on a catchment

CIRIA SuDs Manual, 2015

Environment

Green Infrastructure



An Office of the New York Department of State



- Grants for demonstration and pilot projects through GIGP
- Financing for green infrastructure through the Clean Water State Revolving Fund Program.
- All programs are water quality focused.
- <http://www.efc.ny.gov/Default.aspx?tabid=461>



Environment

Green Infrastructure



– After



Environment

Green Infrastructure



Environmental
Facilities Corporation

Restoration of
Natural Features

Lake Placid, NY



Before

Environment

Green Infrastructure

Construction

Post-Irene:

Dam Removal,
Wetland Creation
& Streambank
Restoration

Lake Placid, NY



Environment

Green Infrastructure



Environmental
Facilities Corporation

Lake Placid

– after

Dam Removal,
Wetland Creation
& Streambank
Restoration

Lake Placid, NY



Environment

Blue-Green Infrastructure

CIRIA SuDS Manual 2015

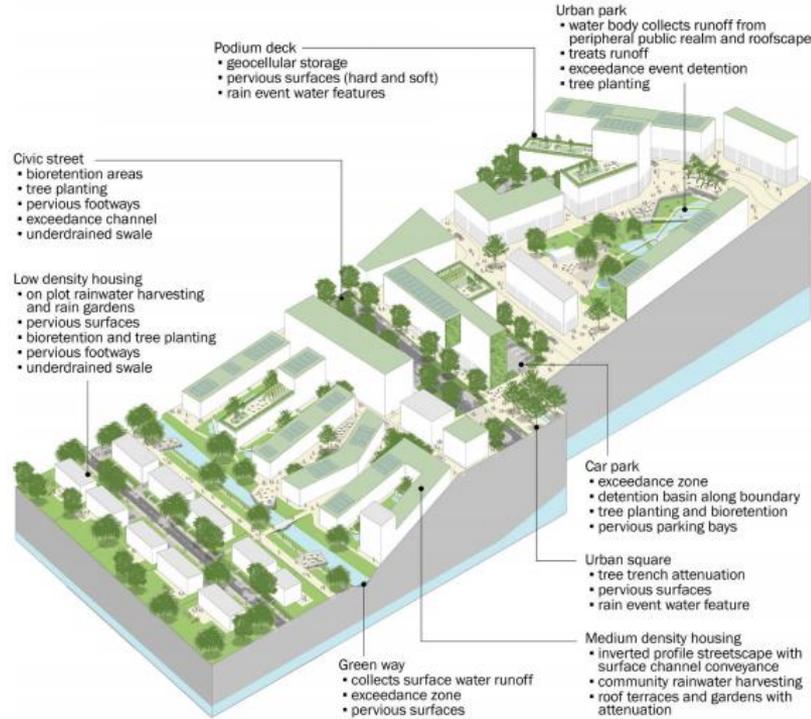
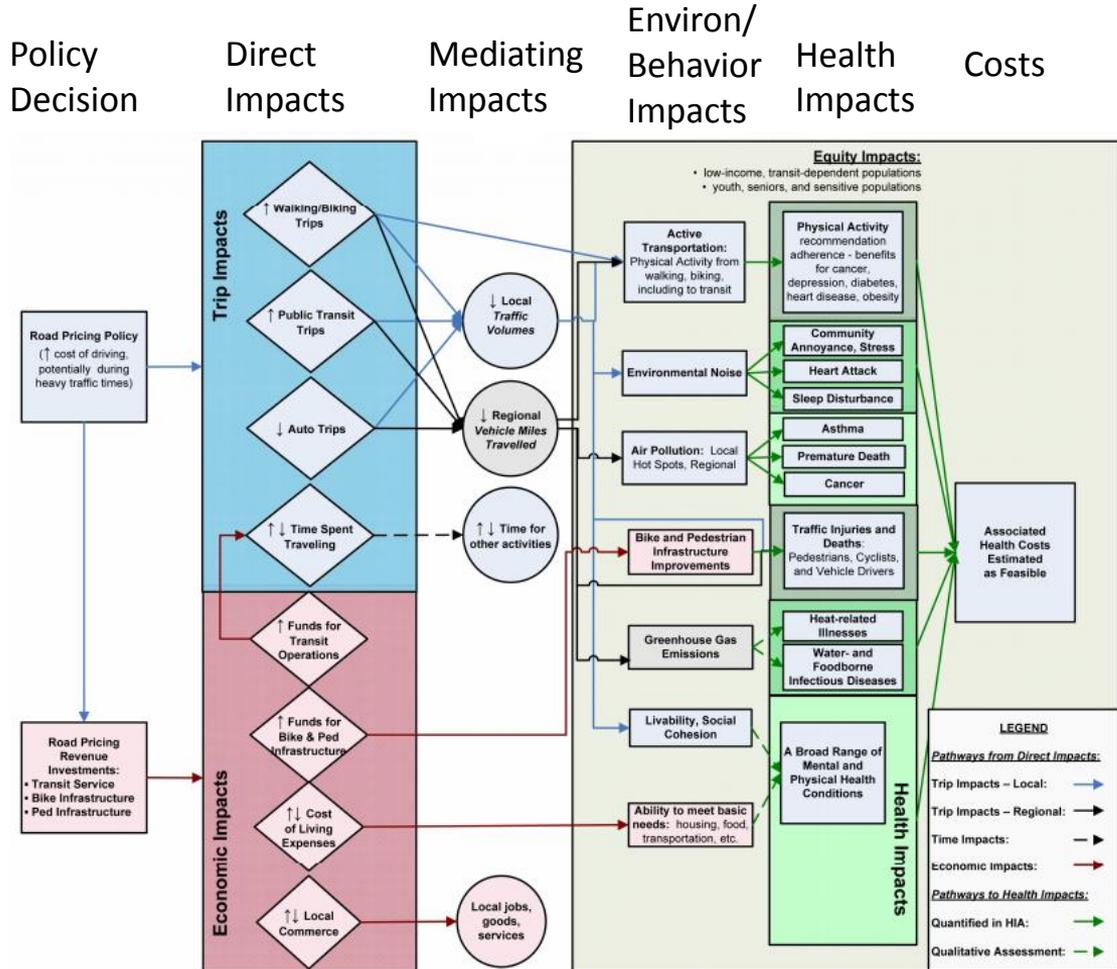


Figure 1.6 Examples of commonly used SuDS for different development types

**SuDS Manual (C753):
Sustainable Drainage
Systems (BMPs)**

http://www.ciria.org/Memberships/The_SuDS_Manual_C753_Chapters.aspx

Construction
Industry Research
and
Information
Association, (CIRIA)
Great Britain



Health Impacts Assessment

“helps communities make informed choices about improving public health through community design.”

