Appendix D: Public Meeting Materials

Capitol Region Hazard Mitigation and Climate Adaptation Plan Update

What is a Hazard Mitigation Plan?

The Capitol Region Council of Governments (CRCOG) is working with The Connecticut Institute for Resilience and Climate Adaptation (CIRCA) on the fourth edition of its multi-jurisdiction hazard mitigation plan (HMP). This will also be the State's second combined Hazard Mitigation and Climate Adaptation Plan (HMCAP).

Having an active HMCAP will help the CRCOG municipalities remain eligible for FEMA grants and other emerging funding sources that can fund hazard mitigation and climate adaptation projects in the region. For example, previous FEMA funding helped the town of Plainville to fund a property acquisition project in a floodplain, reducing residential losses.

What Risks Are Included in a Hazard **Mitigation and Climate Adaptation Plan?**

Extreme and Severe Storms

- **Hurricanes and Tropical Storms**
- Tornadoes and High Winds
- Severe Winter Storms

Tidal Flooding

· CT River Tidal Change

Changing Precipitation Pattern

- Riverine and Pluvial Floods
- Drought
- Dam Failures

Rising Temperatures

- Extreme Heat
- Wildfires

Earthquakes

What is a natural hazard? A natural hazard is an extreme natural event that poses a risk to people, infrastructure, ecosystems, and community resources.

What is hazard mitigation? Actions we take now that reduce or eliminate long-term risk to people, property, and resources from natural hazards and their effects.

What is climate adaptation? Adjusting social, ecological, infrastructural, or economic systems to respond to, and manage, risks from climate change.

What is a Climate Adaptation Plan (CAP)? A plan to set policy and actions for adapting to the effects of climate change. This is not the same as a "climate action plan" which describes reducing carbon emissions.

Do You Live or Work in the CRCOG Region? We want to hear from you!





- Use the QR code to take the survey! 1)
- 2) Attend a public meeting!
 - Oct 10th, 6pm, Hybrid Meeting at 241 Main Street, 3rd Floor Board Room, Hartford, CT 06106-5310 (or link:
 - https://s.uconn.edu/cq5ftyuy45)
 - Oct 12th, 6 pm, Virtual Meeting (link: https://s.uconn.edu/54me0gptzz)
- 3) Send comments to mgoulet@crcog.org





HAZARD MITIGATION PLAN UPDATE

4th Edition:

A New Hazard Mitigation and Climate Adaptation Plan (HMCAP) for the Capitol Region of Connecticut





Public Planning Meeting #1 October 10th, 2023





What is a Hazard Mitigation and Climate Adaptation plan?



Natural Hazards and Climate Impacts
Facing the Region



Mitigation and Adaptation Strategies and Actions



Methods to Provide Input



Open Discussion

So

What is a Natural Hazard?

 An extreme <u>natural</u> event that poses a risk to people, infrastructure, and resources.





What is a Natural Hazard?

 An extreme natural event that poses a risk to people, infrastructure, and resources.

What is Hazard Mitigation?

Actions we take now that reduce or eliminate long-term risk to people, property, and resources from natural hazards and their effects.



Mentimeter



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Climate Adaptation

Adjusting social, ecological, infrastructural, or economic systems to respond to, and manage, risks from climate change



HAZARD MITIGATION AND PREPARED FOR: PREPARED BY: Resilient Land And Water, LLC with Contributions From the 5 Connecticut Avenue medical Institute for Resilience and Climate Norwith, CT 06360 Adoptonion (CIRCA) at the University of Correction www.seccog.org

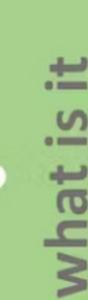
Climate Adaptation Plan (CAP)

- A plan that sets policy and actions for adapting to the effects of climate change
- Not the same as a "climate action plan," which describes reducing carbon emissions



What else is going on in the region?

- Regional Plan of Conservation and Development underway now, this plan will set policy and goals for the Capitol Region's communities relative to conservation, development, and redevelopment patterns
- Capitol Region Climate Action Plan beginning in late 2023 and running through 2024, this plan will set priorities for reducing emissions that are contributing to climate change
- Capitol Region Stormwater Utility Feasibility Study planned for 2024, this study will help municipalities determine if forming a stormwater utility or authority is possible and could be used to pay for infrastructure upgrades
- North End Flood Mitigation Projects the City, State, and MDC are some of the entities working to identify solutions to avoid future stormwater flooding



BENEFITS OF HAVING A COMBINED PLAN

- 1. Brings communities together to discuss natural hazard and climate change challenges
- 2. Identifies actions to reduce losses from natural hazards and climate change impacts
- 3. Keeps communities eligible for Mitigation Grant **Programs**
 - Building Resilient Infrastructure and Communities (BRIC)
 - Flood Mitigation Assistance (FMA)
 - Hazard Mitigation Grant Program (HMGP)



Conduct community engagement to collect resident feedback and experiences with natural hazards

Coordinate with other planning processes to help identify potential strategies and actions for each community

Develop draft plans and distribute for review by the communities and the public

Submit reviewed and edited plans to DEMHS for review, then to FEMA for final approval

Community adoptions!

