

RESILIENT CONNECTICUT 2.0



Overview for Town of Chester

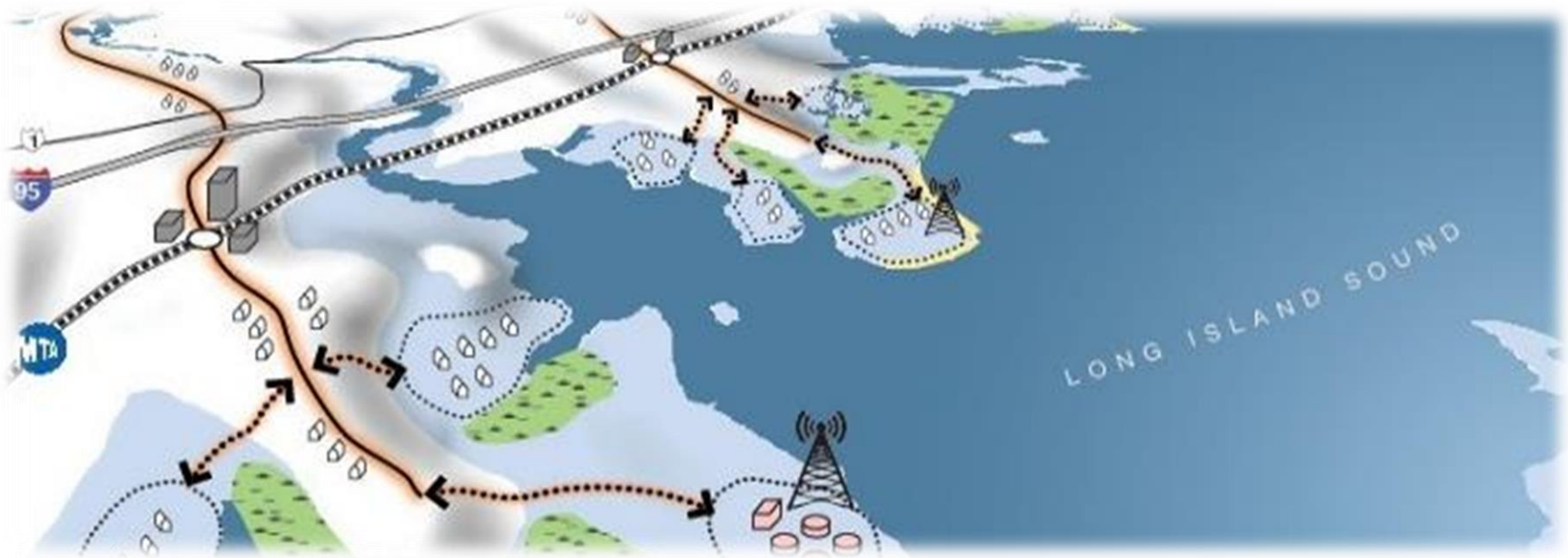
May 17, 2022

Agenda

- Review of Resilient Connecticut 1.0
- Introduction to Resilient Connecticut 2.0
- Review of Zones of Shared Risk
- Review of Hazard Mitigation Plan Actions
- Open Discussion
- Wrap-Up

Review of Resilient Connecticut 1.0

- **Resilient Connecticut 1.0** originated from a successful State application to the National Disaster Resilience Competition (NDRC) several years ago