And “evaluate the potential health effects of a plan, project or policy before it is built or implemented”

http://www.cdc.gov/healthyplaces/hi_a.htm

Infrastructure



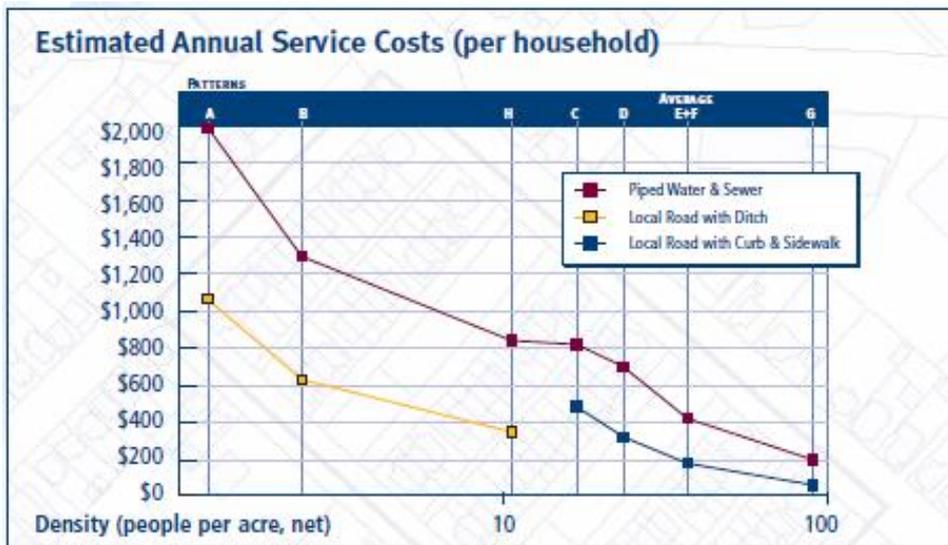
- Transportation
- Communications
- Water/Wastewater Systems
- Energy

- Cascading effects:
 - Energy → Communications

Infrastructure: Capital Construction Costs

Halifax, N.S.: Density/Costs*

*Canadian Dollars

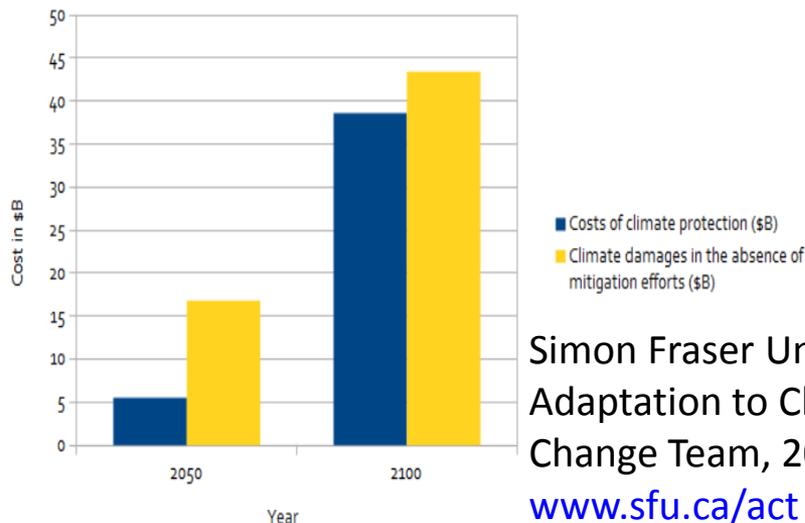


<http://www.halifax.ca/regionalplanning/publications/documents/patternbookvol2apr05.pdf>

An Office of the New York Department of State

Vancouver, B.C.: Annualized Infrastructure Costs*

*Canadian Dollars



Simon Fraser Univ.,
Adaptation to Climate
Change Team, 2015

www.sfu.ca/act

Social Vulnerability

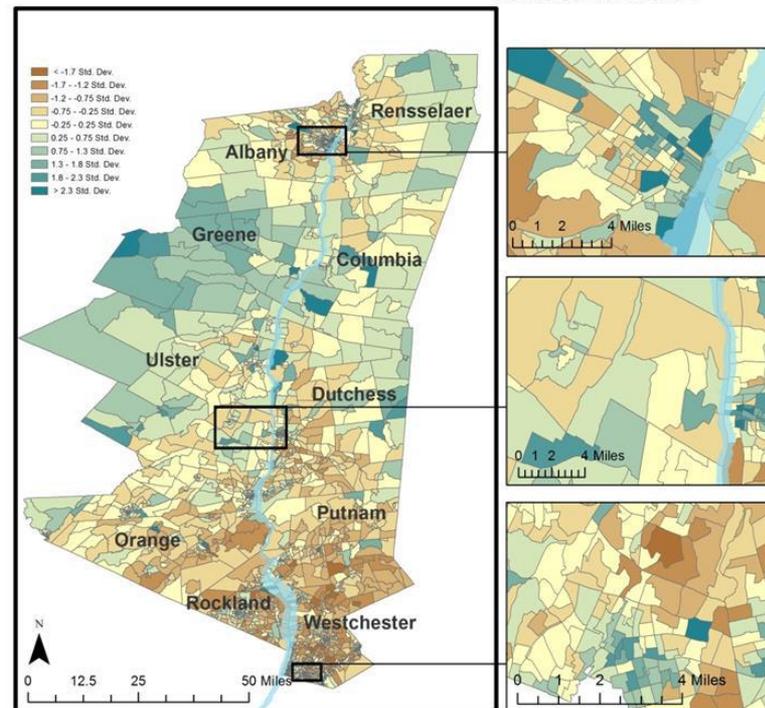
From *Disaster Resilience, A National Imperative*:

“...the Baseline Resilience Indicator for Communities (BRIC) was introduced to measure community resiliency (Cutter et al., 2010). BRIC acknowledges that **resilience is a multifaceted concept with social, economic, institutional, infrastructural, ecological, and community components.** (2012, p. 82)

<http://www.nap.edu/catalog/13457/disaster-resilience-a-national-imperative>

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SoVI
Deprivation principal component
Age and Gender principal component
Remoteness principal components
Language and Education principal component
Dependency principal component



Audience Participation

How much of a priority is Resilience in your community work right now?

Rank: low, medium, high

What are higher priorities?

What resilience issues are you dealing with?

Natural hazards

- Flood
- Snow/Ice Heat
- Drought

Environmental Quality

Community Health, Services

Quality of Life

Economy

Infrastructure

Current Federal and State Initiatives

(an abbreviated list)



Integrating Flood Risk Management and Land Use Planning

ICLEI FORUM 2013
Bonn
2 June 2013

Dr Robin Bloch
Technical Director: ICF GHK



Resilience is a Global issue

Many resources are available through the web



U.S. Climate Resilience Toolkit

Get Started Taking Action Tools Topics Expertise

About | Contact | Funding Opportunities | FAQ

Search

Meet the Challenges of a Changing Climate

Find resources and a framework to understand and address climate issues that impact people and their communities.

- 1 Identify the Problem
- 2 Determine Vulnerabilities
- 3 Investigate Options
- 4 Evaluate Risks & Costs
- 5 Take Action



Find Out How People Are Building Resilience



Preview: A Lobster Community Adapts Through Participatory Planning (0:23)
[Watch video >](#)



Transitions and Traditions: Adaptation on Tribal Lands (0:44)
[Watch video >](#)



Preview: Conserving Sky Islands (0:26)
[Watch video >](#)



Watching for Wind (0:37)
[Watch video >](#)

Federal Resources:

1. **Global Change Research Program,**
<http://www.globalchange.gov/>
2. **Community Resilience Planning Guide for Buildings and Infrastructure Systems, National Institute of Standards & Technology**
<http://www.nist.gov/el/resilience/guide.cfm>
3. **Climate Resilience Toolkit**
<https://Toolkit.climate.gov>

