RESILIENT CONNECTICUT 2.0



Overview for Town of Killingworth April 19, 2022







- 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 has ended, and CIRCA is shifting into the study and concept design phase for Fairfield County and New Haven County





• Climate Change Vulnerability Index (CCVI)









• Zones of Shared Risk

Doping Ln Roman Deelle & Sunder	Glasser I St M urbn Sr In Lutter King Jr Dr Anglor Are Me of SM Me of SM	100 Lotting	Manon Ave	23 fr. Car Shothaven
Hollo ^a Lenox Ave Norwal	lik Krapp St	Baxter (1 of 2)		
De vils Garden Rd De vils Garden Peephood De vils Garden Peephood De vils Garden Rd E vilood Rd	February Rd Ely Ave back of Streetan A	Sable St Yost St	Flood Norwalk in ID 7000-25 ne ID 142	Pound Beach
Road Van	Ryan Ave	Lordshore N ¹⁶ A Start ZSR ID Nested ZS	7000-25-142- 0 SR ID 0 ification Access	8 Beach
k New Haven and Hamon		ZSR Neste ZSR Sourc ZSR Note ZSR Olass	ed No Second No No Second NA Second NA Second Harborview	
Ledge Rd Pange Rd Pange Rd	Contraction of the second	Secondar Notes Zoom to	y	





• 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







• Identification of Challenges that are Opportunities

Name: Downtow Location: Meride	n Meriden n
Considerations	Characteristics of Area
Flood Vulnerability	$\bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc$
Heat Vulnerability	$\bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc$
Social Vulnerability	$\bigcirc \bigcirc $
Critical facilities, historic r and TOD intersect in dow	esources, major transportation routes, ntown Meriden within the Harbor Brook







- 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; heat mitigation
 - Branford Using railroad grade for flood protection
 - New Haven Egress through areas of flood risk and heat mitigation for Fair Haven





• A recognition of the *Resilience Project Pipeline*



UCONN



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



UCONN



Review of Zones of Shared Risk

- Seven Types of Flood and Erosion-Based ZSRs
 - Location
 - Proximity
 - Access
 - Natural Systems
 - Underpasses
 - Single Point
 - Sewershed

- Original types piloted in Guilford Resilience Plan
- Added in Resilient Connecticut 1.0
- Additional Potential Typologies for 2.0
- Resources for Mapping
 - FEMA maps (new work maps to be issued late 2022)
 - RiverCOG Flood Vulnerability Assessment
 - RiverCOG Hazard Mitigation Plan

UCONN



ZSR Viewer

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







- The planning process was in 2019-2020
- DEMHS and FEMA review was 2020-2021
- Plan approved in spring 2021
- Killingworth listed 17 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

UCONN



Activity #	Goal/Objecti ve	Activity Description	Lead Agency	Est. Cost*	Potential Funding Sources	Timeframe	Hazard (s) Addressed	StapleE Score/Priority	Status	Potential for Climate Adaptation and Resilience Characteristics
1	3-1	Explore and identify tools and technologies to spot and locate remote forest fires more quickly and accurately (for example, unmanned aerial vehicles [UAV, or drone], remote-operated camera systems, networks of sensors [such as "FireBug" or "LALI"], or cameras with thermal imaging)	FD	\$5,000 - \$10,000	OB	7/2021 - 6/2022	TI, WF, D, CC	8/H		Medium
2	2-1	Acquire all-terrain firefighting equipment to access remote wildland fires	FD	\$50,000 - \$100,000	CIP	7/2022 - 6/2025	TI, WF, D, CC	9/H		Medium
3	1-1	Develop a forest management plan that includes a study of access to potential remote wildland fires. Study should identify the best routes and prioritize roads for widening or other improvements to allow access.	Con Co m, FD	\$10,000 - \$25,000	OB Grant	7/2021 - 6/2022	TI, WF, D, CC	5/H		Medium
4	2-1	Upgrade the Haddam-Killingworth Middle School generator to allow it to provide full power to the facility kitchen in addition to the rest of the building.	DP W, EM D, BOE	\$50,000- \$100,000	Grant HMA	7/2022 - 6/2024	SW, TW, ET, WS, F, E	7/ M		Medium; depends if school will be used as a shelter/ cooling center
5	1-1	Review the disaster event response planning of local schools to ensure they are up to date.	EM D, BOE	\$1,000- \$5,000	OB Staff Time	7/2021 - 6/2022	SW, TW, ET, WS, F, WF, E	7/H		Low