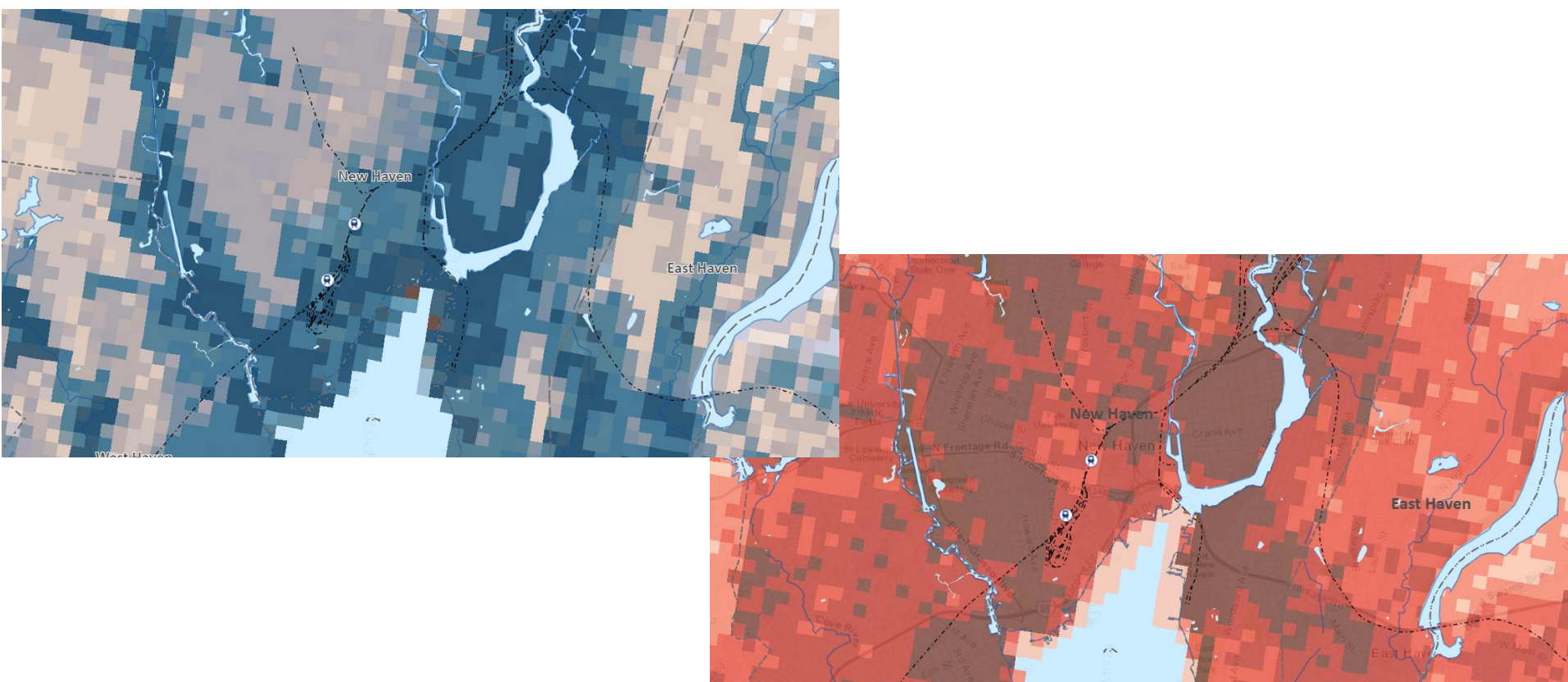


Review of Resilient Connecticut 1.0

- Originally called the “Connecticut Connections Coastal Resilience Plan,” the planning effort evolved to focus on climate drivers of **flood** and **extreme heat** hazards throughout Fairfield County and New Haven County
- Transit oriented development (TOD), affordable housing, critical infrastructure, and key assets were emphasized in the planning process
- The planning phase is ending, and CIRCA is shifting into the study and concept design phase for Fairfield County and New Haven County

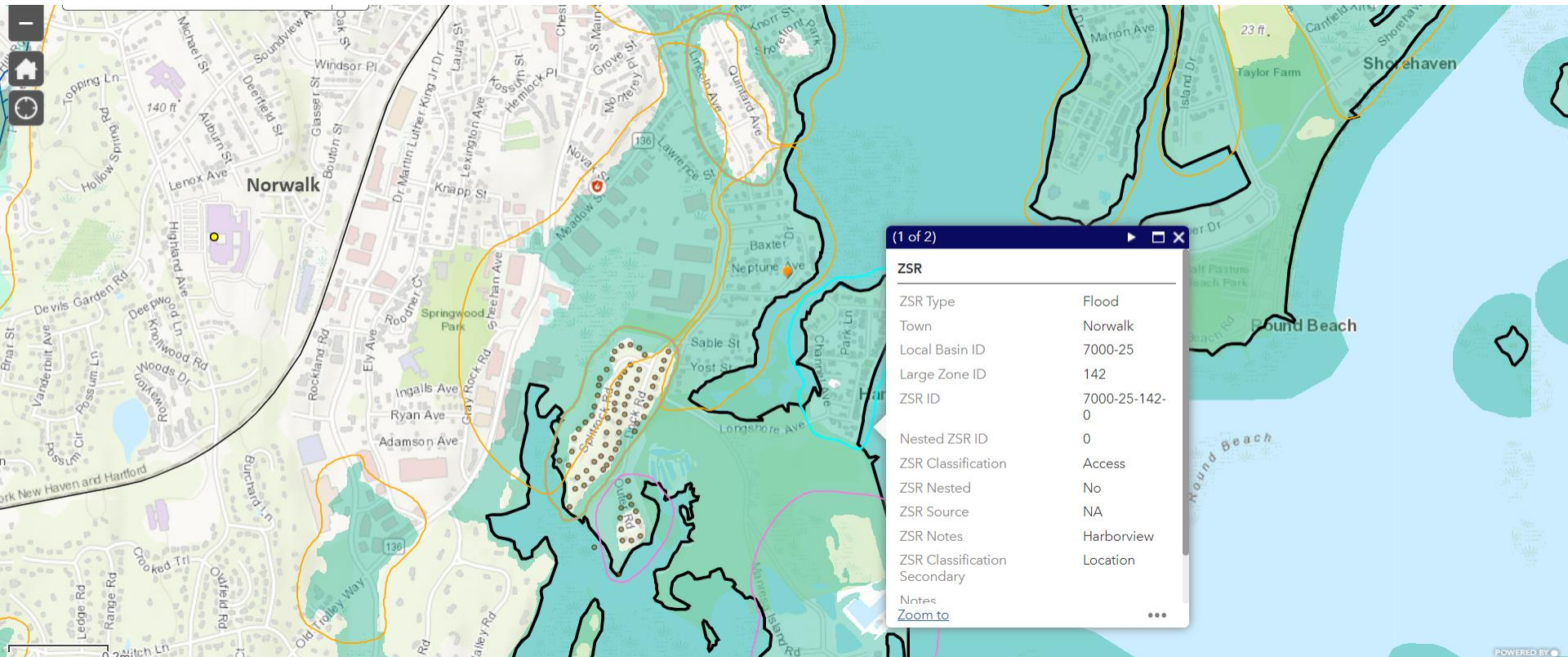
What Resulted from Resilient CT 1.0?