Federal Flood Standards Revisions

Flood Insurance –NFIP

1. Biggert-Waters Flood Insurance Reform Act, 2012 → Actuarial Rates
 - (20% pre-existing subsidized)
2. Homeowners Flood Insurance Affordability Act, 2014
 - Core of B-W 2012 remains
 - Eliminates Immediate Full-Rate Trigger on Purchase
 - Slows some rate increases & extends some subsidies
 - Adds a surcharge to all policies to build reserves
 - Doesn't affect existing NFIP debt - \$24B in 2014

http://www.gao.gov/highrisk/national_flood_insurance/why_did_study

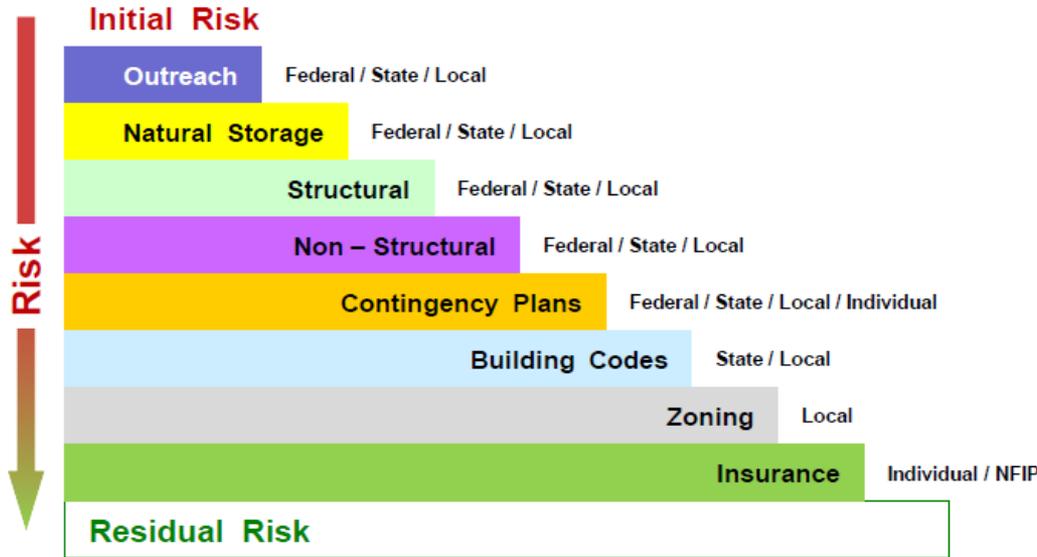
Executive Order 13690

1. **Federal Facilities & Federally Funded**
<http://energy.gov/nepa/downloads/revise-guidelines-implementing-executive-order-11988-floodplain-management-and>
2. The policy of the United States is to improve the resilience of communities and Federal assets against the impacts of flooding.
3. Recognizes the risks and losses due to climate change and other threats.
4. Where possible, use natural systems, ecosystem processes and nature-based approaches.

National Flood Risk Management Program

Shared Risk Management Responsibility

“ Driving Down the Risk “



All Stakeholders contribute to reducing risk !

U.S. Army Corps of Engineers
National Flood Risk Management
Program,
Program Management Plan,
2 July, 2012

<http://www.iwr.usace.army.mil/Missions/FloodRiskManagement/FloodRiskManagementProgram.aspx>

New York: Community Risk and Resiliency Act

Section 14 – Model Local Laws That Incorporate Consideration of Future Climate Risk

Section 16 – Guidance on Implementation –

- data sets
- risk tools
- likelihood of future extreme weather
- use of Natural Resources & Natural Processes to Reduce Risk (“Green Infrastructure”)

Section 17 – Adopt Sea Level Rise Projections – to be updated every 5 years

6NYCRR Part 490: <http://www.dec.ny.gov/regulations/103877.html>

NY Department of State: Local Waterfront Revitalization Program



Environmental Protection Fund: Local Waterfront Revitalization Program Grants

On an annual basis, the Department of State solicits grant applications from local governments for 50/50 matching grants from the New York State Environmental Protection Fund's Local Waterfront Revitalization Program.



2015-2016 EPF LWRP Grants Awards

The 2015-2016 Consolidated Funding Application (CFA) awards were [announced](#) on December 10, 2015. This included 77 projects totaling over \$17M, funded under the Environmental Protection Fund Local Waterfront Revitalization Program.

- Planning & Implementation Grants
- Focus on Topic or Area
- Inter-municipal programs
- Watershed plans

NYS-DOS Funding & Tech Assist

http://www.dos.ny.gov/opd/grantOpportunities/epf_lwrrpGrants.html

New York State
Climate Smart Communities



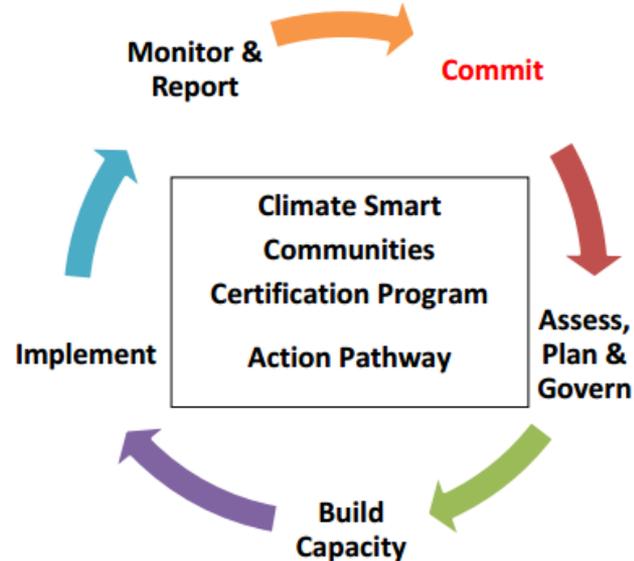
Climate Smart Communities
Certification Manual Version 2.0



Climate Smart Communities is a program of the New York State departments of Environmental Conservation, Health, State and Transportation; State Public Service Commission; and State Energy Research and Development Authority.

September 2014

NYS DEC Program: Climate Smart Communities



<http://www.dec.ny.gov/energy/50845.html>



Office of Planning
and Development



Services News Government Local

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GOVERNOR'S OFFICE OF STORM RECOVERY (GOSR)

TRANSLATE

Programs News & Resources Funding Doing Business with GOSR About

Housing Recovery

- Single Family Homeowner Program
- Co-Op & Condo Program
- Rental Properties Program
- Buyout & Acquisition Programs
- Program Eligibility & Forms
- Housing Recovery Intake Centers

Small Business

- Small Business Recovery Program
- Business Mentor NY Program
- Program Eligibility & Forms
- Small Business Disaster Recovery Centers

Community Reconstruction

- Capital Region, North Country and Mohawk Valley
- Catskills & Hudson Valley
- Long Island
- New York City
- Niagara County
- Southern Tier & Central New York
- All Final Plans Meetings

Infrastructure

- Rebuild By Design
- The FEMA Public Assistance (PA) Program
- Suffolk Water Quality Initiative Program
- Bridge Scour Program
- Roberto Clemente State Park
- Robert Moses State Park
- Energy Infrastructure
- Hazard Mitigation Grant Program

About

Governor's Office of Storm Recovery (GOSR)

Hurricanes Sandy and Irene, Tropical Storm Lee



Multi-Jurisdictional
Natural Hazard Mitigation Plan
Ulster County, New York

Prepared for



Ulster County Department of Emergency Communications/Emergency Management
238 Golden Hill Lane
Kingston, NY 12401

Prepared by



201 Willowbrook Boulevard, Third Floor
Wayne, New Jersey 07470-7005

February 2009

County/Local Hazard Mitigation Plan - Requirements for Critical Facilities

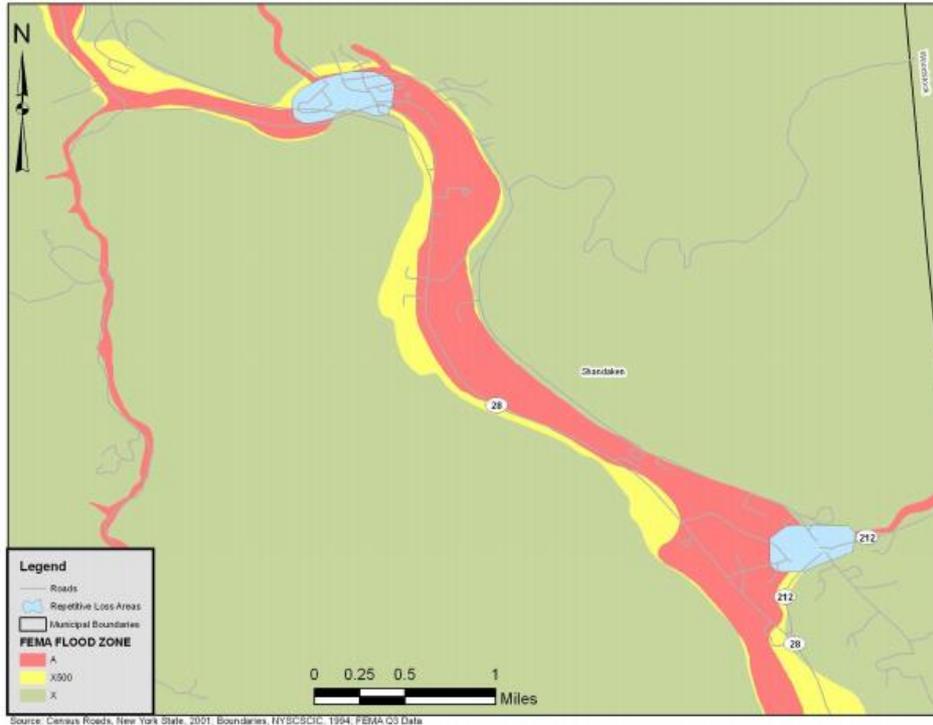
- Standards are similar to Exec. Order 13690
- Coordinates with federal funding eligibility
- Upgrade facilities over time