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Sea Level Rise

Connecticut **River Tidal** Range

Rising **Temps**

- **Extreme Heat**
- Wildfires

Changing **Precipitation**

- **Riverine and Pluvial** Floods
- **Droughts**
- Dam Overtopping or Failure

Earthquakes

Not affected by climate change, but always addressed

Tropical Storms

 Tornadoes and **High Wind Events**

Extreme

Storms

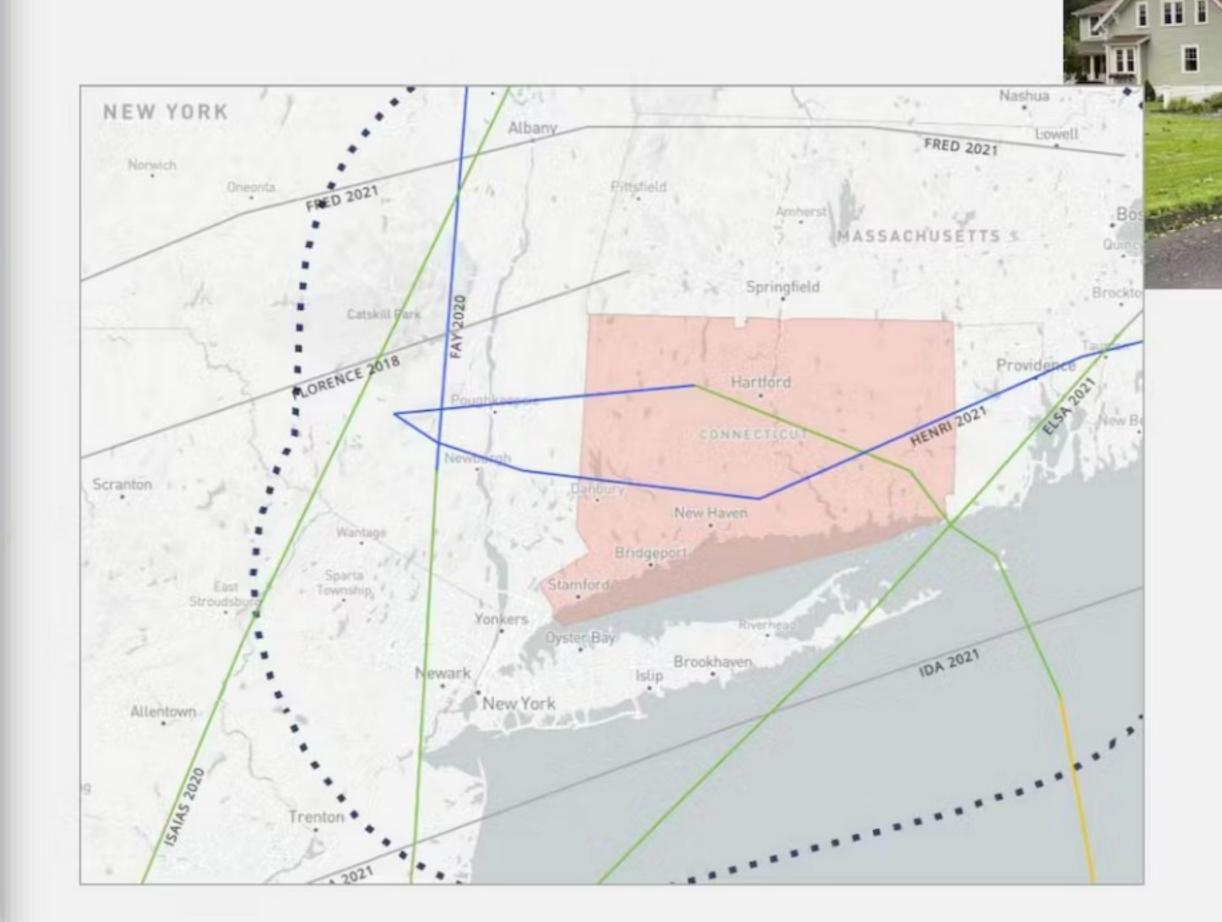
Hurricanes and

 Severe Winter Storms



Hurricanes and Tropical Storms

- Bring strong winds, and heavy rainfall
- Coastal and inland communities can be impacted by these events





Tornadoes and High Wind Events

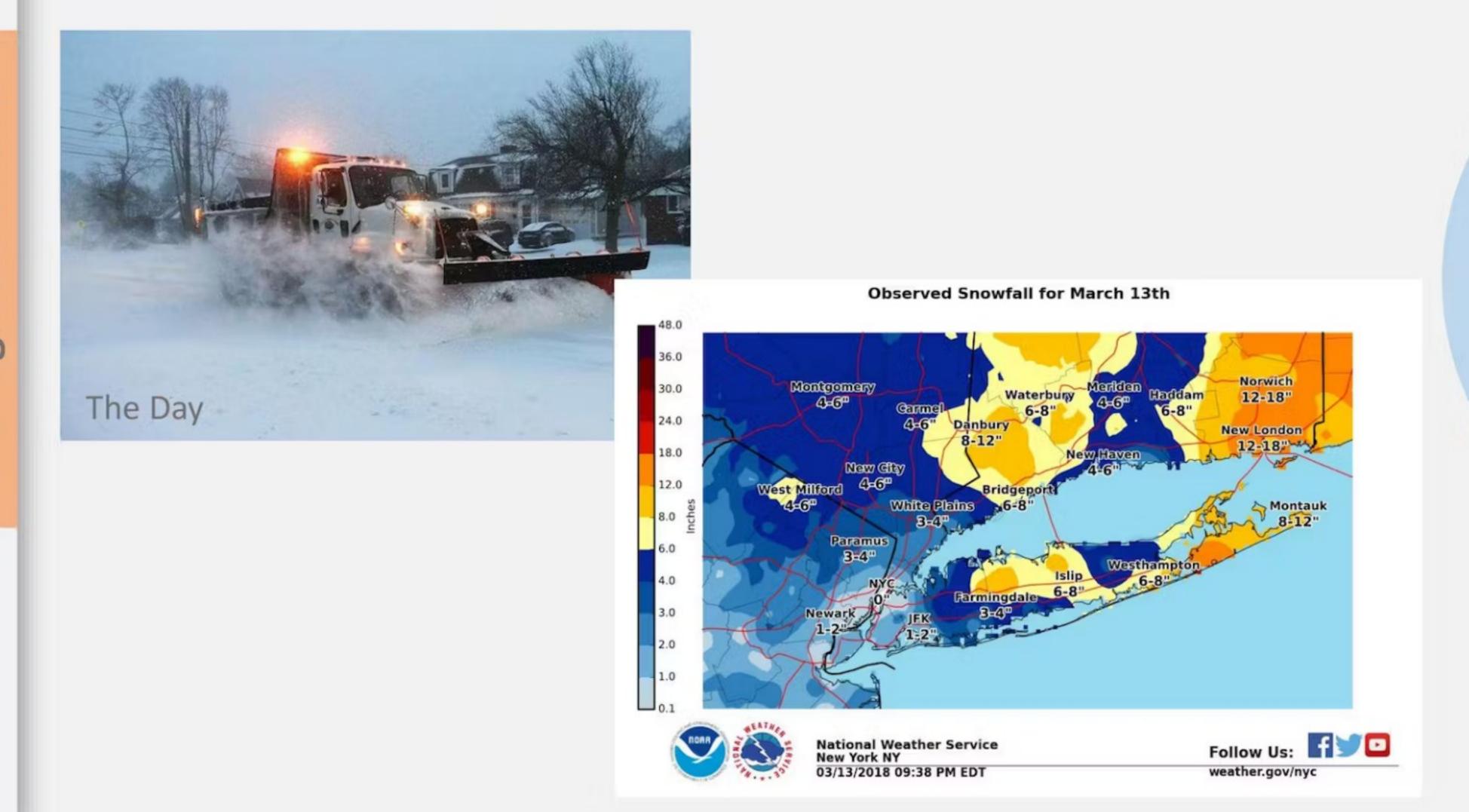
- Tornadoes, straight line winds, macro burst, micro bursts...we are hearing about these events more frequently
- Cause property damage, power outages, and access and egress issues





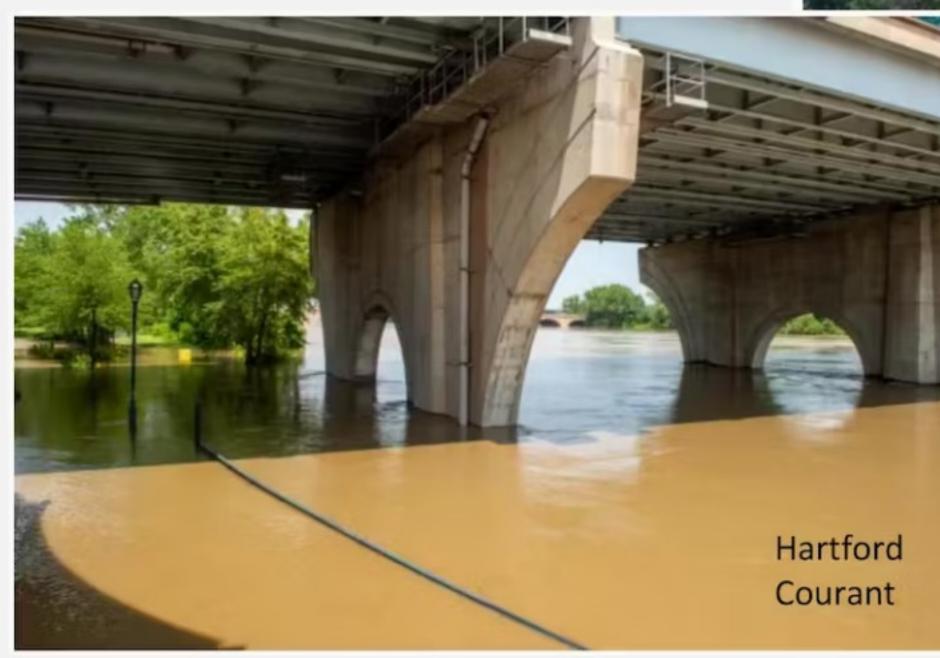
Severe Winter Storms

- Minor impacts to major disruptions
- Past storms have resulted in collapsed roofs and several inches of snowfall





