

Resilient East Haddam

Public Workshop #2

Wednesday, February 5, 2024

6:30 p.m. - 8:30 p.m.



Agenda

1. Introductions
2. Review of Scope and Schedule
3. What's Happened Since Last Meeting
4. Presentation of Adaptation Options
5. Discussion of Adaptation Options
6. Open Discussion (Q&A)



1. Introductions

Here Tonight:

CIRCA

John Truscinski, Director of Resilience Planning

Nicole Govert, Project Lead Community Resilience Planner

Mary Buchanan, Community Resilience Planner

Kleinfelder

Neil Kulikauskas, Project Manager/Principal

Kyle Johnson, Resiliency Specialist

Dan Pasquale, Project Engineer, Modeling

Lizzy Curley, Project Engineer, Design

Kate Riley, Community Engagement Manager

Advising on the Project:

Community and Technical Advisory Committee

Margot Burns, Senior Environmental Planner - RiverCOG

Donna Lynn Hilton, General Manager - Goodspeed Opera

Matthew Sonnenfeld, Director – Goodspeed Opera

Bob Casner, Chair - East Haddam Economic Development Commission

Rachel Colonni, Chatham Health District

Todd Gelston, Community Member

Cameron Hendry, East Haddam Redevelopment Agency

John Olin, East Haddam Conservation Commission

Michele Velez, Director of Public Works

James Ventres, East Haddam Land Use Office

Jeff Wolter, Chairman - Goodspeed Opera



2. Scope and Schedule

Scope of Study

Stakeholder Engagement

- Community Technical Advisory Committee (CTAC)
- Public Workshops

Current and Future Conditions Analysis

- Calibrate to current conditions, flooding impacts
- Predict the effects from increased rainfall

Adaptation Options Evaluation

- Buildings, Succor Brook, and WWTP

Cost-Benefit Analysis and Final Recommendations





Study Limits

Footbridge

Lumber Yard Road

Pump Station

Norwich Road

Main Street

- Stream Crossings
- Wastewater Facilities
- Key Facilities

Airport

Actor Housing

Rehearsal Studio

Creamery Road

Succor Brook

Study Limits



Maxar, Microsoft

WWTP

Project Schedule

- **Current And Future Conditions Analysis** – September 2024
- **Adaptation Options and Concept Designs** – January 2025
- **Benefit/Cost Analysis** – February 2025
- **Final Report** – April 2025



CTAC Meetings

- Meeting 1 (April) – Evaluate and discuss existing and future climate conditions analysis and impact of flooding.
- Meeting 2 (August) – Establish and review priorities and discuss trade-offs and compromises.
- Meeting 3 (December) – Presentation and interactive discussion of adaptation option alternatives for priority areas.
- **Meeting 4 (Spring 2025)** – Presentation and review of the preliminary draft report and steps to complete the project.



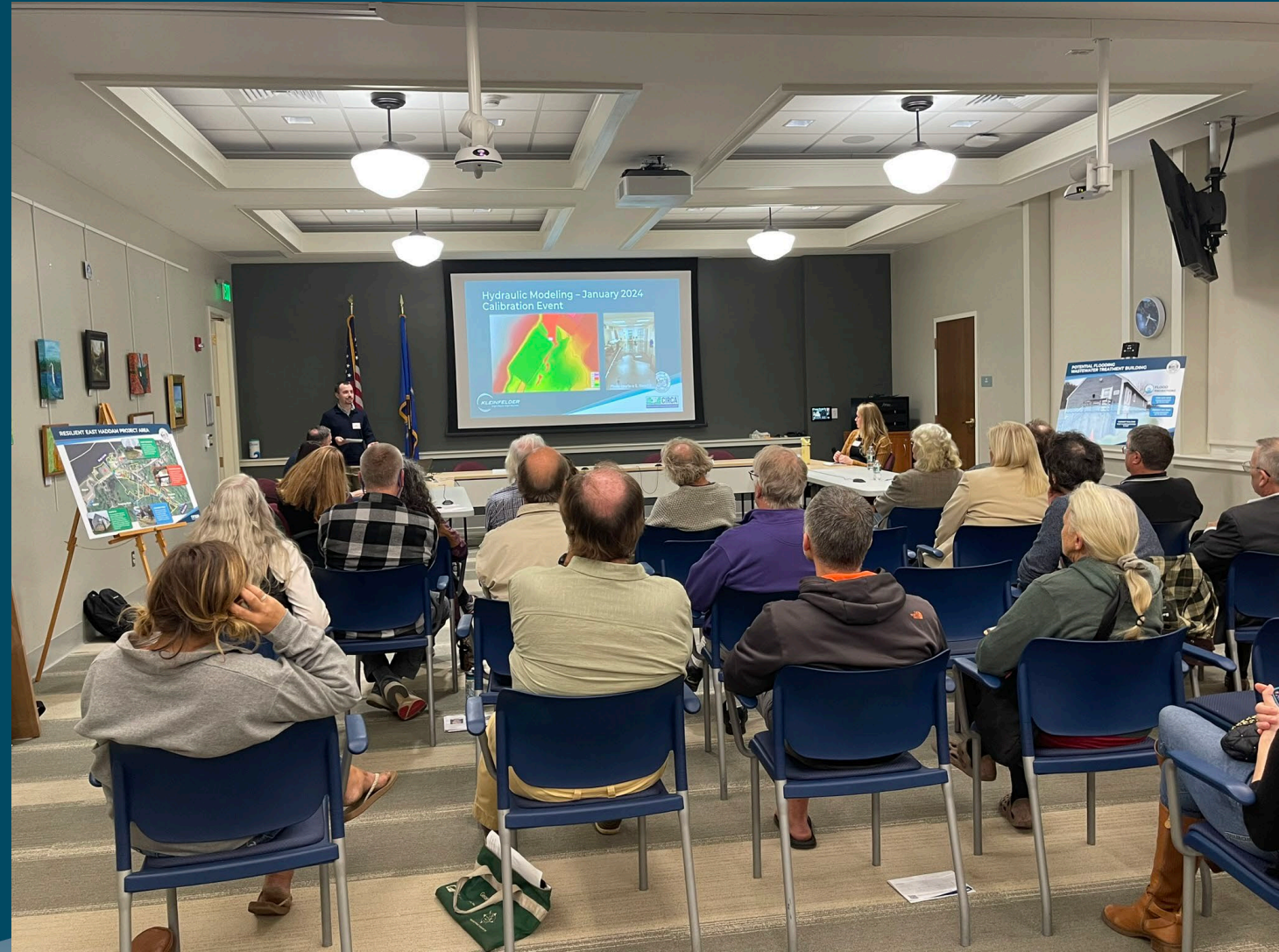
Public Workshops

- Two Public Workshops to share information, gather feedback, and develop consensus
 - **Workshop 1:** Present project, discuss existing and future conditions, get feedback about community needs and priorities. *October 24, 6:30-8:30, EH Municipal Office Complex*
 - **Workshop 2:** Interactive discussion about specific adaptation alternatives. **TONIGHT!**



Public Workshop #1 – Recap

- October 24th 6:30-8:30, EH Municipal Office Complex
- Goals: Present project, discuss existing and future conditions, get feedback about community needs and priorities.
- 23 Participants from public
- Public Feedback:
 - Historical Events
 - Personal Stories
 - Dam Storage in Watershed
 - Study Limits
 - Potential Solutions