<http://www.dhSES.ny.gov/recovery/>



SECTION 3a - RISK ASSESSMENT: HAZARD PROFILES

Figure 3a.12: NFIP Repetitive Loss Property Clusters – Town of Shandaken

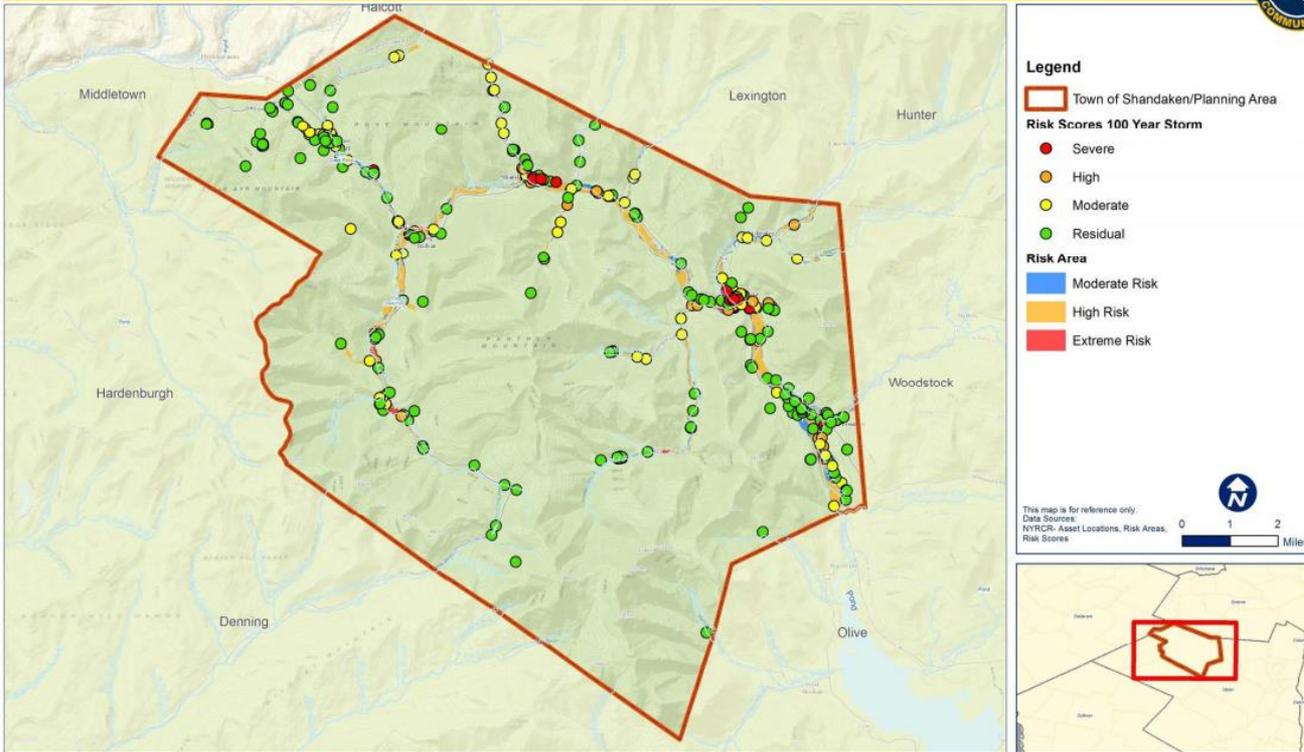


Ulster County Hazard Mitigation Plan:

Shandakan High Risk Flood Zones

<http://ulstercountyny.gov/emergency-services/hazard-mitigation>

NYRCR: TOWN OF SHANDAKEN, ULSTER COUNTY
 Figure 19. Shandaken Asset Risk Scores



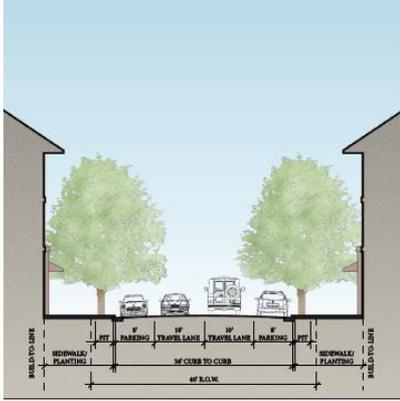
GOSR-New York Rising Community Reconstruction Plan:

Shandakan-Hardenburgh

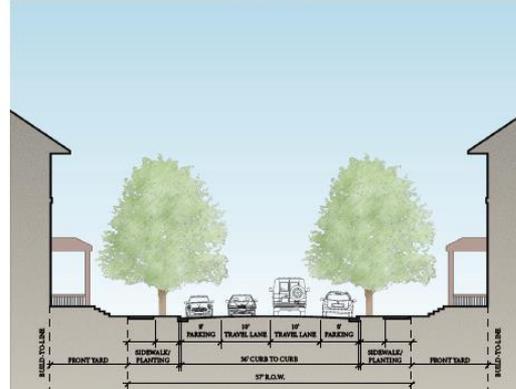
<http://stormrecovery.ny.gov/regional-communities/town-shandaken-and-town-hardenburgh>

Resilience Opportunities & Tools

Mixed-Use Street
ST-46-36

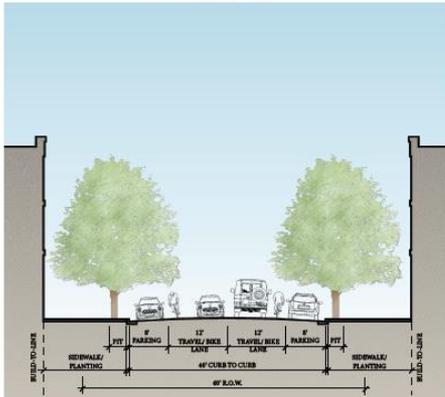


Residential Street*
ST-57-36

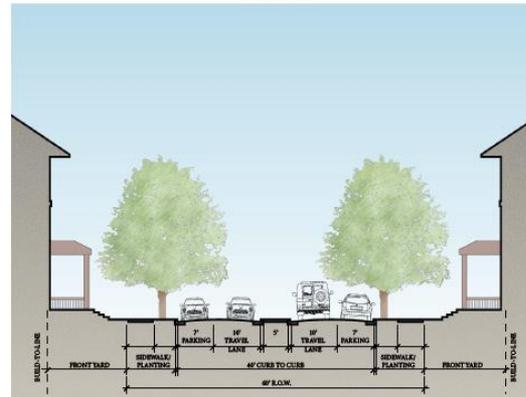


Note: Streets designated as truck routes (indicated as ST-57-56 in thoroughfare standards key) shall have 11' wide travel lanes and 7' wide parking lanes.