- Flooding typical after long duration or widespread rain events
- Sometimes combined with snowmelt upstream

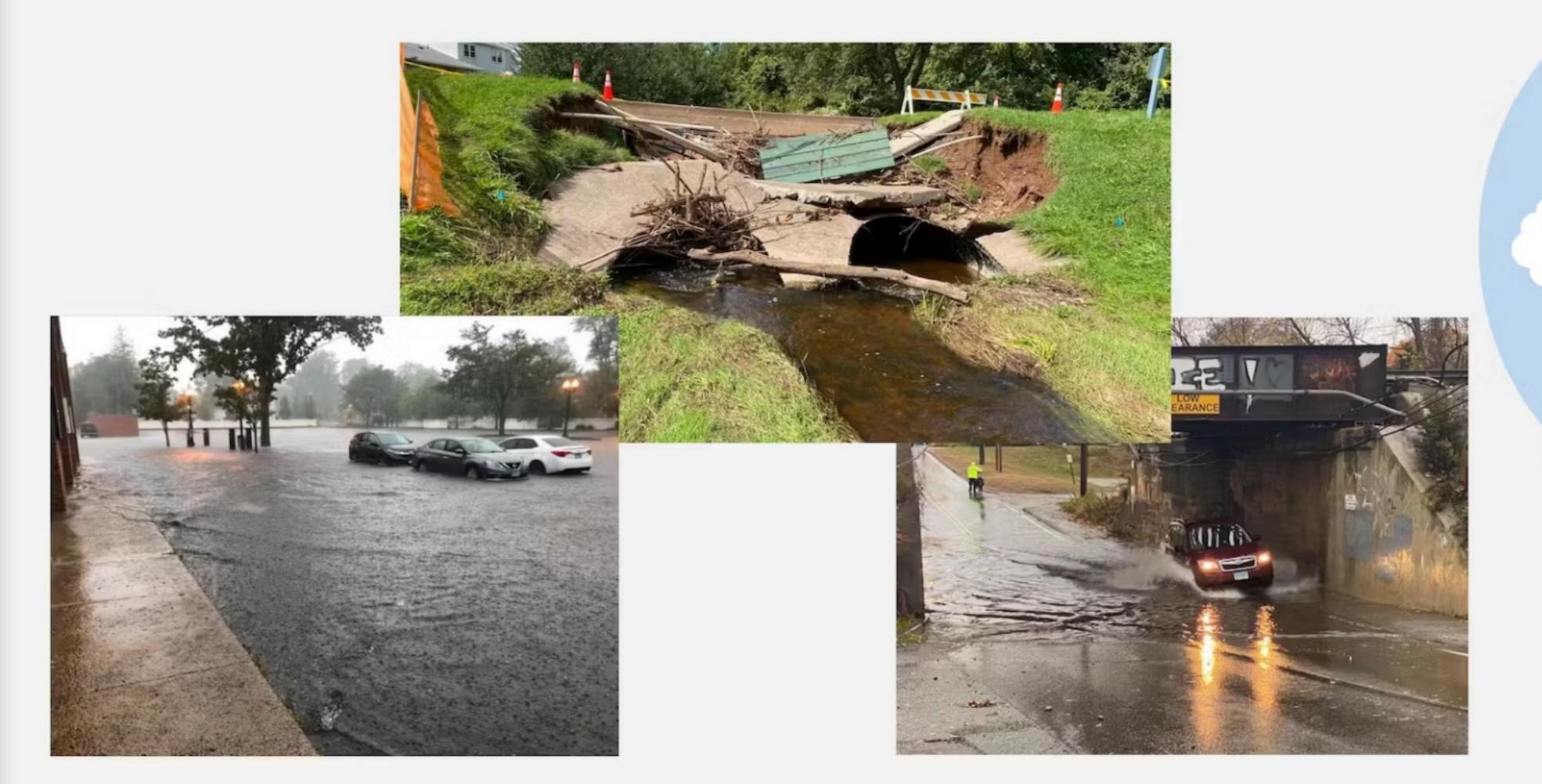




- Rising sea levels will slightly increase flood levels in the tidal section
- This will be mainly downstream of Hartford
- Agricultural and other land uses exposed