- Climate Change Vulnerability Index (CCVI)



What Resulted from Resilient CT 1.0?

- Zones of Shared Risk



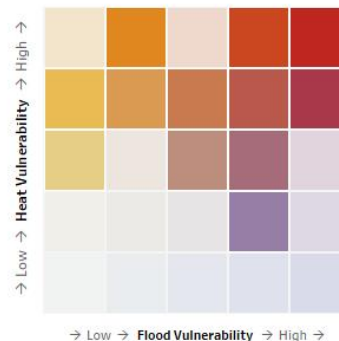
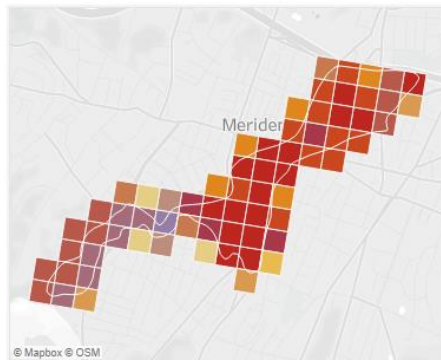
What Resulted from Resilient CT 1.0?

- Identification of Challenges that are Opportunities

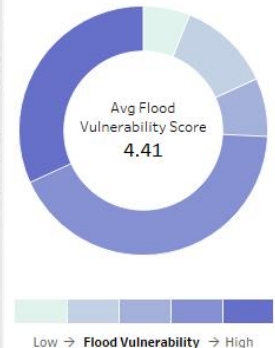
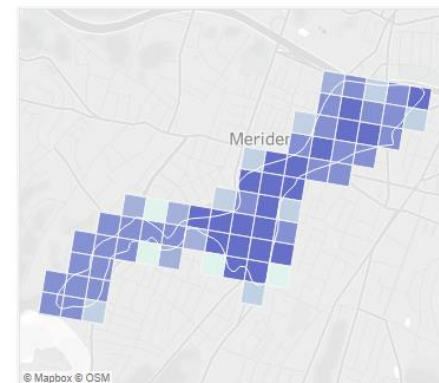
Zone of Shared Risk:
5206-00-249-0
Town: **Meriden**
Type: **Flood,**
Proximity



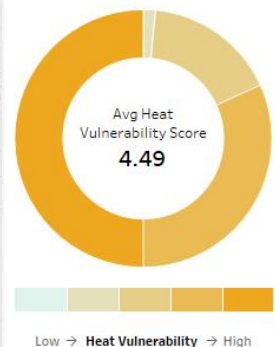
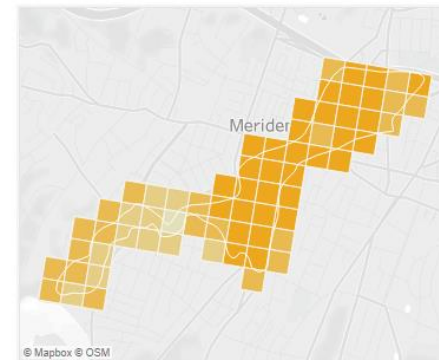
Combined Vulnerability



Flood Vulnerability



Heat Vulnerability



What Resulted from Resilient CT 1.0?