Grand Boulevard
ST-60-40

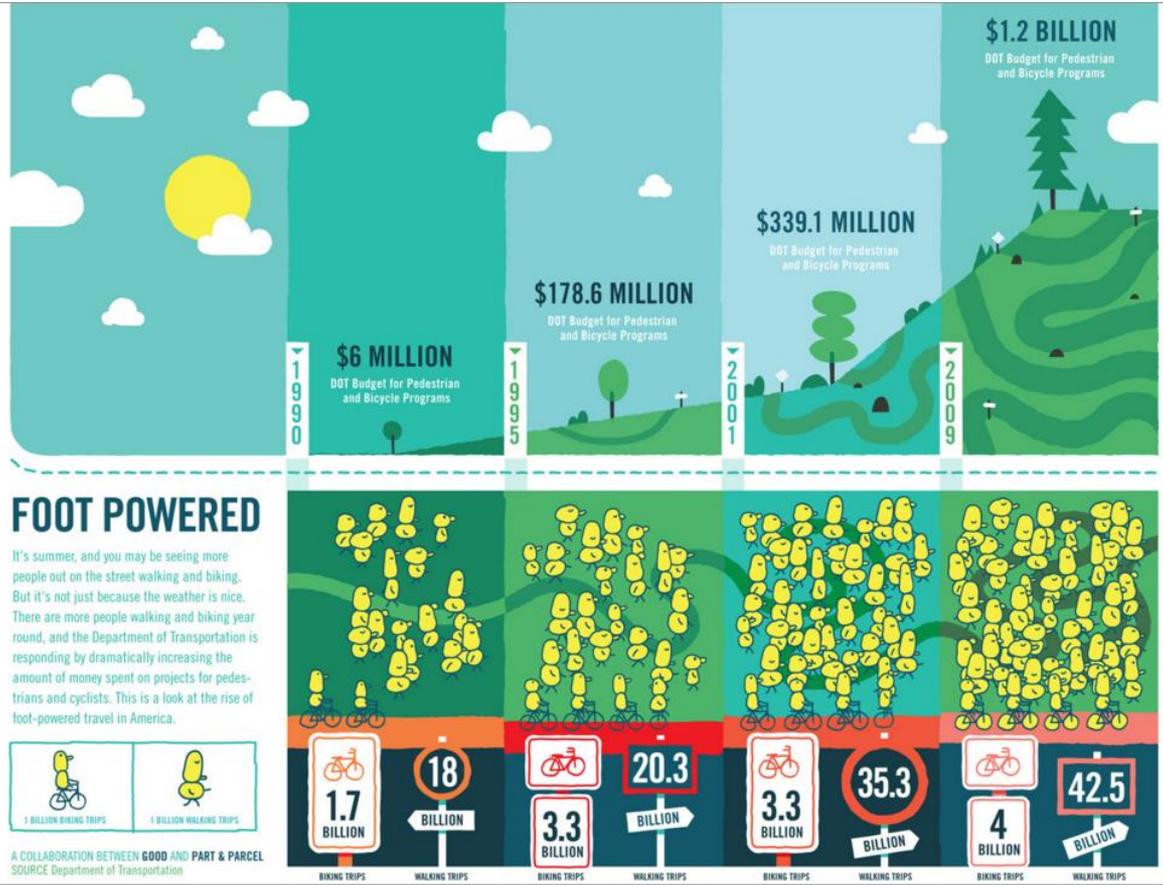


Grand Boulevard
BL-60-40



Resilience & Form-based Codes: Resilience Opportunity

Town of Babylon and NYS-DOS Brownfield Opportunity Program, Wyandanch and Straight Path Corridor Area Plan



Resilience & Pedestrian-Oriented Development: Resilience Opportunity

Source: Chelsey Kilzer at Daily Infographic, <http://www.dailyinfographic.com/foot-powered-infographic>



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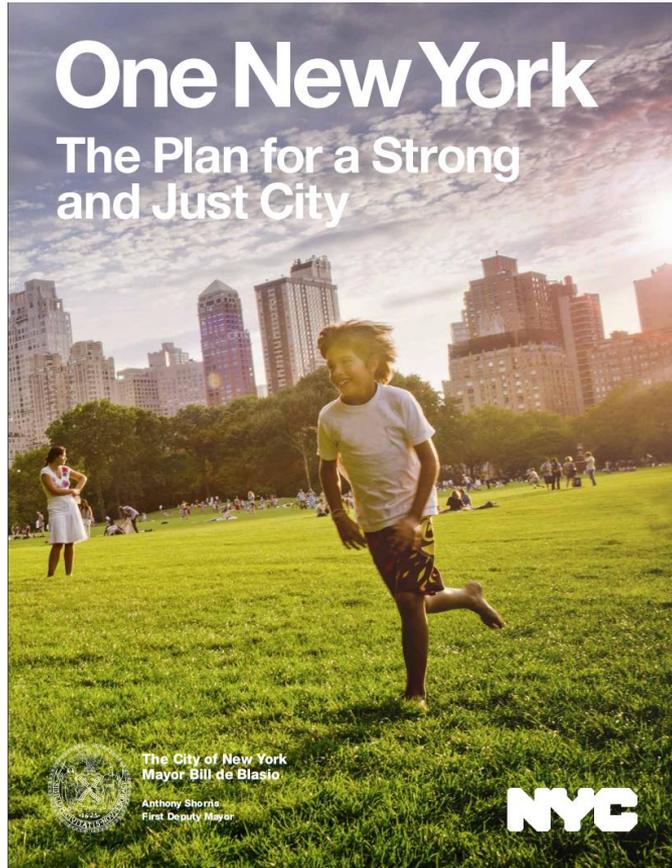
Complete Streets Resilience Opportunity

- Green Infrastructure
- Multi-modal
- Commerce
- Employment
- Quality of Life
- Development - Revitalization

NYS Route 62, Hamburg

NYS-DOT

www.dot.ny.gov/programs/completestreets



Environmental Quality/EJ Resilience Opportunity

“OneNYC lays out our approaches to dealing with income inequality along with our plans for managing climate change, all the while establishing the platform for yet another century of economic growth and vitality for this world capital.” (p. 9)

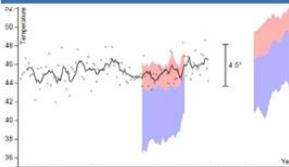


MAPS more >



Use **maps** to identify climate impacts and assess vulnerabilities in New York State.

DATA more >



Explore New York State climate information through **interactive charts** and find a broad range of datasets and data products.

DOCUMENTS more >



Discover **reports, articles, plans**, and other climate-related resources.

New York State: Climate Change Science Clearinghouse (NYSERDA)

- Live April, 2016 (~Earthday)
- Climate Info References
- New York Specific

Browse by Sector



Agriculture

The Agriculture sector includes livestock, dairy, and crop production, as well as the economically important flower cultivation, nursery, and turf industries. The timber, maple syrup, and fishing industries are not included here; they are included in the Ecosystems or Coastal Zones sectors.

[Learn more >](#)



Water Resources

The Water Resources sector encompasses four major water resource themes: 1) flooding in non-coastal regions, 2) drinking water supply, 3) water availability for non-potable uses (primarily agriculture and hydropower), and 4) water quality.