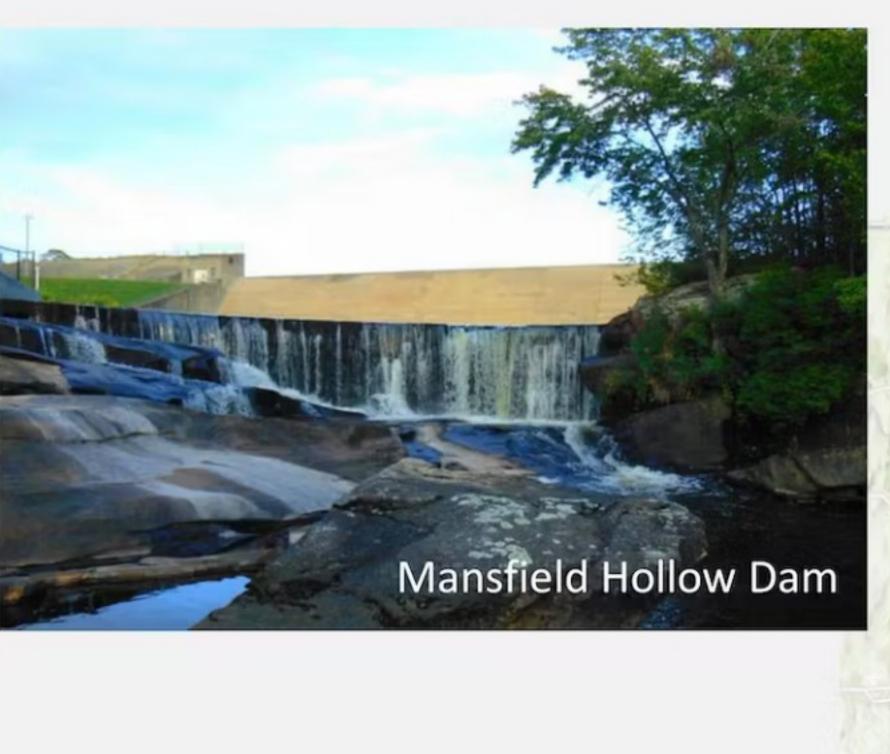
Riverine and Pluvial Floods

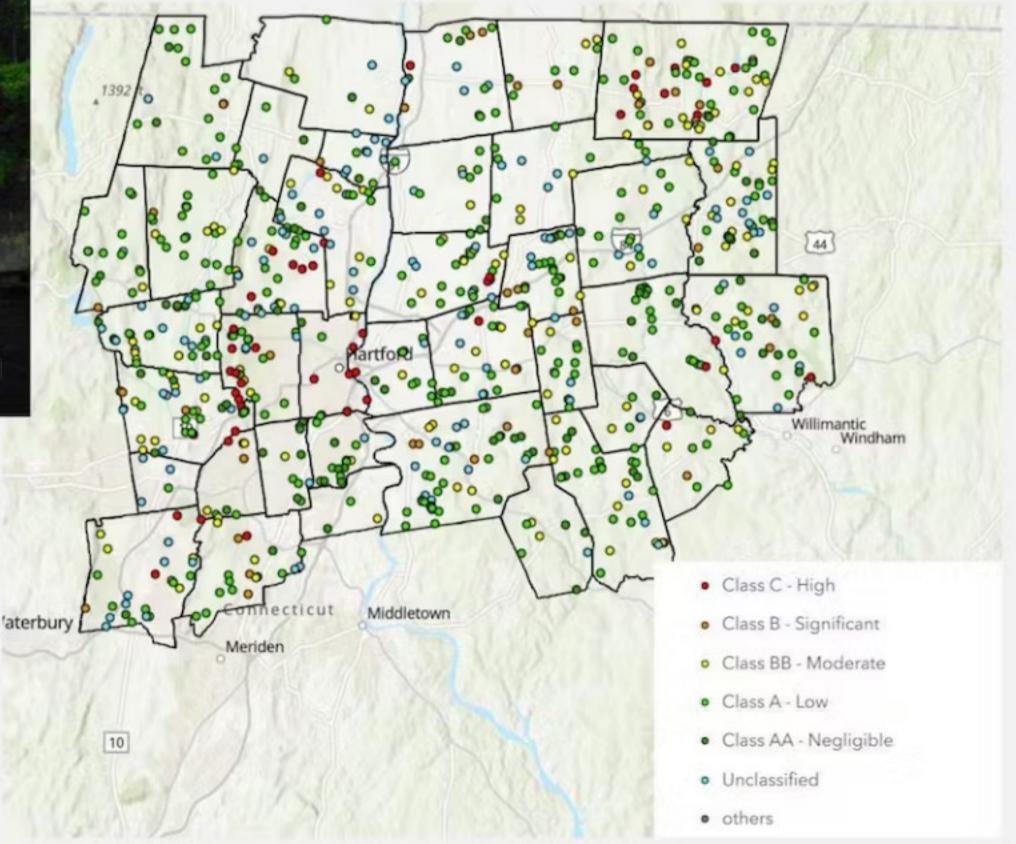
- Riverine floods occur when riverbanks are overtopped
- Pluvial, or drainage floods, occur in areas with poor drainage or high impervious surfaces
- Properties and roadways are impacted by flooding



Dam Overtopping or Failure

- Dams can experience capacity challenges during extreme rain events
- Failure of large, high-risk dams is rare





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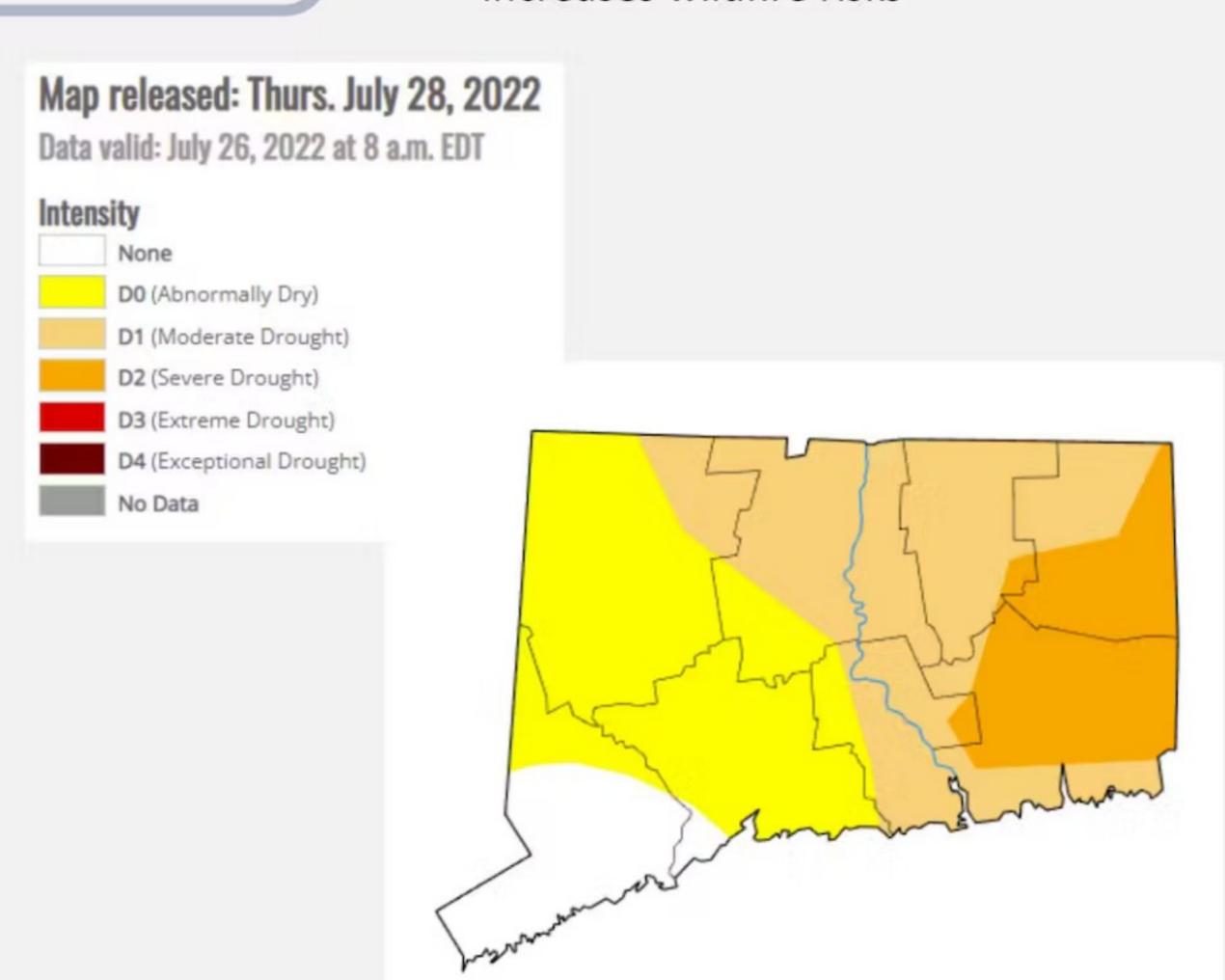
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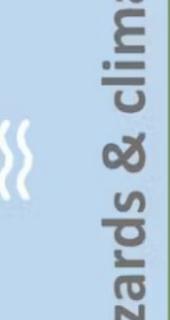
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Droughts

- Experienced droughts in 2016, 2020, and 2022
- Impacts farmers, businesses, drinking water supply, and increases wildfire risks





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Wildfires

- Minor fires occur annually
- Firefighting capacity can be challenging in remote areas
- Wildfires in other states have shown how risky the wildland interface can be