- Identification of Challenges that are Opportunities

Resilient Connecticut Phase II Regional Adaptation/Resilience Opportunity Areas

Name: Downtown Meriden
Location: Meriden

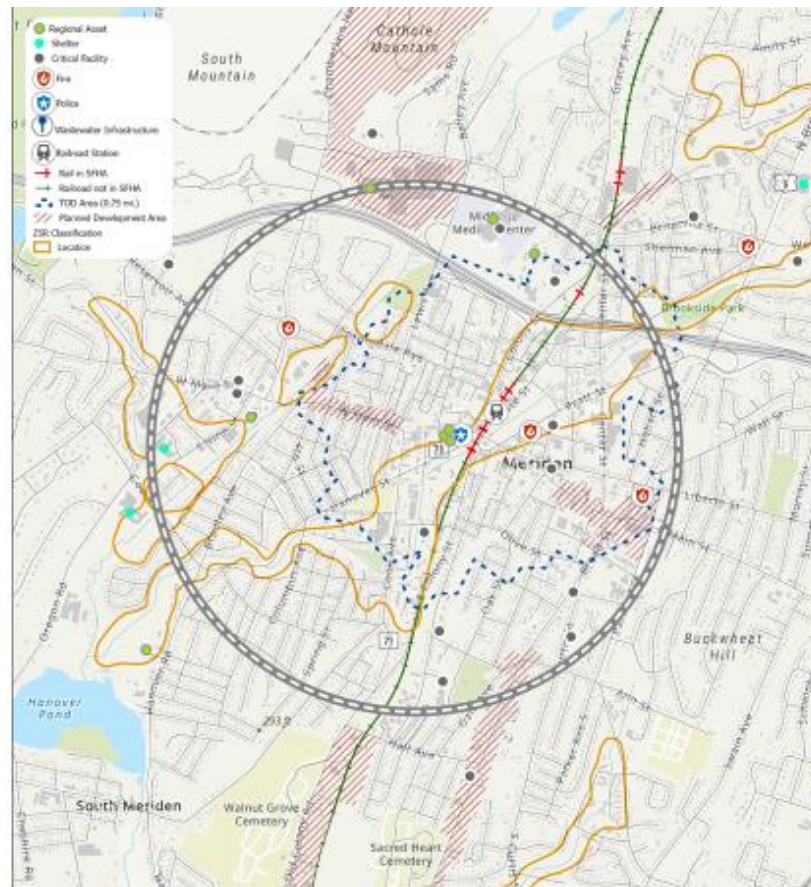
Considerations	Characteristics of Area
Flood Vulnerability	<div><div></div><div></div><div></div><div></div><div></div></div>
Heat Vulnerability	<div><div></div><div></div><div></div><div></div><div></div></div>
Social Vulnerability	<div><div></div><div></div><div></div><div></div><div></div></div>

Critical facilities, historic resources, major transportation routes, and TOD intersect in downtown Meriden within the Harbor Brook zone of shared risk. The City of Meriden has already undertaken major flood risk reduction projects in this area, including the Meriden Green – a significant greenspace that doubles as a restored floodplain and provides a major public amenity to the city and the region. The City has additional opportunities to incorporate resilience into many redevelopment projects. There is strong heat related social sensitivity in the Meriden area, in addition to dense development, high amounts of impervious, and only few areas to provide ample shade.

City Hall
Eversource gas facility
Engine co. 1, 2, and 3
Hunters Ambulance
Police Department