3. What's Happened Since Last Meeting

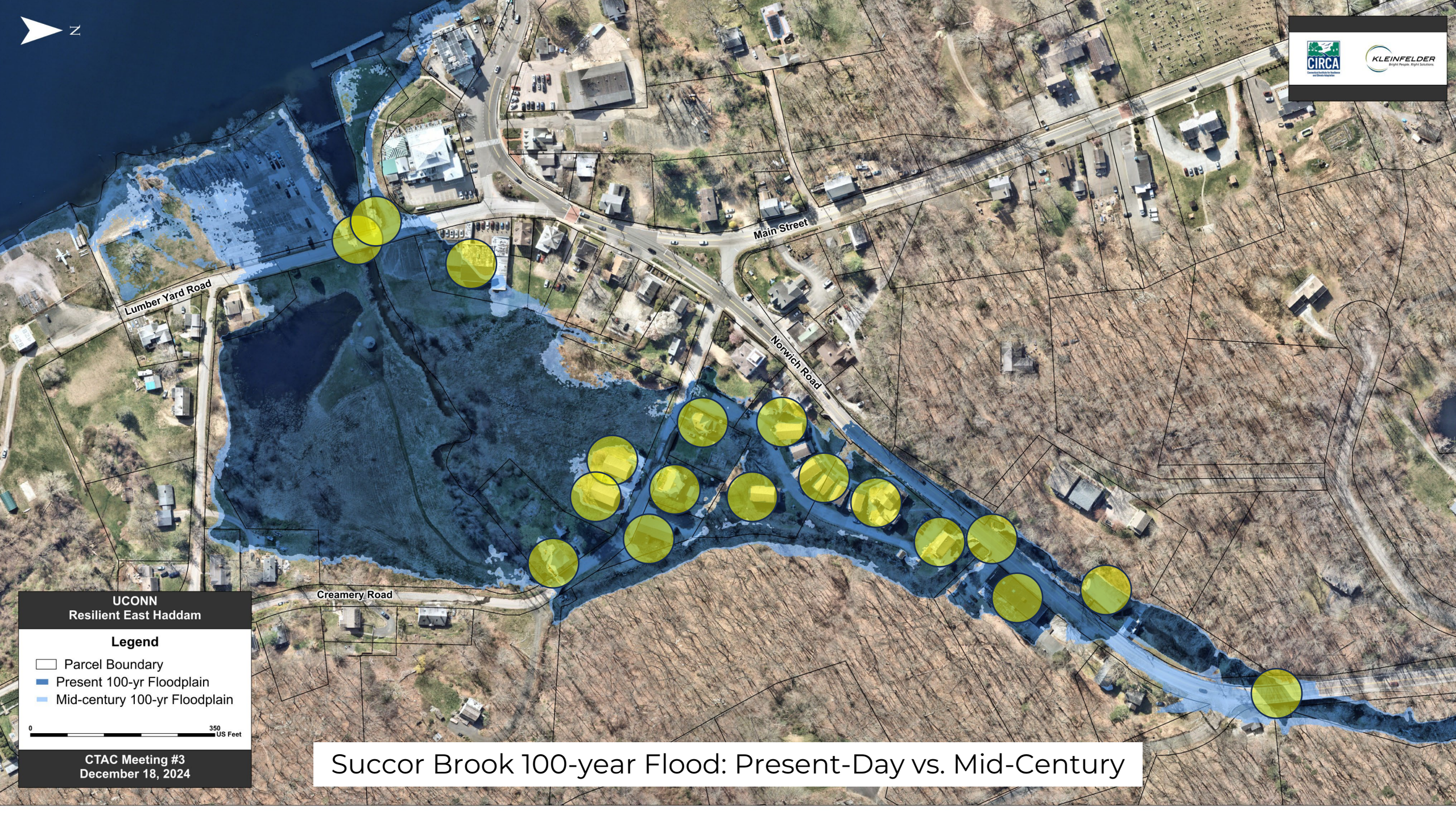
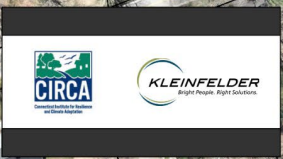
Completed Modeling of Current and Future Conditions

CTAC Meeting #3

Development of Adaptation Strategies

Current and Future Conditions along Succor Brook





UCONN
Resilient East Haddam

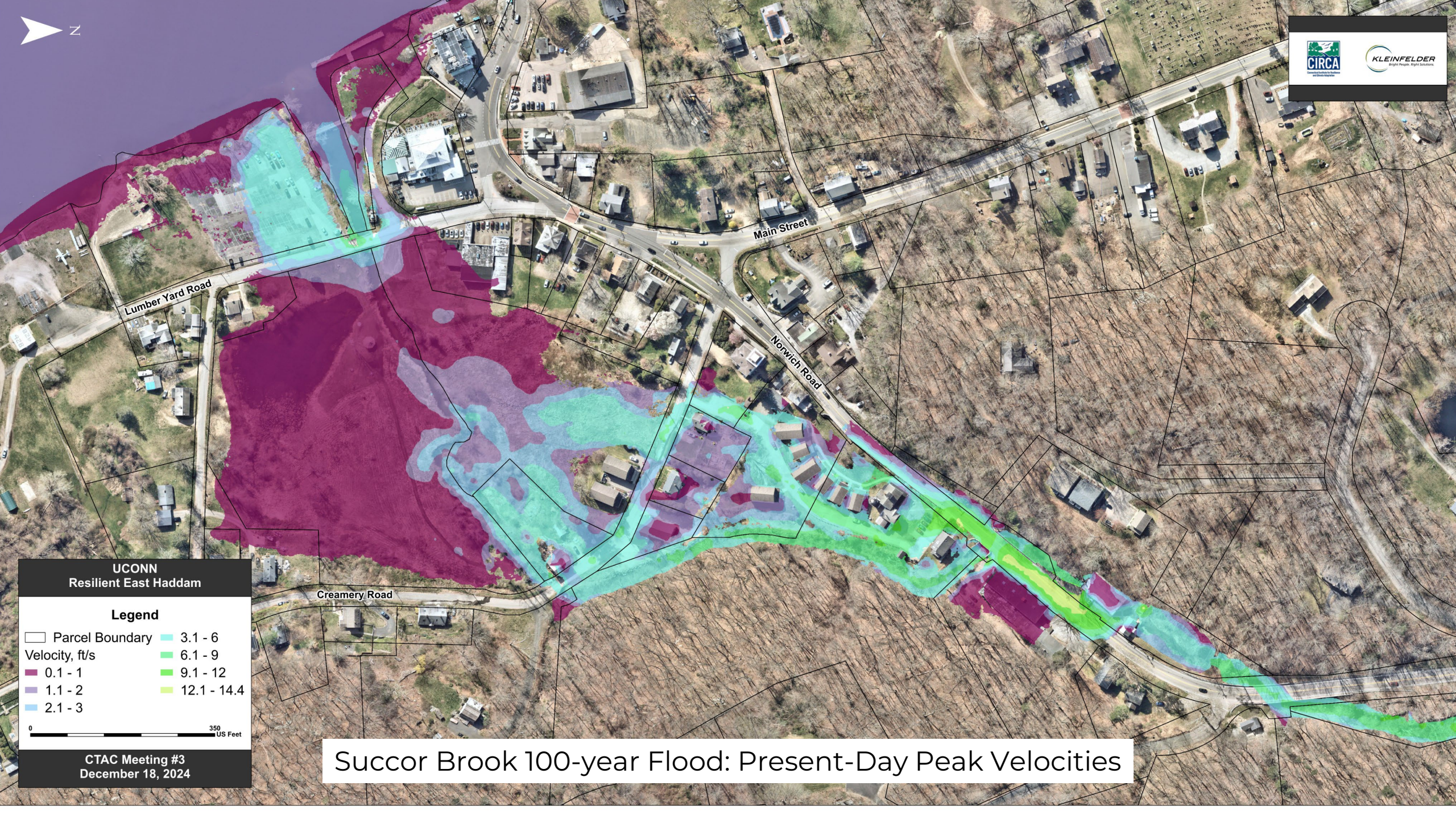
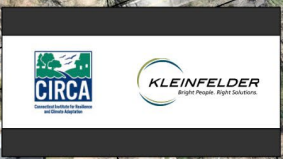
Legend