Daily Forest Fire Danger Report

The Forest Fire Danger Level for Tuesday, August 02, 2022 is HIGH

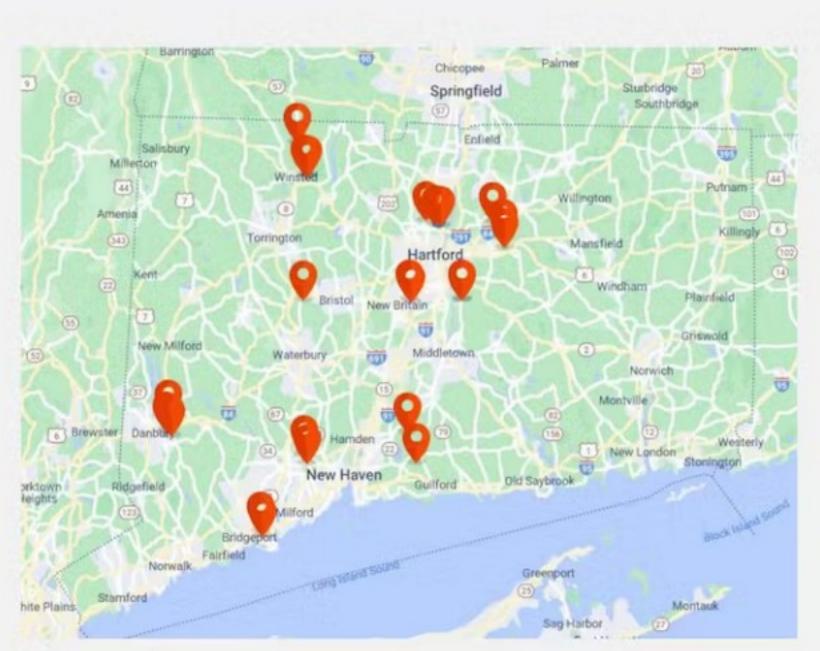
MODERATE- Fairfield, New Haven, Litchfield, Hartford HIGH- Middlesex, New London, Tolland, Windham



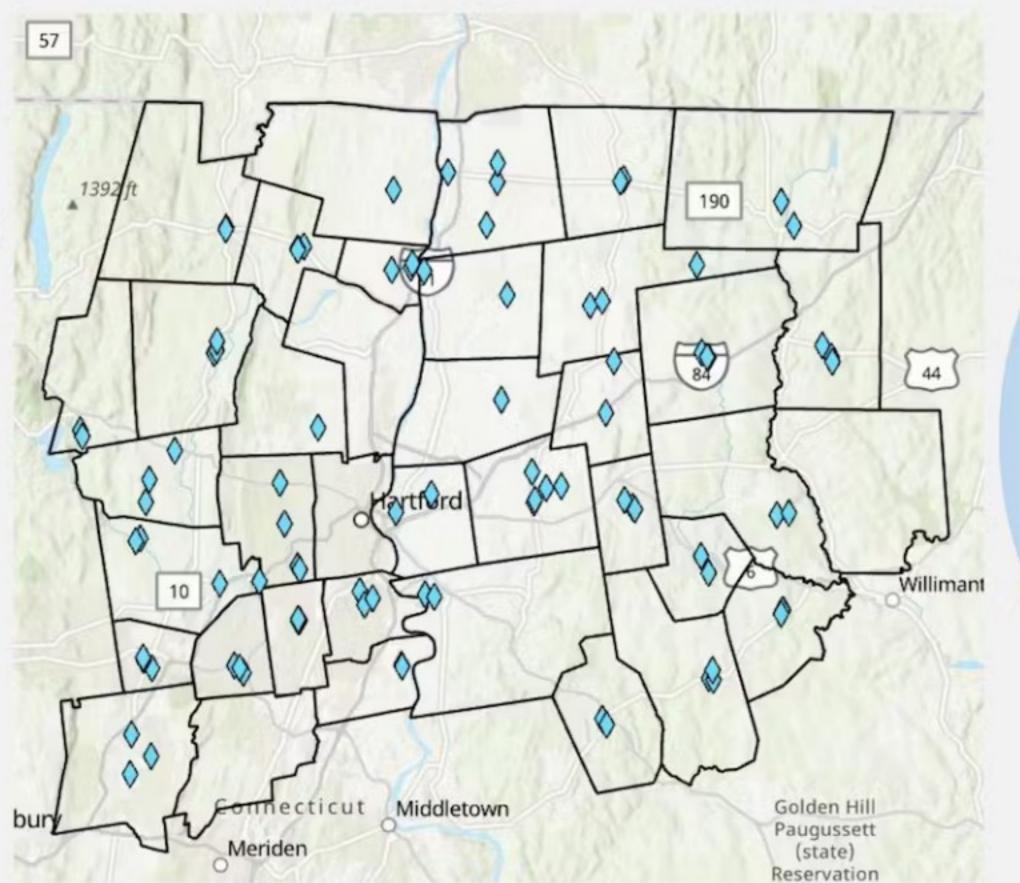
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Extreme Heat

- Dangerous for vulnerable populations
- Increase in intensity and frequency as climate changes



Cooling centers identified on 211



Cooling centers identified by municipalities

action

So

Earthquakes

Though not a major concern for the region, minor events could occur, impacting infrastructure



Earthquakes felt since 2020

Ready to Interact?



Thinking about where you live and work, which natural hazards are you most concerned about in your community?

Heat and flooding

snow and summer flooding

Flooding due to high intensity storms

Flooding

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Extreme Storms

Sea Level Rise

> Rising Temps

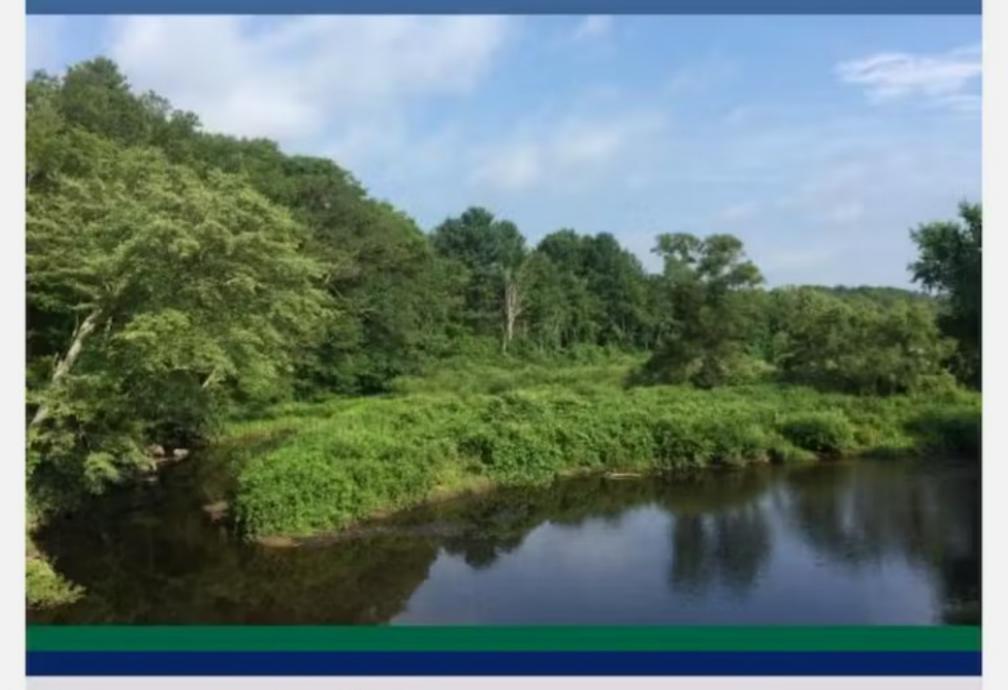
Changing Precipitation

Earthquakes

Connecticut Physical Climate Science Assessment Report (PCSAR)

Observed trends and projections of temperature and precipitation

August 2019







Sponsored by a grant from the Connecticut Institute for Resilience and Climate Adaptation (CIRCA).

