



BERGMANN

ARCHITECTS ENGINEERS PLANNERS

DELIVERY MODELS FOR RESILIENCE

A CASE STUDY FOR NEW YORK'S GREAT LAKES BASIN

CDRPC Spring 2021 Webinar Series
Wednesday, March 31

NATIONAL FIRM. STRONG LOCAL CONNECTIONS.





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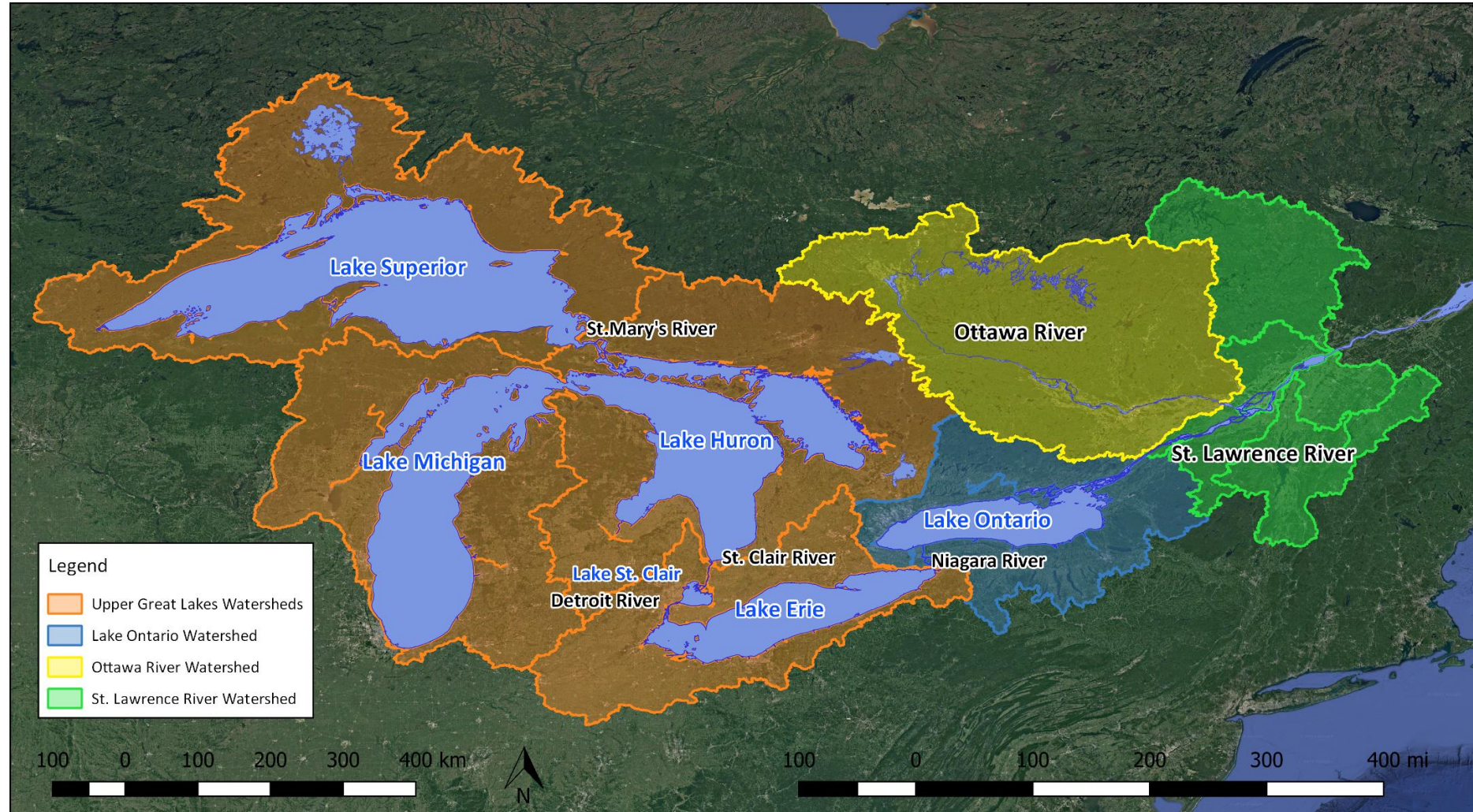
AGENDA



- ① Overview of the Great Lakes Region and Climate Change Adaptation and Resilience
- ② Flooding Events and REDI/CLEAR Initiatives
- ③ Delivery Models for Resilience
- ④ Next Steps

CLIMATE ADAPTATION AND RESILIENCE

GREAT LAKES REGION



Source: International Lake Ontario - Saint Lawrence River Board (ILO-SLRB)

