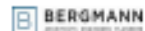


CLIMATE RESILIENCY IN ALBANY COUNTY

Data, Strategies, and Funding Sources

Capital District Regional Planning Commission
Fall Planning and Zoning Workshop
October 28, 2022



Session Overview

- 01 Climate Resilience in Albany County
- 02 Climate Risk Assessment: data to support decision-making
- 03 Building Resilience: strategies and funding
- 04 Questions + Discussion

01

Climate Resilience in Albany County

Albany County is Developing a Climate Resiliency Plan.

The Plan aims to
improve the ability of municipalities and other private and public
stakeholders to prepare for, adapt to, and minimize impacts from flooding,
sea level rise, and other climate-related events.

CLIMATE CHANGE IS HAPPENING IN ALBANY COUNTY.

Temperatures are warming.

+0.22

°F / decade between 1901 and 2012

Precipitation is increasing.

+0.90

inches / decade between 1901 and 2012

data are from New York State Climate, 2016 Supplement, Updated Climate Projections Report

Albany County is Developing a Climate Resiliency Plan.

building on existing related plans and initiatives, this project:



WHAT IS RESILIENCE?

Resilience is...

The capacity of a social-ecological system to absorb or withstand disturbances and other stressors and still maintain its basic structure and function.

(Holling 1973; Gunderson & Holling 2002; Walker et al. 2004)



WHAT IS RESILIENCE?

Resilience of what and to what?

Resilience of Albany County **communities** to **climate stressors**

- Sea level rise
- Extreme precipitation and flooding
- Extreme temperatures
- Drought



WHAT IS RESILIENCE?

Three interrelated concepts.

RESILIENCE

preparing for and improving the County's ability to recover/bounce back from climatic events

ADAPTATION

implementing changes to ensure we can live with and adapt to the impacts of climate change

MITIGATION

tackles the cause of climate change by reducing greenhouse gas emissions



Benefits + qualities of resilient communities.

- »»»» Reduced vulnerability to disturbances
- »»»» Increased capacity to learn from, anticipate, and adapt to change
- »»»» Greater capacity to provide goods, services, and support systems
- »»»» Enhanced quality of life for all residents

qualities of a RESILIENT WORLD

Diversity
Ecological variability
Modularity
Social capital
Innovation
Redundancy
Ecosystem services

Walker & Salt (2006)

RESILIENCE ACROSS SCALES Impacts across socio-political scales.



RESILIENCE ACROSS SCALES

Impacts across socio-political scales.

» Land Use, Albany County



RESILIENCE ACROSS SCALES

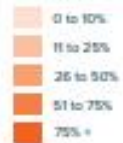
Impacts across ecological scales.



RESILIENCE ACROSS SCALES

Impacts across socio-ecological scales.

Percent of Watershed Area that is **Impervious**



INTERCONNECTED SYSTEMS

Impacts across systems.



02

Climate Risk Assessment

BUILDING THE ASSET INVENTORY



HEALTH + SOCIAL SERVICES

A sample of the asset inventory.



CLIMATE RISK ASSESSMENT

GOAL:

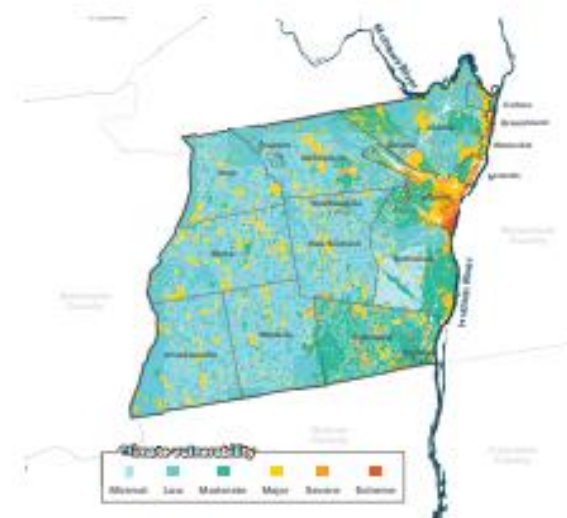
To identify areas and assets at high risk to the impacts of climate change and **support future decision-making**

DETERMINING CLIMATE RISK:

Consider flood, heat, and social vulnerability to create a composite climate risk score

SCALE:

Parcel



CLIMATE RISK ASSESSMENT

Data sources.