- Parcel Boundary
- Present 100-yr Floodplain
- Mid-century 100-yr Floodplain

0 350 US Feet

CTAC Meeting #3
December 18, 2024

Succor Brook 100-year Flood: Present-Day vs. Mid-Century



UConn
Resilient East Haddam

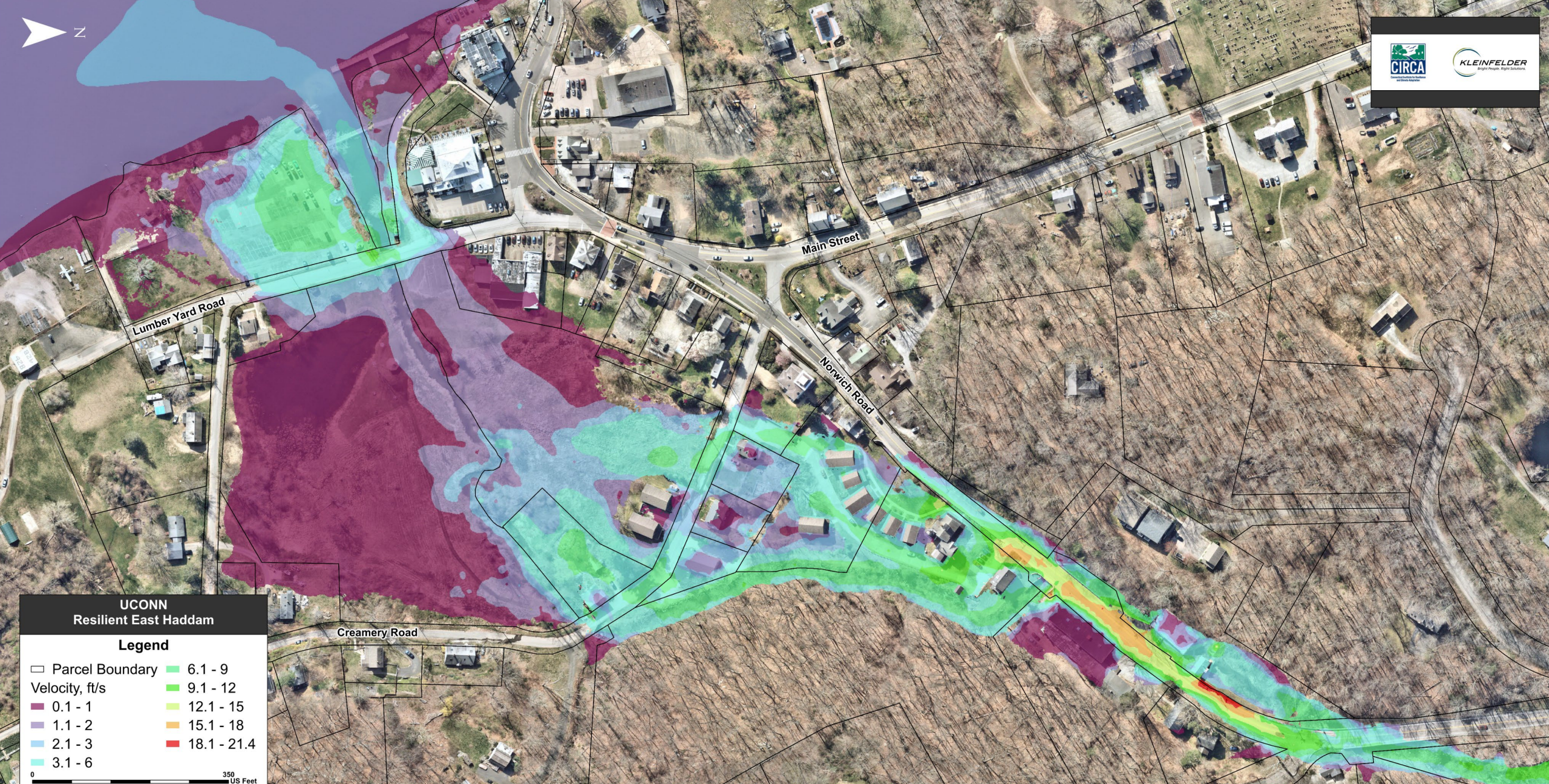
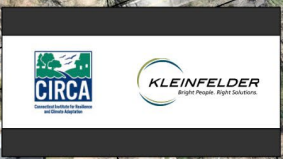
Legend

- ▭ Parcel Boundary
- Velocity, ft/s
 - 0.1 - 1
 - 1.1 - 2
 - 2.1 - 3
 - 3.1 - 6
 - 6.1 - 9
 - 9.1 - 12
 - 12.1 - 14.4



CTAC Meeting #3
December 18, 2024

Succor Brook 100-year Flood: Present-Day Peak Velocities



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Resilient East Haddam

Legend

□ Parcel Boundary	6.1 - 9
Velocity, ft/s	9.1 - 12
0.1 - 1	12.1 - 15
1.1 - 2	15.1 - 18
2.1 - 3	18.1 - 21.4
3.1 - 6	

0 350 US Feet

CTAC Meeting #3
December 18, 2024

Succor Brook 100-year Flood: Mid-Century Peak Velocities

Current and Future Conditions at WWTP



Pump Station



4. Review of Adaptation Options

Resilient CT **PERSISTS** Framework

Permittable

Equitable

Realistic

Safe

Innovative

Scientific

Transferrable

Sustainable



Flood Mitigation Strategies – Succor Brook

- Structural Solutions
 - Remove Constrictions
 - Widen Channels
 - Floodplain Controls and Improvements
 - Consider Natural Features (boulders, logs, natural streambank)
- Increase and/or Manage Storage in the Watershed
- Sole reliance on nature-based solutions not sufficient