NEW YORK'S GREAT LAKES REGION



Source: NY's Great Lakes Action Agenda



NEW YORK'S GREAT LAKES REGION

DEC'S GREAT LAKES WATERSHED PROGRAM



Supporting or Key Partners

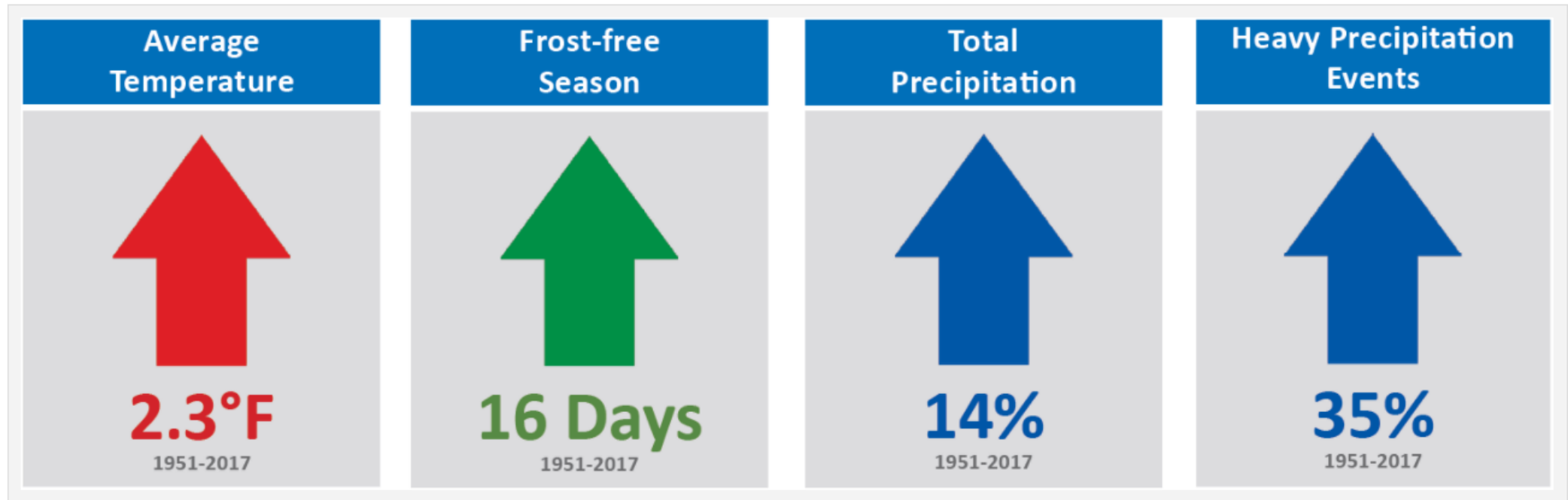
- Great Lakes Basin Advisory Council – policy & communications support
- NY Sea Grant – extension and outreach support, technical assistance
- Great Lakes Research Consortium – scientific research & technical partner
- Other – SWCDs, Regional Planning Councils, etc. that provide technical assistance in support of their own missions and the GLAA



