Resilient Connecticut – 2nd Annual Summit Progress Report

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Resilient Connecticut

- Coastal Flood Defense System
  - Resilience Center
  - Energy Study
  - Floodplain Design Guidelines

- Regional Resilience Planning
- Technical Support & Capacity Building
- Pilot Projects in Fairfield & New Haven Counties
Long-term Vision for Establishing Resilient Communities

• Focus community development around transit (resilient TOD)
• Create corridors resilient to climate change (resilient corridors)
• Create opportunities for affordable housing, preserving and enhancing the quality of life for existing affordable communities
• Develop energy, economic, and social resilience
• Increase transit connectivity
• Adapt structures and critical infrastructure in the flood zone to withstand occasional flooding
• Protect communities through healthy buffering ecosystems, where critical services, infrastructure, and transport hubs are located on safer, higher ground, and where strong connections exist between the two
Resilient Connecticut

Planning
- Resilient Connecticut Planning Framework
- Regional Resilience Planning
- Implementation Planning for Pilot Projects

Technical Support
- Flood Risk and Vulnerability Assessment
- Climate Impact Modeling
- Adaptation Option Evaluation & Data Collection

Capacity Building
- Applied Field Research
- Climate Impacts to Public Health in CT
- Economics & Cost/Benefit Development
- Legal & Policy Recommendations

Engagement
- Resilient Connecticut Annual Summit
- Monthly Webinar Series
- Resilient Connecticut Collaborative and Working Groups
- Workshop Series
**CTDOH**
- Project sponsor and manager of NDR
- Provides coordination and lessons learned from Resilient Bridgeport and RBD

**SAFR: State Agency Workgroup**
- Overall project advisory committee to Resilient Bridgeport and Resilient Connecticut
- Provides state agency support for data and projects
- Will advise on final selection of pilot projects in Phase III

**Resilient Connecticut Collaborative**
- Broad regional stakeholder group
- Advise on the development of prioritization criteria
- Review vulnerability assessment
- Make recommendations on the selection of regional resilience opportunities
- Provide coordination and expertise for stakeholder interests
- Advise on development of toolkit

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**CIRCA**
- Manages Resilient Connecticut Project
- Provide flood modeling results (SLR, precip.)
- Provide coastal vulnerability index and other assessment data as needed
- Provide field research data to inform adaptation options for resilience opportunities
- Develop resilience tool kit and resources for municipalities
- Provide workshops and engagement opportunities (e.g. annual summits, training, webinars)

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**Naugatuck Valley COG**
- Incorporate existing data on vulnerabilities and previously identified projects
- Assist in developing new data layers
- Support engagement with municipalities and stakeholders in COG regions

**West COG**
- Will pull together vulnerability data from COGS, CIRCA, and additional data as needed
- Will synthesize regional vulnerability assessment and incorporate CIRCA field research data
- Develop Climate Vulnerability Assessment
- Will manage regional public workshops
- Provide cost/benefit framework and make recommendations on pilot projects

**Metro COG**
**South Central COG**
**MMI, Dewberry**
Phase II: January 2020 – July 2021
- Regional Analysis
- Regional Engagement

Phase III: May 2021 – May 2022
- Develop Pilot Projects
- Implementation Planning

*UConn lead team
Research Progress

CIRCA Research
• Integrated flood modeling
• Vulnerability assessment

Capacity Building
• Hydrology modeling
• Heat vulnerability
• Transit oriented development
• Climate Policy
Based on recent CIRCA research, how much do we expect sea-level rise to increase along the coast in Connecticut by 2050?
Integrated flood modeling – LIS model

Connecticut Coastal Towns Storm Annual Exceedance Probability/Return Interval Viewer

This viewer presents the projected storm surge water levels and significant wave heights, which may contribute to a better understanding of extreme storms to guide decision-makers. The anticipated sea level of 20 inches by 2050 can be added to the different flood scenarios. More information on the methodology is presented in the Documents.

To use the viewer, please click on the drop-down menu to chose the town. Different projections of storm surge and significant wave height projections will activate automatically for different towns. The user can compare different towns by Add Town option.

To navigate through the drop-down viewer, please use MUNICIPAL STORM SURGE AND SIGNIFICANT WAVE HEIGHT LEVEL WORKSHEET.
### Data Description and Usage

The results presented here are the modeled storm surge water levels using coupled coastal circulation and wave model (FVCOM-SWAVE, finite-volume coastal ocean model with the version of the Simulating Wave Nearshore) to hindcast the 44 highest storms between 1950-2018. The floodwater elevation for the different annual exceedance...
What we experience today as a 1% annual chance or “100-year storm” surge, will occur much more frequently, ~ 20% annual chance or “5-year storm”
• Storm surge raster maps available (with 1 m depth resolution)
  • 10 yr
  • 30 yr
  • 100 yr
  • 500 yr
  • SLR scenarios: 20 inc, 4 ft, 7 ft
Coastal Vulnerability

coastal vulnerability index

Variables

Bio-physical and Socio-economic parameters

Vulnerability Index

Milford Coastal Vulnerability Map
Flood maps—Lifelines

Flooded lifelines categorized under which flooding scenarios will impact them
Based on recent UConn research, by 2050 the number of days above 90 degrees will increase from 5 days on average to what?
Identifying the Change in Heat Vulnerability and Land-use Influence

- Utilizing the local climate zones (LCZ) classification current land cover types and how they relate to surface temperature variations

- Heat vulnerability index considering exposure, sensitivity and adaptive capacity
More on Capacity Building Research

Transit Oriented Development

• Geodatabase creation of land use, size, use, and configuration of the existing transit services
• Assessment of obstacles and potential on TODs, structured interviews with government leaders, transit providers, and citizen activists

Legal Fellow – Policy Research

• Reviewing case law and legal precedents to identify barriers or pathways to adaptation actions
• Gather information from stakeholders on policy priorities.
• Research and, if appropriate, suggest legal structures to foster resiliency
Resilient Connecticut Phase II Planning

Planning team - Milone & MacBroom/Dewberry, CIRCA, West, Metro, Naugatuck Valley, and South Central COGs

- Regional Analysis
- Regional Engagement

Legend
- County Boundary
- Primary Roads
- Railways
- Watershed

- Transportation
- Energy
- Ecology
- Water
- Housing
- Health*
- Economy*

- Zones of shared risk
- Resilience Corridors
- Opportunistic projects
- Hot spots/priority zones
- Affordable housing
- Wastewater, stormwater, drinking water
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Phase II

From Data to Resilient Adaptation Projects
Ongoing Stakeholder Engagement

• Climate and Public Health webinar series
• DPH/CIRCA Survey deployed September 2, close October 2, on cooling station best practices
• Upcoming regional workshops in January and April 2021
• GIS coordination meetings w/COGs in 2-week intervals, cycling through data types
GC3 and Resilient Connecticut Coordination

- Resilient Connecticut team interested in identifying and piloting approaches in our project area that would help to move specific issues forward for GC3.
  - E.g. vulnerability assessment of state assets, operations, infrastructure, etc.
  - Approach can be developed in RC project area in 2021 and expanded 2022

- Identify areas where other organizations or working groups have done work or will do so under EO3.
  - Prevent duplication of effort
  - We’d like to incorporate that work into our planning process to improve the outcomes for stakeholders.

- Areas of collaboration
  - Infrastructure and Land Use Working Group
  - Financing Resilience Working Group
  - Science and Technology Working Group
  - Public Health and Safety Working Group
Thank You!

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