Flood Mitigation Strategies – Succor Brook

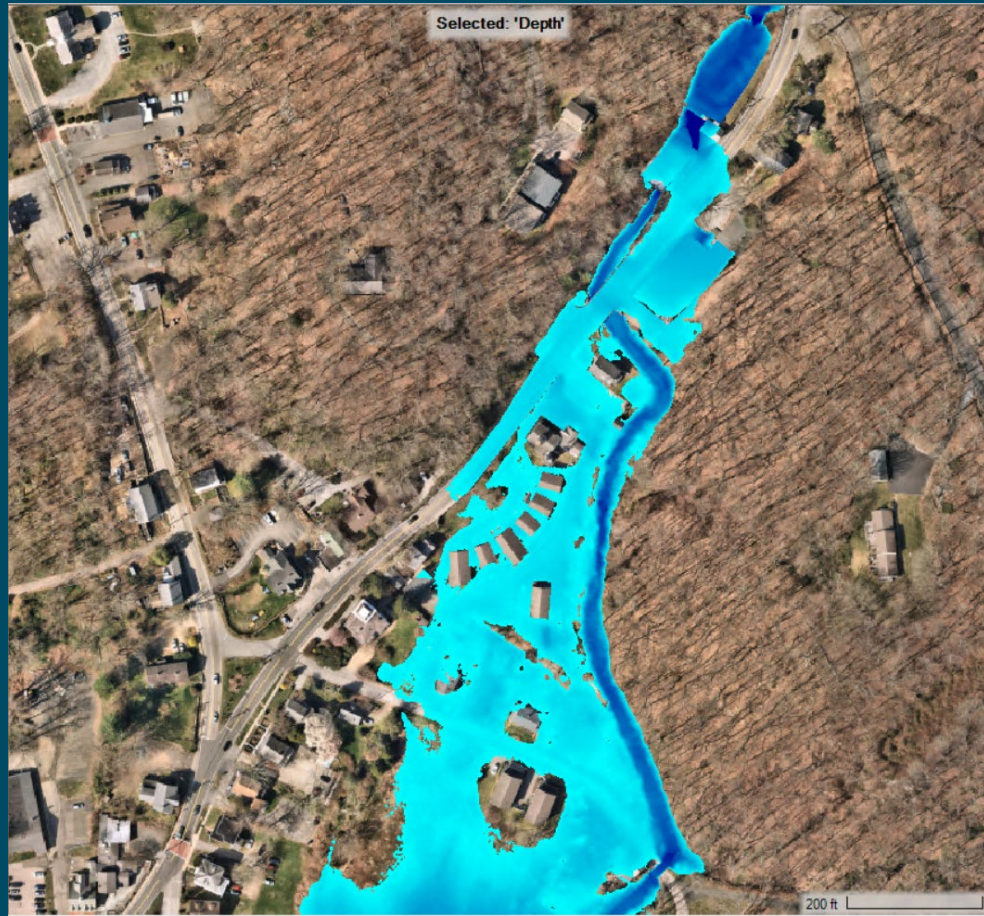
- **Alternative 1**

- **Remove Rehearsal Studio**

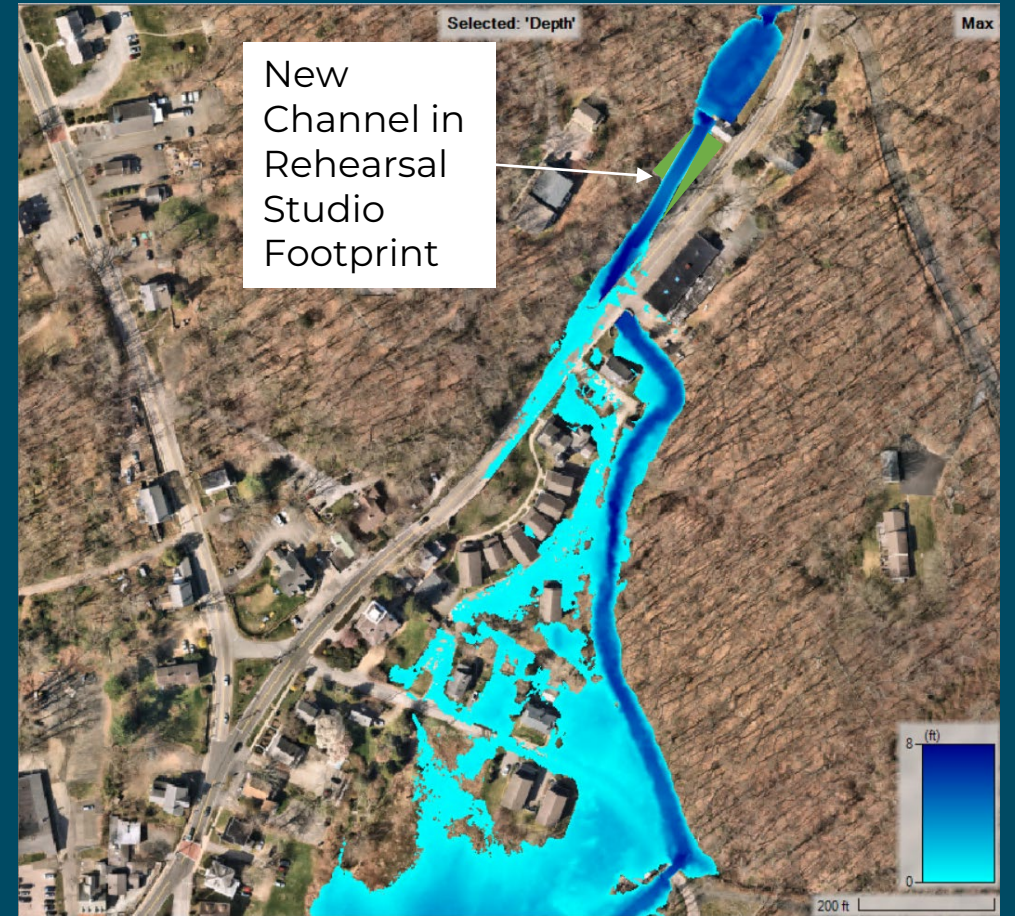
- *Reduces flooding onto Norwich Road and adjacent properties during large storms*
 - *Eliminates flooding on Norwich Road during smaller storms, e.g. the January 10, 2024 storm*
 - *In larger storm events (≥ 100 -year flood), overtopping occurs at Norwich Road bridge south of factory building, but flooding of Actor Housing and properties along Creamery Road is reduced compared to no-build condition*



Alternative 1: Remove Rehearsal Studio, Widen Channel

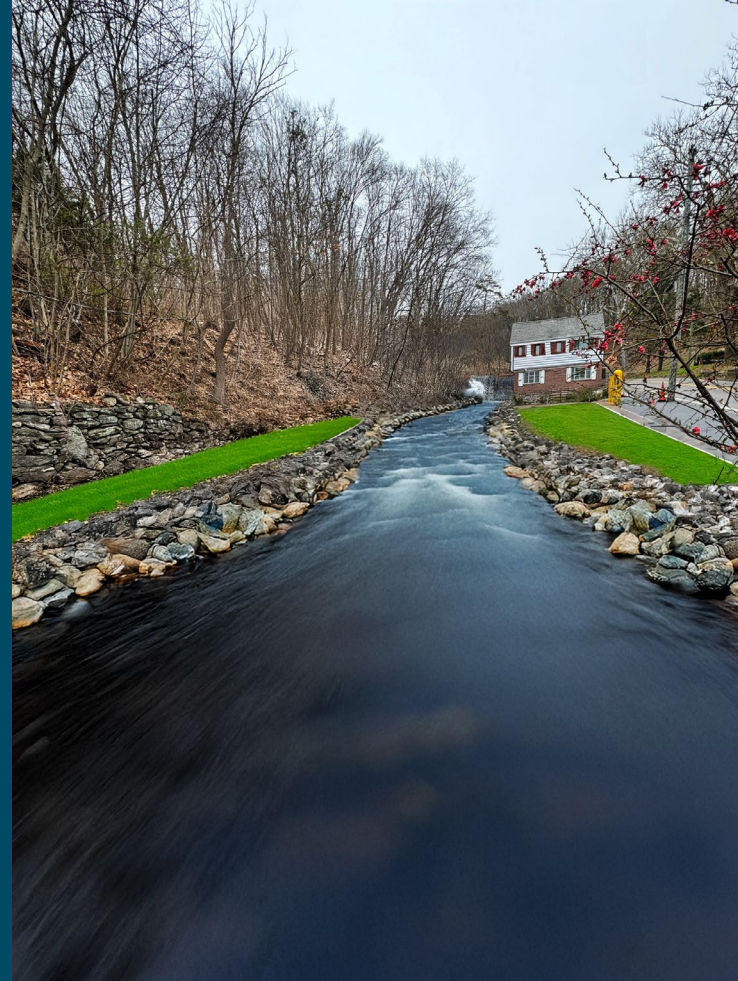


Present-day 100-year flood, no-build condition



Present-day 100-year flood, with mitigation

Example: Restored Stream with Rehearsal Space Removed



Flood Mitigation Strategies – Succor Brook

- **Alternative 2**
 - **Remove Rehearsal Studio**
 - **Raise Driveway and Construct Berm or Floodwall**
 - **Widen Creamery Road Crossing**
- *Significantly reduces flooding onto Norwich Road and adjacent properties*
- *Reduces bank overtopping and flooding of Actor Housing and properties along Creamery Road in large storms*
- *Raised driveway reduces high-velocity overbank flows*