CIRCA is a partnership between the University of Connecticut and the State of Connecticut Department of Energy and Environmental Protection. More information can be found at: www.circa.uconn.edu

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Extreme Storms

Sea Level Rise

> Rising **Temps**

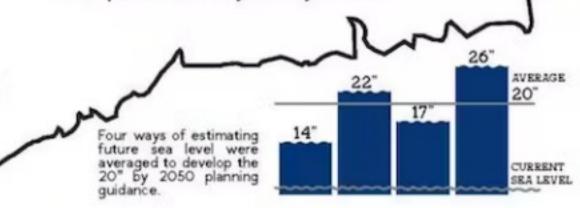
Changing **Precipitation**

Earthquakes

SEA LEVEL RISE & COASTAL FLOODING IN CONNECTICUT

Information from the Governor's Council on Climate Change

- 1. Sea level is expected to rise by up to 20 inches by 2050, and to continue increasing after that.
- 2. Small changes in mean sea level have a big impact on the frequency of flooding.
- 3. Areas that experience flooding every few years now should expect flooding multiple times a year by 2050.



Vertical axis scale is in feet

Return intervals describe the frequency and severity of a storm by giving the

average time between flood events.

For instance, in Stamford a storm with 10' storm surge has a return interval of

With up to 20" of sea level rise, storms with a 100 year return interval now will have a 10 year return interval in 2050.

ence up to 20" of sea level rise by . Higher cost of living 2050, leading to greater frequency . Greater property damage risk of flooding from tides and storms. Small changes in mean sea level have a big impact on the frequency and severity of flooding.

With 20" of sea level rise, what we Individual towns are beginning to experience today as a 4.5' storm plan for coastal and inland impacts surge will occur up to ten times of climate change, as well as comore often in 2050. Some areas ordinated regional efforts that are that flood once every 10 years will underway. Some current actions likely flood every 2 years. Chron- include the Governor's Council on ic flooding will be a challenge for Climate Change; Multi-jurisdictional neighborhoods, roads, and areas Hazard Mitigation Planning by Reaffected in the past.

BRIDGEPORT NEW HAVEN NEW LONDON Planning for commu-"resilient corridors," as inform pilot projects. well as high ground

NEW HAVEN Sea Level Rise Predictions: Consequences & Flood Risk:

NEW

LONDON

Connecticut is expected to experi- Coastal residents could expect:

- More highway and road closures Inaccessibility to and higher
- maintenance costs for critical infrastructure

gional Councils of Governments; and Resilient Connecticut.

infrastructure, Resilient Connecticut is an initiahuman health tive charged with creating a reshould consider the gional adaptation plan for Fairfield 2050 planning guid- and New Haven counties by coorance, acceptable levels dinating actions between local and of risk, and strategies regional stakeholders. The project that do not increase includes coodination and planning exposure of public in- with state agencies, policy recomvestment to flooding. mendations, and strategies that use Future development up-to-date monitoring and science plans should consider based regional risk assessments to

that will be inherently Over the coming years, estimates resilient to future sea will be revisited and updated with the most recent data and models.

FLOODING WATER LEVELS IN CT NOW

- MAJOR FLOODING MINOR FLOODING
- MEAN HIGHER-HIGH WATER
- CURRENT SEA LEVEL

Current water level benchmarks from Long Island Sound tide gages. Vertical axis scale is in feet and referenced to the North Atlantic Vertical Datum of 1988. More extreme water levels are located further west. For values in 2050 add 20" (1.66').









5.10

3.48

7.20

5.30

5.90 ~~

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Sea Level Rise

Rising **Temps**

Changing **Precipitation**

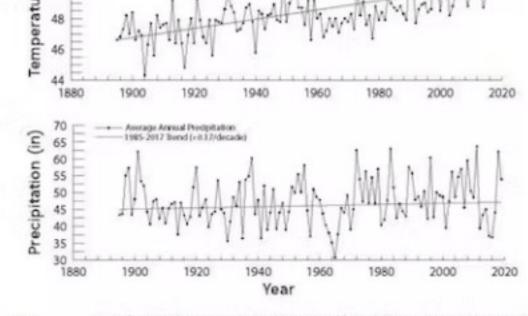
Earthquakes

RISING TEMPERATURES & PRECIPITATION IN CONNECTICUT

Information from the Governor's Council on Climate Change

- 1. By 2050, average temperatures are expected to increase about 5°F, with increases thereafter dependent on emissions choices now.
- 2. Average precipitation is expected to increase about 8% (4 inches/year).
- 3. Indices of hot weather, summer drought, and extreme precipitation, are expected to increase.

TEMPERATURE & PRECIPITATION RECORD FOR CT SINCE 1895

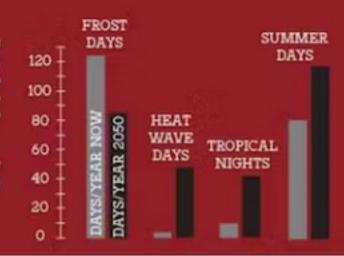


More detailed information is in the Connecticut Physical Climate Science Assessment Report which is available here: https://circa.uconn.edu/ct-climate-science

resilientconnecticut.uconn.edu

Indices are tools used to track trends and projections in local climate. Extreme Indices help quantify impacts of a warming climate on weather measurements. Many of these common indices have been increasing due to climate change.

Annual counts of certain indices (defined below) in CT are to the right. Gray bars indicate today's and black 2050 values.



Current Trends:

Since 1895, Connecticut's annual average temperature has been in- Heat/Cold Indices: creasing by 0.3°F per decade, or 3°F warmer in 2020. Seasonal averages have also been increasing, with winter experiencing the greatest increase. Observations show more warming along the southern coast and eastern half of the state.

Precipitation across Connecticut has been increasing by 0.17 inches per decade since 1985, with the largest increases in fall.

Predictions:

According to high CO, emission scenarios (RCP 8.5) for the future, average temperatures in Connecticut are predicted to rise 5°F (± 1°F) by 2050 and continue rising thereafter. The largest temperature increase is expected in summer and

In the same scenario, average annual precipitation is expected to increase about 8% (4 inches per year), with much occurring in winter and spring. In a warmer Connecticut, precipitation will increase because of evaporation and the water cycle.

Present & Future Extreme Indices:

- Frost Days (annual number of days when the daily minimum is below 32°F) to drop from 124 to 85.
- Heat Wave Days (6 or more consecutive days with daily maximum temperature above the 90th percentile.) to rise from 4 to 48.
- Tropical Nights (annual number of days when the daily minimum is above 68°F) to rise from 10 to 40.
- Summer Days (annual number of days when the daily maximum temperature is above 77°F) to rise from 81 to 118.
- Number of Days above 90°F (annual number of days with maximum temperatures above the threshold value) to rise from 5 to 25.

Wet/Dry Indices:

- Number of days with more than 1 inch of precipitation to rise from 12 to 14.
- Number of heavy precipitation days to rise from 3 to 5.
- Fraction of heavy precipitation to rise from 15% to 20%.
- Maximum 1-day precipitation to rise (27%) from 2.8 to 3.5 inches.
- Maximum 5-day precipitation to rise (20%) from 4.5 to 5.4 inches.



Extreme Storms

- More intense storms with damaging winds
- More intense rainfall
- Heavier, wet snowfalls

Sea Level Rise

- Higher tide levels along Connecticut River
- Increased storm surge levels, but these will likely not impact the Capitol Region

Rising Temps

- Longer and more frequent heat waves
- Landscapes more prone to wildfires

Changing Precipitation

- More frequent dry spells and flashy droughts (rapid onset)
- More flash floods from more intense rain watch for the NWS Flash Flood Warnings!