Source: NY's Great Lakes Action Agenda

CLIMATE ADAPTATION AND RESILIENCE

GREAT LAKES REGION



Source: GLISA - Climate Change in the Great Lakes Region References

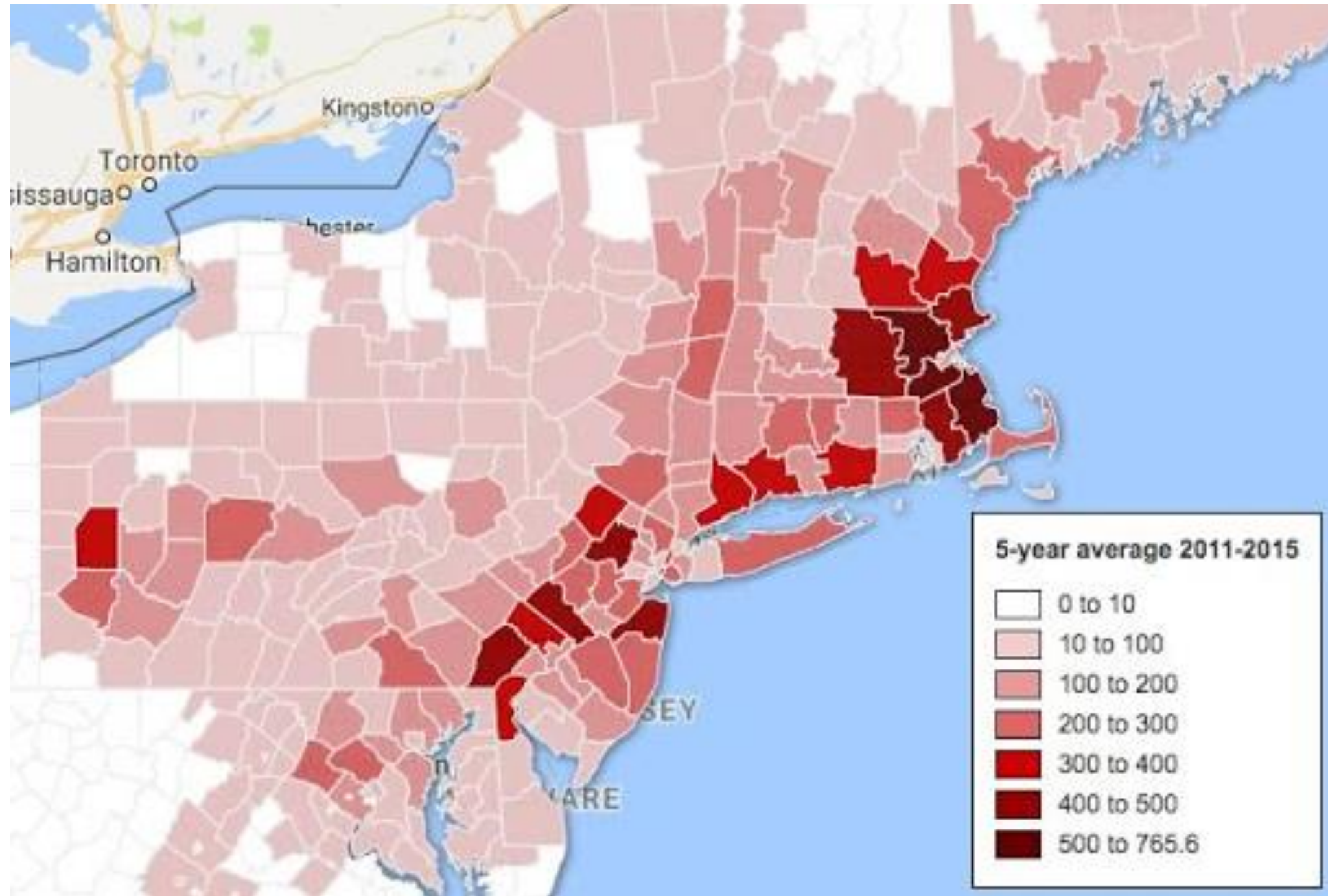






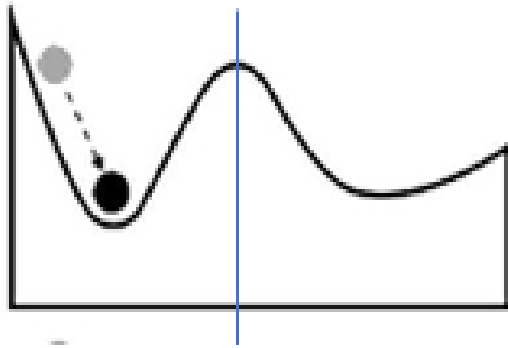




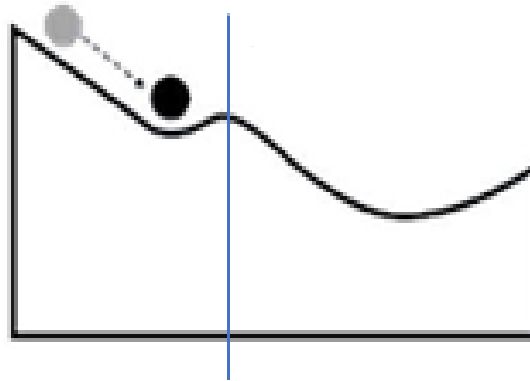


CLIMATE ADAPTATION AND RESILIENCE

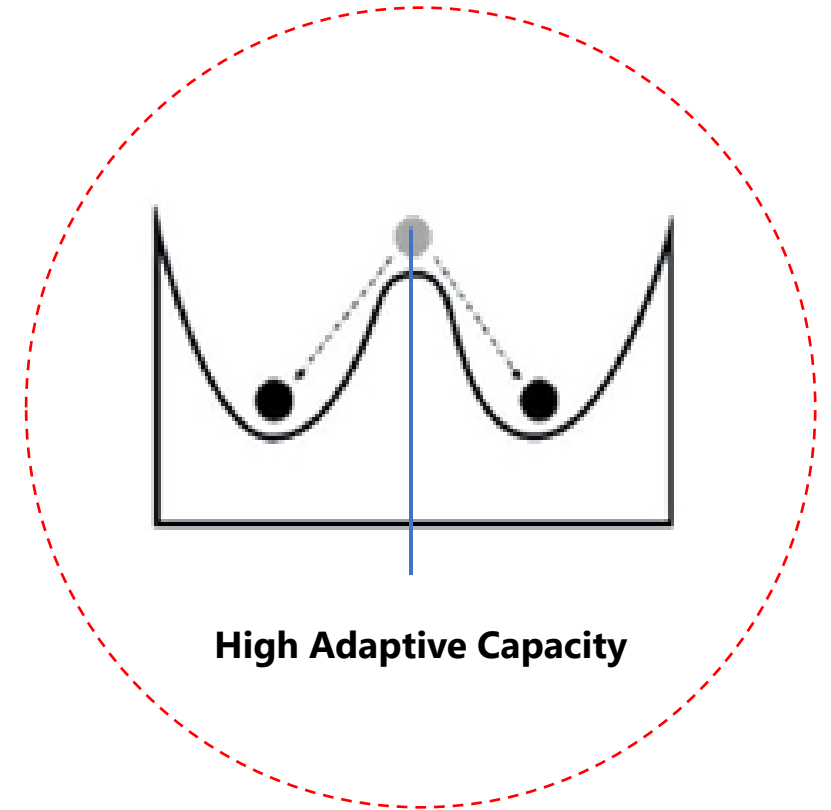
NEW YORK'S GREAT LAKES REGION



High resilience



Low Resilience



High Adaptive Capacity



CLIMATE ADAPTATION AND RESILIENCE IN NEW YORK STATE

Response to Recent Trends



1

POLICIES

Community Risk and Resiliency
Act (2014)
Climate Act (2019)

2

PROGRAMS

NYSERDA Clean Energy
Communities
DEC Climate Smart Communities
Certification Program

3

PLANS

2100 Commission Report
Responding to Climate Change in
New York State (ClimAID)



LAKE ONTARIO:
FLOODING EVENTS AND
ADAPTIVE MANAGEMENT



HISTORY - FLOOD AND EROSION EVENTS

LAKE ONTARIO FLOODING

Episodic flood events linked to extended periods of high static water, occurring approximately every 20 years:

- 1929
- the mid 1940s and early 1950s (1943, 1947, 1951, 1952)
- the mid 1970s (1973, 1974, 1976)
- 1993