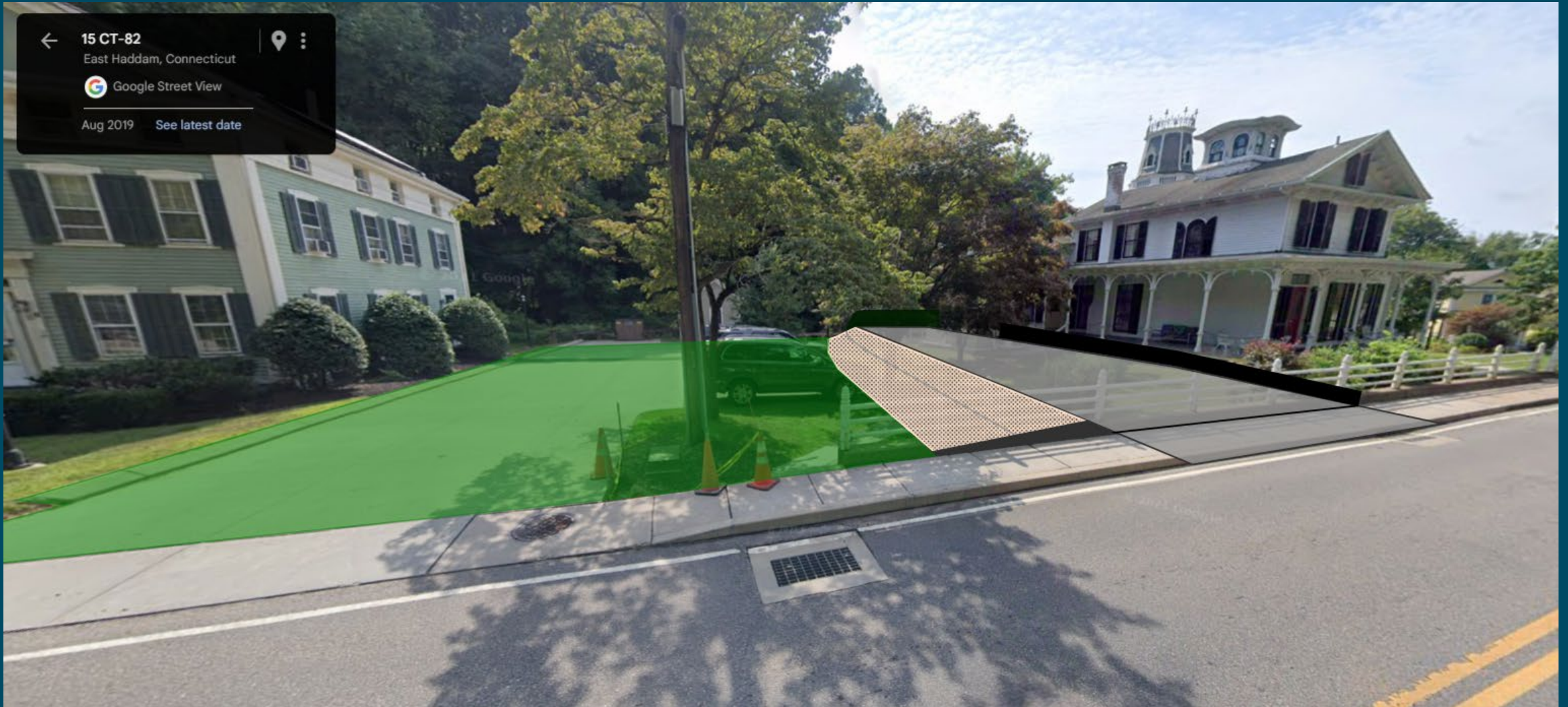
Example: Flood Wall



Example: Earthen Berm Floodwall



Example: Raised Driveway at Norwich Rd.



Example: Raised Driveway and Berm



Example: Widen Creamery Rd Crossing



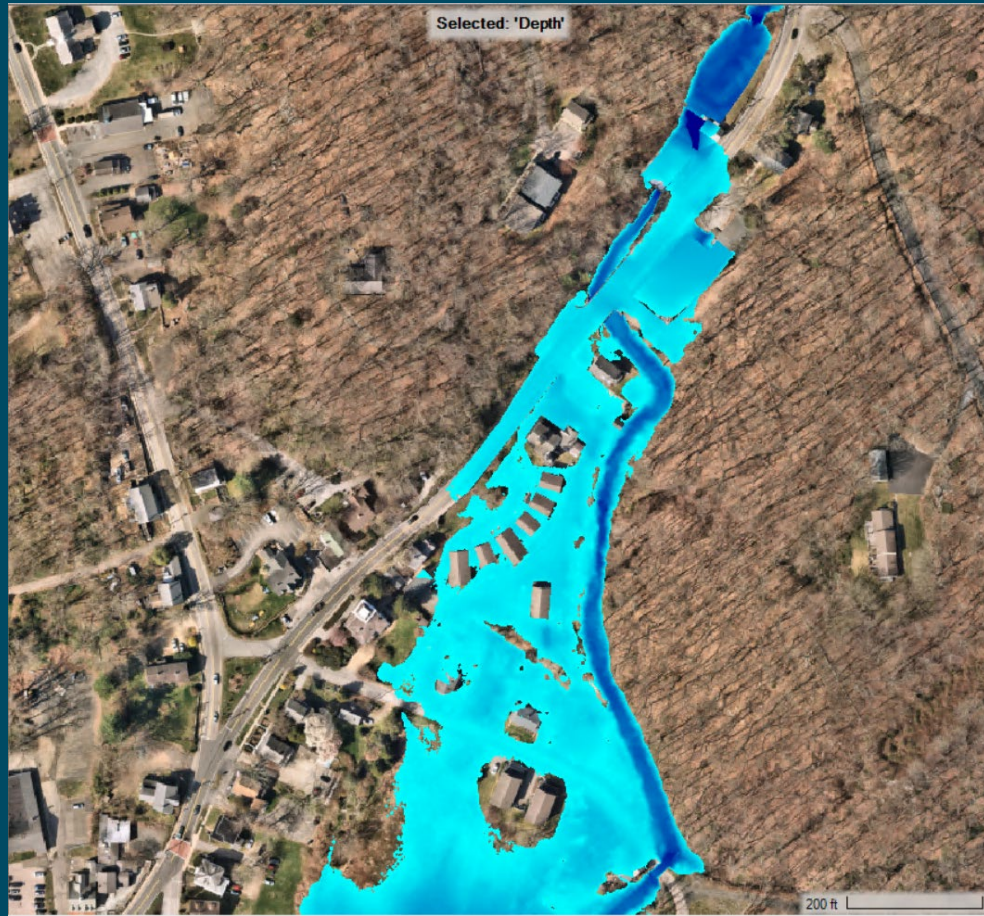
- Replace existing crossing with new 24' wide bridge
- Restore natural streambed through bridge crossing
- Connect end of floodwall to bridge wingwall