SOURCE

Flood Risk:
First Street Foundation

Heat Vulnerability:
NYS DOH Heat Vulnerability Index

Social Vulnerability:
Draft Disadvantaged Communities (DAC)

NYS DEC Potential Environmental Justice Areas (PEJA)

CDC Social Vulnerability Index (SVI)

SCALE

Parcel Inundation Grid (3m)

Census Tract

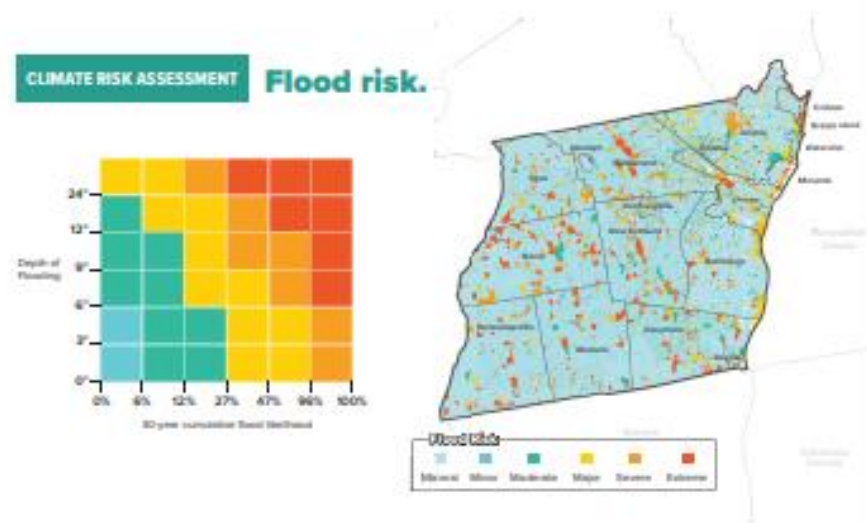
Census Tract

Census Block Group

Census Tract

CLIMATE RISK ASSESSMENT

Flood risk.



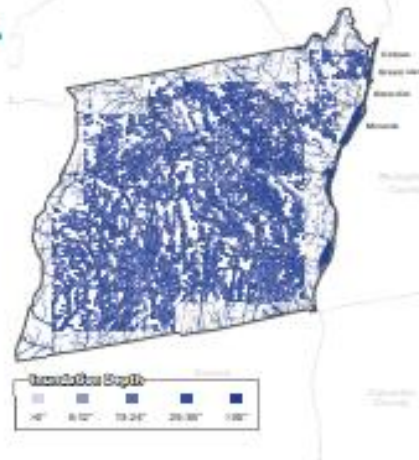
CLIMATE RISK ASSESSMENT

Flood risk.

Flood Inundation Depth

To approximate flood risk for assets spanning multiple parcels and/or in public right-of-way

- 2050 projection
- 1 in 100 year flood

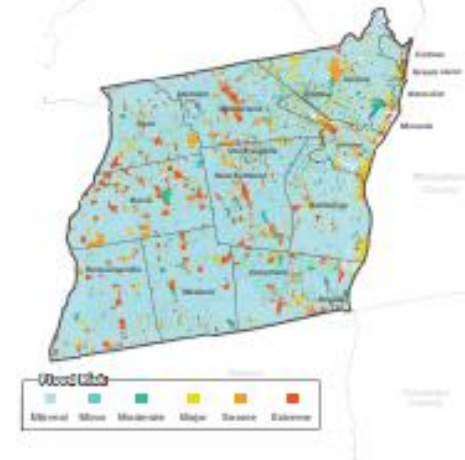


CLIMATE RISK ASSESSMENT

Flood risk.