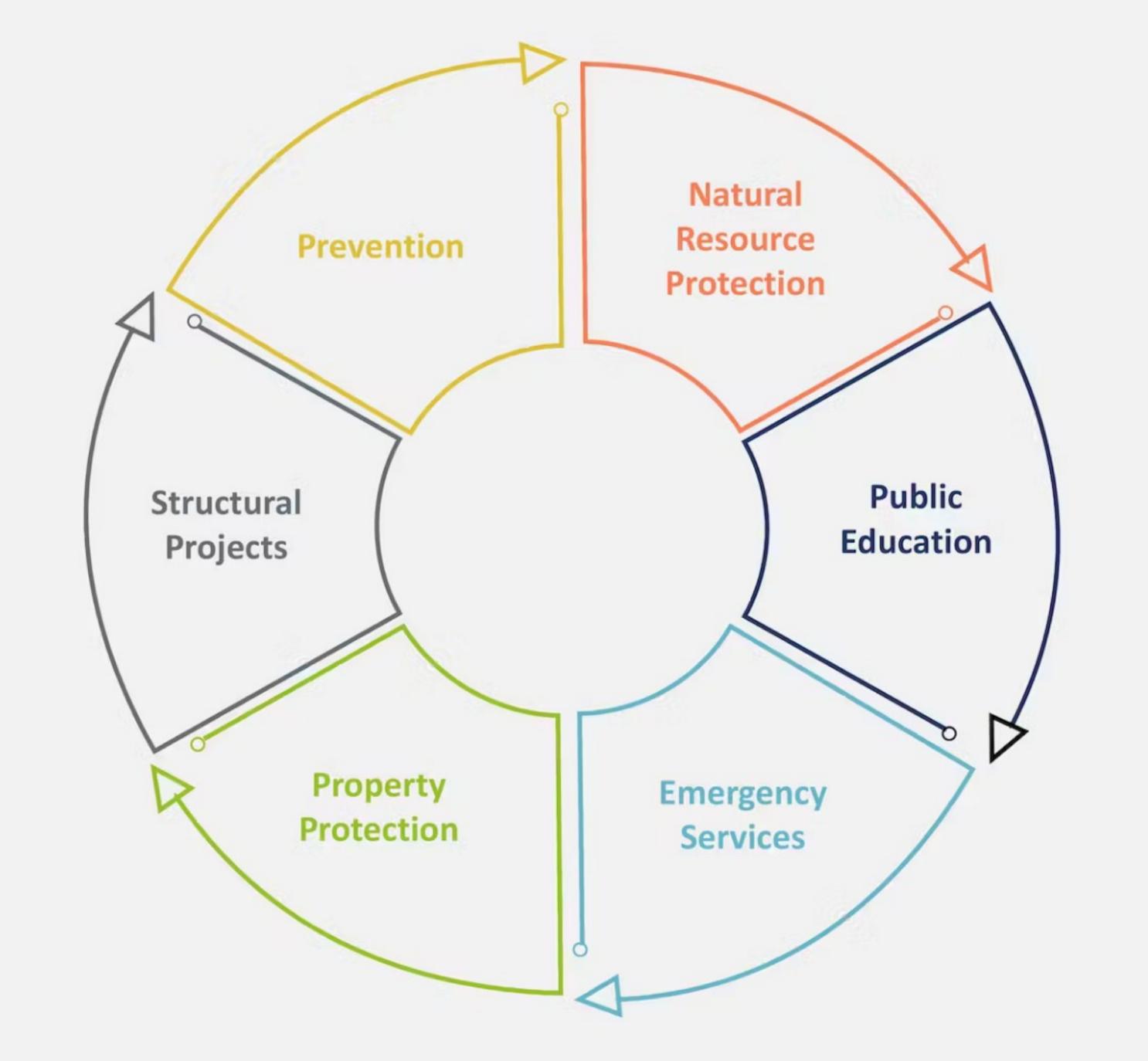
Earthquakes

 Older and compromised infrastructure and buildings could be at greater risk Thinking about where you live and work, which climate change impacts are you most concerned about in your community?

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strategies & actions

discussion

What Else?

- Strengthen or reinforce shelters, critical facilities, cooling centers
- Create new primary or backup shelters and cooling centers
- Microgrids and standby power
- Bury or harden utilities
- Shutters, load path, and roof projects
- Expand and creatively fund tree maintenance programs
- Enhance fire suppression capabilities with dry hydrants, cisterns, etc.
- Bracing systems and backups for potential earthquake damage
- Innovative public education programs



Hurricane Shutters



Dry Hydrants



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STRATEGIES AND ACTIONS: SUCCESSES IN REGION

Wet Floodproofed Structure: Hartford Boat House







PROPERTY PROTECTION

Hartford Boat House; Photos found in public domain

STRATEGIES AND ACTIONS: SUCCESSES IN REGION

Pequabuck River Property Acquisitions

 21 properties acquired in Plainville since 2010





Forestville Avenue North Washington Street
Photos by David Murphy, 2018





This photo courtesy of the Plainville Citizen





STRATEGIES AND ACTIONS: SUCCESSES IN REGION

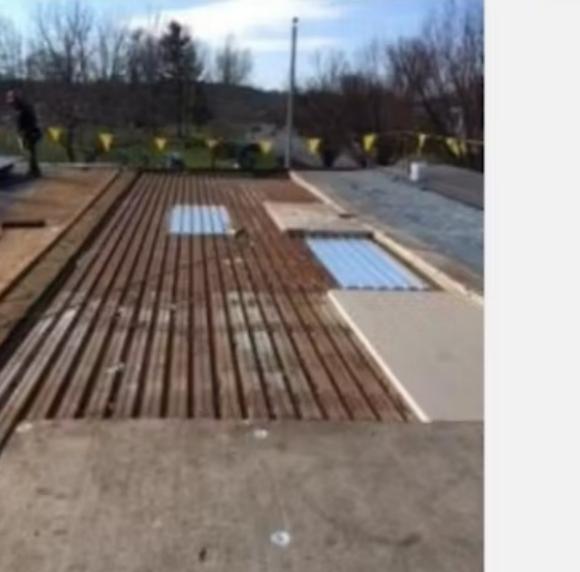
South Windsor Emergency Operations Center

New roof may be designed to withstand a Category 3 hurricane



Ceiling and roof photographs courtesy of the Town of South Windsor







STRATEGIES AND ACTIONS: SUCCESSES IN REGION

Parkville Fuel Cell and Microgrid - Powering School, Library, Senior Center, and Grocery Store







PROPERTY PROTECTION Parkville Fuel Cell Photo by David Murphy, 2018 Buildings of the Parkville Microgrid Photo by David Murphy, 2018

EMERGENCY SERVICES

What should your community do to reduce property damage and public expenditures from natural hazards?

What should your community do to address the negative impacts of climate change?

Please choose from 0 (strongly disagree) to 10 (strongly agree)

My community has the resources to reduce losses from natural hazards

My community has the resources to address the nagative impacts of climate change

I know where to find information about risks from natural hazards and climate change

What should your community do to keep people informed about risks from natural hazards and climate change?

Public Survey on Natural Hazards and Climate Change

CRCOG HMCAP Update 2024 (arcgis.com)



Provide comments to CRCOG staff directly mgoulet@crcog.org



What questions, comments, or thoughts do you have?