Alternative 2

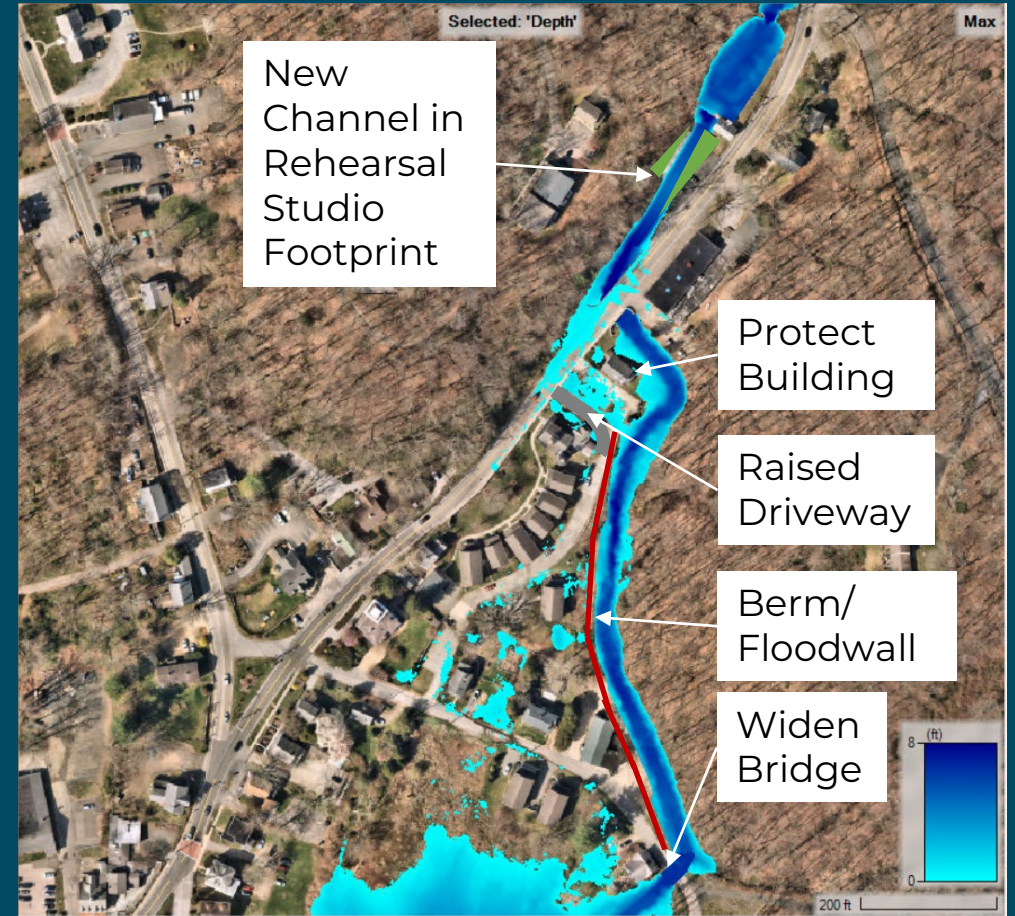
Remove Rehearsal Studio

Raise Driveway and Construct Berm or Floodwall

Widen Creamery Road Crossing



Present-day 100-year flood, no-build condition



Present-day 100-year flood, with mitigation

Flood Mitigation Strategies – Succor Brook

- **Alternative 3**

- **Remove Rehearsal Studio**
- **Raise Driveway and Construct Berm or Floodwall**
- **Widen Creamery Road Culvert**
- **Norwich Road Bridge (South) Inlet Improvements and Bypass**

- *Eliminates flooding onto Norwich Road and adjacent properties*
- *Reduces bank overtopping and flooding of Actor Housing and properties along Creamery Road*
- *Significantly reduces (eliminates?) flooding of properties along Creamery Road*



Alternative 3

Remove Rehearsal Studio

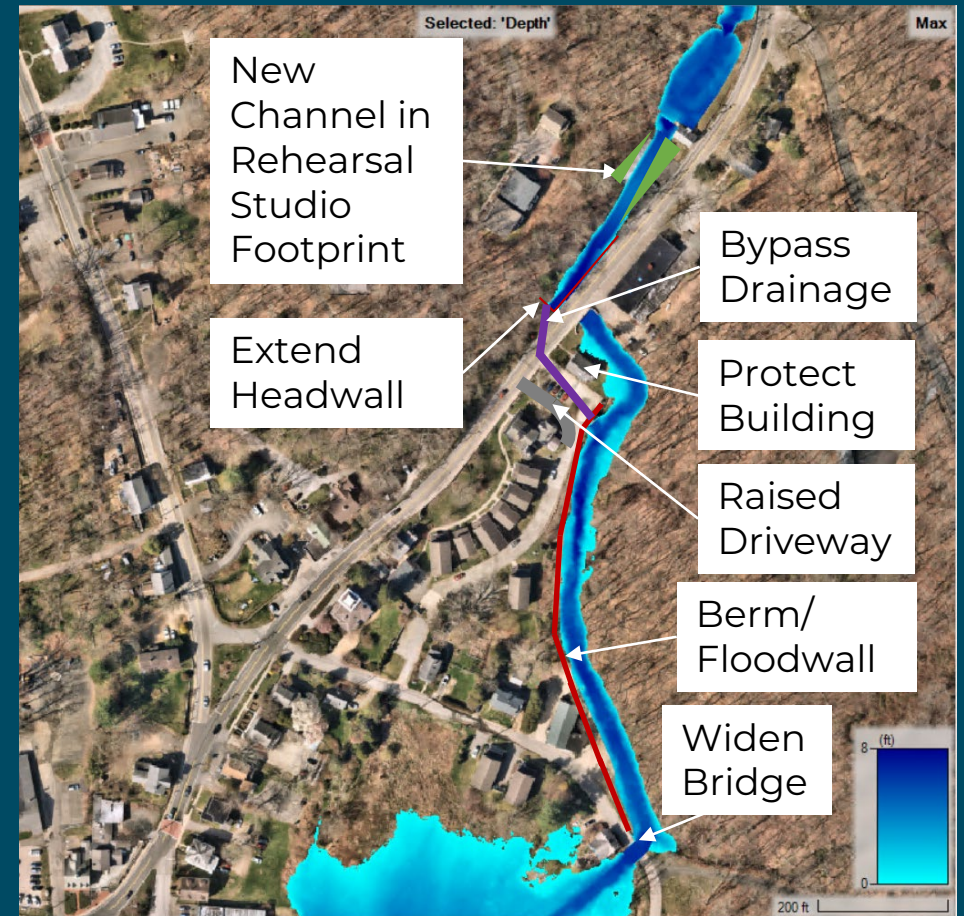
Raise Driveway and Construct Berm or Floodwall