Why it matters...

- To proactively identify flood risks and identify strategies and projects to mitigate risks
- To inform future decision-making
- To protect communities and provide a high quality of life for all



CLIMATE RISK ASSESSMENT

Heat vulnerability.

language



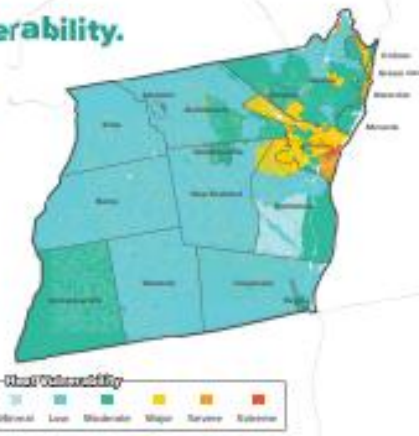
elderly



urban / environmental



socio-economic

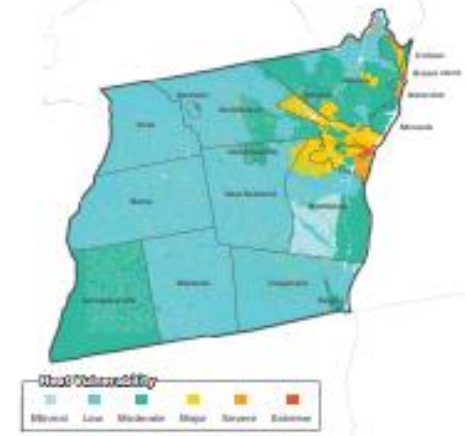


CLIMATE RISK ASSESSMENT

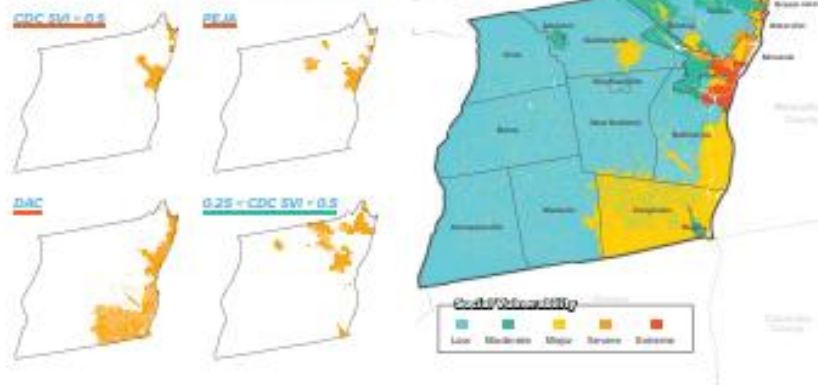
Heat vulnerability.

Why it matters...

- To ensure resources and services are distributed where they are most needed
- To prioritize investments in cooling centers, urban forest expansion, and other strategies to mitigate the impacts of extreme heat



Social vulnerability.



CLIMATE RISK ASSESSMENT

Social vulnerability.

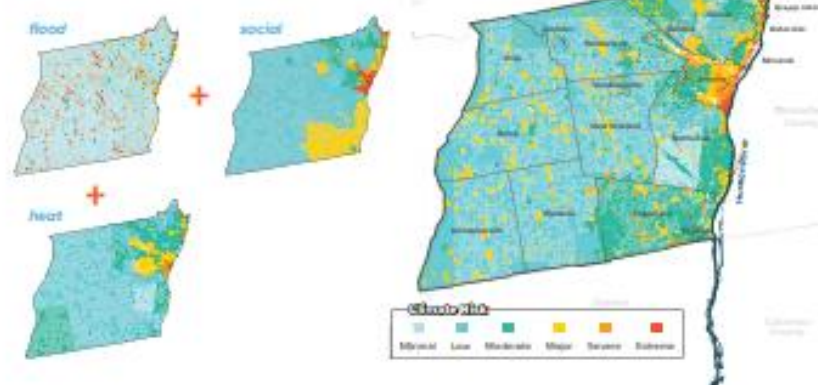
Why it matters....