[Learn more >](#)



Coastal Zones

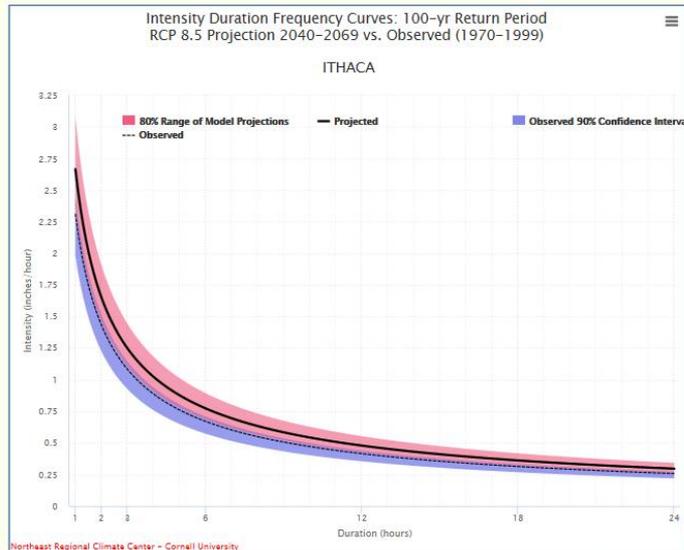
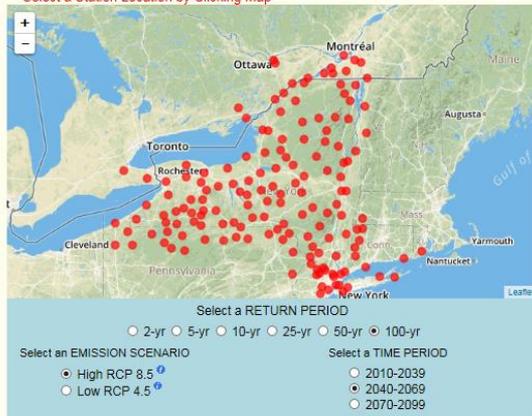
The Coastal Zones sector focuses on the regions close to the ocean. Climate hazards related to coastal zones encompass the distinct but related factors of sea level rise, coastal storms, increasing coastal water temperatures, and changes in precipitation patterns.

[Learn more >](#)



Station-specific IDF Graphs Statewide Maps of Projected Changes Technical Document

Select a Station Location by Clicking Map



Northeast Regional Climate Center - Cornell University

Duration (hrs)	Projected 2040-2069 Intensity Ensemble Member			Observed 1970-1999 Intensity with Confidence Interval (CI) Bounds		
	10 th	Mean	90 th	Low CI	Mean	High CI
1	2.38	2.67	3.08	1.98	2.31	2.45

About this Project Numerous studies have documented significant increases in both the frequency and magnitude of extreme precipitation in the northeastern U.S. since the mid-to-late 20th century. The most recent assessment from the Intergovernmental Panel on Climate Change (IPCC) suggests that the frequency and magnitude of extreme precipitation in this region will likely continue to increase throughout the 21st century. Such changes could greatly exacerbate the societal impacts of extreme precipitation in the future. In consideration of these impacts, the Northeast Regional Climate Center (NRCC) has partnered with the New York State Energy Research and Development Authority (NYSERDA) to downscale global climate model output and create extreme precipitation projections that will ultimately be incorporated into climate change adaptation planning for New York State. [Read more...](#)

More NY Resources:

ClimAID - NYSERDA

<http://www.nyserdera.ny.gov/climaid>

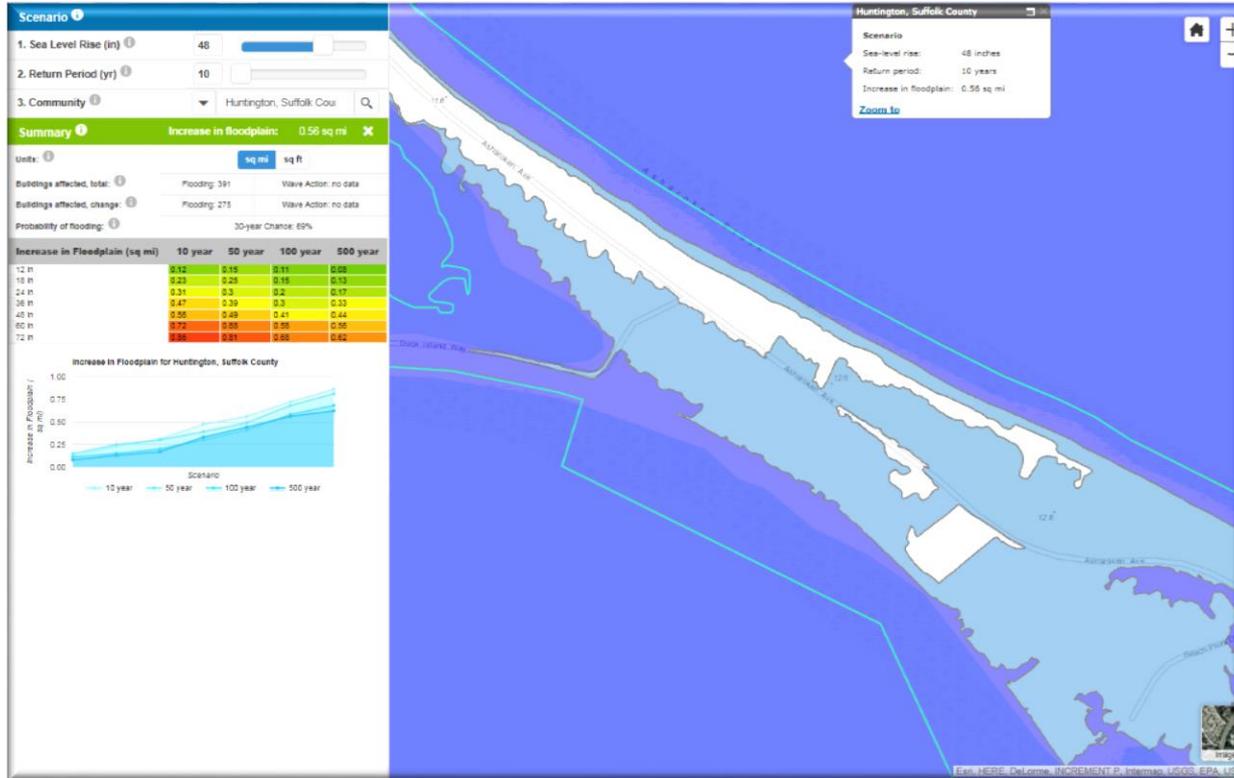
- Periodic updates
- New York Specific
- Key State Climate Research Center

Art DeGaetano increased precipitation. curves:

<http://ny-idf-projections.nrcc.cornell.edu/>



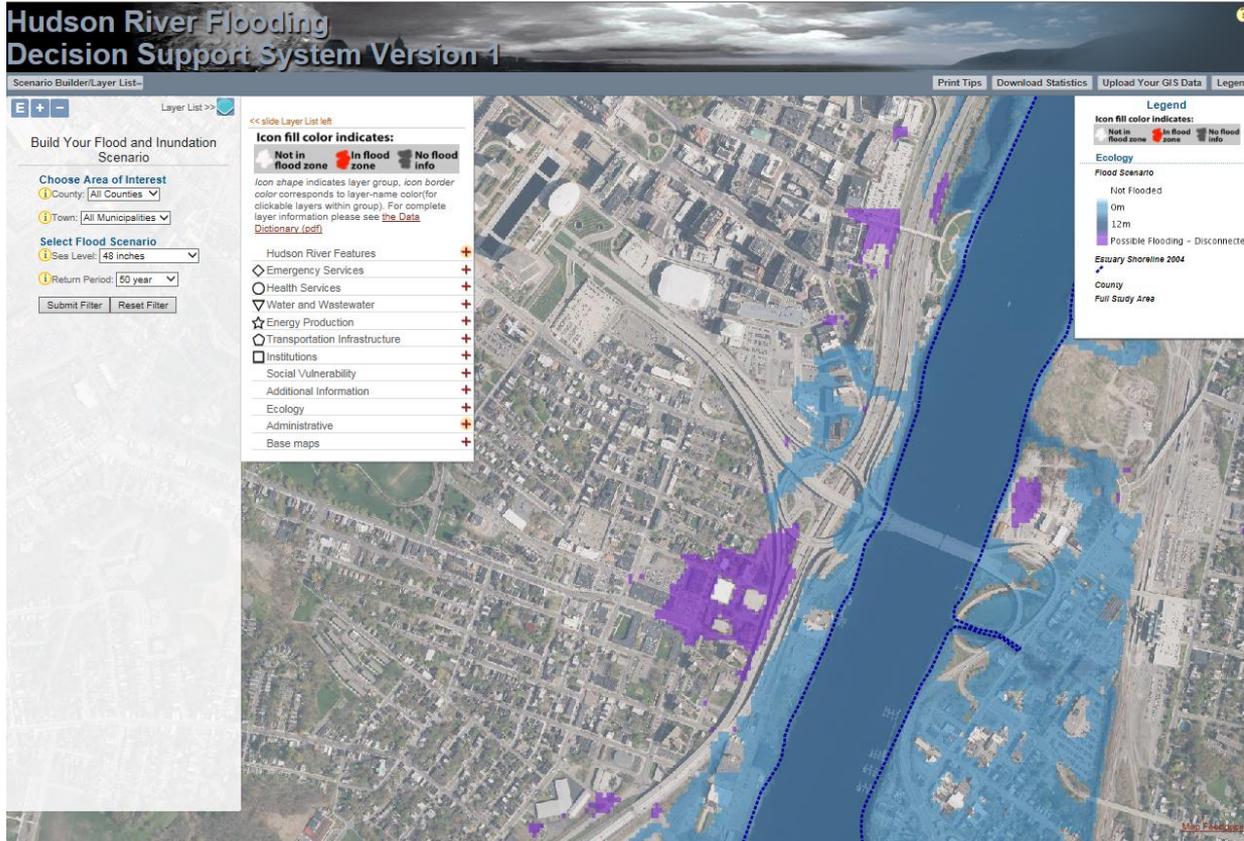
Other NYS Tools: NYSERDA/Dewberry:



