WHAT IS “RESILIENT DANBURY”?

STRATEGY
The Mayor is leading an initiative with the Departments of Emergency Management, Engineering, Public Works, health organizations, and the community to develop strategy and actions.

PILOT PROJECT
• Current project in the East Ditch Watershed to reduce flooding and heat risk.
• Implemented by the City, UCONN CIRCA, and the consultant team.

This pilot project is one of many projects being developed by the City as they prepare for future conditions.
MEETING AGENDA

Welcome and Introduction 15 mins

Background 25 mins
  - How did we get here
  - Path toward resilience

PATH TOWARD RESILIENCE – breakout stations 60 mins
  - Green Main Street – What are GI Solutions?
  - Flooding – We can fight back!
  - What about Heat?
  - Going for a Walk
  - Survey

Sum It Up 35 mins
  - Summary of feedback from Stations
  - Question and Answer
INTRODUCTIONS

Project Team

- CIRCA
  - David Murphy – Director of Resilience Engineering
  - John Truscinski – Director of Resilience Planning

- City of Danbury
  - Matt Cassavechia – Director of Emergency Management and Emergency Medical Services
  - Antonio Iadarola – Director of Public Works / City Engineer

- Consultant Team
  - Fuss & O’Neill
  - Dewberry

- Citizen and Technical Advisory Committee (CTAC)

- The Community
Citizen and Technic AC MEMBERS

- Cpt Thomas Corbett: Community Emergency Response Team, Team Coordinator
- Sharon B. Calitro, AICP: City of Danbury Planning and Zoning, Director
- Susan M. Tomanio: City of Danbury Elderly Services, Director
- Kara Prunty, MPA, MPH: City of Danbury Health and Human Services, Director
- Jeff Rieck: City of Danbury Housing Authority, Executive Director
- Tim Nolan: City of Danbury Highway Services, Superintendent
- Warren Levy: City of Danbury City Council - At Large, Council Member
- Joseph Cavo: City of Danbury City Council - At Large, Council Member
- Vinny DiGilio: City of Danbury City Council - 2nd Ward, City Council President, Council Member
- Duane E. Perkins: City of Danbury City Council - 5th Ward, Council Member
- Fred Visconti: City of Danbury City Council - 5th Ward, Council Member
- Paul T. Rotello: City of Danbury City Council - 6th Ward, Council Member
- Dr. Derek DeLeon: Nuvance Health, Chief Academic Officer
- Joseph DaSilva: Affordable Housing Development, Developer
- Marlene Moranino: CT Institute for Communities Greater Danbury Community Health Center, Board Chair
- Bill Diamond: Danbury Ice Arena
- Jenny Guerra: Danbury War Memorial
- Mike Seelig: Danbury School District, Superintendent
The mission of Resilient Danbury is to develop a climate resilience strategy and **implement this pilot project** focused on protecting people, homes, businesses, and infrastructure in the downtown gateway neighborhoods from flooding and extreme heat, to foster long-term prosperity in Danbury.
RESILIENT DANBURY—
IN CONTEXT WITH THE BIGGER PICTURE

- **City-wide focus** on flood reduction and heat mitigation.

- **Strategy:**
  - Analysis of flood-prone areas
  - Analysis of heat related injuries
  - Securing grants and funding for solutions

- **Departments working together:** Emergency Management, Engineering, Public Works, and others

- **Coordinated** efforts across sectors
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**Resilient Connecticut Phase II**

**Regional Adaptation/Resilience Opportunity Areas**

**Name:** Downtown Danbury  
**Location:** Danbury

<table>
<thead>
<tr>
<th>Considerations</th>
<th>Characteristics of Area</th>
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<tbody>
<tr>
<td>Flood Vulnerability</td>
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<td>Social Vulnerability</td>
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The center of Danbury is characterized by zones of shared risk associated with the confluence of Padanaram Brook, Kohanza Brook, and the Still River. Despite many flood risk reduction projects undertaken over decades, TOD and planned development areas are located in close proximity to—or within—these zones of shared risk. Numerous critical facilities, historic resources, and the terminus of the MetroNorth Danbury line are also located within the area. Downtown Danbury is a regional center for northern WestConn.

Almost all of the downtown area is moderately vulnerable to heat, with the highest vulnerable area concentrate along route 53 commercial properties. Presenting few opportunities for shade or street trees, the area has high heat emittance. In addition, there is high social sensitivity throughout the area.