- Socially vulnerable communities will be disproportionately impacted by climate change
- To ensure resources and services are distributed equitably
- To prioritize future investment (several State and federal funding sources prioritize investments in socially vulnerable communities)



CLIMATE RISK ASSESSMENT

Climate Risk.



03

Building Resilience

A FRAMEWORK Applying the Findings from the Risk Assessment + Identifying Strategies to Increase Resilience.



EXAMPLE 01

CLIMATE STRESSOR Flooding

IMPACT ON County Roads (total miles = 290)

12% intersect with inundation caused by a 100-year flood in 2050

Fox Creek Road, Town of Rensselaerville
2 miles

Wadgett Hill Road, Town of Coeymans
1.5 miles

Credle Road, Town of Bathsheam
1.5 miles



EXAMPLE 01

FLOOD RESILIENCE STRATEGIES Roads.

BUILD REDUNDANCY

Identify alternative corridors to preserve access, mobility, and enable evacuation, if necessary

EXPAND ECOSYSTEM SERVICES

Use natural infrastructure to mitigate flooding

PROACTIVELY AVOID HAZARD AREAS

Guide new development away from high risk areas

SUPPORT DATA-DRIVEN DECISION-MAKING

Collect data, monitor systems

1 Evaluate Potential Impacts of Solutions across scales



EXAMPLE 02

CLIMATE STRESSOR Flooding + Heat

IMPACT ON Neighborhoods + Socially Vulnerable Communities



Sheridan Ave.
City of Albany

South End
City of Albany

2nd Ave.
City of Watervliet

N. Mohawk St.
City of Cohoes

EXAMPLE 02

FLOOD / HEAT RESILIENCE STRATEGIES

Neighborhoods.

EXPAND ECOSYSTEM SERVICES

Use natural infrastructure increase the urban canopy and mitigate flooding / heat stress

BUILD SOCIAL CAPITAL

Support and empower local communities

STRENGTHEN SENSE OF PLACE

Increase awareness of natural processes and strengthen connections between social and ecological systems

- 1 Evaluate Potential Impacts of Solutions
who benefits, who doesn't?



EXAMPLE 03

CLIMATE STRESSOR

Sea level rise

IMPACT ON

Water Infrastructure

Hudson River is tidal along the County's shoreline

Several wastewater treatment plants and water sources are at relatively high flood risk

NYS DEC sea level rise projections for Mid-Hudson region (High-Medium Projection to High Projection):

- 2050 – 19 inches to 27 inches
- 2080 – 36 inches to 54 inches
- 2100 – 46 inches to 71 inches



EXAMPLE 03

SLR RESILIENCE STRATEGIES

Water Infrastructure.

PRESERVE, EXPAND, AND RESTORE NATURAL AREAS

To improve water quality and mitigate flooding and erosion

ANTICIPATE FUTURE EVENTS

Proactively adapt structures to avoid future disturbances

BUILD REDUNDANCY AND MODULARITY

Ensure the system continues to function despite disturbances

- 1 Evaluate Potential Impacts of Solutions
across systems



EXAMPLE 04

CLIMATE STRESSOR

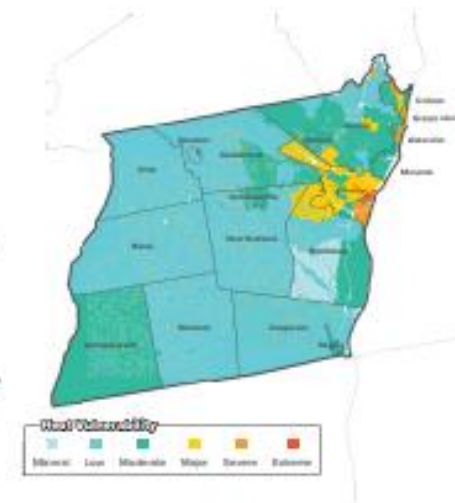
Heat

IMPACT ON

Communities

Cooling centers as a potential solution...