Long Island and Hudson Valley SLR/Storm Impacts Viewer-Model

- Due end 2016
- Select SLR & Storm Scenario

Other NYS Tools: NYSERDA/CIESIN



Hudson Shores, Troy to Westchester SLR/Storm Impacts Viewer-Model

- Due April 2016
- Select SLR & Storm Scenario
- SoVI
- Critical Facilities
- Ecological

Audience Participation

What barriers or constraints to community resilience are you facing?

(Built Heritage?

Lack of programs?

Costs?

Other?)

List:

What resources or capacities are you lacking that could support community resilience?

List:

Summary

Getting to Resilience

Understand Risks

- **3 functional areas:**
 - **Economy**
 - **Environment**
 - **Social**
- **Scale assessment to capacity & needs**
- **Communication between departments**
- **Involve stakeholders**

Risk: The chance an asset will be damaged or destroyed

Score each asset using these risk factors:

$$\text{Risk} = \text{Hazard} \times \text{Exposure} \times \text{Vulnerability}$$

Hazard: the likelihood and magnitude of future storm events

Exposure: the moderating effect of topographic and shoreline features.

Vulnerability: the level of impairment or consequences that assets may experience from a storm event.



LIVING SHORELINES SUPPORT RESILIENT COMMUNITIES

Living shorelines use plants or other natural elements - sometimes in combination with harder shoreline structures - to stabilize estuarine coasts, bays, and tributaries.



One square mile of salt marsh stores the carbon equivalent of **76,000 gal of gas** annually.



Marshes trap sediments from tidal waters, allowing them to **grow in elevation** as sea level rises.



Living shorelines improve **water quality**, provide fisheries **habitat**, increase **biodiversity**, and promote **recreation**.



Marshes and oyster reefs act as natural **barriers** to waves. **15 ft** of marsh can **absorb 50%** of incoming wave energy.



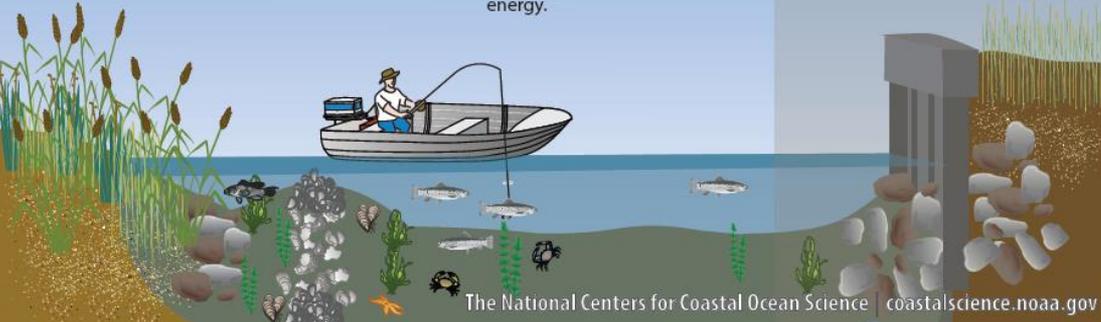
Living shorelines are **more resilient** against storms than bulkheads.



33% of shorelines in the U.S. will be **hardened** by **2100**, decreasing fisheries habitat and biodiversity.



Hard shoreline structures like **bulkheads** prevent natural marsh migration and may create seaward **erosion**.

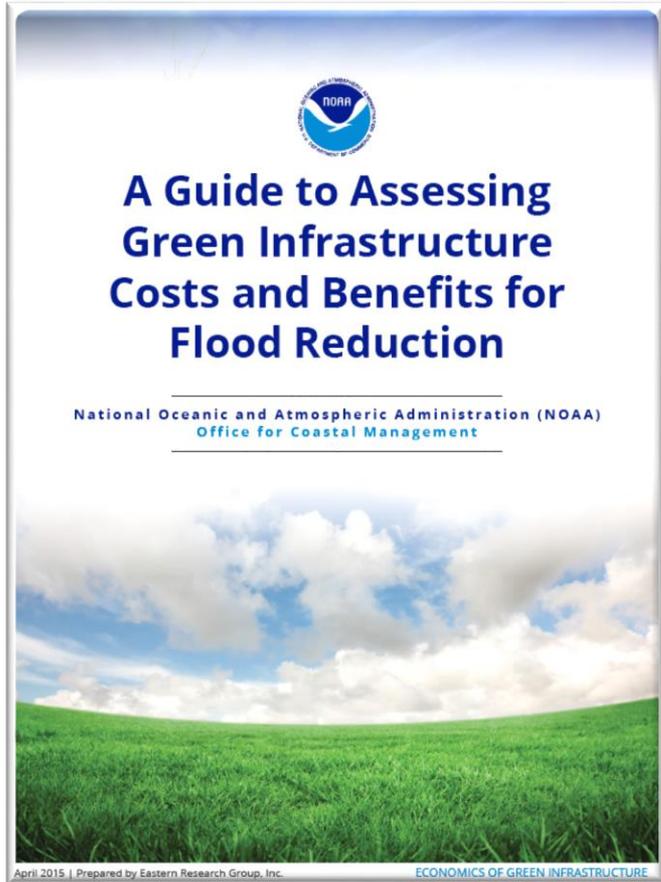


The National Centers for Coastal Ocean Science | coastalscience.noaa.gov

Understand Natural Processes

- **Anticipate extreme rainfall**
- **Recognize stream dynamics**
- **Every action in a stream creates a reaction**

http://www.habitat.noaa.gov/pdf/noaa_guidance_for_considering_the_use_of_living_shorelines_2015.pdf



Understand Natural Processes

- Protect existing waterways & floodplains
- Protect or restore vegetation -
 - Near water bodies
 - Slow drainage & protect slopes
 - Along streets
- Incorporate water in future decisions
- Address 3 Sectors:
 - Economy
 - Environment
 - Social

Costs – Both Savings & Opportunity

Objective: Minimize the cost of addressing Hazards

Key to reducing costs is strategic planning:

1. Obtain climate change projections;
2. Assess exposure and vulnerability of assets;
3. Ensuring the resilience of existing & future assets; and
4. Implement low regret or no-regret actions.