Mid State Medical center
Muravnik senior Center
Lincoln Middle School
Museums

UConn
UNIVERSITY OF CONNECTICUT

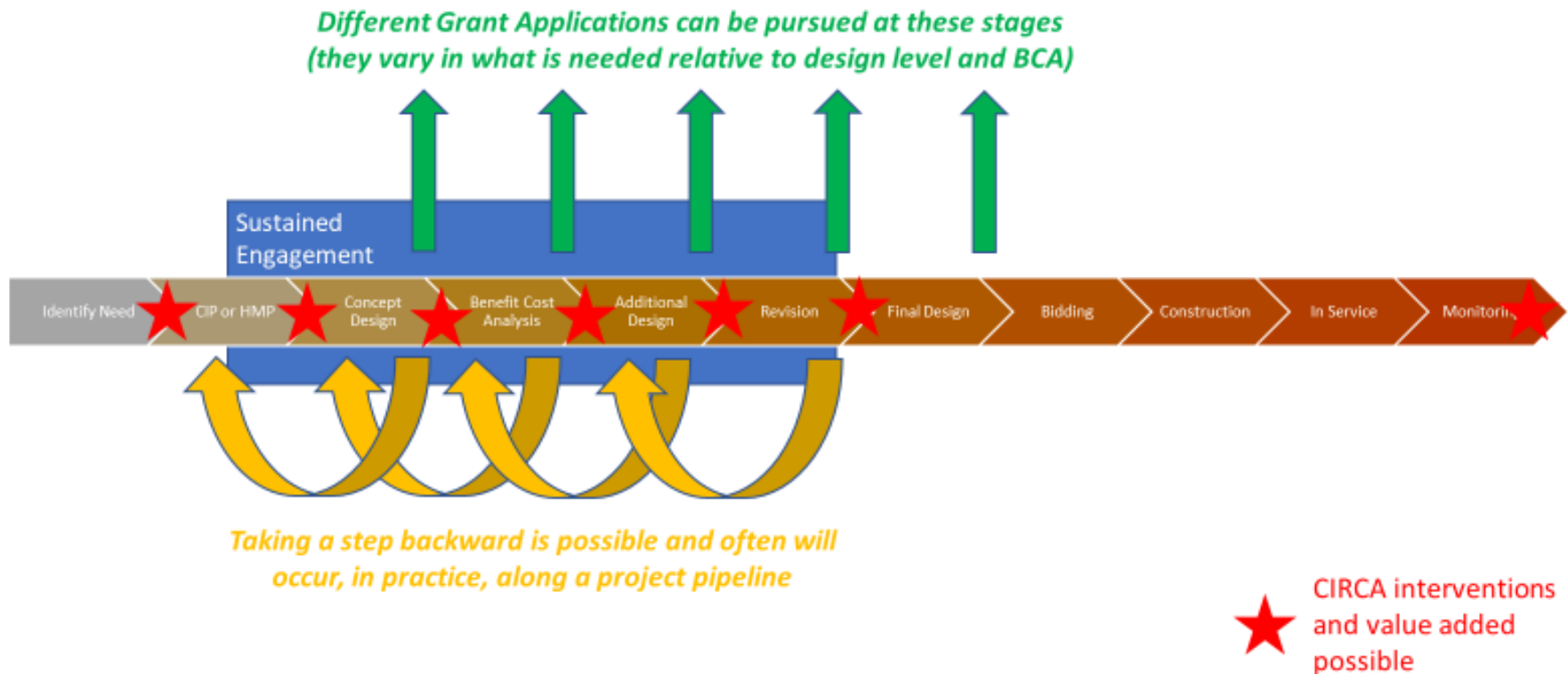


What Resulted from Resilient CT 1.0?

- Recommended Climate Adaptation & Resilience Projects
 - Danbury - Flood mitigation through stream daylighting and identification of cooling center
 - Norwalk - Resilient corridors and heat mitigation in South Norwalk
 - Fairfield - Addressing flooding railroad underpasses and advancing green infrastructure
 - Stratford - Re-envisioning flood solutions for the South End
 - Ansonia - TOD connectivity across river and heat mitigation
 - Branford - Using railroad grade for flood protection
 - New Haven - Egress through areas of flood risk and heat mitigation for Fair Haven

What Resulted from Resilient CT 1.0?

- A recognition of the *Resilience Project Pipeline*



Introduction to Resilient Connecticut 2.0

- ***Resilient Connecticut 2.0*** is being deployed using State funds
- Timeframe is 2022-2023
- The CCVI will be expanded statewide
- Focused planning will include the RiverCOG, CRCOG, and SCCOG regions for:
 - Technical assistance for various challenges
 - Delineation of Zones of Shared Risk
 - Review of Flood Vulnerability Study and Hazard Mitigation Plan to help with identification of resilience opportunity areas

Resilient Connecticut 2.0

- Leverage Your Hazard Mitigation Plan
 - What can we pick up, advance, or re-cast?
- Find Complex Climate Adaptation and Resilience Projects
 - Flood mitigation
 - Erosion mitigation
 - Extreme heat
 - Combinations
- Be Flexible
 - We are no longer tied to TOD, affordable housing, and critical infrastructure ideas
 - What is important in the Lower Connecticut River region?