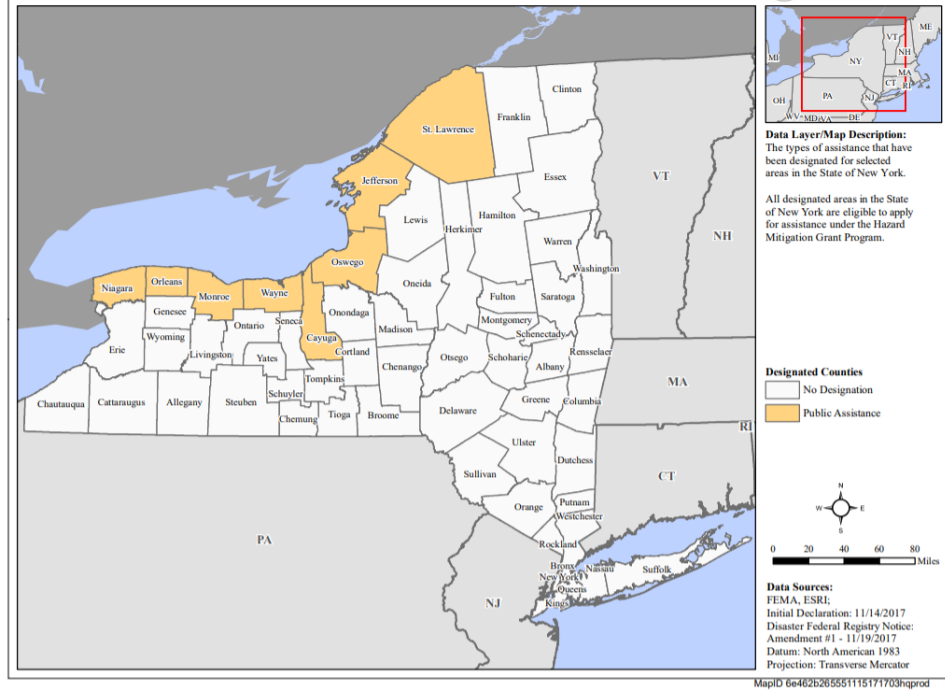


HIGH-WATER EVENTS OF 2017 AND 2019

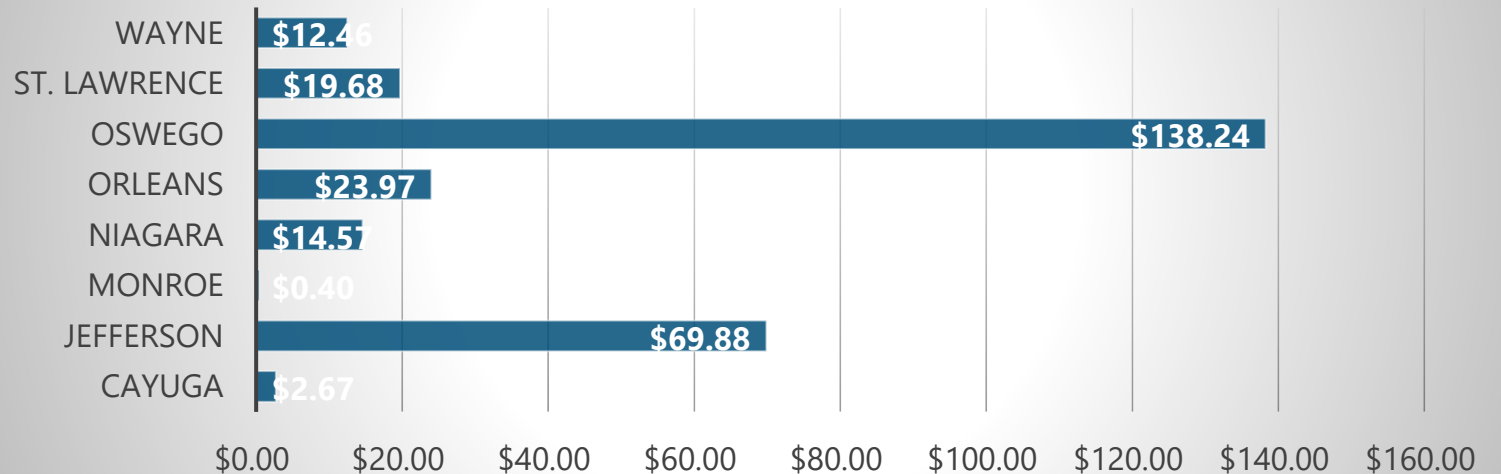
LAKE ONTARIO FLOODING

- On July 6, 2017, Governor Cuomo requested a major disaster declaration due to flooding during the period of May 2 to August 6, 2017
- On November 14, 2017, President Trump declared that a major disaster exists in New York State
- On May 20, 2019, Governor Cuomo declared a State of Emergency

FEMA-4348-DR, New York Disaster Declaration as of 11/19/2017



Countywide per capita impact



Source: FEMA Preliminary Damage Assessment Report



REDI

RESILIENCY AND ECONOMIC DEVELOPMENT INITIATIVE

\$20 million for homeowner assistance

\$30 million to improve the resiliency of businesses

\$15 million toward a regional dredging effort

\$235 million for local and regional projects

- Olcott Harbor, Niagara County
- Yates Town Park, Orleans County
- St. Paul Terminus, Monroe County
- International Pier, Oswego County
- Clayton Riverwalk, Jefferson County