Adapted from: Simon Fraser Univ., Adaptation to Climate Change Team, 2015

www.sfu.ca/act

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Cost Advantages of Resilience:

1. Avoided losses
2. Enabling forward-looking planning & investment
3. Co-benefits of resilience investments, including environmental services.

The Triple Dividend of Resilience,
World Bank Group,

www.GFDRR.org



Office of Planning
and Development

Getting to Resilience: Use Existing Planning & Development Frameworks

- **Comprehensive Plans & Zoning**
- **Local Waterfront Revitalization Plans**
- **Hazard Mitigation Plans**
- **Capital Projects - Smart Growth
Infrastructure Decisions**
- **Transportation**
- **Disaster Recovery Programs**
- **Administrative Policies**

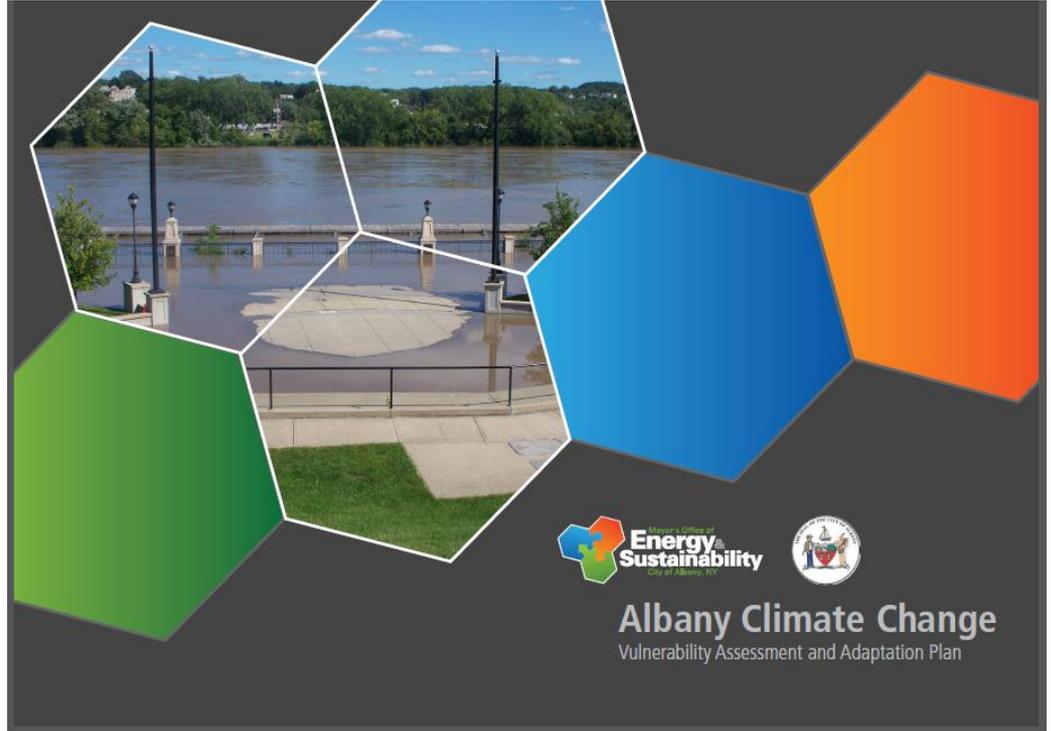
- Climate Assessment
- Public Health
- Critical Facilities
- Social Vulnerability
- Natural Resources
- Energy Supply/Demand
- Water Supply
- Sewage & Stormwater
- Transportation
- Intersects: Climate Parameters & System Vulnerabilities

Action Recommendations

NYS-DOS Funding & Tech Assist

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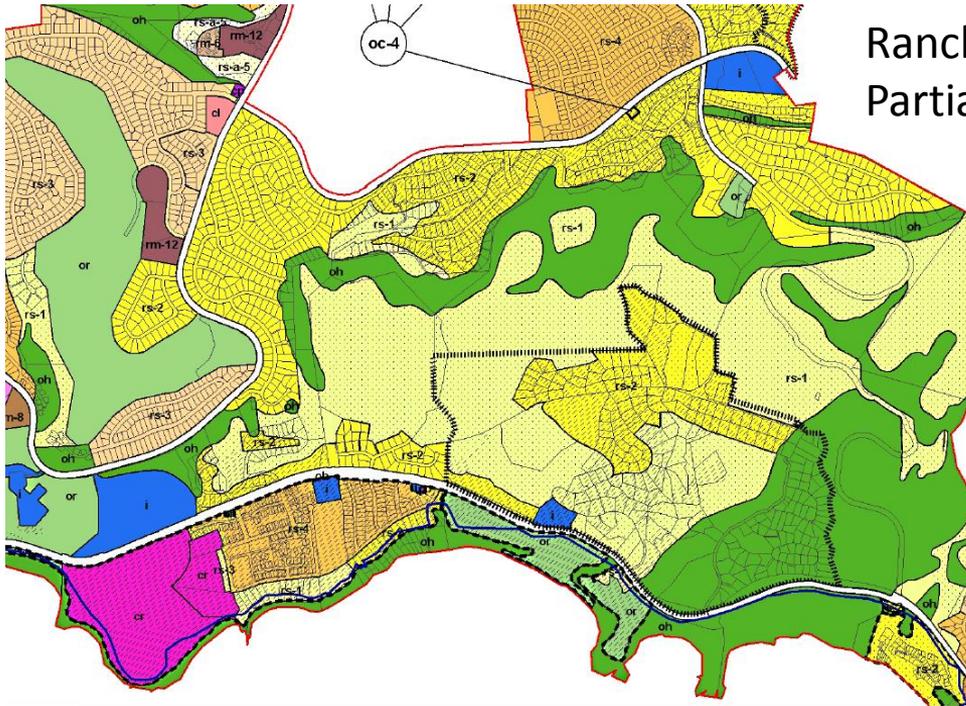
Local Resilience Planning



City of Albany, Aug. 2013

Comprehensive Planning & Zoning: Making Resilience Happen

Rancho Palos Verdes, CA:
Partial Zoning Map



Legend	
	COASTAL SETBACK LINE
Overlay Districts	
	NATURAL DESIGN, oc-1
	SOCIO-CULTURAL, oc-2
	URBAN DESIGN, oc-3
	NATURAL & URBAN DESIGN, oc-1 & oc-3
	AUTOMOTIVE, oc-4
	MIRA VISTA, oc-5
	EQUESTRIAN
Zoning	
	CEMETERY (cem)
	COMMERCIAL - GENERAL (cg)
	COMMERCIAL - LIMITED (cl)
	COMMERCIAL - NEIGHBORHOOD (cn)
	COMMERCIAL - PROFESSIONAL (cp)
	COMMERCIAL - RECREATIONAL (cr)
	INSTITUTIONAL (i)
	OPEN SPACE - HAZARD (oh)
	OPEN SPACE - RECREATIONAL (or)
	RESIDENTIAL MULTIPLE - >7300 SQ FEET/UNIT (m-6)
	RESIDENTIAL MULTIPLE - >5400 SQ FEET/UNIT (m-8)
	RESIDENTIAL MULTIPLE - >3600 SQ FEET/UNIT (m-12)
	RESIDENTIAL MULTIPLE - >2000 SQ FEET/UNIT (m-22)
	RESIDENTIAL SINGLE - LOT > 5 ACRES (rs-a-5)
	RESIDENTIAL SINGLE - LOT > 1 ACRE (rs-1)
	RESIDENTIAL SINGLE - LOT > 20,000 SQ FEET (rs-2)
	RESIDENTIAL SINGLE - LOT > 13,000 SQUARE FEET (rs-3)
	RESIDENTIAL SINGLE - LOT > 10,000 SQUARE FEET (rs-4)
	RESIDENTIAL SINGLE - LOT > 8,000 SQUARE FEET (rs-5)
	RESIDENTIAL PLANNED DEVELOPMENT (rpd)

Thank You CDRPC

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