Resilient Connecticut 2.0

- ***What do we mean by technical assistance for various challenges?***
 - Essex: Ferry Street Flood Frequency Analysis
 - Old Saybrook: Fenwick Living Shoreline

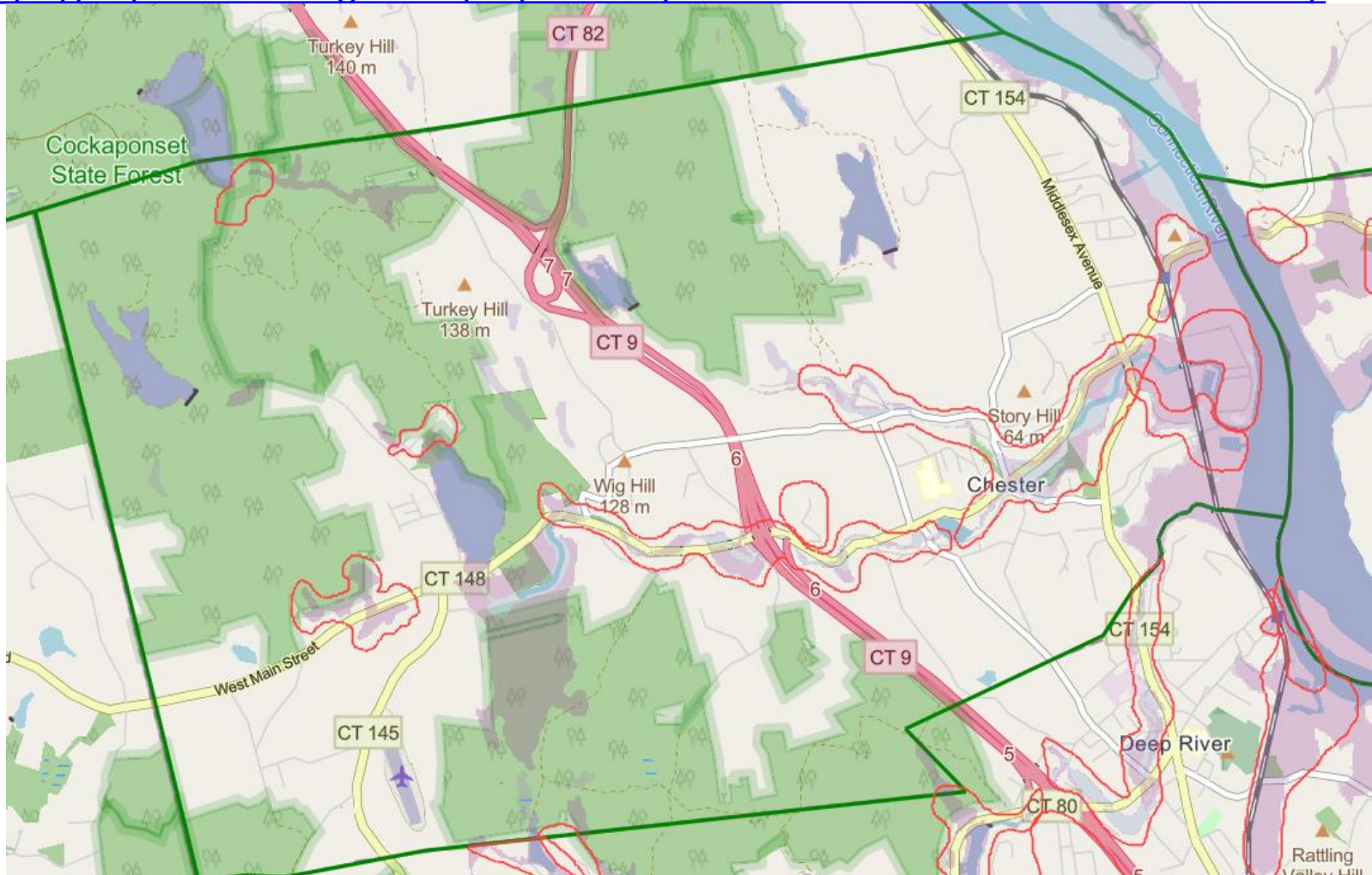


Review of Zones of Shared Risk

- Seven Types of Flood and Erosion-Based ZSRs
 - Location
 - Proximity
 - Access
 - Natural Systems
 - Underpasses
 - Single Point
 - Sewershed
 - Resources for Mapping
 - FEMA maps (**new work maps to be issued late 2022**)
 - RiverCOG Flood Vulnerability Assessment
 - RiverCOG Hazard Mitigation Plan
- Original types piloted in Guilford Resilience Plan
- Added in Resilient Connecticut 1.0
- Additional Potential Typologies for 2.0

ZSR Viewer

<https://experience.arcgis.com/experience/9a4f68dd99f44dc58b93fd85bcfe1255/>



Review of Hazard Mitigation Plan Actions

- The planning process was in 2019-2020
- DEMHS and FEMA review was 2020-2021
- Plan approved in spring 2021
- Chester listed 23 actions
- We will review each to comment on the status and note:
 - Applicability to address climate drivers of flooding and extreme heat
 - Applicability for the State's resilient project pipeline