- What do they look like?
- Where are they located?
- How are they accessed?
- What programming and services are available?
- How are they advertised?
- Who are they for?



EXAMPLE 04

HEAT RESILIENCE STRATEGIES

Communities.

DIVERSIFY SOLUTIONS

Parks with shade and splash pads, libraries with extended hours, water fountains, opportunities to socialize outside

BUILD CAPACITY

Train local volunteers and community leaders

COMMUNITY-BASED PLANNING

Adapt solutions to local needs

BUILD REDUNDANCY AND MODULARITY

Ensure solutions function through disturbances and are accessible via multiple routes and modes

! Evaluate Potential Impacts of Solutions
are solutions equitable?



RESILIENCE TOOLS

Applying the climate risk data and resilience thinking at the local level.



RESILIENCE TOOLS

State funding for resilience projects.

Green Innovation Grant Program (EFC)

- Funds green infrastructure projects and energy efficiency at water treatment plants
- Grant awards up to \$3M
- Can fund design and construction
- Concept design is required as part of the application

Climate Smart Communities (DEC)

- Focuses on climate change adaptation and greenhouse gas mitigation
- 50/50 matching grant awards
- Funds available for project implementation (e.g., natural infrastructure, retrofit infrastructure) or to support certification

NYS Consolidated Funding Application (CFA)

Early May
application is available

Late July
applications are due

! Plan Ahead!

Some grant programs require a formal resolution to be passed

RESILIENCE TOOLS

State funding for resilience projects.

Water Quality Improvement Project Program (DEC)

- Funds projects that directly improve water quality or aquatic habitat or protect a drinking water supply (e.g., WWTP improvements, land acquisition to protect water supply)
- Match requirements vary based on project type

Local Waterfront Revitalization Program (DOS)

- Mohawk and Hudson Rivers are designated inland waterways
- Funds projects from approved LWRPs
- Funds develop of new or updates to existing LWRPs

NYS Consolidated Funding Application (CFA)

Early May
application is available

Late July
applications are due

! Plan Ahead!

Some grant programs require a formal resolution to be passed

RESILIENCE TOOLS

State funding for resilience projects.

Smart Growth Comp. Planning Grant Program (DOS)

- Grant funds to integrate Smart Growth principles into comprehensive plans, zoning codes, and area plans
- \$2M in grant funds were available in 2022
- 10% match required

Climate Justice Fellowship (NYSERDA)

- Municipalities are eligible to apply to host a fellow
- 12-month fellowship focused on climate justice
- NYSERDA plans to fund 150 fellowships through 2024 with a focus on advancing climate justice and clean energy priorities in disadvantaged communities
- Not part of the CFA

NYS Consolidated Funding Application (CFA)

Early May
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Late July
applications are due

Plan Ahead!

Some grant programs
require a formal resolution
to be passed

RESILIENCE TOOLS

Federal funding for resilience projects.

Infrastructure Investment and Jobs Act

- Several funding programs focused on increasing upgrading infrastructure, integrating natural infrastructure into transportation systems, and serving disadvantaged communities
- Capital District Transportation Committee (CDTC) is a great resource to learn about this funding source

CDTC Unified Planning Work Program

- Funds local and regional transportation planning projects
- \$1M in grant funds available
- Emphasizes environmental justice and regional impacts
- Applications due **November 30, 2022**

RESILIENCE TOOLS

Federal funding for resilience projects.

Thriving Communities Program (USDOT)

- Aims to ensure that disadvantaged communities adversely affected by environmental, climate, and human health policy outcomes have the technical tools and capacity to compete for federal aid and deliver quality infrastructure projects
- Communities interested in receiving support must submit a Letter of Interest by **December 6, 2022**

04

Questions + Discussion