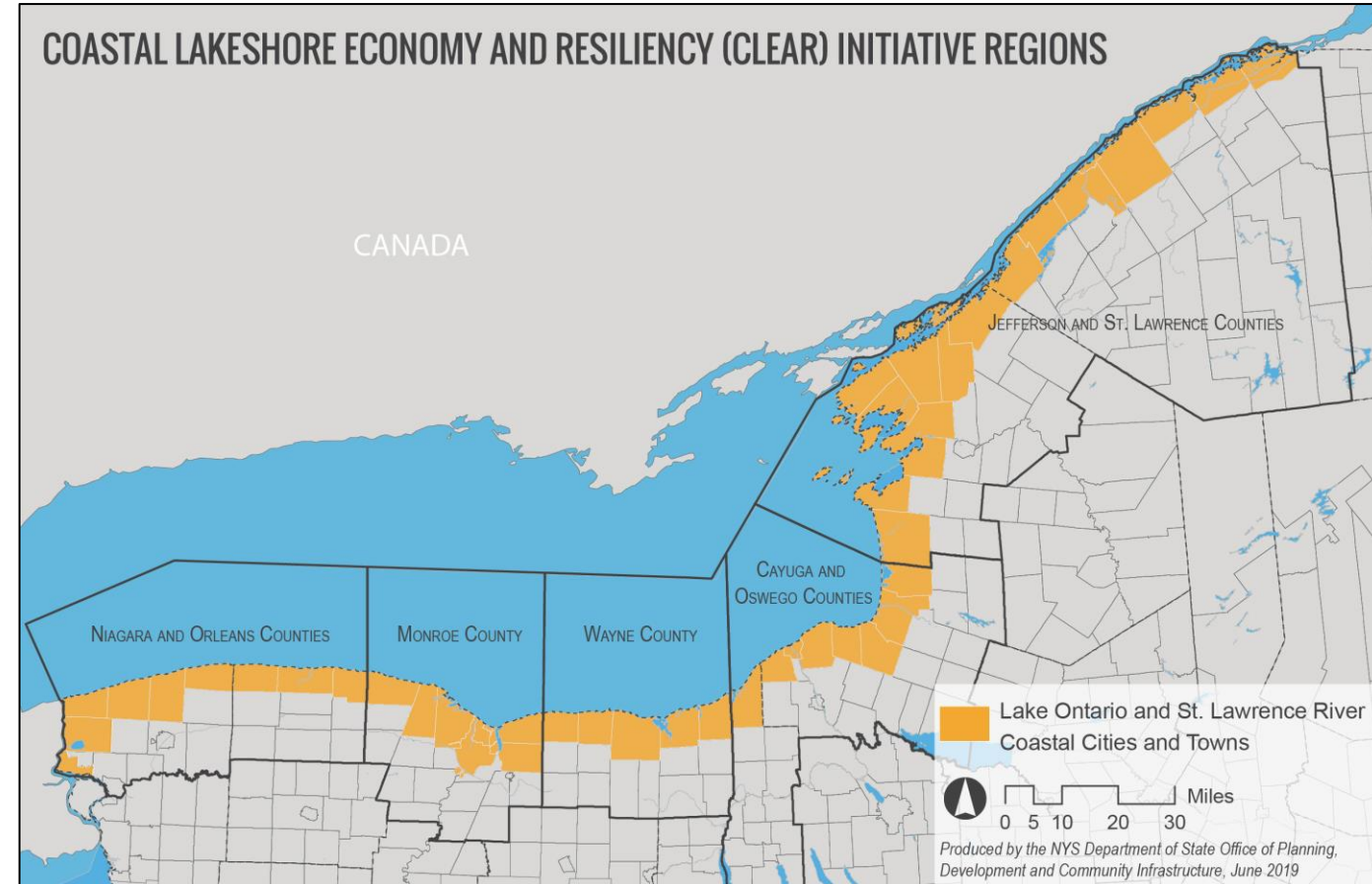


CLEAR

COASTAL LAKESHORE ECONOMY AND RESILIENCY INITIATIVE

Communities participating in CLEAR will receive State assistance to:

- Increase local capacity for applying resilience concepts to meet their specific needs
- Integrate resiliency strategies and best practices into existing local plans, policies and practices
- Generate a list of priority resilience strategies screened for resilience capacity
- Take initial steps to implement local and regional resilience strategies and initiatives identified through CLEAR