Review of Hazard Mitigation Plan Actions

Activity #	Goal/Objective	Activity Description	Lead Agency	Est. Cost*	Potential Funding Sources	Timeframe	Hazard (s) Addressed	STAPLEE Score/Priority	Status	Potential for Climate Adaptation/ Resilience Characteristics
1	2-1	Conduct a study to assess the extent to which the dredging of impoundments in Chester is feasible, would increase the floodwater storage capacity of the impoundments, and would reduce flood risks for the community.	DPW, ConCom	\$10,000-\$25,000	OB Grant	7/2023 – 6/2024	F, CC	6/H		High; increasing floods should be considered.
2	3-1	Work with an organization such as Trout Unlimited, American Rivers, the Connecticut River Conservancy, CT DEEP to identify dams in Town that may benefit from removal and approach their owners to offer facilitation of that removal.	DPW, ConCom	\$10,000-\$25,000	OB Staff Time	7/2022 – 6/2024	F	5/H		Medium; depends on if dam removal will lower water levels in flood-prone areas
3	2-1	Conduct a comprehensive needs assessment of dams in Chester to guide risk mitigation actions and grant applications moving forward	DPW	\$10,000-\$25,000	OB Grant	7/2022 – 6/2024	F	5/H		Low
4	1-1	Increase the “look back” period for the definition of “Substantial Damage” in the Chester zoning regulations so that cumulative damages to flood-prone properties will trigger requirements for mitigative action.	P&Z	\$0-\$1,000	OB Staff Time	7/2021 – 6/2023	F	4/M		High
5	1-1	Institute a program to incentivize landlords to invest in risk-reduction measures that will benefit their commercial or residential tenants (for example, permit fees for mitigation measures could be waved).	Select Board P&Z	\$0-\$10,000	OB Staff Time	7/2021 – 6/2023	SW, TW, WS, F, E	6/M		Low
6	1-1	Complete a Hazard Mitigation Assistance (HMA) grant application to elevate Dock Road.	DPW	\$50,000-\$100,000	Grant HMA	7/2021 – 6/2024	F, CC	8/H		TBD

Review of Hazard Mitigation Plan Actions

Activity #	Goal/Objective	Activity Description	Lead Agency	Est. Cost*	Potential Funding Sources	Timeframe	Hazard (s) Addressed	STAPLEE Score/Priority	Status	Potential for Climate Adaptation/Resilience Characteristics
7	2-1	Install an underground water tank in the Cedar Lake area to provide firefighting water.	DPW, FD	\$20,000-\$50,000	OB Grant	7/2021 – 6/2023	WF, D	7/H		Medium
8	2-1	Conduct a study to identify needs and alternatives with regard to wildland firefighting capabilities at the Inspiration lane commercial and industrial park.	FD	\$1,000-\$5,000	OB	7/2023 – 6/2025	WF	3/L		Medium
9	1-1	Require all facilities housing large populations of higher-risk individuals (such as nursing and independent living institutions) to submit a natural hazard response plan to the Town. Assign a department to review and approve these plans.	EMD	\$1,000 - \$5,000	OB Staff Time	7/2021 – 6/2023	SW, TW, WS, F	4/H		Medium; depends on specific needs
10	2-1	Complete restoration and stabilization of Chester Creek at North Main and High Street	ConCom, DPW, P&Z	\$25,000-\$50,000	Grant HMA	7/2022 – 6/2023	F	11/H		High; increasing floods should be considered.
11	2-1	Conduct an alternatives analysis to identify measures for restoring natural flows and stabilizing banks of Chester Creek at Deep Hollow and Liberty Road. Include CT DEEP, USACE, and other stakeholders in the process as appropriate.	ConCom, DPW, P&Z	\$20,000 - \$25,000	OB Grant	7/2021 – 6/2024	F	10/H		High; increasing floods should be considered.
12	2-1	Develop a prioritized list of undersized culverts to be replaced with larger structures to facilitate passage of debris and rubble.	DPW	\$5,000-\$10,000	OB	7/2021 – 6/2022	F	6/H		High; increasing floods should be considered.