Widen Creamery Road Crossing

Build Norwich Road Bridge (South) Inlet Improvements and Drainage Bypass



Present-day 100-year flood, no-build condition



Present-day 100-year flood, with mitigation

Flood Mitigation Strategies – Succor Brook

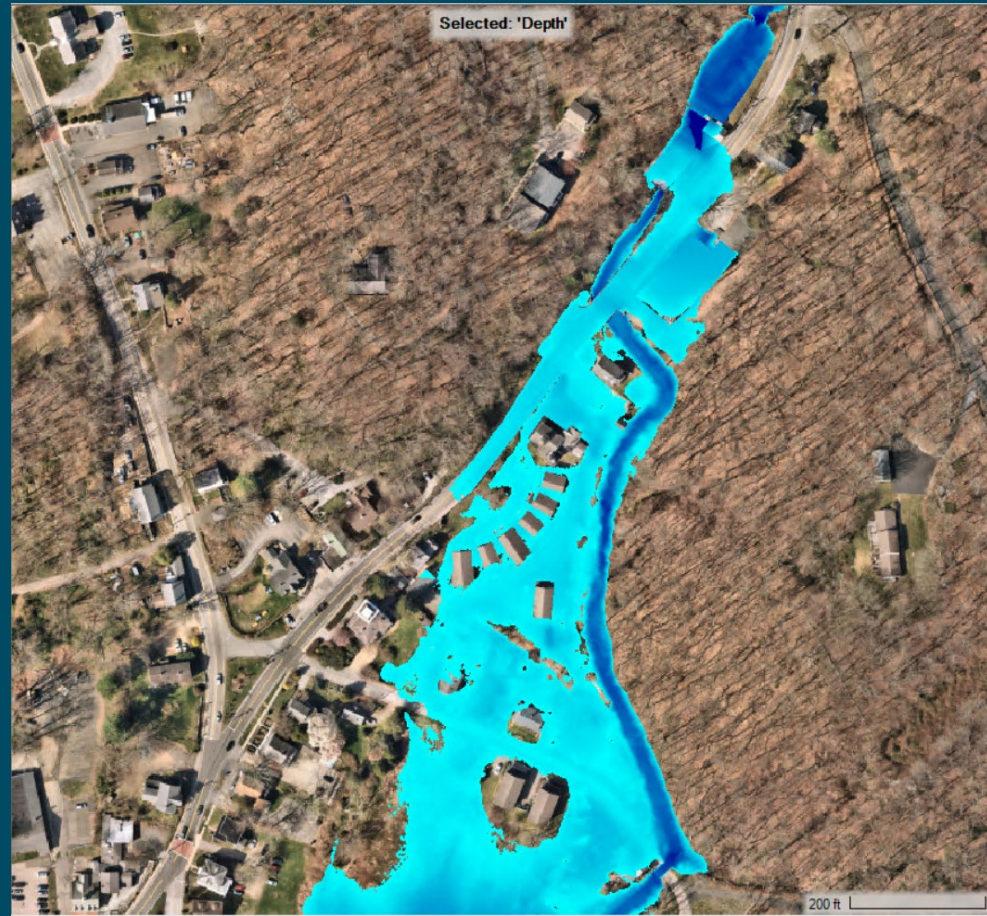
- **Alternative 4**

- **Remove Rehearsal Studio**
- **Raise Driveway and Construct Berm or Floodwall**
- **Widen Creamery Road Culvert**
- **Managed Storage at Daniels Road Pond**

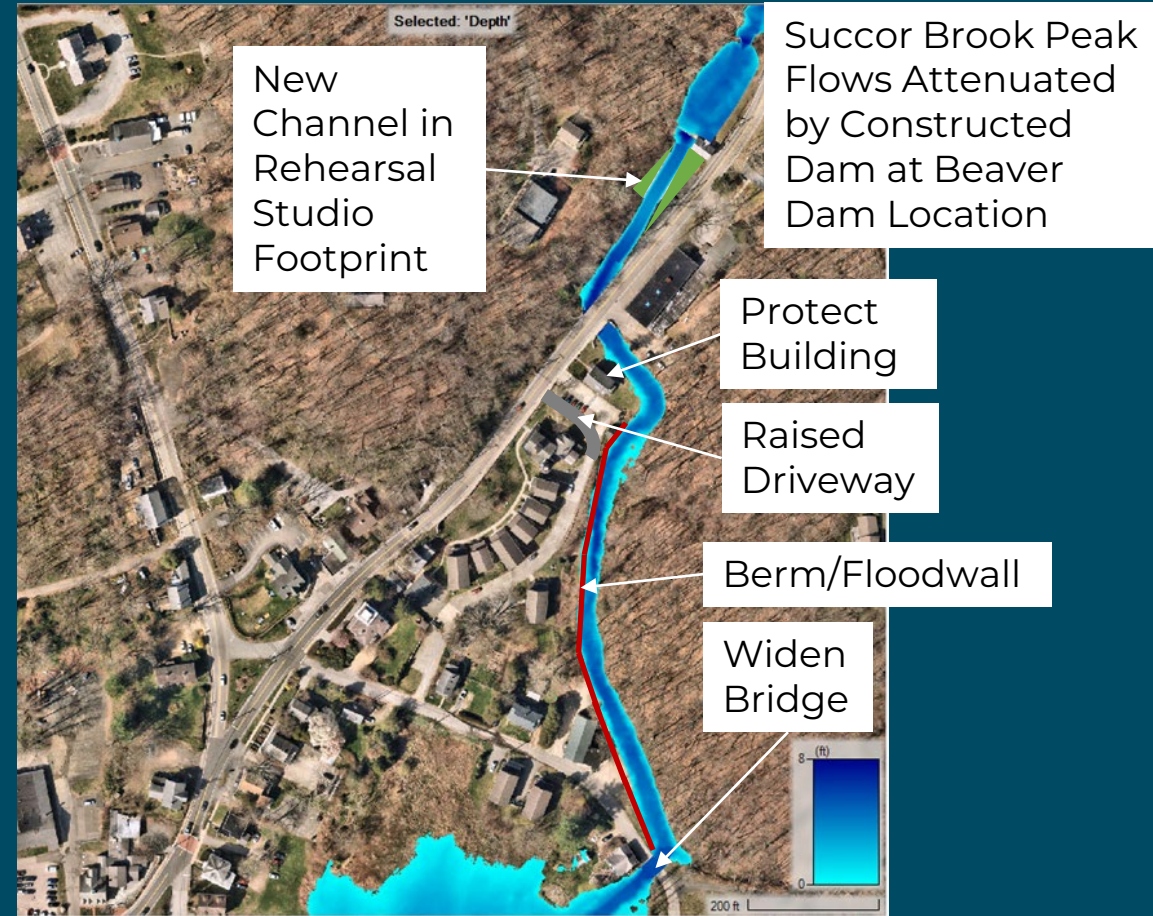
- *Significantly reduces flooding onto Norwich Road and adjacent properties*
- *Reduces bank overtopping and flooding of Actor Housing and properties along Creamery Road*
- *Significantly reduces (eliminates?) flooding of properties along Creamery Road*



Alternative 4
Remove Rehearsal Studio
Raise Driveway and Construct Berm or Floodwall
Widen Creamery Road Crossing
Managed Storage at Daniels Road Pond



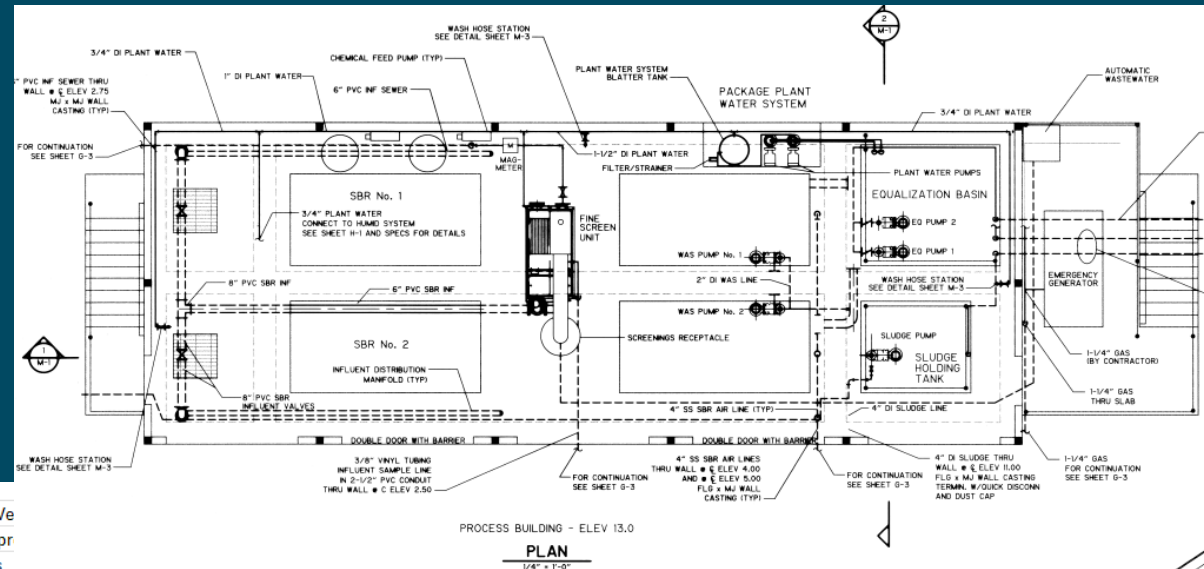
Present-day 100-year flood, no-build condition