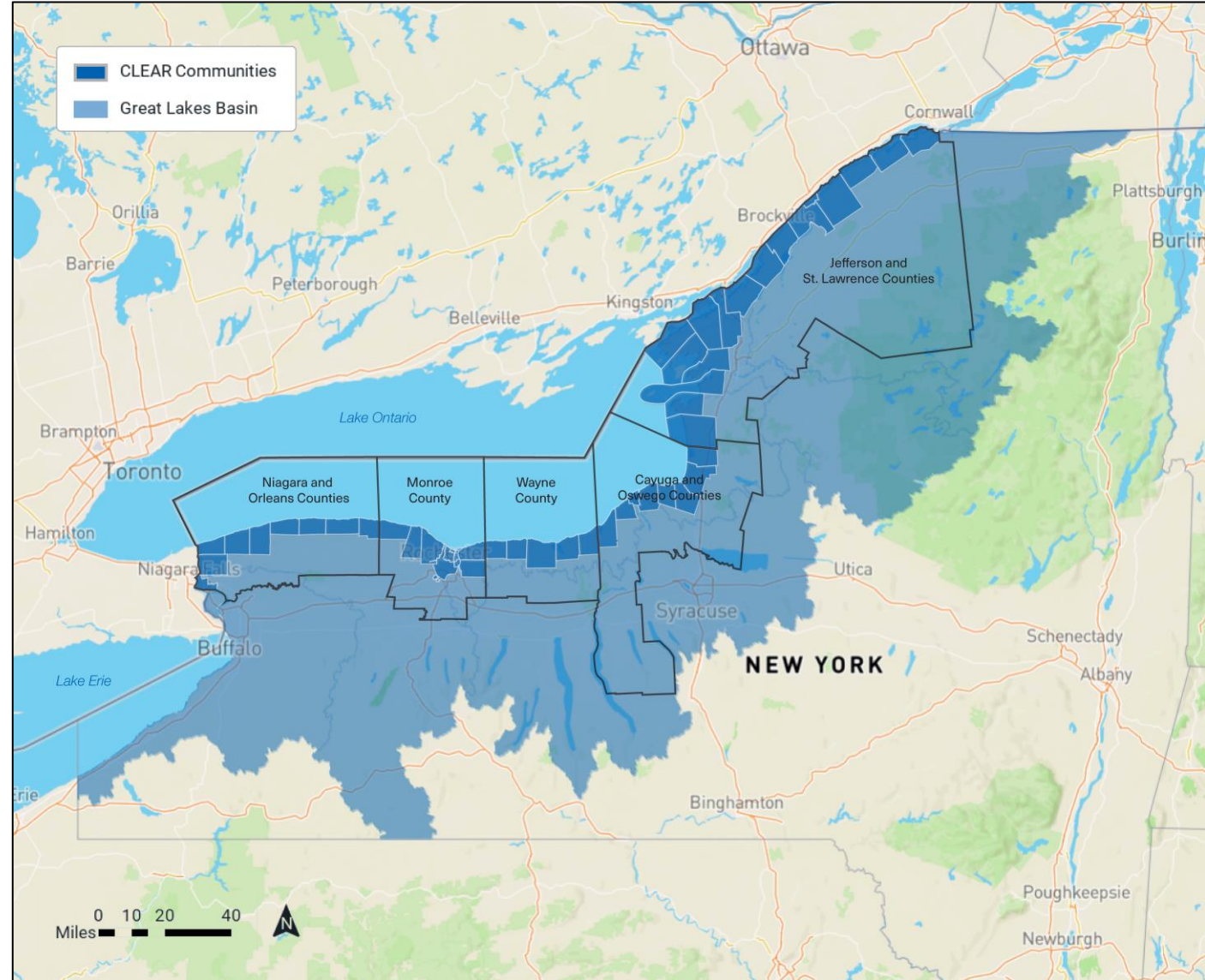


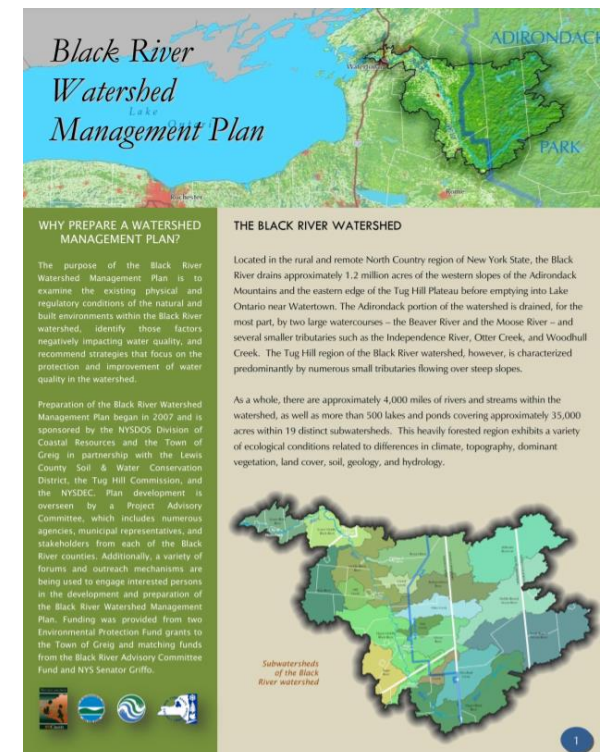
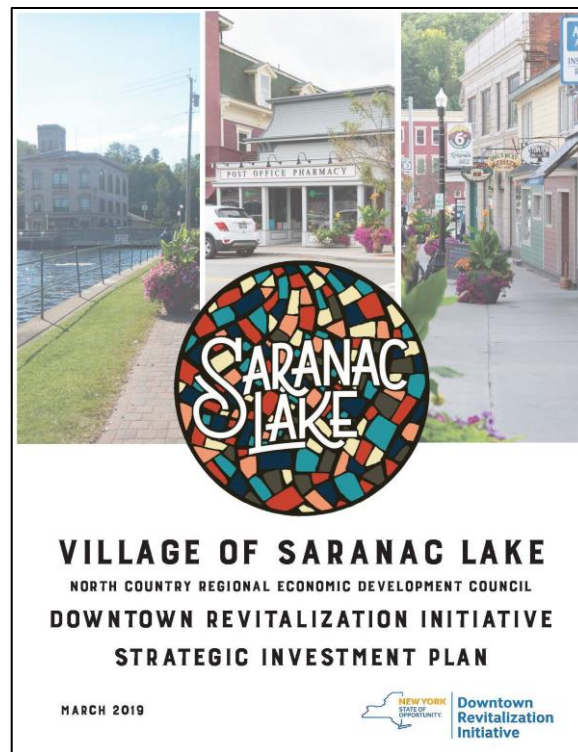
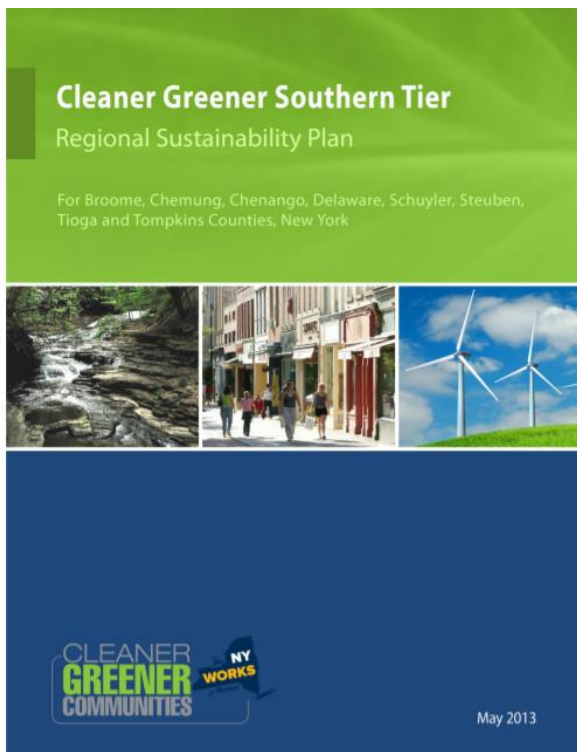
CLEAR