- Collect survey responses and feedback from the community
- Begin to develop the plan for the region and each community
- Work to develop strategies and actions
- Distribute drafts to communities for review
- Public meeting to present draft plan
- Submit for DEMHS and FEMA approval

Public Meeting #1

10/10/2023

- Mary described her concerns that climate adaptation and resilience efforts in the state and the
 region were dispersed and piecemeal, focusing on either smaller-scale projects or projects that
 addressed only one type of concern. She would like to see more comprehensive efforts in
 places like the Park River, which cover a larger geographic area and attempt to tackle more
 challenges at the same time. Mary also stated her belief that fostering expanded ecosystem
 services and benefits would be necessary to truly address and adapt to climate change.
- Nancy believes that more coordination among communities would help advance climate action (mitigation and adaptation). She noted that several towns in the region appeared to have climate action plans, but implementation has lagged.
- Mary cited figures about how much of the Park River watershed was in Bloomfield, engaging
 Nancy in a discussion about the importance of participation among Bloomfield staff,
 commission, and committees in the resilience efforts for the Park River. Nancy and Mary agreed
 to discuss this further outside the meeting.
- Nancy shared information about an upcoming conference / meeting to advance coordination among towns (date TBD?), and both CIRCA and CRCOG expressed interest in participating or attending, so this is an opportunity for continued engagement that FEMA might appreciate.

Saved Zoom Chat:

18:24:21 From Mary Pelletier To Everyone:

will this presentation be available as a document?

18:28:50 From Nancy Bowden she/her To Everyone:

Have we noticed that the tidal range of the CT River is moving northward or into new feeding rivers?

18:46:53 From Mary Pelletier To Everyone:

concerns: flooding and basement backups,, as well as extreme heat and humidity

18:50:13 From Nancy Bowden she/her To Everyone:

If not universal a/c, extend hours of cooling centers. Night is the most dangerous time for not being able to cool down.

18:51:24 From Mary Pelletier To Everyone:

What are working to conserve and revive the riparian zone North Branch of the Park River so as to increased connectivity.

18:53:28 From Mary Pelletier To Everyone:

no there my community does not have the resources (funding)

18:53:49 From Mary Pelletier To Everyone:

I do know where to find information about the risks

18:53:52 From Nancy Bowden she/her To Everyone:

3, 5, yes.

18:56:29 From Mary Buchanan To Everyone:

https://experience.arcgis.com/experience/ce49080668d14e6eac9f26f0d5128a0c/

18:56:44 From Nicole Govert, CIRCA To Everyone:

Nicole.govert@uconn.edu

18:56:54 From Nicole Govert, CIRCA To Everyone:

mary.buchanan@uconn.edu

18:57:14 From Nicole Govert, CIRCA To Everyone:

david.2.murphy@uconn.edu

19:00:52 From Nicole Govert, CIRCA To Everyone:

sign up for the monthly newsletter here:

https://visitor.r20.constantcontact.com/manage/optin?v=001rjHrKBojjikb41lyNcK_VDuGA85PsYunVFxw TdzNf2JKVoVE5hX3-dQe4UNVqS9P8Gu0JynHkxjgforptFZPjuuEoyy4wOz_qrQuBPXYto0%3D

19:02:07 From Nicole Govert, CIRCA To Everyone:

Register for CIRCA's Summit on Dec 1st at Hartford Law School here:

 $\underline{http://events.r20.constantcontact.com/register/event?oeidk=a07ejzroq5k02f47a78\&llr=gi9zc6sab}$

Public Meeting #2 - Notes

Andover – concerned about elderly people being the senior coordinator. Andover resident acknowledged that the town has been working to improve communications systems with updates to the website but the resident would like to see more communication with the elderly community specifically and especially during hazards.

The Hop River levels did rise over the bank but there was no flooding

18:19:03 From Cathy Palazzi, Andover To Everyone:

extreme heat

18:25:17 From Cathy Palazzi, Andover To Everyone:

droughts

18:31:49 From J Scott To Everyone:

explore and categorize methods of increasing resiliency for town buildings that offer emergency services

18:31:52 From Cathy Palazzi, Andover To Everyone:

Improve emergency services in town and review structural buildings

18:32:56 From J Scott To Everyone:

study problem areas and seek grants to address repairs/upgrades

18:33:03 From Cathy Palazzi, Andover To Everyone:

Town is working on this question so I don't feel able to anser

18:33:41 From J Scott To Everyone:

mentometer been spotty. some answers didn't post

18:34:10 From Cathy Palazzi, Andover To Everyone:

3

18:34:28 From J Scott To Everyone:

7

18:35:00 From J Scott To Everyone:

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18:35:06 From Cathy Palazzi, Andover To Everyone:

4

18:35:25 From J Scott To Everyone:

18:35:27 From Cathy Palazzi, Andover To Everyone:

3

18:36:10 From J Scott To Everyone:

town council updates

18:36:35 From J Scott To Everyone:

Rocky Hill

18:36:50 From Cathy Palazzi, Andover To Everyone:

We have announcements on cell phones when emergency and good information but know we can do much better informing those elderly people

18:39:03 From Nicole Govert, CIRCA To Everyone:

Storymap with Survey:

https://experience.arcgis.com/experience/ce49080668d14e6eac9f26f0d5128a0c/

18:39:43 From Cathy Palazzi, Andover To Everyone:

please put Maureen address in chat

18:40:04 From Mary Buchanan To Everyone:

mgoulet@crcog.org

18:43:13 From Cathy Palazzi, Andover To Everyone:

nanasworld@comcast.net

18:44:07 From J Scott To Everyone:

thanks. I'll read up on it

Equidad en Los Riegos Naturales y Gestión del Cambio Climático



Peligros tales como inundaciones, tormentas de viento y olas de calor no afectan a las personas por igual. Algunos de nuestros familiares, amigos y vecinos pueden ser desplazados, perder sus pertenencias o enfermarse debido a estos eventos. ¿Ha experimentado pérdidas o trastornos debido a peligros naturales y al cambio climático? Nos gustaría saber de usted. Su aporte será utilizado para actualizar el Plan de Mitigación de Peligros y Adaptación al Clima de la Región del Capitolio. Contáctenos a (860) 522-2217 o mgoulet@crcog.org.



Equidad en Los Riegos Naturales y Gestión del Cambio Climático



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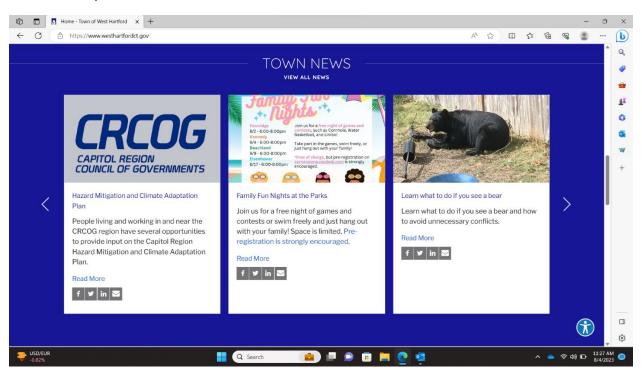


HMP Press Release Documentation

Southington, CT



West Hartford, CT





CRCOG



Manchester, CT

Regional Climate Adaptation Plans

Published on August 25, 2023

In recent months, Connecticut has been contending with the impact of flooding from storms. These storms are a strong reminder of the risks posed by natural disasters.



The Town of Manchester is currently working with the Capitol Region Council of Government (CRCOG) and the Connecticut Institute for Resilience and Climate Adaptation (CIRCA) to update the Capitol Region's Hazard Mitigation Plan along with a "Hazard Mitigation AND Climate Adaptation Plan (HMCAP)".

The plans will outline a set of actions that can be taken to reduce losses of property and life due to natural disasters like floods, severe wind events, winter storms, wildfires, droughts, extreme heat events, and earthquakes; and will outline a set of actions to reduce impacts of these events when made worse by the effects of climate change.

New Britain Herald Article

Area residents asked to take part in disaster mitigation survey | News | newbritainherald.com