Activity #	Goal/Objective	Activity Description	Lead Agency	Est. Cost*	Potential Funding Sources	Timeframe for Completion	Hazard (s) Addressed	STAPLEE Score/Priority	Status	Potential for Climate Adaptation / Resilience Characterist ics
6	2-1	Complete road and drainage repair projects to mitigate flooding on Emmanuel Church Road	DPW	\$100,00 0+	CIP Grant HMA	7/2023 – 6/2025	SW, F, CC	8/H		High
7	2-1	Complete road and drainage repair projects to mitigate flooding on Bethke Road	DPW	\$100,00 0+	CIP Grant HMA	7/2023 – 6/2025	SW, F, CC	8/H		High
8	2-1	Complete road and drainage repair projects to mitigate flooding on Roast Meat Hill Road	DPW	\$100,00 0+	CIP Grant HMA	7/2023 – 6/2025	SW, F, CC	8/H		High
9	2-1	Conduct a hydraulic study of all culverts and bridges on public roads in Town to guide upgrading of undersized infrastructure	DPW, P&Z	\$50,000- \$100,00 0	OB Grant HMA	7/2021 – 6/2023	SW, F, CC	8/H		High
10	2-1	Implement mapping and monitoring of catch basins, storm water outfalls, and related infrastructure, and incorporate map files into the municipal GIS system	DPW	\$10,000- \$25,000	OB Grant HMA	7/2021 – 6/2023	SW, F, CC	8/H		High
11	2-1	Explore options for selling wood scraps generated by tree and limb removal along powerlines to help fund tree maintenance and trimming efforts.	DPW	\$1,000- \$5,000	OB Staff Time	7/2021 – 6/2022	SW, TW, WS, TI, CC	5/M		Low
12	3-1	Review the University of Connecticut Stormwise Vegetation management Program to determine whether it is appropriate for Killingworth.	DPW	\$1,000- \$5,000	OB Staff Time	7/2021 – 6/2022	SW, TW, WS, TI, CC	5/M		Low
13	3-1	Implement a public education initiative that includes handouts or pamphlets instructing homeowners on what to look for around their properties that may put their homes at risk, such as trees or branches over power lines, brush and debris close to the structure, the presence of dead trees, etc.	DPW, EMD	\$5,000- \$10,000	OB Staff Time	7/2021 – 6/2022	SW, TW, WS, TI, CC	8/H		Medium

Activity #	Goal/Objective	Activity Description	Lead Agency	Est. Cost*	Potential Funding Sources	Timeframe	Hazard (s) Addressed	STAPLEE Score/Priority	Status	Potential for Climate Adaptation and Resilience Characteristics
14	3-1	Work with Jensen's to encourage renters living in trailers and mobile homes to install building tie-downs to mitigate potential damage due to high winds. This encouragement could be completed through public outreach and education.	P&Z	\$1,000- \$5,000	OB Staff Time	7/2021 – 6/2024	SW, TW, WS, CC	8/H		Medium
15	3-1	Use Town website and social media accounts to educate the public about municipal hazard mitigation initiatives. Include maps of evacuation routes, storm surge areas, and shelters. Include options for mitigation of residential structures and business recovery and provide links to FEMA, NOAA, State OEM and RiverCOG websites for additional information.	EMD	\$1,000- \$5,000	OB Staff Time	7/2021 – 6/2022	SW, TW, WS, F, CC	8/H		Low
16	2-1	Develop a priority list for road reconstruction and elevation for roads which experience frequent flooding or are integral to evacuation. This includes bridges and culverts in need of upgrading or replacing. Work with CT DOT to encourage upgrades of State Roads and Bridges.	DPW	Low- Mod	OB Staff Time	7/2023 – 6/2025	SW, TW, WS, F, CC	6/M		High
17	2-1	Implement an ordinance requiring newly installed generators to be kept a certain distance from buildings.	P&Z	\$1,000- \$5,000	OB, Staff Time	2021	All	3/M		Low

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 Killingworth 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