COASTAL LAKESHORE ECONOMY AND RESILIENCY INITIATIVE

Regional strategies and recommended local actions, *such as*

- *updated zoning*
- *installation of green infrastructure*
- *more sustainable water-dependent businesses*





Implementation Strategy

PLANNING PROCESS

Lack of local capacity and resources

Watershed Protection Plans

IMPLEMENTATION

- Shoreline properties versus upland drainage
- Upstream/downstream flooding
- Effects of urbanization and flood control

Characteristics of the Black River Watershed

HISTORY

Watershed Quick Facts

- Land owned by the NYSDEC accounts for almost 40 percent of the watershed
- The watershed receives, on average, more than 48 inches of precipitation each year

TOPOGRAPHY

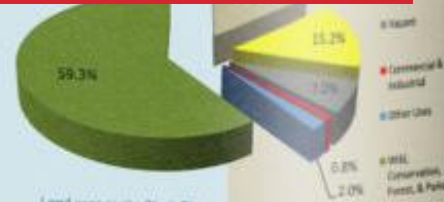
The Black River watershed comprises a wide range of topographies, from gently sloping hills to steep slopes and rocky outcroppings. Elevations range from 146 feet mean sea level at the river's mouth to 2,774 feet in the Adirondack Mountains.

Topography can impact the local climate, with higher elevations receiving more snow. Low elevations are often characterized by broad, open fields, while steep slopes are more difficult to develop. The result of these varying topographies is that urban-style development is more difficult at higher elevations, which has serious implications for water quality.

Why Stewardship is Important

functions of the watershed. Stewardship identifies and manages the resources that are available working together to ensure they can be

acres of the watershed. Residential uses are the second most predominant use, encompassing 185,490 acres. Agricultural lands make up the third largest category of uses, with more than 172,000 acres located within the Black River watershed.



LAND COVER

Land cover refers to what is covering the ground surface and is not necessarily the same as land use. Both natural and man-made features are primary drivers of land cover, with natural features, such as forests, and man-made features, such as roads and buildings, being the most common.

Forest is the most common land cover in the watershed, covering about 700,000 acres. Agricultural and residential areas are the next largest categories, covering approximately 212,500 acres (30% and 27% respectively). Urban areas account for only 1.5% of the land cover.