- City Hall
- Fire headquarters
- Hose Co. 3, 6, 7, and 9
- Danbury Hospital
- Danbury Health and Housing Dept.
- Western CT State College Police
- Assisted living facilities
- War Memorial
- Substation
- Power plant
- Museums
RESILIENT CONNECTICUT PHASE III
PROJECT GOALS

IDENTIFY RESILIENCY MEASURES
- Improve flood and heat resilience
- Leverage Nature-Based Solutions

COMMUNITY CO-BENEFITS

Collaborate with stakeholders in downtown Danbury to select strategies and projects

Develop conceptual Designs

Position projects for funding
RESILIENT CONNECTICUT PHASE III

- Understand and Communicate Relative Risks
- Engage the City and Community to Create the Vision
- Develop Alternatives Based on Risk and Cost
- Create a Plan that Prioritizes Implementable Actions & Positions Projects for State/Federal Funding

1. Data Collection and Review
2. Current & Future Conditions Analysis
3. Adaptation Options and Concept Design
4. Cost/Benefit Analysis

WE ARE HERE
PROJECT EXTENT
Deer Hill Ave. to Town Hill Ave. Park Place to Pahquioque Ave.

1.25 square miles

Over 40 Community Buildings within project area
Downtown Danbury Main Street
- Low lying area next to Still River
- Highly impervious surrounding areas
- Located in valley over 600 feet elevation change from nearby peaks.

LEGEND
- Impervious Buildings
- Impervious Surfaces
- Watershed Boundary
- Elevation (ft)
  - 899
  - 279
EAST DITCH FLOODING & EXTREME HEAT
What makes it worse?
- Widespread impervious surfaces
- Limited and disconnected green spaces/shade

What is Danbury doing?
- Developing strategies to reduce the impacts of extreme heat Danbury while enhancing quality of life
MEETING AGENDA

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Sum It Up 35 mins
  o Summary of feedback from Stations
  o Question and Answer
WE WILL NEVER ELIMINATE FLOODING! We can reduce depth, duration, and extent.

PRIORITIES
1. Address Critical Transportation and Resilience Corridors
2. Reduce Flood Risk and Coordinate with Redevelopment Efforts
3. Reduce the Impacts of Extreme Heat
4. Integrate Nature-Based Solutions + Green Infrastructure with City Green and Resilience Initiatives.
100-year Flood or 1% Annual Chance???

% Annual Chance: the probability of a particular flood event happening in any given year

Recurrence Interval: The average number of years, over the long term, between subsequent Annual Chance Exceedance events

% Annual Chance = 100/recurrence interval

1 year storm 100/1 = 100% AC
2-year storm 100/2 = 50% AC
5-year storm 100/5 = 20% AC
100-year 100/100 = 1% AC

% Annual Chance means that it is possible for a given flood to occur twice in one year, in back-to-back years, or not at all for a period of years.

100 Year Flood: You have a jar with 100 marbles – 99 clear and one red. There is a 1 in 100 (or 1% chance) of you reaching into your jar and pulling out the red marble.
**VALIDATION OF FLOOD MODELING**

5-Year Storm (20% Chance)
Modeled Flood Extents

- **Flood Date:** June 2\(^{nd}\), 2022
- **2.12 inches / 2 hours**
- **5-Year Storm**
  - (20% chance)
- **2 Hour Storm Duration**

Modeled Flood Depth: 1.6 feet

Modeled Flood Depth: 1.2 feet

Modeled Flood Depth: 0.4 feet
VALIDATION OF FLOOD MODELING

5-Year Storm (20% Chance)
Modeled Flood Extents

June 2\textsuperscript{nd}, 2022, 5-Year Storm (20% Chance), Observed Flood Extents
WE WILL NEVER ELIMINATE FLOODING!
We can reduce duration, extent, and depth of flooding.

Flooding
- Will occur more frequently and with greater depths if nothing is changed
- Impacts critical facilities and critical roadways
- Frequent storms have significant negative impacts
EXISTING VS. FUTURE 100% CHANCE EVENT (1-YEAR)
EXISTING VS. FUTURE 1% CHANCE EVENT (100-YEAR)
HISTORY OF PROPOSED SOLUTIONS

2002  Initial drainage system upgrade design
2011  Upgrade at Still River
2012-2021 Included in Hazard Mitigation Plans
2023  Fuss & O’Neill advancing design
MEETING AGENDA

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  - Green Main Street – What are GI Solutions? green ●
  - Flooding – We can fight back! blue ●
  - What about Heat? red ●
  - Going for a Walk yellow ●
*Survey

Sum It Up 35 mins
  - Summary of feedback from Stations
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DISCUSSION
## OVERALL PROJECT SCHEDULE

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<td>Task 3: Current and Future Conditions Analysis</td>
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## Stakeholder Engagement Schedule

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<tr>
<th>Public Workshops</th>
<th>Tentative Meeting Schedule</th>
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<tr>
<td>Public Workshop #1</td>
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<td>Public Workshop #2</td>
<td>July 2023</td>
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<tr>
<td>Public Workshop #3</td>
<td>September 2023</td>
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**PUBLIC Workshop #1 – Existing and Future Conditions**
April 2023

**PUBLIC Workshop #2 – Visioning**
July 2023

**PUBLIC Workshop #3 – Analysis**
September 2023
Akta Patel, PE
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Elsa Loehmann, PE
eloehmann@fando.com

WEBSITE
https://resilientconnecticut.uconn.edu/resilient-danbury/