Present-day 100-year flood, with mitigation

Flood Mitigation Strategies - WWTP

- Raise elevations
- Floodproofing
- Relocation
- Flood protection systems



Asset	(NGVD29)		
Control Building	13' Finished Floor		Install Flood Ve
Doors - 2 single doors; 1 double doors	13'		Install water-pr
Misc ducts, vents, pipe penetrations below 15'			Seal openings
Sequencing Batch Reactor Blowers (3)	unknown	14.9'	currently raised on stands; likely need to increase stand height and modify piping to fit new connections
Equalization/Sludge Handling Tank Blowe	unknown	14.9'	currently raised on stands; likely need to increase stand height and modify piping to fit new connections
UV Unit	13'	14.9'	Install water-proof barrier around UV unit or Raise to 14.9' (review plant
Effluent WW Sampler	13'	14.9'	
Water Heater	13'	14.9'	
Well System Bladder Tank	13'	14.9'	
Gas Fired Unit Heater	13'	14.9'	
Control Panels below 14.9' - Fire alarm, Lighting Panel (LP), fine screen control, & SBR panels (auto dialer, telephone, & I/O cabinet are above elev)	varies	14.9'	Raise to 14.9'; clearance issue with roof and will require modifications to the drop ceiling; wall mounted panels can easily be raised and mounted higher (costs for increased wiring/conduit)



5. Discussion of Adaptation Options

Project Goals

Develop adaptation strategies to mitigate the long-term impacts of climate change that are:

- Scientifically informed
- Able to be implemented – Actionable Projects
- Have identified funding sources wherever possible
- Align with State and Federal climate resilience programs



Trade-offs and Compromises

Buildings

- Investment vs. Relocation

Succor Brook

- Public Levels of Funding vs. Desired Levels of Service
- Active vs. Passive Solutions
- Environmental Impacts
- Maintenance Requirements

Wastewater Treatment Plant

- Cost vs. Level of Service
- Relocation?



Challenges & Limitations

Challenges:

- Funding
- Limited Available Space
- Union Restrictions (re: Relocations)
- Permitting (Floodplain Adaptation)
- Building Resiliency (Funding)

Limitations:

- Succor Brook and WWTP
- Concepts only



Next Steps

- Finalize Recommendation in Report
- Identify Actionable Projects
- Identify Funding Options
 - FEMA Building Resilient Infrastructure and Communities (BRIC)
 - FEMA Hazard Mitigation Grant Program (HMGP)
 - FEMA Flood Mitigation Assistance Program (FMA)
 - FEMA Swift Current (properties)
 - CTDEEP Climate Resilience Fund
 - Various Others
 - Local Funding, Matches
- Scoping Project (Study) – Upper Watershed Study?
- Implementation Projects
 - Design/Permitting
 - Construction



6. Open Discussion (Q&A)

End of Presentation

Daniels Road (Beaver Dam)

- Included in the Hydrologic Model of the Watershed
- Dam Breach similar to 100-year current conditions
- Potential mitigation of a dam breach
 - Remove dam
 - Drain pond - Pipe low flows to prevent storage
- Potential Flood Mitigation in Succor Brook
 - Construct and manage a flood storage dam
 - Property acquisition
 - Permitting
 - Construction Costs
 - Long-term Operations and Maintenance costs



Boardman Dam Talking Points

- Not enough storage (when empty) to sufficiently mitigate targeted peak flows in Succor Brook
- Structures effective at 10% of volume
- Boardman Dam 1.2%
- Lower Boardman Dam ~1%



Activity Name	Start Date	Duration (Work Days)	Finish Date	Jul 2024												Oct 2024																																									
				28	4	11	18	25	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	1	8	15	22	29	5	12	19	26	2	9	16	23	30
1 Contract Award	2/9/24	0.00	2/9/24	◆																																																					
2 Task 1 - Project Management	2/12/24	260.00	2/7/25	▬																																																					
3 1.1 Coordination	2/12/24	259.00	2/7/25	▬																																																					
4 1.2 Develop Project Schedule	2/12/24	5.00	2/16/24	▬																																																					
5 1.3 Monthly PM Meetings...	3/1/24	241.00	2/3/25	▬																																																					
18 Task 2 – Stakeholder Engagement	3/4/24	247.00	2/12/25	▬																																																					
19 2.1 Advisory Committee	3/4/24	247.00	2/12/25	▬																																																					
20 Identification of Technical Advisory Committee	3/4/24	20.00	3/29/24	▬																																																					
21 TAC Meeting 1 - Climate Impact and Flooding	4/25/24	0.00	4/25/24	●																																																					
22 TAC Meeting 2 - Priorities and Compromises	8/21/24	0.00	8/21/24	●																																																					
23 TAC Meeting 3 - Adaptation Alternatives	11/20/24	0.00	11/20/24	●																																																					
24 TAC Meeting 4 - Preliminary Draft Report	2/12/25	0.00	2/12/25	●																																																					
25 2.2 Public Workshops	10/2/24	70.00	1/7/25	▬																																																					
26 Workshop 1 - Scope, Existing and Future Conditions	10/2/24	0.00	10/2/24	●																																																					
27 Workshop 2 - Adaptation Alternatives	12/18/24	0.00	12/18/24	●																																																					
28 Public Engagement Memorandum	12/18/24	15.00	1/7/25	▬																																																					
29 2.3 Outreach Materials	5/15/24	150.00	12/10/24	▬																																																					
30 Task 3 – Current and Future Conditions Analysis	3/11/24	145.00	9/27/24	▬																																																					
31 3.1 Review Previous Tools and Plans	3/11/24	10.00	3/22/24	▬																																																					
32 3.2 Review FEMA Resources	3/18/24	10.00	3/29/24	▬																																																					
33 3.3 Existing Conditions along Succor Brook	4/22/24	100.00	9/6/24	▬																																																					
34 Survey	7/8/24	30.00	8/16/24	▬																																																					
35 3.4 Future Conditions along Succor Borrk	8/19/24	20.00	9/13/24	▬																																																					
36 3.5 Existing and Future Conditions near WWTP	9/16/24	10.00	9/27/24	▬																																																					
37 Task 4 - Adaptation Options and Conceptual	9/30/24	80.00	1/17/25	▬																																																					
38 4.1 Adaptation Options for Flood Mitigation at Buildings	9/30/24	15.00	10/18/24	▬																																																					
39 4.2 Adaptation Options for Flood Mitigation along Succor Brook	10/21/24	15.00	11/8/24	▬																																																					
40 4.3 Adaptation Options for WWTP Mitigation	11/11/24	10.00	11/22/24	▬																																																					
41 4.4 Preferred Alternatives and Conceptual Design	11/25/24	40.00	1/17/25	▬																																																					
42 Task 5 - Benefit/Cost Analysis	1/20/25	25.00	2/21/25	▬																																																					
43 5.1 Develop Cost Opinions:	1/20/25	15.00	2/7/25	▬																																																					
44 5.2 Develop Benefit/Cost Analysis	2/10/25	10.00	2/21/25	▬																																																					
45 Task 6 - Final Report	2/24/25	30.00	4/4/25	▬																																																					
46 6.1. Final Report	2/24/25	30.00	4/4/25	▬																																																					