DELIVERY MODELS FOR RESILIENCE

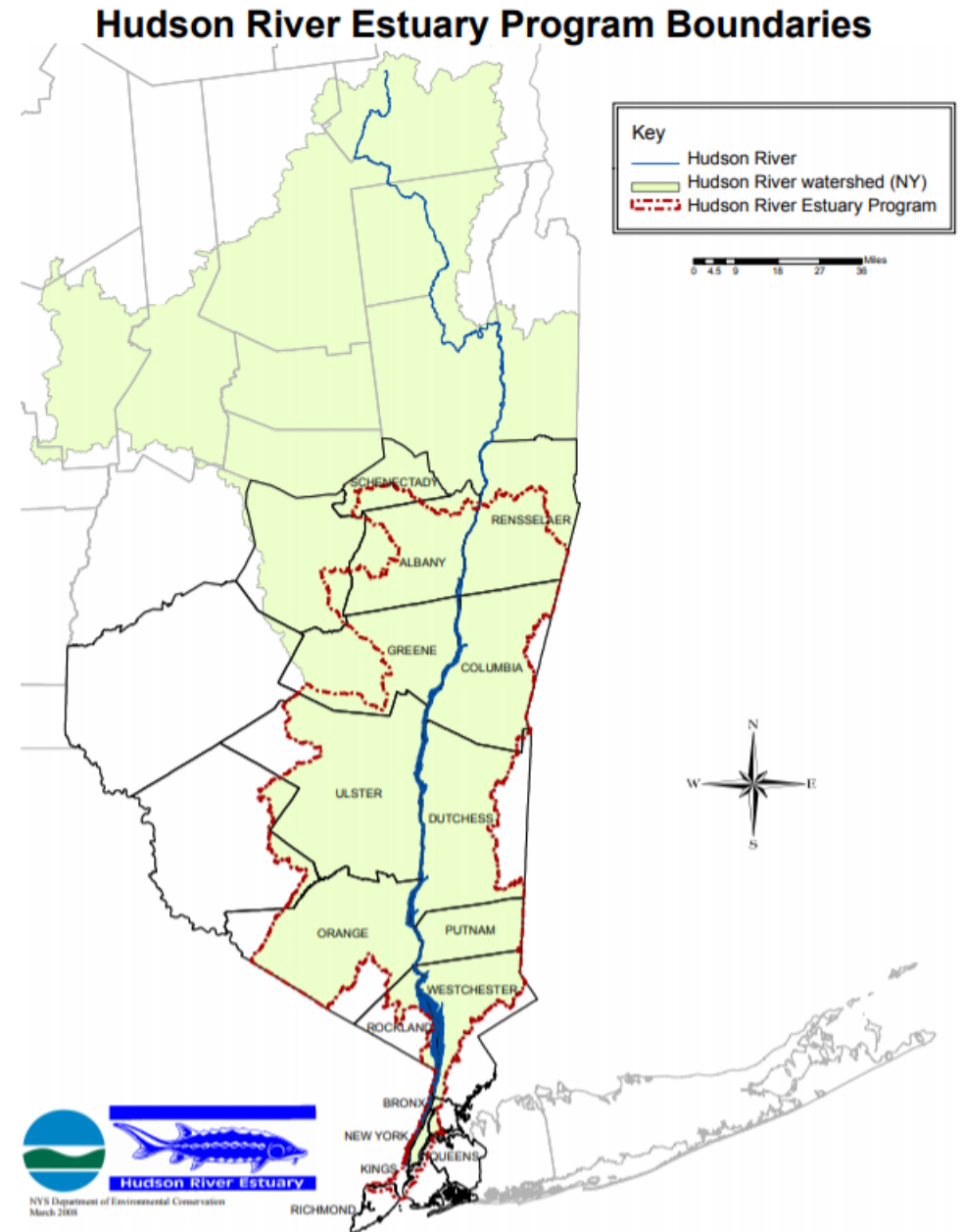
IN NEW YORK STATE



HUDSON RIVER ESTUARY PROGRAM

NYSDEC

- Created in 1987 through the Hudson River Estuary Management Act
- Hudson River Estuary Management Advisory Committee (HREMAC)
- Area includes tidal Hudson and its adjacent watershed
- Funded through the NYS Environmental Protection Fund and collaborative projects
- Assistance Available for Climate Resilience
 - Climate-adaptive Design (CaD) Studio
 - Receive Support and Recognition: Climate Smart Communities



TUG HILL COMMISSION COUNCILS OF GOVERNMENTS

- Commission was created in 1972 and in 1992, the state legislature passed the Tug Hill Reserve Act
- The Tug Hill region includes 41 towns and 18 villages in portions of Jefferson, Lewis, Oneida and Oswego counties
- Almost all of the commission's budget revenue comes from its state appropriation
- New York State Department of State (DOS) is a key state agency partner
- Most of the Tug Hill towns and villages belong to one of five councils of governments (COGs) and is served by one or more "circuit riders" funded through dues

Tug Hill region of New York covers 2,100 square miles between Lake Ontario and the Adirondack Mountains.



CORNELL LOCAL ROADS

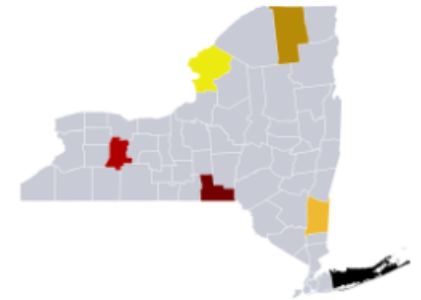
LOCAL TECHNICAL ASSISTANCE PROGRAM (LTAP)

- Funding is provided by:
 - Federal Highway Administration (FHWA)
 - New York State Department of Transportation (NYSDOT)
 - Cornell University
 - Participant training fees
- Provides training and technical assistance to local highway and public works officials in New York State

There are 51 LTAP centers - one in each State and one serving Puerto Rico and the Virgin Islands.

2021 Spring Workshops are Open for Registration!

[Download the Registration Form Here](#)



In-Person workshops are available at select locations across the state. These half-day workshops cover a portion of the normal full-day topic, but you still get the workbook. Multiple topics will be held in the same location over a week so you can sign up for several different classes at once.

Many of the virtual workshop webinars are from the same full-day workshop but cover different materials. Take both the in-person and virtual portions to get the most comprehensive experience.



NYSERDA CLEAN ENERGY COMMUNITIES (CEC) REGIONAL COORDINATORS

- On August 3, 2016, Governor Cuomo announced the launch of the Clean Energy Communities program, a \$16-million initiative to help local governments across the state reduce energy consumption and drive clean energy use in their communities
- Clean Energy Communities Coordinators are based in each region of the state to help municipal staff navigate the program



Get started. Follow these four steps to participate in the program and access grant funding



Step 1: Connect with a Clean Energy Community Coordinator

[Read More](#)



Step 2: Complete High Impact Actions

[Read More](#)



Step 3: Submit Action Item Documentation

[Read More](#)



Step 4: Apply For Grants

[Read More](#)

PRIVATE-PUBLIC PARTNERSHIPS

TERM CONTRACTS

- Public agency contracts with private organization to assist with technical support
- Allows more technical expertise



SUMMARY



- ❑ “Governance resilience” builds resilience
- ❑ State support is key
- ❑ Peer-to-peer messaging builds trust
- ❑ Communities need “boots on the ground” to move forward
- ❑ Education and training is continuous
- ❑ Further technical assistance may be needed, such as engineering, GIS services, and environmental compliance

NEXT STEPS

WHAT SHOULD THE MODEL INCLUDE

How can we achieve successful implementation of Climate Adaptation and Resilience strategies in New York's Great Lakes Basin?



Funding Strategy

Engage Private & Public



Leverage Existing Resources

Circuit Riders for Technical Assistance



Peer Network

Program Management



PROGRAM MANAGEMENT

CLIMATE ADAPTATION AND RESILIENCE



Master Planning
Connectivity



Ecosystem-based adaptation
Watershed approach framework



Resilience Projects



Nature-based approaches
Preservation of critical areas



QUESTIONS





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