Review of Hazard Mitigation Plan Actions

Activity #	Goal/Objective	Activity Description	Lead Agency	Est. Cost*	Potential Funding Sources	Timeframe	Hazard (s) Addressed	STAPLEE Score/Priority	Status	Potential for Climate Adaptation/ Resilience Characteristics
13	2-1	Replace priority undersized culverts with larger structures to facilitate passage of debris and rubble. At the time of development of this hazard mitigation plan, the Town had identified six culverts restricted by rocks and rubble.	DPW	\$25,000-\$50,000	Grant HMA	7/2022 – 6/2025	F	10/H		High; increasing floods should be considered.
14	3-1	Work with local businesses and the Middlesex County Chamber of Commerce to explore options for reducing risks to businesses in Chester. This may include assisting businesses to develop business continuity plans.	P&Z, EMD, EDC	\$0-\$1,000	OB	7/2022 – 6/2025	SW, WS, TW, F, CC	4/M		Medium; depends on specific needs
15	3-1	Provide guidance to local businesses on hazard and risk mitigation options accessible to them.	P&Z, EMD, EDC	\$0-\$1,000	OB	7/2023 – 6/2025	SW, WS, TW, F, CC	4/M		Medium; depends on specific needs
16	3-1	Conduct a direct outreach campaign to owners of Repetitive Loss and Severe Repetitive Loss properties informing them of mitigation options including elevation, relocation, and acquisition. Include information about funding and technical assistance from municipal, state, and federal sources.	Select Board, P&Z, EMD	\$1,000-\$5,000	OB Grant HMA	7/2021 – 6/2025	F	6/H		High; multiple strategies will be necessary in light of increasing floods
17	3-1	Develop a written annual schedule for natural hazard public education and outreach efforts through the Town website, social media outlets, mailers, in-person outlets, neighborhood associations, and other media, to ensure consistent and long-term public education programs. Education should include information on sheltering locations, private property owner mitigation action options, techniques for homeowner self-inspection, hazard insurance, and geographic distributions of natural hazard risk zones in Town.	Select Board, EMD	\$5,000 - \$10,000	OB	7/2021 – 6/2023	SW, TW, ET, WS, F, TI, WF, D, E, CC	4/M		High
18	2-1	Upgrade or install generators at critical facilities in need of emergency power, including future municipal buildings.	EMD, DPW	\$50,000 - \$100,000	Grant HMA	7/2021 – 6/2025	SW, TW, WS, F	7/H		Medium to High; depends if shelters and/or cooling centers.

Review of Hazard Mitigation Plan Actions

Activity #	Goal/Objective	Activity Description	Lead Agency	Est. Cost*	Potential Funding Sources	Timeframe	Hazard (s) Addressed	STAPLEE Score/Priority	Status	Potential for Climate Adaptation/ Resilience Characteristics
19	2-1	Install a generator for back-up power at the Public Works Garage.	DPW	\$50,000 - \$100,000	Grant HMA	7/2022 – 6/2023	SW, TW, WS, F	7/H		Medium to High; depends if shelter and/or cooling center.
20	3-1	Conduct a campaign to inform Chester residents that are elderly, disabled, non-English speakers, or have other functional needs, about the Town's protocols for hazard alerts and communication. Work with these populations to identify needs and gaps in the protocols.	SS, PH	\$0 - \$1,000	OB	7/2021 – 6/2022	SW, TW, ET, WS, F, TI, WF, D, E, CC	3/L		High; the need to understand these protocols will likely increase as flooding increases
21	2-1	Paper Records Preservation – Convert all paper records maintained by the municipality to electronic format, consistent with State recommendations, to ensure their survival. Establish protocols for practice going forward	Select Board	\$5,000	OB	2025	All	2/L		Low
22	1-1	Drought Study and Water Conservation – Conduct town-wide study of ground and surface water capacity as it relates to planning for droughts. Develop recommendations for future land use to include recharge and site design to encourage water conservation.	ConCom	\$25,000	OB, USDA Grant	2025	DR	3/L		Medium
23	1-1	Structural Reports – Continue to require structural engineering reports for expansion or alteration of buildings within the V-Zone. Evaluate benefits of doing same in other flood zones.	P&Z	Staff Time	OB	2021-2025	FL	5/M		Low; this is underway

Open Discussion

- Where do you see intersections of community assets and flood-related challenges?
- Where do you see intersections of community assets and extreme heat-related challenges?
- Does Chester have examples of unique climate driver typologies and challenges?
- If so, could they lead to either:
 - Limited technical assistance (i.e., Essex Ferry Street)
 - The State's Resilience Project Pipeline

Wrap-Up

- Designate someone
 - To be the primary contact for coordination and meetings
- Maintain a local planning team
 - Planning/Land Use
 - Public Works
 - Emergency Management (if interested)
- Let us know what else is going on
 - Engagement with Sea Grant, DEEP/GC3, Sustainable CT, etc.
 - Applications for funding from FEMA, NFWF, LISS



QUESTIONS?

David Murphy, PE, CFM
david.2.murphy@uconn.edu

Mary Buchanan, PhD
mary.buchanan@uconn.edu